

## Superfund Proposed Plan: Group 1 Remedial Investigation/Feasibility Study

The Public is Invited to Comment and Attend a Public Meeting on a Proposed Remedial Action for the Seaside and Parker Flats (Phase II) Munitions Response Areas on the Former Fort Ord.

United States Department of the Army

September 6, 2017

The community is invited and encouraged to provide comments on the United States Department of the Army’s (Army’s) **Proposed Plan\*** for the Seaside **Munitions Response Area (MRA)** and the Parker Flats MRA Phase II (“Group 1 MRAs”). This Proposed Plan identifies the **Preferred Remedial Alternative of Land Use Controls (LUCs)** for managing the risk to future land users from **Munitions and Explosives of Concern (MEC)** that potentially remain in the Seaside MRA and Parker Flats MRA Phase II (**Figure 1**). The Proposed Plan gives a summary of the work that has been completed and cleanup decisions that are being proposed for the Group 1 MRAs. Public comment will be considered before any remedial actions are selected.

The Seaside MRA and Parker Flats MRA Phase II contain areas where military munitions were used during military training activities, and MEC investigations and removal actions have been completed. The Seaside MRA and Parker Flats MRA Phase II were transferred to the Fort Ord Reuse Authority (FORA) through the early transfer process.

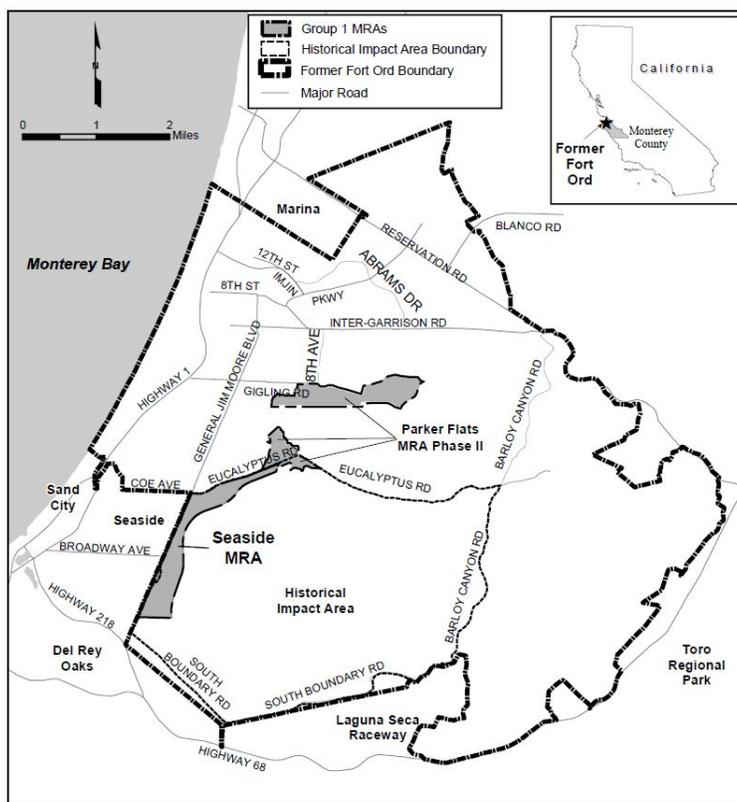


Figure 1. Group 1 MRAs and Fort Ord Location Map

Dates to remember:  
**MARK YOUR CALENDAR**  
**PUBLIC COMMENT PERIOD:**  
**September 15 to October 16, 2017**

Comments on the Proposed Plan:  
**PUBLIC MEETING:**  
**September 27, 2017**  
**6:00 pm to 8:00 pm**  
**Carpenters Union Hall, 910 2<sup>nd</sup> Avenue,**  
**Marina, California**

The Army will hold a public meeting to explain the Proposed Plan, receive comments, and answer questions. Oral and written comments will also be accepted at the meeting.

**Written comments may be sent to:**  
 Department of the Army, Fort Ord Base Realignment and Closure (BRAC) Office  
 Attn: William K. Collins  
 BRAC Environmental Coordinator  
 P.O. Box 5008, Monterey, CA 93944-5008

\* This Proposed Plan contains terms adopted by the Army for the overall Fort Ord Military Munitions Response Program (MMRP). The terminology used in this Proposed Plan that first appears in bold letters is defined in the Glossary found at the back of this document on pages 17 through 19. References to Figures, Tables, and page numbers also appear in bold letters.

The Seaside MRA encompasses approximately 423 acres and is located in the southwestern portion of the former Fort Ord (**Figure 1**). The Seaside MRA includes two planned reuses: residential reuse and non-residential development.

The Parker Flats MRA Phase II encompasses approximately 474 acres and is located in the central portion of the former Fort Ord (**Figure 1**). The Parker Flats MRA Phase II includes three planned reuses: residential reuse, non-residential development, and habitat reserve.

## **WHAT IS PROPOSED?**

Three **remedial alternatives** were evaluated for the Group 1 MRAs. The evaluation was developed by FORA under the Environmental Services Cooperative Agreement (ESCA). The Preferred Remedial Alternative is LUCs. This alternative includes requirements for: 1) munitions recognition and safety training for people involved in intrusive activities; 2) **construction support** by unexploded ordnance (**UXO**)-**qualified personnel** during intrusive activities; 3) access management measures in areas designated for habitat reserve; 4) continuation of the existing residential use restriction in areas designated for non-residential reuse or for habitat reserve; and 5) restrictions against inconsistent uses (applicable to the habitat reserve areas). In addition to the above LUCs, Long-Term Management measures comprised of a deed notice and annual monitoring and reporting will be instituted. As required under the **Superfund** process the Army will review the sites every five years to determine whether LUCs, if selected as the remedial alternative, remain effective. The LUCs may be modified in the future based on the five-year review process.

## **HOW TO MAKE COMMENTS**

The public is invited to comment on the proposed remedial action for the Seaside and Parker Flats (Phase II) MRAs described in this Proposed Plan.

Please send your written comments to the following address on or before October 16, 2017:

**Department of the Army**  
**Fort Ord Base Realignment and Closure (BRAC) Office**  
**ATTN: William K. Collins**  
**BRAC Environmental Coordinator**  
**P.O. Box 5008, Monterey, CA 93944-5008**

Oral and written comments will be accepted at the public meeting on September 27, 2017, at Carpenters Union Hall, 910 2<sup>nd</sup> Avenue, Marina, California. Meeting time: 6:00 pm to 8:00 pm.

The Army will consider public comments that are received during the public comment period before any cleanup decision is made. The Army's responses to public comments will be attached to the **Record of Decision (ROD)** that will outline the approved cleanup decision. The community will be notified through newspaper advertisements when the ROD is finalized and approved.

## INTRODUCTION

The Army is presenting this Proposed Plan to the public for review and comment regarding the proposed cleanup decision for the Seaside MRA and the Parker Flats MRA Phase II located at the former Fort Ord Army base in Monterey County, California (**Figure 1**). Specifically, this Proposed Plan identifies the Preferred Remedial Alternative of LUCs for managing the risk to future land users from MEC that potentially remain in the Seaside MRA and Parker Flats MRA Phase II where MEC investigations and removal actions have been completed. These two areas were evaluated in the *Group 1 Remedial Investigation/Feasibility Study, Seaside and Parker Flats (Phase II) Munitions Response Areas, Former Fort Ord, Monterey County, California* (“Group 1 RI/FS”) (ESCA RP Team 2017c) as part of the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** process.

The potential presence of hazardous and toxic waste chemicals of concern in soil is being addressed under the Army Basewide Range Assessment Program (Shaw 2012) and Installation Restoration Program Site 39.

This Proposed Plan is based on information presented in the Group 1 RI/FS (ESCA RP Team 2017c), as well as other documents in the Fort Ord **Administrative Record**. The Administrative Record contains documents used in making decisions for environmental cleanup projects at the former Fort Ord. The Army encourages members of the local community and other interested parties to review these documents and make comments on this Proposed Plan.

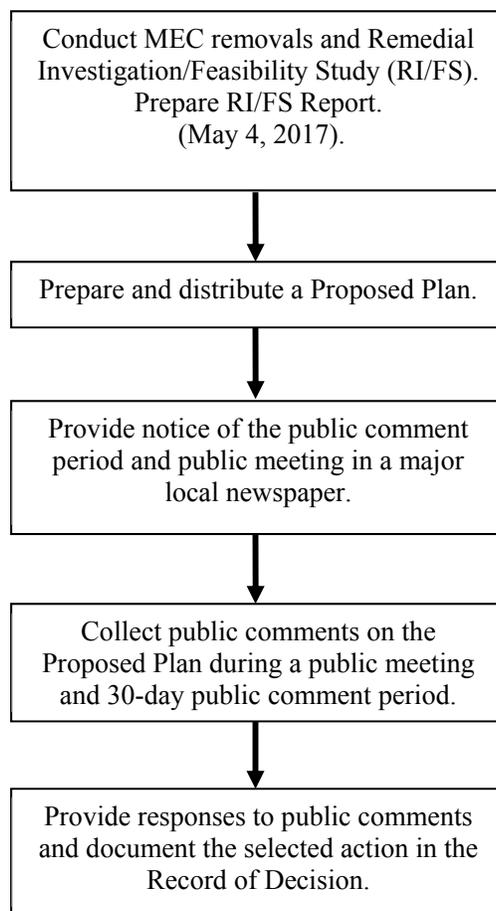
Public comments will be considered before any action is selected. Information on how to comment on this document and the location of the Administrative Record is provided on **pages 14 and 15** of this Proposed Plan.

## THE DECISION MAKING PROCESS

Remedial alternatives have been evaluated to address the risk to future land users from potentially remaining MEC at the Group 1 MRAs. The purposes of this Proposed Plan are to:

- Provide background information about the Group 1 MRAs
- Describe the final remedial options considered
- Identify the Preferred Alternative for final remedial action at the Group 1 MRAs and explain the reasons for the preference
- Solicit public review of and comment on the alternatives described
- Provide information on how the public can be involved in the remedy selection process for the Group 1 MRAs.

The flow chart shown in **Figure 2** summarizes the Group 1 MRAs decision-making process that includes public and regulatory agency involvement on remedy selection.



**Figure 2. Group 1 MRAs Record of Decision Process**

In March 2007, the Army and FORA entered into an ESCA, which allows FORA to complete munitions response on approximately 3,300 acres of the former Fort Ord property with funding provided by the Army. The property was transferred to FORA in May 2009 with restrictions prohibiting use for any purposes other than activities associated with the investigation and remediation of MEC and installation of utilities and roadways until the completion of remedial action. These restrictions are documented in the federal deeds. Similar restrictions were also documented in **Covenants to Restrict Use of Property (CRUPs)**, California state land use covenants. This Proposed Plan is based on the Group 1 RI/FS that was prepared by FORA under the ESCA. The Army is the lead agency for the former Fort Ord site, including the ESCA property, under CERCLA.

The Army is the responsible party and lead agency for investigating, reporting, making cleanup decisions, and taking cleanup actions at the former Fort Ord. Under the ESCA, FORA is investigating, reporting, and implementing cleanup actions within the ESCA areas on behalf of the Army. However, the Army is ultimately responsible for the integrity of the remedy. This Proposed Plan is part of the Army's community relations program, a component of the requirements of Section 117(a) of CERCLA or Superfund, and follows U.S. Environmental Protection Agency (EPA) guidance (EPA 1999).

Public comments on this Proposed Plan will be accepted during a public meeting and during the 30-day public review and comment period. The Army and/or the EPA, in consultation with the California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC), will consider public comments and make a final decision in a ROD. The selected remedy for the Group 1 MRAs will be implemented by FORA, and its successor, although part of such responsibility may be transferred to another party (e.g., future landowner) with the approval of the Army, the EPA, and in consultation with Cal/EPA DTSC. However, the Army is ultimately responsible for remedy integrity.

## BACKGROUND

The former Fort Ord is located in northwestern Monterey County, California, approximately 80 miles south of San Francisco (**Figure 1**). The former Army base is made up of approximately 28,000 acres of land next to Monterey Bay and the cities of Seaside, Sand City, Monterey, and Del Rey Oaks to the south and Marina to the north. Laguna Seca Recreation Area, Toro Park, and Highway 68 border former Fort Ord to the south and southeast.

Since it was established in 1917, Fort Ord served primarily as a training and staging facility for infantry and cavalry troops. From 1947 to 1975, Fort Ord was a basic training center. After 1975, the 7th Infantry Division was based at Fort Ord. Fort Ord was selected for closure in 1991. The majority of the soldiers were reassigned to other Army posts in 1993. The Army has retained a portion of former Fort Ord property as the Ord Military Community and U.S. Army Reserve Center. The remainder of Fort Ord was identified for transfer to federal, state, and local government agencies and other organizations for reuse.

Cavalry, field artillery, and infantry units used portions of the former Fort Ord for maneuvers, target ranges, and other purposes. **Military munitions** were fired into, fired upon, or used on the facility. As a result, a wide variety of conventional munitions and explosives of concern (MEC), both **unexploded ordnance (UXO)** and **discarded military munitions (DMM)** items, have been encountered at sites throughout the former Fort Ord.

Fort Ord was placed on the National Priorities List (NPL) of Superfund sites by the EPA on February 21, 1990, due to evidence of contaminated soil and groundwater. A Federal Facility Agreement (FFA) was signed in July 1990 by representatives of the Army, EPA, and the DTSC and Regional Water Quality Control Board (RWQCB) — agencies that are part of Cal/EPA. The FFA established schedules for conducting investigations and requires the cleanup process be conducted as expeditiously as possible. In 1991, the basewide Remedial Investigation / Feasibility Study (RI/FS) for soil and groundwater contamination (hazardous and toxic waste or HTW) began, and Fort Ord was placed on the Base Realignment and Closure (BRAC) List. Since 1993, MEC-related field investigations, sampling, and removal activities have been conducted at many former Fort Ord sites by the Army. This investigation and removal work was focused on addressing explosive hazards. In 1998, the Army agreed to evaluate MEC at the former Fort Ord in a Munitions Response RI/FS consistent with CERCLA, and the Munitions Response RI/FS work plan was issued in 1999.

Army responses to public comments on this Proposed Plan will appear in the "Responsiveness Summary" section of the ROD. The flow chart shown in **Figure 2** summarizes the development and approval process for the Group 1 ROD.

## SUMMARY OF GROUP 1 MRA SITE CHARACTERISTICS

Group 1 includes the Seaside MRA and Parker Flats MRA Phase II. The **Remedial Investigation/Feasibility Study (RI/FS)** summarized the available data and evaluated MEC related risks for the Seaside MRA and Parker Flats MRA Phase II (Volume 1; ESCA RP Team 2017c). The Group 1 RI/FS and this Proposed Plan do not include the portion of the ESCA property called Parker Flats MRA Phase I (shown in **Figure 5**); this area is included in *Final Record of Decision, Parker Flats Munitions Response Area, Track 2 Munitions Response Site, Former Fort Ord, California* (Army 2008). Implementation of the LUC remedy is complete, and FORA has been providing for operation and maintenance of the Track 2 remedy since 2009.

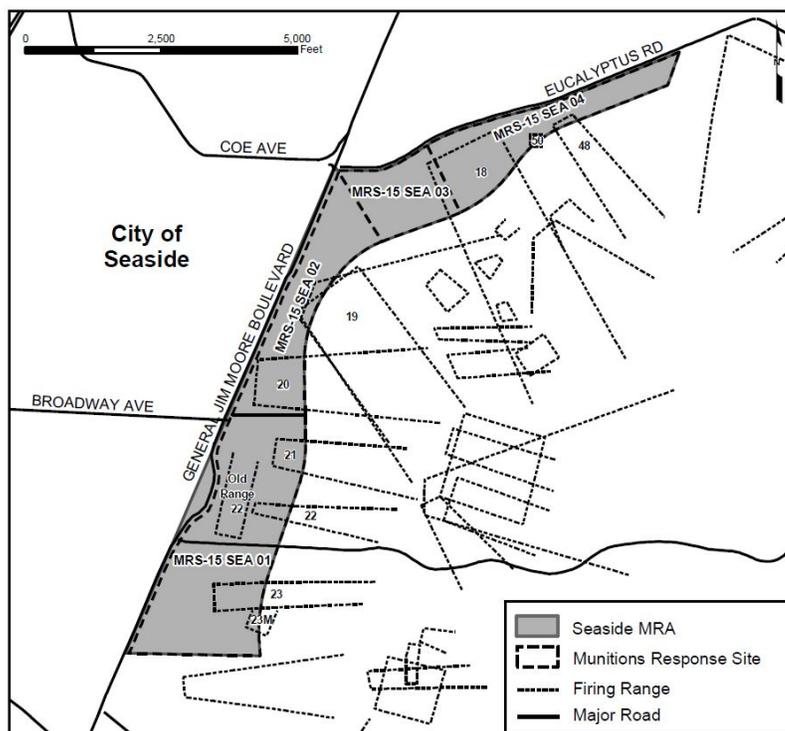
The following sections provide a brief description of each of the Group 1 MRAs.

### Seaside MRA

The Seaside MRA is located in the southwestern portion of the former Fort Ord (**Figure 1**). The Seaside MRA encompasses approximately 423 acres and contains all of **munitions response site (MRS)-15 SEA 01**, MRS-15 SEA 02, MRS-15 SEA 03, and MRS-15 SEA 04, respectively (**Figure 3**). Additionally, the Seaside MRA includes areas located outside of MRS boundaries totaling 25 acres.

The Seaside MRA includes two planned reuses: approximately 276.5 acres for residential reuse and approximately 146.5 acres for non-residential development (**Figure 4**).

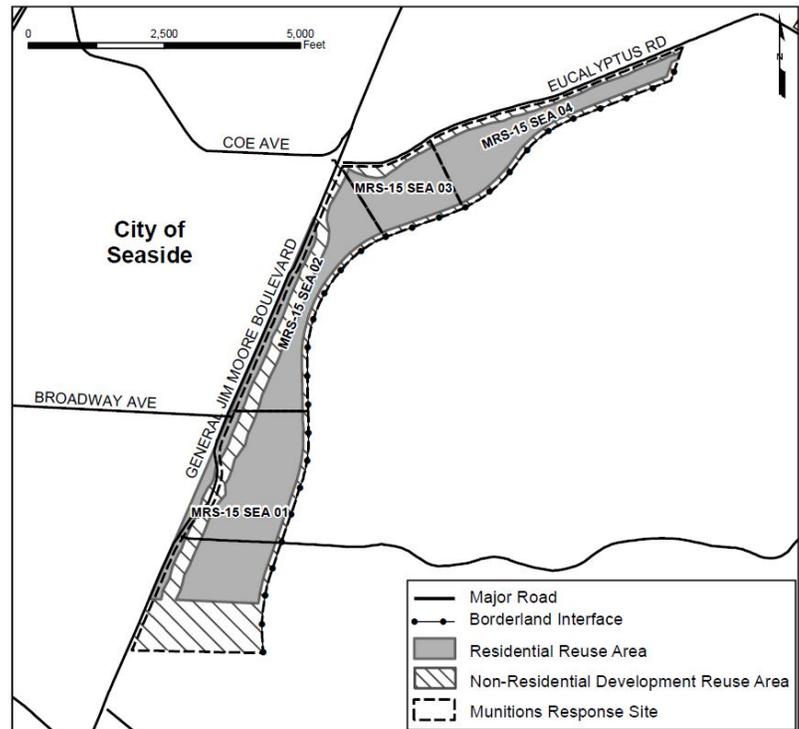
Historical records and recovered MEC and **munitions debris (MD)** indicate that the Seaside MRA was used for military training since the initial 1917 government purchase and designation of the land as an artillery range. Cavalry and artillery troops and infantry troops conducted training activities in the MRA, which is located within the boundary of the historical impact area (**Figure 1**). The four MRSs located within the Seaside MRA contain all or portions of several firing ranges used for a variety of training purposes from the 1940s through the 1990s, including small arms ammunition training, non-firing target range training, and booby trap training.



**Figure 3. Seaside MRA**

Several MEC investigations and removal actions were completed in the Seaside MRA. The actions performed by the Army resulted in subsurface MEC removal in the Seaside MRA, with the exception of several Special Case Areas (SCAs) located throughout the Seaside MRA. Subsurface MEC removals in the SCAs, and the hillside west of the former alignment of General Jim Moore Boulevard located outside of MRS boundaries, were completed by FORA.

The majority of MEC and MD encountered within the Seaside MRA were consistent with historical uses of the area for weapons and troop training. Some miscellaneous MEC and MD were also recovered; evidence does not indicate that there were specific target ranges or impact areas for the miscellaneous items within the Seaside MRA (ESCA RP Team 2017c).



**Figure 4. Seaside MRA Planned Reuses**

FORA also completed a Residential Quality Assurance (RQA) Pilot Study and Implementation Study in the approximately 276.5-acre designated future residential reuse area of the Seaside MRA. The Pilot Study and Implementation Study included a comprehensive review and assessment of data from previous MEC investigations and removal actions to identify residual MEC risks or uncertainties. The risks and uncertainties were addressed with subsurface MEC removal in 30.8 acres of the designated future residential reuse area. A narrow area west of the former alignment of General Jim Moore Boulevard outside MRS boundaries was not subjected to a removal action. However, a comprehensive review and assessment of data from previous MEC investigations and removal actions was completed for the area and a field verification site walk was performed on two portions of the area. The data review and assessment and site walk resulted in no evidence of munitions use in the narrow area west of the former alignment of General Jim Moore Boulevard. Based on the RQA Pilot Study and Implementation Study, the approximately 276.5 acres designated for future residential reuse within the Seaside MRA were recommended as acceptable for future residential reuse with appropriate land use controls, such as the local Digging and Excavation on the Former Fort Ord Ordinance, construction support, and disclosures. Results of the RQA Pilot Study and Implementation Study are documented in the *Final Residential Protocol Implementation Technical Report, Seaside Munitions Response Area, Former Fort Ord, Monterey County, California* (ESCA RP Team 2017a). The DTSC supports the recommendation that further assessment under the RQA process is not warranted for approximately 230.5 acres of the designated residential reuse areas in the Seaside MRA (DTSC 2017). As required by the DTSC (DTSC 2017), an additional verification of approximately 46 acres of the designated future residential reuse area within MRS-15 SEA 01 was conducted by FORA. Results of the additional verification were documented in the *Draft Group 1 Supplemental Residential Protocol Implementation Technical Report, Seaside Munitions Response Area, Former Fort Ord, Monterey*

County, California, which recommended the approximately 46-acre area as acceptable for future residential reuse with appropriate land use controls, such as the local Digging and Excavation on the Former Fort Ord Ordinance, construction support, and disclosures (ESCA RP Team 2017d).

**Parker Flats MRA Phase II**

The Parker Flats MRA Phase II is located in the central portion of the former Fort Ord (Figure 1). The Parker Flats MRA Phase II encompasses approximately 474 acres and contains all or portions of the following MRSs: MRS-04A, MRS-04A EXP, MRS-15 MOCO.2, MRS-27A, MRS-27B, MRS-27C, MRS-44 EDC, and MRS-44 PBC (Figure 5).

The Parker Flats MRA Phase II includes three planned reuses: approximately 146 acres for residential reuse, approximately 162 acres for non-residential development, and approximately 166 acres for a habitat reserve area (Figure 6).

Historical records and recovered MEC and MD indicate that the Parker Flats MRA Phase II was used for military training since the initial 1917 government purchase and designation of the land as an artillery range. Cavalry and artillery troops reportedly conducted training activities near the Parker Flats MRA. A portion of the Parker Flats MRA Phase II is located within the historical impact area (Figure 1).

The MEC investigations and removal actions in Parker Flats MRA Phase II were completed by the Army and FORA. Munitions responses completed in the designated future residential reuse areas and non-residential development reuse areas include subsurface MEC

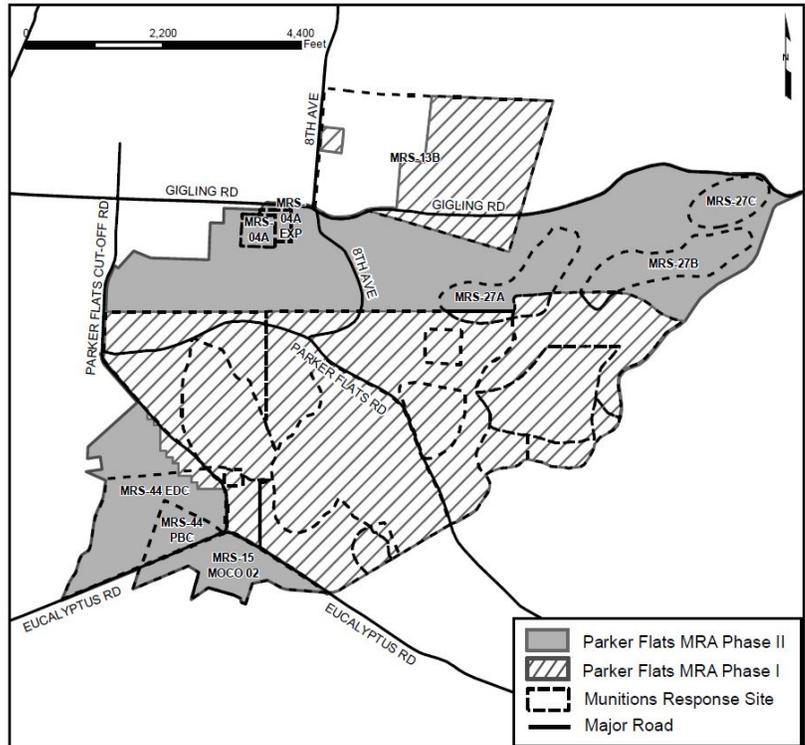


Figure 5. Parker Flat MRA Phase II

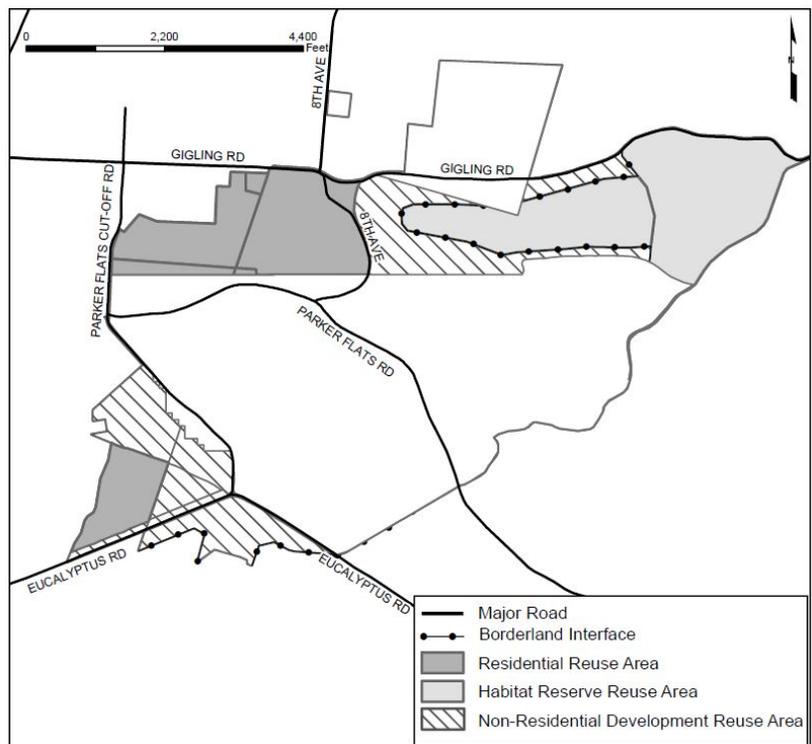


Figure 6. Parker Flats MRA Phase II Planned Reuses

removal. In the habitat reserve reuse areas, a subsurface MEC removal was completed within unpaved roads, trails, and 5-foot buffer area along sides of the trails. A near surface clearance to 3 inches below ground surface was completed in all other portions of the habitat reserve reuse areas.

The majority of MEC and MD encountered within the Parker Flats MRA Phase II were consistent with historical uses of the area. Based upon the results of the remedial investigation, the northern portion of the Parker Flats MRA Phase II was used for training maneuvers, practice hand grenade training, mortar training using practice mortars and inert training mortars, and chemical, biological, and radiological training. The remedial investigation indicated that the southern portion of the Parker Flats MRA Phase II was used for training maneuvers, practice hand grenade training, mortar training, and projectile training. Some miscellaneous MEC and MD were also recovered; evidence does not indicate that there were specific target ranges or impact areas for the miscellaneous items within the Parker Flats MRA Phase II (ESCA RP Team 2017c).

FORA also completed a RQA Implementation Study in the approximately 146 acres designated for future residential reuse in the Parker Flats MRA Phase II. The Implementation Study included a comprehensive review and assessment of data from previous MEC investigations and removal actions to identify residual MEC risks or uncertainties. The risks and uncertainties were addressed with subsurface MEC removal in approximately 1.6 acres of the designated future residential reuse area. A field verification site walk was performed in portions of the northern designated future residential reuse area. Based on the RQA Implementation Study, the approximately 146 acres designated for future residential reuse within the Parker Flats MRA Phase II were recommended as acceptable for future residential reuse with appropriate land use controls, such as the local Digging and Excavation on the Former Fort Ord Ordinances, construction support, and disclosures. Results of the RQA Implementation Study are documented in the *Final Residential Protocol Implementation Technical Report, Parker Flats Munitions Response Area, Former Fort Ord, Monterey County, California* (ESCA RP Team 2017b). Based on regulatory agency and Army review, further assessment was not warranted for the designated future residential reuse areas in the Parker Flats MRA (ESCA RP Team 2017b).

## **SUMMARY OF SITE RISKS**

Although MEC investigations and removal actions have been completed at the Group 1 MRAs, there is still a potential risk to human health and the environment from previous military munitions-related activities. The *Fort Ord Ordnance and Explosives Risk Assessment Protocol* (Malcolm Pirnie 2002) was developed to estimate the risk to future land users of the property from any potentially remaining MEC in terms of an “Overall MEC Risk Score.” The Overall MEC Risk Scores are expressed in letters A through E, with A being the lowest risk and E being the highest risk.

The representative future land users of the property (i.e., receptors) identified for analysis in the MEC risk assessment included:

- Resident, recreational user, maintenance worker, construction worker, and trespasser for the Seaside MRA; and
- Resident, recreational user, maintenance worker, construction worker, habitat monitor, and trespasser for the Parker Flats MRA Phase II.

A summary of the Overall MEC Risk Scores for each receptor for the two MRAs is provided below.

MRA	Reuse Area	Receptor	Overall MEC Risk Score				
			A Lowest	B Low	C Medium	D High	E Highest
Seaside MRA	Residential	Resident	✓				
		Recreational User	✓				
		Construction Worker	✓				
		Maintenance Worker	✓				
		Trespasser	✓				
	Non-Residential Development	Recreational User	✓				
		Maintenance Worker	✓				
		Construction Worker	✓				
Trespasser		✓					
Parker Flats MRA Phase II	Residential	Resident	✓				
		Recreational User	✓				
		Construction Worker	✓				
		Maintenance Worker	✓				
		Trespasser	✓				
	Non-Residential Development	Maintenance Worker	✓	✓			
		Construction Worker	✓	✓			
		Recreational User	✓				
		Trespasser	✓				
	Habitat Reserve	Recreational User	✓				
		Maintenance Worker				✓	✓
		Habitat Monitor	✓				
		Trespasser				✓	✓

The risk assessment (Volume 2; ESCA RP Team 2017c) indicated that intrusive receptors (those who may dig below the ground surface), such as the maintenance worker and trespasser, were found to have a higher potential risk from MEC that may remain in portions of the Parker Flats MRA Phase II. Although previous MEC removal actions have been completed on the Group 1 MRAs, the potential exists for MEC to remain in the subsurface. Therefore, the risks associated with intrusive receptors (people who engage in intrusive activities) are assumed to remain at a level that requires mitigation.

## REMEDIAL ACTION OBJECTIVES

The **remedial action objectives (RAOs)** for the Group 1 MRAs are based upon the risk assessment results and on EPA’s RI/FS Guidance (EPA 1988) to achieve the EPA’s threshold criteria of “Overall Protection of Human Health and the Environment” and “Compliance with **Applicable or Relevant and Appropriate Requirements (ARARs)**.”

The RAO developed for the protection of human health and the environment for the Group 1 MRAs is to prevent or reduce the potential for the Group 1 MRA reuse receptors to come in direct contact with MEC items potentially remaining in subsurface soil and minimize potential impacts from such exposures. In order to achieve this RAO, remedial alternatives for the Group 1 MRA reuse areas were evaluated to (1) mitigate potentially remaining MEC risks, and (2) comply with ARARs and other guidelines as summarized in the following section.

Although the Army determined that there are no potential Federal or State ARARs that relate to LUCs at the Group 1 MRAs, LUCs will be implemented in a manner consistent with Federal and State guidance. While the Army does not consider California laws and regulations concerning CRUPs to be potential ARARs, the Army entered into CRUPs with the DTSC at the time the property was transferred to FORA. The DTSC will modify the existing CRUPs, if appropriate, to document the land use restrictions included in the identified remedy, if selected. Although the DTSC and the EPA Region IX disagree with the Army's determination that California laws and regulations concerning CRUPs are not potential ARARs, they will agree-to-disagree on this issue since the Army executed the CRUPs and the DTSC will modify the CRUPs, if appropriate, to be consistent with the identified remedy.

## **SUMMARY OF REMEDIAL ACTION ALTERNATIVES**

Three remedial alternatives were evaluated for the Group 1 MRAs as identified below (ESCA RP Team 2017c):

### **Alternative 1 – No Further Action**

This alternative assumes no further action would be taken at the Group 1 MRAs to address potential MEC risks for those receptors identified in the risk assessment. This alternative is provided as a baseline for comparison to the other remedial alternatives, as required under CERCLA and the National Contingency Plan (NCP).

### **Alternative 2 – Land Use Controls**

This alternative assumes that LUCs, without additional MEC remediation on any portion of the Group 1 MRAs, would be implemented to address potential MEC risks for intrusive reuse. The LUC alternative consists of requirements for: (1) munitions recognition and safety training for people involved in intrusive activities prior to the start of such activities to increase their awareness of and ability to recognize munitions items; (2) construction support by UXO-qualified personnel during intrusive activities; (3) access management measures in areas designated for habitat reserve; (4) continuation of the existing residential use restriction in areas designated for non-residential reuse or for habitat reserve; and (5) restrictions against inconsistent uses (applicable to the habitat reserve areas). Construction support would be arranged during the planning stages of the project prior to the start of any intrusive activities. The level of construction support will be determined on a case-by-case basis depending on the type and location of planned intrusive activities. Two levels of construction support have been identified: on-call construction support and onsite construction support. For on-call construction support, UXO-qualified personnel must be contacted prior to the start of intrusive activities to ensure their availability, advised about the project, and placed "on-call" to assist if suspected munitions items are encountered during intrusive activities. If a suspect munitions item is found during construction support activities, the intrusive and ground-disturbing work will immediately cease, no attempt will be made to disturb, remove, or destroy the suspect munitions item, and the local law enforcement agency will be immediately notified so that appropriate **explosive ordnance disposal (EOD) personnel** can be dispatched to address the MEC, as required under applicable laws and regulations. For onsite construction support, UXO-qualified personnel must attempt to identify and remove any explosive hazard in the construction footprint prior to any intrusive construction activities. In support of the designated future reuse of the property, on-call construction support is generally expected, but onsite construction support may be appropriate depending on the type and location of planned intrusive activities.

### Alternative 3 – Additional Subsurface MEC Remediation

This alternative assumes that subsurface MEC remediation would be conducted throughout the entire footprint of the Seaside MRA and Parker Flats MRA Phase II (**Figures 3 and 5**). Additional subsurface MEC remediation would involve detection and removal of subsurface MEC to the depth of detection using best available and appropriate detection technology and procedures and Department of Defense Explosives Safety Board-approved MEC detonation procedures in areas where explosive MEC items are identified during remedial activities and require disposal. Vegetation clearance would be conducted in a manner that complies with the *Installation-Wide Habitat Management Plan for Former Fort Ord, California* (“Habitat Management Plan”) (USACE 1997) and applicable ARARs. Post-remediation habitat restoration and monitoring would be required within designated habitat reserve areas. The specific details of the vegetation clearance methods and the MEC detection equipment used would be presented in the Remedial Design/Remedial Action Work Plan, or similar document. Post-remediation habitat restoration and monitoring would be required within the designated habitat reserve area.

### EVALUATION AND COMPARISON OF ALTERNATIVES

Remedial alternatives for each MRA were evaluated based on EPA’s nine evaluation criteria specified in EPA’s Guidance for Conducting Remedial Investigations/Feasibility Studies under CERCLA (EPA 1988). The evaluation and comparison of the alternatives based on these nine criteria is summarized below and in **Tables 1 and 2** at the back of this Proposed Plan for the Seaside MRA and Parker Flats MRA Phase II, respectively.

- **Overall Protectiveness of Human Health and the Environment** determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment. Alternative 1 would not mitigate potentially remaining MEC risks, therefore, would not be protective of human health. Alternative 3 may be protective of human health and the environment. Alternatives 2 would be protective to human health and the environment and would provide the greatest level of protection.
- **Compliance with ARARs** evaluates whether the alternative meets Federal and State environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified. Potential ARARs are listed in Appendix A of the Group 1 Feasibility Study (Volume 3; ESCA RP Team 2017c). Alternative 3 would be implemented in compliance with the potential ARARs. No ARARs were identified that relate to Alternatives 1 or 2.
- **Short-term Effectiveness** considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation. Alternative 1 would not be effective in the short term because no further action would be taken to mitigate potentially remaining MEC risks. Alternative 2 would be protective in the short term by implementing LUCs. The LUCs would be maintained until further evaluation determined the LUCs were no longer necessary. Alternative 3 may be effective in the short term. Workers and the community would be protected during implementation of vegetation removal and MEC removal.
- **Long-term Effectiveness and Permanence** considers the ability of an alternative to maintain protection of human health and the environment over time. Alternative 1 would not provide long-term protection. Alternative 3 may provide long-term effectiveness and permanence. Alternative 2 would provide long-term effectiveness.

- **Reduction of Toxicity, Mobility, or Volume through Treatment** evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants (in this case MEC), their ability to move in the environment, and the amount of contamination present. MEC removals have already been conducted in the Group 1 MRAs; Alternatives 1 and 2 would not provide further reduction of these parameters. Alternative 3 may provide varying degrees of reduction of these parameters if MEC is discovered and removed during additional MEC remediation.
- **Implementability** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services. Alternative 1 would not be administratively feasible to implement because the necessary approvals to take no further action are not expected. Alternatives 2 and 3 would be administratively and technically feasible to implement. Alternative 3 would require the highest level of effort to implement from the technical perspective.
- **Cost** includes estimated capital and long-term implementation costs. Net present value cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent. **Tables 1 and 2** show the cost of each alternative evaluated for the Seaside MRA and Parker Flats MRA Phase II, respectively. Alternative 1 has minimal cost. Alternative 2 has the lowest total estimated cost and Alternative 3 has the highest total estimated cost.
- **State Acceptance** evaluates technical and administrative issues and concerns that the state may have regarding each alternative. State acceptance will be addressed in the resulting ROD once comments on this Proposed Plan have been received.
- **Community Acceptance** evaluates technical and administrative issues and concerns that the public may have regarding each alternative. Community acceptance will be addressed in the resulting ROD once comments on this Proposed Plan have been received.

## **PREFERRED ALTERNATIVE**

Based on the evaluation and comparison of the three remedial alternatives described above, the Army proposes Alternative 2, LUCs, as the preferred alternative for implementation at the Group 1 MRAs (the Seaside MRA and the Parker Flats MRA Phase II) because it best meets the nine evaluation criteria specified in the EPA's RI/FS Guidance (EPA 1988).

LUCs would be protective of human health for the future land users, and would be effective in the short- and long-term at mitigating the risk to future workers conducting intrusive activities from potentially remaining MEC. This remedial alternative would require a low level of effort to implement, a moderate level of effort to administer over time, and would be cost effective. No ARARs were identified for this alternative; however, LUCs would be implemented in a manner consistent with Federal and State guidance. The preferred remedial alternative will include requirements to protect people conducting intrusive activities at the reuse areas during both development and long-term reuse: (1) Munitions Recognition and Safety Training and (2) Construction Support. Residential use would be prohibited in areas designated for non-residential reuse or for habitat reserve. In areas designated for habitat reserve, the preferred alternative also includes restrictions against uses inconsistent with the Habitat Management Plan and access management measures.

In addition to the requirements for munitions recognition and safety training, construction support, access management measures in areas designated for habitat reserve, residential use restriction in areas designated for non-residential reuse or for habitat reserve, and restrictions against inconsistent uses (applicable to the habitat reserve areas), Long-Term Management Measures comprised of a deed notice, annual monitoring and reporting, and five-year review reporting will also be instituted. The deed notice will (1) inform future property owners that MEC was found and removed at the reuse area; (2) inform future property owners about the selected remedy; and (3) outline appropriate procedures to be followed in the event that MEC is encountered. FORA or FORA's successor will collect and submit information for the Group 1 MRAs regarding MEC finds and changes in site conditions that could increase the possibility of finding MEC at the site. The results of the monitoring activities will be reported to the Army and regulatory agencies annually. The Army will conduct a review of the former Fort Ord Superfund site every five years to determine whether the selected remedy continues to be protective of human health and the environment. It will include a review of any LUCs. The next five-year review will occur in 2022.

**The Preferred Alternative:**

***Alternative 2: Land Use Controls***

The preferred alternative includes:

- Munitions Recognition and Safety Training
- Construction support by UXO-qualified personnel
- Access management measures in areas designated for habitat reserve
- Restrictions prohibiting residential use in areas designated for non-residential reuse or for habitat reserve
- Restrictions against inconsistent uses (applicable to the habitat reserve areas)

Based on information currently available, the lead agency believes the Preferred Alternative meets the threshold criteria and provides the best approach among the remedial alternatives with respect to the balancing and modifying criteria. The lead agency expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA §121(b): (1) be protective of human health and the environment; (2) comply with ARARs (or justify a waiver); (3) be cost-effective; (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) satisfy the preference for treatment as a principal element (or justify not meeting the preference). MEC removal actions (“treatment”) that have already been completed were considered in the development of alternatives and remedy selection. Therefore, the Land Use Controls alternative is selected “post-treatment” as the Preferred Alternative to address the risk to future land users from MEC that potentially remain in the property.

The preferred alternative identified in this Proposed Plan may be modified in response to public comments or new information.

After the Group 1 ROD is signed, a Remedial Design/Remedial Action Work Plan will be developed. This work plan will outline the process for implementing the land use restrictions selected as part of the remedy. This work plan will also include procedures for responding to and coordinating unexpected circumstances such as a future discovery of a significant number of MEC in the Group 1 MRAs. A process has been developed for reporting any discovery of MEC to an appropriate local law enforcement agency. The local law enforcement agency will promptly request response by EOD personnel or UXO-qualified personnel. Any MEC finds or incidents will be reported immediately to the regulatory agencies and will be documented in the annual reports. This information will be reviewed at the time of subsequent five year reviews. If selected, LUCs may be modified in the future based on information collected during site development and reuse, or based on the five-year review process.

## HOW TO MAKE COMMENTS

The Army is the responsible party and lead agency for investigating, reporting, making cleanup decisions, and taking cleanup actions at the former Fort Ord. The Army, as lead agency, is soliciting public comments on the Preferred Alternative of LUCs, as well as other remedial action alternatives described in this Proposed Plan to manage the risk from MEC that potentially remain in the Group 1 MRAs (the Seaside MRA and the Parker Flats MRA Phase II). The Group 1 RI/FS (ESCA RP Team 2017c) provides a detailed site report that describes the information gathered during the literature review and site investigations, as well as a more detailed description of the reasons for the Army's proposed remedial alternative of LUCs. This and other reports referenced herein are available for review at the Administrative Record.

Public comments will be considered before any action is selected and approved. Written and oral comments on this Group 1 Proposed Plan will be accepted at the public meeting scheduled on September 27, 2017, from 6:00 p.m. to 8:00 p.m. at the Carpenters Union Hall, 910 2<sup>nd</sup> Avenue, Marina, California. Representatives from the Army, EPA, and DTSC will be present at this meeting to explain the Proposed Plan, listen to concerns, answer questions, and accept public comments. Representatives from FORA will also be present to answer questions on the Proposed Plan.

Written comments will be accepted at the public meeting and throughout the 30-day public comment period from September 15 to October 16, 2017. Correspondence should be postmarked no later than October 16, 2017 and sent to the attention of the U.S. Army representative at the following address (*Please reference the Group 1 Proposed Plan in your correspondence*):

**Department of the Army  
Fort Ord Base Realignment and Closure (BRAC) Office  
ATTN: William K. Collins  
BRAC Environmental Coordinator  
P.O. Box 5008  
Monterey, California 93944-5008**

## **INFORMATION ACCESS**

### **U.S. Army Representative**

#### Department of the Army

Fort Ord Base Realignment and Closure (BRAC) Office  
P.O. Box 5008  
Monterey, California 93944-5008  
Contact: William K. Collins, BRAC Environmental Coordinator  
(831) 393-1284 FAX: (831) 393-9188 email: William.K.Collins.civ@mail.mil  
Hours: 8:00 am - 5:00 pm

### **Regulatory Representatives**

#### U.S. Environmental Protection Agency, Region IX

Superfund Federal Facilities Cleanup Branch  
75 Hawthorne Street, Mail Code SFD-8-3  
San Francisco, California 94105  
Contact: Maeve Clancy, Remedial Project Manager  
(415) 947-4105 email: Clancy.Maeve@epa.gov  
Hours: 8:00 am - 5:00 pm

#### California EPA Department of Toxic Substances Control, Region 2

Brownfields and Environmental Restoration Program  
8800 Cal Center Drive  
Sacramento, California 95826  
Contact: Vlado Arsov, Remedial Project Manager  
(916) 255-4988 email: Vlado.Arsov@dtsc.ca.gov  
Hours: 8:00 am - 5:00 pm

### **Administrative Record**

Fort Ord Administrative Record ([www.fortordcleanup.com](http://www.fortordcleanup.com))  
Building 4463 Gigling Road, Room 101  
Ord Military Community, California 93944-5008  
(831) 393-9693 FAX: (831) 393-9188  
Hours: Mon-Fri 9:00 am-4:00 pm. Other hours by appointment. Closed daily, 12:00 pm-1:30 pm and Federal holidays.

### **Information Repositories**

California State University Monterey Bay (CSUMB) Tanimura and Antle Family Memorial Library  
100 Campus Center  
Seaside, California 93955  
(831) 582-3733  
For current library hours, call or visit <http://csumb.edu/library>

Seaside Branch Library  
550 Harcourt Avenue  
Seaside, California 93955  
(831) 899-2055  
Hours: Mon-Thurs 10:00 am-8:00 pm; Fri/Sat 10:00 am-5:00 pm

## REFERENCES

- California Department of Toxic Substances Control (DTSC). 2017. Letter to FORA regarding DTSC review of Environmental Services Cooperative Agreement Residential Protocol Implementation at Seaside and Parker Flats Munitions Response Areas. January 9.
- Environmental Services Cooperative Agreement Remediation Program Team (ESCA RP Team). 2017a. Final Residential Protocol Implementation Technical Report, Seaside Munitions Response Area, Former Fort Ord, Monterey County, California. March 29. (Fort Ord Administrative Record No. ESCA-0306C)
- . 2017b. Final Residential Protocol Implementation Technical Report, Parker Flats Munitions Response Area, Former Fort Ord, Monterey County, California. March 29. (Fort Ord Administrative Record No. ESCA-0311C)
- . 2017c. Final Group 1 Remedial Investigation/Feasibility Study, Seaside and Parker Flats (Phase II) Munitions Response Areas, Former Fort Ord, Monterey County, California. May 4. (Fort Ord Administrative Record No. ESCA-0318B)
- . 2017d. Draft Group 1 Supplemental Residential Protocol Implementation Technical Report, Seaside Munitions Response Area, Former Fort Ord, Monterey County, California. August 24. (Fort Ord Administrative Record No. ESCA-0342)
- Malcolm Pirnie. 2002. Final Fort Ord Ordnance and Explosives Risk Assessment Protocol. October. (Fort Ord Administrative Record No. OE-0402G)
- Shaw Environmental, Inc. (Shaw). 2012. Final Comprehensive Basewide Range Assessment Report, Former Fort Ord, California, Revision 2. January 12. (Fort Ord Administrative Record No. BW-2300L)
- United States Army Corps of Engineers (USACE). 1997. Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California (HMP). With Technical Assistance From Jones and Stokes, Sacramento, California. April. (Fort Ord Administrative Record No. BW-1787)
- United States Department of the Army (Army). 2008. Record of Decision, Parker Flats Munitions Response Area, Track 2 Munitions Response Site, Former Fort Ord, California. August 26. (Fort Ord Administrative Record No. OE-0661)
- United States Environmental Protection Agency (EPA). 1988. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA. Interim Final. EPA/540/G-89/004. October.
- . 1999. A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents. EPA/540/R-98/031. July.

## GLOSSARY

**Administrative Record** – A compilation of all documents relied upon to select a remedial action pertaining to the investigation and cleanup of Fort Ord.

**Applicable or Relevant and Appropriate Requirements (ARARs)** – The substantive Federal and State environmental cleanup standards and other requirements that a selected remedy will meet. These requirements may vary among sites and alternatives.

**Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, otherwise known as Superfund)** – CERCLA authorizes federal action to respond to the release or threatened release of hazardous substances into the environment or a release or threatened release of a pollutant or contaminant into the environment that may present an imminent or substantial danger to public health or welfare. This law also establishes criteria for the creation of key cleanup documents such as the Remedial Investigation (RI), Feasibility Study (FS), Proposed Plan, and Record of Decision (ROD).

**Construction Support** – Assistance provided by DOD explosive ordnance disposal (EOD) or UXO-qualified personnel and/or by personnel trained and qualified for operations involving chemical agents (CA), regardless of configuration, during intrusive construction activities on property known or suspected to contain UXO, other munitions that may have experienced abnormal environments (e.g., DMM), munitions constituents in high enough concentrations to pose an explosive hazard, or CA, regardless of configuration, to ensure the safety of personnel or resources from any potential explosive or CA hazards (DOD Manual 6055.09M).

**Covenant to Restrict Use of Property (CRUP)** – A covenant recorded at the county recorder’s office that sets forth protective provisions, covenants, and conditions subject to which a property shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, and/or conveyed.

**Discarded Military Munitions (DMM)** – Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include UXO, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of consistent with applicable environmental laws and regulations. (10 U.S.C. 2710(e)(2)).

**Explosive Ordnance Disposal (EOD) Personnel** – Military personnel who have graduated from the Naval School, Explosive Ordnance Disposal; are assigned to a military unit with a Service-defined EOD mission; and meet Service and assigned unit requirements to perform EOD duties. EOD personnel have received specialized training to address explosive and certain chemical agent (CA) hazards during both peacetime and wartime. EOD personnel are trained and equipped to perform Render Safe Procedures (RSP) on nuclear, biological, chemical, and conventional munitions, and on improvised explosive devices (DOD Manual 6055.09M).

**Feasibility Study (FS)** – An evaluation of potential remedial technologies and treatment options that can be used to clean up a site.

**Land Use Controls (LUC)** – Land use controls are physical, legal, or administrative mechanisms that restrict the use of, or limit access to, real property, to manage risks to human health and the environment. Physical mechanisms include fences, pavement, or signs. Legal mechanisms include deed restrictions that limit how the

property is used. Administrative mechanisms include providing munitions recognition training for workers who do intrusive work.

**Military Munitions** – Military munitions means all ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or components under the control of the Department of Defense, the Coast Guard, the Department of Energy, and the National Guard. The term includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof. The term does not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components, except that the term does include non-nuclear components of nuclear devices that are managed under the nuclear weapons program of the Department of Energy after all required sanitization operations under the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) have been completed. (10 U.S.C. 101(e)(4)(A through C)).

**Military Munitions Response Program (MMRP)** – Program established by the Department of Defense to manage environmental, health and safety issues presented by MEC.

**Munitions Debris (MD)** – Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal. Munitions debris is confirmed inert by technically-qualified personnel.

**Munitions and Explosives of Concern (MEC)** – This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks, means: (A) Unexploded ordnance (UXO), as defined in 10 U.S.C. 101(e)(5) (A) through (C); (B) Discarded military munitions (DMM), as defined in 10 U.S.C. 2710(e)(2); or (C) Explosive munitions constituents (e.g., TNT, RDX) present in high enough concentrations to pose an explosive hazard, as defined in 10 U.S.C. 2710(e)(3).

**Munitions Response Area (MRA)** – Any area on a defense site that is known or suspected to contain MEC. Examples include former ranges and munitions burial areas. A munitions response area is made up of one or more munitions response sites.

**Munitions Response Site (MRS)** – A discrete location within a MRA that is known to require a munitions response.

**Preferred Remedial Alternative** – The remedial alternative that, when compared to other potential alternatives, was determined to best meet the nine CERCLA evaluation criteria in the Feasibility Study, and is proposed for implementation at a site.

**Proposed Plan** – A plan that identifies the preferred alternative for a site cleanup, and is made available to the public for comment.

**Record of Decision (ROD)** – A ROD is the document used to record the remedial action decision under CERCLA. The ROD will be filed in the project Administrative Record and project file.

**Remedial Action Objectives (RAOs)** – Specific goals to be met as part of a remedial action that are developed to protect human health and the environment.

**Remedial Alternatives** – Potential remedies to address contamination (in this case, MEC).

**Remedial Investigation (RI)** – The RI is intended to “adequately characterize the site for the purpose of developing and evaluating an effective remedial alternative” (National Contingency Plan, 40 CFR 300.430(d)). In addition, the RI provides information to assess the risks to human health, safety, and the environment that were identified during risk screening in the site investigation.

**Superfund** – See Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) above.

**Unexploded Ordnance (UXO)** – Military munitions that: (A) have been primed, fuzed, armed, or otherwise prepared for action; (B) have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material; and (C) remain unexploded either by malfunction, design, or any other cause. (10 U.S.C. 101(e)(5) (A) through (C)).

**UXO-Qualified Personnel** – Personnel who have performed successfully in military EOD positions, or are qualified to perform in the following Department of Labor, Service Contract Act, Directory of Occupations, contractor positions: UXO Technician II, UXO Technician III, UXO Safety Officer, UXO Quality Control Specialist or Senior UXO Supervisor (DOD Manual 6055.09M).

Table 1

Summary of Evaluation of Remedial Alternatives for Seaside MRA

Remedial Alternative	EPA's 9 CERCLA 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, or Volume Through Treatment <sup>1</sup>	Implementability	Cost <sup>2</sup>	State Acceptance	Community Acceptance
Alternative 1 - No Further Action	Not protective; does not mitigate potentially remaining MEC risks to intrusive workers	No ARARs identified for this alternative	Not effective in the short-term; no MEC risk mitigation	Not effective in the long-term; no MEC risk mitigation	No reduction in volume because no further MEC removals would be conducted	Not administratively feasible	Minimal	Unlikely	Unlikely
Alternative 2 - Land Use Controls	Protective to construction and maintenance workers (intrusive workers); mitigates risks to future residents	No ARARs identified for this alternative	Effective in the short-term; required training and construction support would mitigate risks to construction and maintenance workers (intrusive workers)	Required training and construction support would mitigate risks to construction and maintenance workers (intrusive workers) until evaluation determines LUCs no longer necessary	No reduction in volume because no further MEC removals would be conducted	Technically and administratively feasible to implement	\$542,000	Likely to be acceptable	May be acceptable
Alternative 3 - Additional MEC Remediation	May be protective of human health and the environment	Implementation would require compliance with potential ARARs identified in Appendix A of Group 1 RI/FS Volume 3	May be effective in the short-term, although additional mitigation measures (such as land use controls) may be required	May or may not be effective in the long-term; additional risk mitigation may be needed after additional MEC remediation	May result in MEC reduction if additional MEC is discovered and removed during remediation	Technically and administratively feasible to implement	\$8,310,000	Likely to be acceptable because of additional remediation and short and long term mitigation actions	Acceptability unknown due to vegetation disturbance and removal involved.

**Notes:**

ARARs = applicable or relevant and appropriate requirements

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act

MEC = munitions and explosives of concern

LUC = Land Use Controls

RI/FS = Remedial Investigation/Feasibility Study

<sup>1</sup> = Completed MEC removal actions already provide for reduction of volume.

<sup>2</sup> = Costs do not include long-term management costs for each alternative.

Table 2

Summary of Evaluation of Remedial Alternatives for Parker Flats MRA (Phase II)

Remedial Alternative	EPA's 9 CERCLA 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, or Volume Through Treatment <sup>1</sup>	Implementability	Cost <sup>2</sup>	State Acceptance	Community Acceptance
Alternative 1 - No Further Action	Not protective; does not mitigate potentially remaining MEC risks to intrusive workers	No ARARs identified for this alternative	Not effective in the short-term; no MEC risk mitigation	Not effective in the long-term; no MEC risk mitigation	No reduction in volume because no further MEC removals would be conducted	Not administratively feasible	Minimal	Unlikely	Unlikely
Alternative 2 - Land Use Controls	Protective to construction and maintenance workers (intrusive workers); mitigates risks to future residents	No ARARs identified for this alternative	Effective in the short-term; required training and construction support would mitigate risks to construction and maintenance workers (intrusive workers)	Required training and construction support would mitigate risks to construction and maintenance workers (intrusive workers) until evaluation determines LUCs no longer necessary	No reduction in volume because no further MEC removals would be conducted	Technically and administratively feasible to implement	\$775,000	Likely to be acceptable	May be acceptable
Alternative 3 - Additional MEC Remediation	May be protective of human health and the environment	Implementation would require compliance with potential ARARs identified in Appendix A of Group 1 RI/FS Volume 3	May be effective in the short-term, although additional mitigation measures (such as land use controls) may be required	May or may not be effective in the long-term; additional risk mitigation may be needed after additional MEC remediation	May result in MEC reduction if additional MEC is discovered and removed during remediation	Technically and administratively feasible to implement	\$13,500,000	Likely to be acceptable because of additional remediation and short and long term mitigation actions	Acceptability unknown due to vegetation disturbance and removal involved.

**Notes:**

ARARs = applicable or relevant and appropriate requirements

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act

MEC = munitions and explosives of concern

LUC = Land Use Controls

RI/FS = Remedial Investigation/Feasibility Study

<sup>1</sup> = Completed MEC removal actions already provide for reduction of volume.

<sup>2</sup> = Costs do not include long-term management costs for each alternative.