

FINAL

Record of Decision

Group 4

Future East Garrison Munitions Response Area

Former Fort Ord, California

September 19, 2018

United States Department of the Army
Base Realignment and Closure (BRAC)
Former Fort Ord, California

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1. DECLARATION

1.1. Site Name and Location

The former Fort Ord is located in northwestern Monterey County, California, approximately 80 miles south of San Francisco (Figure 1). The U.S. Environmental Protection Agency (EPA) identification number for Fort Ord is CA7210020676. This Record of Decision (ROD) addresses Department of Defense's (DoD's) military munitions (also defined as "military munitions"). These include military munitions that may be determined by qualified personnel (e.g., UXO-qualified personnel) to pose an explosive hazard (i.e., be Munitions and Explosives of Concern [MEC], specifically unexploded ordnance [UXO] and discarded military munitions [DMM]) (herein after referred to as MEC) that potentially remain in the Group 4 Munitions Response Area (MRA). (Note: for the Fort Ord Military Munitions Response Program being conducted and this ROD, MEC does not include small arms ammunition.)

Since 1917, the Army used portions of the former Fort Ord for maneuvers, live-fire training, and other munitions-related purposes. Because the DoD conducted munitions-related activities (e.g., live-fire training, demilitarization) on the facility, MEC may remain present on parts of the former Fort Ord. The types of military munitions used at the former Fort Ord included: artillery and mortar projectiles, rockets, guided missiles, rifle and hand grenades, practice land mines, pyrotechnics, bombs, and demolition materials. A Glossary of Military Munitions Response Program Terms is provided in Appendix A.

In March 2007, the United States Department of the Army (Army) and Fort Ord Reuse Authority (FORA) entered into an Environmental Services Cooperative Agreement (ESCA) for the Army to provide FORA funding to complete munitions response actions required for remedy implementation. In accordance with the ESCA and an Administrative Order on Consent (AOC), FORA is responsible for completion of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions on approximately 3,300 acres of the former Fort Ord with funding provided by the Army, except for those responsibilities retained by the Army. The AOC was entered into voluntarily by FORA, EPA, California Environmental Protection Agency Department of Toxic Substances Control (DTSC), and the United States Department of Justice Environment and Natural Resources Division in December 2006 (EPA Region 9 CERCLA Docket No. R9-2007-03). The underlying property was transferred to FORA in May 2009. The Future East Garrison MRA is included in the ESCA between the Army and FORA.

The Future East Garrison MRA includes sites where MEC were encountered and at which the Army completed munitions responses (munitions removal). The Future East Garrison MRA contains all or portions of four munitions response sites (MRSs) that were suspected to have been used for military training with military munitions (Table 1; Figure 2). These MRSs were investigated, with detected military munition removed. These munitions response actions included Quality Control and Quality Assurance requirements that evaluated the adequacy of the munitions response actions. Although munitions response actions were conducted, it is possible that detection technologies may not have detected every military munition present. Because a future land user (e.g., resident, recreational user, habitat monitor, maintenance worker, or construction worker) may encounter military munitions at the Future East Garrison MRA, a Group 4 Remedial Investigation/Feasibility Study (RI/FS) was conducted to evaluate remedial alternatives to address this potential risk to future land users (ESCA RP Team 2017b). The Group 4 RI/FS was developed by FORA under the ESCA and in accordance with the AOC.

1.2. Basis and Purpose

This decision document selects the remedial action for military munitions for the Future East Garrison MRA. The remedy for the MRA was selected in accordance with CERCLA of 1980, as amended, and to

the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on information and reports contained in the Administrative Record for the former Fort Ord.

This decision is undertaken pursuant to the President's authority under CERCLA Section 104, as delegated to the Army in accordance with Executive Order 12580, and in compliance with the process set out in CERCLA Section 120. The selection of the remedy is authorized pursuant to CERCLA Section 104, and the selected remedy will be carried out in accordance with CERCLA Section 121.

This ROD addresses MEC that potentially remain in the Future East Garrison MRA. The Army and EPA have jointly selected the remedy. The DTSC reviewed the ROD and its concerns were addressed.

1.3. Site Assessment

This ROD addresses hazardous substances and pollutants or contaminants which may pose a threat to human health and welfare or the environment.

The Army has provided the CERCLA covenant in the deed for the property. Some MEC encountered and detonated on the property in the past were a Resource Conservation and Recovery Act (RCRA) reactive waste and thus a CERCLA hazardous substance. Therefore, MEC discovered on the property in the future will likewise be addressed as such pursuant to the CERCLA covenant unless the Army determines that an item is not a hazardous substance by making a waste specific determination based on testing or knowledge consistent with RCRA.

1.4. Description of the Selected Remedy

The selected remedy addresses risks to human health and the environment from MEC that potentially remain in the Future East Garrison MRA. Munitions responses have been completed by the Army and FORA at the MRA, thereby, significantly reducing the risks to human health and the environment from military munitions. The selected remedy for the Future East Garrison MRA includes Land Use Controls (LUCs) because detection technologies may not have detected every military munition present. The LUCs include requirements for: (1) military munitions recognition and safety training for workers who will conduct ground-disturbing or intrusive activities; (2) construction support to manage the risk associated with the potential presence of military munitions for ground-disturbing or intrusive activities to address MEC that potentially remain in the subsurface; (3) access management measures in areas designated for habitat reserve; (4) restrictions prohibiting residential use in areas designated for non-residential development reuse or for habitat reserve; and (5) restrictions against inconsistent uses (applicable to the habitat reserve areas).

For the purpose of this decision document, residential use includes: single family or multi-family residences; childcare facilities; playgrounds; hospitals; nursing homes or assisted living facilities; and any type of educational facility for children or young adults in grades kindergarten through 12. Any proposal for residential use, as defined in this ROD, in the designated non-residential development reuse or habitat reserve portions of the Future East Garrison MRA will be subject to regulatory agency and Army review and approval. The selected remedy will be implemented by FORA in its capacity as Grantee under the ESCA and as a party to the AOC and not in its capacity as the owner of the real estate or as a government entity.

A Remedial Design/Remedial Action (RD/RA) Work Plan and/or Land Use Controls Implementation Plan and Operation and Maintenance Plan (LUCIP/OMP) will be developed to: (1) outline the processes

for implementing the LUCs selected as part of the remedy; and (2) identify procedures for responding to discoveries of MEC. The RD/RA Work Plan and/or LUCIP/OMP will describe the roles and responsibilities of the federal and state agencies during implementation of the selected remedy. This plan will be submitted within 90 days of the signature of this ROD. The Army will evaluate the Future East Garrison MRA as part of the installation-wide CERCLA five-year review. The selected LUCs may be modified in the future based on the five-year review process and other activities. The next five-year review will occur in 2022.

As part of the LUC implementation strategy, long-term management measures comprised of a deed notice and restrictions, annual monitoring and reporting, and five-year review reporting will be included for the land use areas within the Future East Garrison MRA. As part of the early transfer of the subject property, the Army has entered into a State Covenant to Restrict Use of Property (CRUP) with the DTSC that document land use restrictions. The existing deed to FORA for the Future East Garrison MRA parcels includes the following land use restrictions: (1) residential use restriction; and (2) excavation restrictions (unless construction support and military munitions recognition and safety training are provided). The Army will modify the existing land use restrictions in the federal deed, as necessary, to reflect the selected remedy. FORA, or its successor under the ESCA and the AOC, will prepare and submit annual LUC status reports to the EPA and the DTSC which will include compiled annual LUC monitoring reports and will summarize the military munitions encountered that were determined to be MEC, and changes in site conditions that could increase the possibility of encountering military munitions. Copies of the annual LUC status reports will also be provided to the Army for inclusion in the five-year reviews.

While the Army does not consider California laws and regulations concerning CRUPs to be potential applicable or relevant and appropriate requirements (ARARs), the Army entered into a CRUP with the DTSC at the time the property was transferred to FORA (Army/DTSC 2009). The DTSC will modify the existing CRUP, as appropriate, to reflect the land use restrictions included in the selected remedy. 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 CRUP and the DTSC will modify the CRUP, as appropriate, to be consistent with the identified remedy.

1.5. Statutory Determination

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost effective. Munitions responses to address the principal threat posed by military munitions, which may be determined to pose an explosive hazard including munitions determined to be MEC, are complete. This meets the intent of using permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable, and satisfies the statutory preference for treatment as a principal element (i.e., reducing the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element through treatment).

Because the selected remedy may not result in removal of every military munition present within the Future East Garrison MRA, a statutory review will be conducted by the Army within five years after initiation of the remedial action to ensure the remedy is, or will be, protective of human health and the environment. The next five-year review will occur in 2022.

1.6. ROD Data Certification Checklist

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

- Types of MEC identified during previous removal actions (Section 2.8.).
- Current and reasonably anticipated future land use assumptions used in the Risk Assessment and ROD (Section 2.9. and Table 2).
- Current after-action “Overall MEC Risk Scores” estimated in the Risk Assessment based upon the current site conditions (Section 2.10.).
- Remedial action objectives for addressing the current after-action “Overall MEC Risk Scores” estimated in the Risk Assessment (Section 2.11.).
- How source materials constituting principal threats are addressed (Sections 2.13. and 2.14.).
- Potential land use that will be available at the site as a result of the selected remedy (Section 2.14. and Table 2).
- Estimated capital, annual operations and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected (Section 2.14.4).
- Key factor(s) that led to selection of the remedy (Sections 2.14.1 and 2.15. and Table 3).

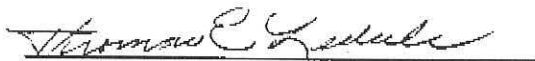
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Declaration

1.7. Authorizing Signatures and Support Agency Acceptance of Remedy

**Record of Decision
Group 4
Future East Garrison Munitions Response Area
Former Fort Ord, California**

Signature Sheet for the foregoing Record of Decision for Group 4, Future East Garrison Munitions Response Area, Former Fort Ord, California, among the United States Army, the United States Environmental Protection Agency, and the California Environmental Protection Agency, Department of Toxic Substances Control.



Thomas E. Lederle
Chief
Base Realignment and Closure Division
U.S. Department of the Army

20 Sep 2018

Date

**Record of Decision
Group 4
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Signature Sheet for the foregoing Record of Decision for Group 4, Future East Garrison Munitions Response Area, Former Fort Ord, California, among the United States Army, the United States Environmental Protection Agency, and the California Environmental Protection Agency, Department of Toxic Substances Control.

William K. Collins

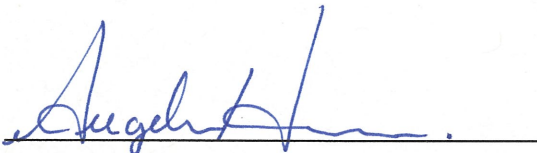
William K. Collins
BRAC Environmental Coordinator
Fort Ord BRAC Office
U.S. Department of the Army

9/19/18

Date

**Record of Decision
Group 4
Future East Garrison Munitions Response Area
Former Fort Ord, California**

Signature Sheet for the foregoing Record of Decision for Group 4, Future East Garrison Munitions Response Area, Former Fort Ord, California, among the United States Army, the United States Environmental Protection Agency, and the California Environmental Protection Agency, Department of Toxic Substances Control.



Angeles Herrera
Assistant Director, Superfund Division
Federal Facilities and Site Cleanup Branch
U.S. Environmental Protection Agency, Region IX

09-21-2018

Date

**Record of Decision
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Future East Garrison Munitions Response Area
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Signature Sheet for the foregoing Record of Decision for Group 4, Future East Garrison Munitions Response Area, Former Fort Ord, California, among the United States Army, the United States Environmental Protection Agency, and the California Environmental Protection Agency, Department of Toxic Substances Control.

The State of California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) had an opportunity to review and comment on the Record of Decision (ROD) and our concerns were addressed.



Charlie Ridenour, P.E.
Branch Chief
Cleanup Program - Sacramento Office
California Environmental Protection Agency
Department of Toxic Substances Control

9/25/18
Date

2. DECISION SUMMARY

2.1. Site Description

The former Fort Ord is located near Monterey Bay in northwestern Monterey County, California, approximately 80 miles south of San Francisco (Figure 1). The former Army post consists of approximately 28,000 acres adjacent to Monterey Bay and the cities of Seaside, Sand City, Monterey, and Del Rey Oaks to the south and Marina to the north. State Route 1 passes through the western portion of former Fort Ord, separating the beachfront from the rest of the base. Laguna Seca Recreation Area and Toro Regional Park border former Fort Ord to the south and southeast, respectively, as well as several small communities, such as Toro Park Estates and San Benancio. Additional information about the site:

- EPA Identification Number: CA7210020676;
- Lead Agency: Army;
- Lead Oversight Agency: EPA;
- Support Agency: DTSC;
- Source of Cleanup Monies: Army;
- Site Type: Former Military Installation.

2.2. Site History

Since 1917, the Army used portions of the former Fort Ord for maneuvers, live-fire training, and other munitions-related purposes. From 1947 to 1974, Fort Ord was a basic training center. The 7th Infantry Division was activated at Fort Ord in October 1974, and occupied Fort Ord until base closure in 1994. Fort Ord was selected in 1991 for decommissioning, but troop reallocation was not completed until 1993 and the base was not officially closed until September 1994. The property identified to remain in the Army's possession (approximately 900 acres) was designated as the Presidio of Monterey Annex on October 1, 1994, and subsequently renamed the Ord Military Community (OMC). Although Army personnel still operate parts of the base, no active Army division is stationed at the former Fort Ord. Since the base was selected for closure in 1991, site visits, historical and archival investigations, military munitions sampling, and removal actions have been performed and documented in preparation for transfer and reuse of the former Fort Ord property. The Army will continue to retain the OMC and the U.S. Army Reserve Center located at the former Fort Ord. The remainder of former Fort Ord was identified for transfer to Federal, State, and local government agencies and other organizations and, since base closure in September 1994, has been subjected to the reuse process. Portions of former Fort Ord property have been transferred. A large portion of the Inland Training Ranges was assigned to the U.S. Department of the Interior, Bureau of Land Management. Other areas on the base have been, or will be, transferred through economic development conveyance, public benefit conveyance, negotiated sale, or other means.

DoD conducted munitions-related activities (e.g., live-fire training, demilitarization) involving different types of conventional military munitions (e.g., artillery and mortar projectiles, rockets and guided missiles, rifle and hand grenades, practice land mines, pyrotechnics, bombs, and demolition materials) at Fort Ord. Because of these activities, military munitions including munitions that upon evaluation by qualified personnel (e.g., UXO-qualified personnel) were determined to be MEC, specifically UXO and DMM, have been encountered and are known or suspected to remain present at various sites throughout the former Fort Ord. A Glossary of Military Munitions Response Program Terms is provided in Appendix A.

2.3. Enforcement and Regulatory History

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 CERCLA. To address the possibility of the public being exposed to explosive hazards, the Army conducted munitions responses (e.g., investigations and removal actions) following Base Realignment and Closure listing and closure of Fort Ord.

In November 1998, the Army agreed to evaluate military munitions at former Fort Ord in an Ordnance and Explosives Remedial Investigation/Feasibility Study (base-wide OE RI/FS) — now termed the base-wide Munitions Response Remedial Investigation/Feasibility Study (base-wide MR RI/FS) — consistent with CERCLA. A Federal Facility Agreement (FFA) was signed in 1990 by the Army, EPA, DTSC (formerly the Department of Health Services), and the California Regional Water Quality Control Board. The FFA established schedules for performing remedial investigations and feasibility studies and requires that remedial actions be completed as expeditiously as possible. In April 2000, an agreement was signed between the Army, EPA, and DTSC to evaluate military munitions and conduct munitions response activities at the former Fort Ord subject to the provisions of the Fort Ord FFA.

The base-wide MR RI/FS program reviews and evaluates past investigative and removal actions, as well as recommends future response actions deemed necessary to protect human health and the environment regarding explosive safety risks posed by MEC that may be present on the basis of designated reuses. These reuses are specified in the Base Reuse Plan (FORA 1997) and its updates. The base-wide MR RI/FS documents are being prepared in accordance with the FFA, as amended. These documents are made available for public review and comment, and placed in the Administrative Record.

The Army will continue to conduct its ongoing and future munitions responses (e.g., investigation and removal actions) at identified MRSs to mitigate the explosive hazards associated with MEC that may remain present to the public. The Army will accomplish this while gathering data about the type of military munitions present and risk posed at each MRS for use in the base-wide MR RI/FS. The Army is performing its activities pursuant to the President's authority under CERCLA Section 104, as delegated to the Army in accordance with Executive Order 12580 and in compliance with the process set out in CERCLA Section 120. Regulatory agencies (EPA and DTSC) provide oversight of the munitions response activities pursuant to the FFA.

The Army will continue to conduct its ongoing and future munitions responses at the former Fort Ord as components of the Army's base-wide efforts to promote explosive safety because of Fort Ord's history as a military installation. These efforts include: (1) five-year reviews and reporting; (2) notices and restrictions in deeds and property transfer documentations (e.g., letter of transfer); (3) munitions incident reporting; (4) military munitions recognition and safety training; (5) school education; and (6) community involvement.

In March 2007, the Army and FORA entered into an ESCA for the Army to provide FORA funding to complete munitions response actions required for remedy implementation. In accordance with the ESCA, the AOC, and the FFA Amendment No. 1, FORA is responsible for completion of the CERCLA remedial activities on approximately 3,300 acres of the former Fort Ord with funding provided by the Army, except for those responsibilities retained by the Army. The AOC was entered into voluntarily by FORA, EPA, DTSC, and the United States Department of Justice Environment and Natural Resources Division in December 2006 (EPA Region 9 CERCLA Docket No. R9-2007-03). The underlying property was transferred to FORA in May 2009.

As part of the early transfer of the subject property, the Army has entered into a State CRUP with the DTSC that documents land use restrictions. The DTSC has agreed to modify the existing CRUP to document the land use restrictions included in the identified remedy. After the signature of this ROD, DTSC will modify the existing CRUP to be consistent with the final remedy. The applicability of and requirements for CRUPs are described in California Code of Regulations Section 67391.1 and California Civil Code Section 1471.

As described in the *Final Summary of Existing Data Report, Former Fort Ord, Monterey County, California* (ESCA RP Team 2008), the ESCA areas were combined into nine MRAs, and they were further consolidated into four groups according to similar pathway-to-closure characteristics. Group 1 consists of the Parker Flats and Seaside MRAs. Group 2 consists of the California State University Monterey Bay (CSUMB) Off-Campus and County North MRAs. Group 3 consists of Del Rey Oaks/Monterey, Laguna Seca Parking, and Military Operations in Urban Terrain Site MRAs. Originally, Group 3 included the Interim Action Ranges MRA. The Interim Action Ranges MRA was removed from Group 3 for independent evaluation as agreed upon by FORA, the EPA, DTSC, and the Army. Group 4 consists of the Future East Garrison MRA. The County North MRA was subsequently removed from Group 2 following completion of the *Track 1 Plug-In Approval Memorandum, County North Munitions Response Area, Former Fort Ord, California* (Army 2010). This ROD addresses the Future East Garrison MRA.

2.4. Community Participation

The Final Group 4 RI/FS for the Future East Garrison MRA was published on June 21, 2017, and the Group 4 Proposed Plan was made available to the public on September 28, 2017. The Proposed Plan presented the preferred alternative of Land Use Controls (Alternative 2). The Land Use Control alternative is being selected as the final remedy in this ROD. The Proposed Plan also summarized the information in the Group 4 RI/FS and other supporting documents in the Administrative Record. These documents were made available to the public at the Administrative Record and www.fortordcleanup.com. The Administrative Record and Information Repositories are located at:

- Fort Ord Administrative Record, Building 4463, Gigling Road, Room 101, Ord Military Community, California (www.fortordcleanup.com).
- Seaside Branch Library, 550 Harcourt Avenue, Seaside, California.
- California State University Monterey Bay Tanimura & Antle Family Memorial Library, 100 Campus Center, CSUMB Campus, Seaside, California.

The notice of the availability of the Proposed Plan was published in the Monterey County Herald and the Salinas Californian on October 4, 2017. A 30-day public comment period was held from October 4, 2017, to November 2, 2017. In addition, a public meeting was held on October 19, 2017, to present the Proposed Plan to a broader community audience than those that had already been involved at the site. At this meeting, representatives from the Army and the regulatory agencies were present, and the public had the opportunity to submit written and oral comments about the Proposed Plan. Representatives from FORA were also present to answer questions. The Army's response to the comments received during this period is included in the Responsiveness Summary, which is part of this ROD (Section 3.0).

2.5. Scope and Role of Response Action

This ROD addresses the planned response action for managing the potential risk to future land users from MEC that potentially remain in the Future East Garrison MRA, where munitions response activities have been completed by the Army and FORA, as described in Section 2.7 below and detailed in the Group 4 RI/FS (ESCA RP Team 2017b).

The planned response action for the Future East Garrison MRA will be the final remedy for protection of human health and the environment. Remedial Alternative 2, which was identified as the preferred remedial alternative for the Future East Garrison MRA, is summarized as follows:

- **Remedial Alternative 2 - Land Use Controls (LUCs):** military munitions recognition and safety training for workers who will conduct ground-disturbing or intrusive activities; construction support to manage the risk associated with the potential presence of military munitions during ground-disturbing or intrusive activities; access management measures in areas designated for habitat reserve; restrictions prohibiting residential use (as defined in this ROD) in areas designated for non-residential development reuse or for habitat reserve; and restrictions against inconsistent uses (applicable to the habitat reserve areas).

The selected remedy will be implemented by FORA under the ESCA and in accordance with the AOC. An RD/RA Work Plan and/or LUCIP/OMP will be developed to: (1) outline the processes for implementing land use restrictions; and (2) identify procedures for responding to discoveries of military munitions, including coordinating a response to a discovery of a significant amount of MEC in the Future East Garrison MRA. The selected LUCs may be modified in the future based on the five-year review process.

In addition, long-term management measures comprised of a deed restriction, annual monitoring and reporting, and five-year review reporting will be implemented for the reuse areas within the Future East Garrison MRA.

The potential presence of chemicals of concern in soil is being addressed under the Army Basewide Range Assessment Program. Based on the Basewide Range Assessment, no further evaluation was recommended for historical areas within the Future East Garrison MRA in the Final Basewide Range Assessment Report (Shaw 2012).

2.6. Site Characteristics

The Future East Garrison MRA is located in the northeast portion of the former Fort Ord. The Future East Garrison MRA encompasses approximately 252 acres and includes all or portions of four MRSs: MRS-11, MRS-23, MRS-42 and MRS-42 EXP (Figure 2).

Historical records and the recovery of military munitions, including MEC and munitions debris (MD), indicate that the Future East Garrison MRA was used for live-fire military training since its initial government purchase in 1917 and its designation of the land as an artillery range. The types of training that occurred in the MRA included: Pre-World War II training (use of military munitions including 37millimeter projectile and 3-inch Stokes mortar) in the eastern and central portions of the MRA; rifle grenade training in MRS-42; live hand grenade training in MRS-11; troop training and maneuvers throughout the area; and engineering and demolition operations/training in MRS-11, MRS-23, and portions of MRS-42 (Figure 2). The area remains undeveloped and unused, with the exception of the

former Ammunition Supply Point located in the central portion of the MRA, which was used by the Army as an explosives storage and ordnance assembly area.

2.7. Future East Garrison MRA Remedial Investigation Summary

The Future East Garrison MRA includes all or portions of MRS-11, MRS-23, MRS-42 and MRS-42 EXP (Table 1; Figure 2), where the Army and FORA conducted munitions responses (e.g., investigations and removal actions). The Remedial Investigation for the Future East Garrison MRA is based on the evaluation of previous work conducted for the MRA in accordance with the *Final Group 4 Remedial Investigation/Feasibility Study Work Plan, Future East Garrison Munitions Response Area, Former Fort Ord, Monterey County, California* (“Group 4 RI/FS Work Plan”; ESCA RP Team 2010).

This section provides background information on the munitions responses completed by the Army and FORA at the Future East Garrison MRA and review (site evaluations) conducted for the MRA. Table 1 summarizes the results of the site-specific munitions responses (e.g., investigations and removal actions), and Section 2.8 presents a summary of the site evaluations for the Future East Garrison MRA as presented in the Group 4 RI/FS (Volume 1; ESCA RP Team 2017b).

Scope of Removal Actions – Several munitions responses (e.g., investigations and removal actions) were completed in the Future East Garrison MRA. The actions performed by the Army and FORA resulted in the removal of military munitions from the subsurface in the Future East Garrison MRA, with the exception of isolated areas with steep terrain having no evidence of munitions use, and areas under existing roadways, structures, paved areas, and fences. Utility corridors were investigated; however, utilities were not required to be removed.

A Residential Quality Assurance (RQA) Implementation Study was conducted on the munitions responses (e.g., investigations and removal actions) in the designated future residential reuse area of the Future East Garrison MRA. The RQA Implementation Study included evaluation to assess the quality and reliability of the data and effectiveness of the previous munitions responses (e.g., investigations and removal actions). The verification and quality assurance action was conducted by FORA on behalf of the Army under the ESCA.

The munitions responses (e.g., investigations and removal actions) conducted within the Future East Garrison MRA were focused on addressing the potential explosive hazards posed by military munitions. Every military munition detected, and determined by UXO-qualified personnel to be MEC, was destroyed on site. A summary of the investigations and removal actions is provided in Section 2.8.

Site Evaluation – The evaluation process was documented by completion of a series of checklists for the Future East Garrison MRA in accordance with the Group 4 RI/FS Work Plan (ESCA RP Team 2010). Checklists prepared for the MRA are provided as Appendix C of the Group 4 RI/FS (Volume 1; ESCA RP Team 2017b).

The Future East Garrison MRA is located in the northeast portion of the former Fort Ord (Figure 1). The Future East Garrison MRA encompasses approximately 252 acres and contains all or portions of four MRSs: MRS-11, MRS-23, MRS-42 and MRS-42 EXP (Figure 2).

The Future East Garrison MRA was subjected to several munitions responses (e.g., investigations and removal actions). The actions performed by the Army and FORA resulted in the removal of subsurface MEC and other munitions to the depth of detection from the MRA, with the exception of isolated areas with steep terrain having no evidence of munitions use, and areas under existing roadways, structures,

paved areas, and fences. Utility corridors were investigated to the depth of detection using best available and appropriate detection technology; however, utilities were not required to be removed and therefore were left in place.

FORA also completed a RQA Implementation Study in the approximately 58 acres designated for future residential reuse in the Future East Garrison MRA. The RQA Implementation Study included a comprehensive review and assessment of data from previous munitions responses (e.g., investigations and removal actions) to identify residual MEC risks or uncertainties. The RQA Implementation Study confirmed the reliability of the data and effectiveness of previous munitions responses (e.g., investigations and removal actions) and indicated no evidence of remaining military munitions hazards. Based on the RQA Implementation Study, the approximately 58 acres designated for future residential reuse within the Future East Garrison 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 Implementation Study are documented in the *Final Group 4 Residential Protocol Implementation Technical Report, Future East Garrison Munitions Response Area, Former Fort Ord, Monterey County, California* (ESCA RP Team 2017a). Based on regulatory agency and Army review, further assessment was not warranted for the designated future residential reuse areas in the Future East Garrison MRA (ESCA RP Team 2017a).

The majority of MEC and MD encountered within the Future East Garrison MRA were consistent with the documented historical uses of the area for rifle grenade training, hand grenade training, a possible Stokes mortar impact area, and troop training and maneuvers. The types of MEC and MD removed from the MRA included: hand grenades and hand grenade fuzes, rifle grenades, mines and mine fuzes, mine activators, mortars, flares and signals, smoke generating items, various projectiles and projectile fuzes, and simulators. Some miscellaneous military munitions and MD were also recovered; evidence does not indicate that there were specific target ranges or impact areas for these miscellaneous items within the Future East Garrison MRA (ESCA RP Team 2017b).

2.8. Future East Garrison MRA Munitions Response Site Summary

MRS-11

Between December 2 and 17, 1997, USA Environmental, Inc. (USA) performed a surface MEC removal on 27 100-foot (ft) by 100-ft grids and partial grids in the southern portion of MRS-11 (totaling approximately 14.4 acres) and a one-ft MEC removal over 1.6 acres of roads and trails in MRS-11. Visual surface MEC removal and one-ft MEC removal operations were performed using Schonstedt Model GA-52/CX magnetometers. Both operations were suspended after encountering one MEC fragmentation grenade at 13 inches below ground surface (bgs) and 47 grenade fuze MD on the surface (USA 2001a).

Between February 1998 and July 2000, USA conducted a 1-ft MEC removal over 15 acres (a total of 75 100-ft by 100-ft grids and partial grids) of MRS-11. The 15 acres, located in the southern portion of MRS-11, included grids previously cleared only of surface items during magnetometer-assisted visual surface removal and grids that had been partially cleared to a depth of one foot during the previous roads and trails removal operation. The removal operation was performed using Schonstedt Model GA-52/CX magnetometers (USA 2001a).

In May 1998, USA conducted Site Stats/Grid Stats (SS/GS) investigation sampling for five 100-ft by 200-ft grids in the northern portion of MRS-11. Investigations were conducted with the objective of determining the necessity of performing a MEC removal action in MRS-11. The SS/GS investigation were accomplished utilizing the Schonstedt Model GA-52/CX magnetometers. The conclusions for this

sampling and other removal actions completed by USA in MRS-11 are presented in one after action report (USA 2001a).

MRS-23

A removal action was conducted on 39 100-ft by 100-ft grids and partial grids in MRS-23 from November to December 1997 (USA 2001b). MEC removal operations were performed with Schonstedt Model GA-52/CX magnetometers over 100% of the site and were designed to address MEC up to depths of four feet bgs; however, all detected anomalies (i.e., ferromagnetic material), even those deeper than four feet bgs, were investigated and resolved. The after action report included a recommendation for no further action for MRS-23, referred to as Site OE-23 (USA 2001b).

The Army's contractor Parsons Infrastructure & Technology Group Inc. (Parsons) conducted a site walk in June 2005 visually searching open and accessible areas of East Garrison Area 4 which encompasses the Future East Garrison MRA while operating geophysical detection instruments (Parsons 2006). The area included portions of MRS-23, MRS-42 EXP, and areas not associated with an MRS, and was referred to as East Garrison Area 4. The site walk covered approximately 49,036 linear feet. Based on an estimated 3-ft wide path, the coverage was approximately 3.5 acres of East Garrison Area 4. Of these 3.5 acres, approximately 3.4 acres were geophysically searched with an EM61-MK2 and 0.1 acre was searched with a Schonstedt Model GA-52/CX magnetometer. A total of 68 anomalies were detected, of which 64 were intrusively investigated. The four anomalies left uninvestigated were located underneath asphalt or in areas where the ground surface consisted of sandstone that was too hard to excavate.

The remedial investigation conducted by FORA included an assessment of the removal action completed in MRS-23. The military munitions data collected was sufficient to complete the CERCLA process including the development of an RI/FS (ESCA RP Team 2017b).

MRS-42 and MRS-42 EXP

A removal action was completed across a total of approximately 45 acres within Site OE-42 and the surrounding area, which corresponds with MRS-42 and MRS-42 EXP, from February 1998 to February 2000. The MEC removal operation began in February 1998 on 93 full and partial 100-ft by 100-ft grids within an approximately 19-acre area referred to as "Rifle Range" in the after action report, located within MRS-42, using Schonstedt Model GA-52/CX magnetometers. The munitions response was designed to address MEC up to depths of four feet bgs; however, all anomalies (i.e., ferromagnetic material), even those deeper than four feet bgs, were investigated with all detected military munitions encountered removed. The removal action was expanded to include approximately 26.4 acres, located within the 32-acre MRS-42 EXP, beyond the original removal area boundary (USA 2001c).

MRS-42 EXP was included in the instrument-assisted site walk conducted by Parsons in June 2005 (Parsons 2006) as described above for MRS-23.

ESCA Remedial Investigation

Remedial investigation activities were conducted by FORA in the habitat reserve reuse portion of the MRA (Parcels E11b.7.1.1 and E11b.6.1), including reinvestigation of MRS-11 and portions of MRS-42 EXP, from October 2010 to July 2013 and from January to February 2015 (ESCA RP Team 2016). Activities performed within Parcel E11b.7.1.1, which includes the majority of MRS-11, included analog survey to the depth of detection in approximately 88.8 acres and digital geophysical mapping (DGM) survey and target investigations over approximately 27.3 acres. Soil scraping and sifting operations were

conducted in less than one acre of Parcel E11b.7.1.1, including a portion of MRS-11. Activities performed within Parcel E11b.6.1 included analog survey to the depth of detection in approximately 42.2 acres and DGM survey and target investigations over approximately 5.3 acres. A surface investigation was completed in a small asphalt area located in Parcel E11b.6.1. Subsurface removals of military munitions were not completed in small portions of the habitat reserve reuse area having no evidence of munitions use, including: beneath the small asphalt area located in Parcel E11b.6.1 and four small areas located in Parcel E11b.7.1.1 with steep terrain (including four 100-ft by 100-ft grids in MRS-42 EXP).

FORA conducted remedial investigation activities in the areas of the Future East Garrison MRA designated for future residential reuse and non-residential development reuse, including reinvestigation of MRS-42 and MRS-42 EXP, between November 2010 and September 2013 (ESCA RP Team 2016). Activities included analog-assisted near-surface investigation to facilitate DGM surveys and target investigation over approximately 43.8 acres of the future residential reuse area and approximately 8.3 acres of the non-residential development reuse area. Soil scraping and sifting operations were conducted in two isolated areas within MRS-42 totaling less than one acre. Analog to-depth of detection survey investigation of subsurface anomalies was completed in approximately 33 acres of the future residential reuse area, to include approximately 10.6 acres where DGM investigation of subsurface target anomalies was completed post analog-to depth of detection, and approximately 4.7 acres of the non-residential development reuse area. Quality Control and verification DGM surveys and target investigations were completed over approximately 12.5 acres of the future residential reuse area and approximately 1.4 acres of the non-residential development reuse area. Subsurface MEC removals were not completed in small portions of the designated future residential reuse area including: beneath improved roads, building, structures and fences; under utilities; and locations of earth covered bunkers at the former Ammunition Supply Point.

2.9. Current and Potential Future Land and Resource Uses

The future land uses for the Future East Garrison MRA, summarized below, are based upon the Fort Ord Base Reuse Plan (FORA 1997). Future land use information is also included in the *Installation-Wide Habitat Management Plan for Former Fort Ord, California* (“the HMP”; USACE 1997) and modifications to the HMP provided in *Assessment, East Garrison – Parker Flats Land Use Modifications, Fort Ord, California* (Zander 2002).

The Future East Garrison MRA is designated for future residential reuse, non-residential development reuse with borderland interface, and habitat reserve (Table 2 and Figure 3). The reasonably foreseeable reuses being considered for the Future East Garrison MRA include:

- Residential — Approximately 58 acres, comprised of a portion of Parcel E11b.8, are designated for residential reuse. Construction of buildings and roads, installation of utilities, as well as the activities of future residents are expected within this reuse area.
- Non-Residential Development — Approximately 17 acres, comprised of Parcel L20.19.1.1 and a portion of Parcel E11b.8, are designated for non-residential development reuse including roadways. A 100-ft buffer from the borderland interface along the Natural Resources Management Area (NRMA), designated as habitat reserve, was identified in the ESCA (USACE/FORA 2007); however, the buffer width is subject to change based on future fire-wise planning by FORA. The borderland development area along the NRMA interface, designated as habitat reserve, was established in the HMP (USACE 1997). Development encompassing infrastructure activities, such as roadway and utility construction, is expected to occur within the reuse area.

- Habitat Reserve — Approximately 177 acres, comprised of Parcels E11b.6.1 and E11b.7.1.1, are designated for habitat reserve.

2.10. Summary of Site Risks

Munitions response actions have been completed at the Future East Garrison MRA, significantly reducing the potential risks to human health and the environment from the explosive hazards associated with military munitions. Because detection technologies may not have detected every military munition present, a future land user (i.e., receptors) may encounter MEC. The risk was evaluated in a MEC Risk Assessment as part of the Group 4 RI/FS (Volume 2; ESCA RP Team 2017b).

The Fort Ord Ordnance and Explosives Risk Assessment Protocol (Malcolm Pirnie 2002) was developed to qualitatively estimate the risk to future land users of the property from residual MEC in terms of an “Overall MEC Risk Score” for each receptor expected to be present during area development and reuse.

The MEC Risk Assessment Protocol results are based on three key factors (MEC Hazard Type, Accessibility, and Exposure) that are assigned use-specific values and are weighted in importance. These factors were used to develop an Overall MEC Risk Score for each receptor at a given reuse area. 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 qualitative Overall MEC Risk Scores were used in the Group 4 Feasibility Study (Volume 3; ESCA RP Team 2017b) to guide the development and evaluation of response alternatives for the Future East Garrison MRA during development and for reasonably anticipated future uses. The future land users of the property identified for analysis in the MEC Risk Assessment and a summary of the Overall MEC Risk Scores for each receptor for the reuse areas within the Future East Garrison MRA are provided below. Although the MEC encountered during previous munitions responses (removal actions) have been removed from the Future East Garrison MRA, the potential exists for residual MEC to remain in the subsurface at the MRA. Therefore, the risks associated with subsurface (intrusive) receptors (e.g., maintenance workers and construction workers) are assumed to remain at the Future East Garrison MRA at a level that requires mitigation and remedial alternatives were evaluated in a Feasibility Study.

The response actions selected in this ROD are necessary to protect the public health or welfare from the possible presence of subsurface MEC.

The receptors identified for analysis in the MEC Risk Assessment for the Future East Garrison MRA included: residents, recreational users, habitat monitors, maintenance workers, construction workers, and trespassers. The Risk Assessment (Volume 2; ESCA RP Team 2017b) focused on three sectors in the Future East Garrison MRA: (1) future residential reuse area, (2) non-residential development reuse area, and (3) habitat reserve reuse areas.

The Risk Assessment for the Future East Garrison MRA (Volume 2; ESCA RP Team 2017b) estimated the Overall MEC Risk Scores of “A” (lowest risk) for each receptor. A summary of the Overall MEC Risk Scores for each receptor for the three reuse areas within the Future East Garrison MRA is provided below.

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

2.11. Remedial Action Objectives

The remedial action objective (RAO) for the Future East Garrison MRA is based on the MEC Risk Assessment results and on EPA’s Remedial Investigation/Feasibility Study Guidance (EPA 1988) to achieve the EPA’s threshold criteria of “Overall Protection of Human Health and the Environment” and “Compliance with ARARs.” The RAO developed for the protection of human health and the environment for the Future East Garrison MRA is to prevent or reduce the potential for the Future East Garrison MRA reuse receptors to come in direct contact with MEC or other munitions potentially remaining in subsurface and minimize potential impacts from such exposures.

As described in EPA’s Land Use in the CERCLA Remedy Selection Process (EPA 1995), “Remedial action objectives provide the foundation upon which remedial cleanup alternatives are developed. In general, remedial action objectives should be developed to identify alternatives that would achieve cleanup levels associated with the reasonably anticipated future land use over as much of the site as possible. EPA’s remedy selection expectations described in section 300.430(a)(1)(iii) of the NCP should also be considered when developing remedial action objectives. Where practicable, EPA expects to treat principal threats, to use engineering controls such as containment for low-level threats, to use institutional controls to supplement engineering controls....”

For the purpose of this ROD, the contaminant of concern within the Future East Garrison MRA is MEC. The potential presence of chemicals of concern in soil (lead and/or explosives constituents) is being addressed under the Army Basewide Range Assessment Program (Shaw 2012) (Section 2.5).

Consistent with EPA’s guidance: (1) the principal threats at the Future East Garrison MRA have already been treated (i.e., munitions responses [removal actions] have been completed); and (2) institutional

controls (herein referred to as land use controls or LUCs) are considered appropriate remedial alternatives.

2.12. Description of Alternatives

Three remedial alternatives were evaluated for the Future East Garrison MRA in the Group 4 RI/FS (ESCA RP Team 2017b).

Long-term management measures (deed notice and restrictions, annual monitoring, and five-year review reporting) are implementation and management measures for Alternatives 2 and 3. Long-term management measures are described further in Section 2.14.3. The cost associated with implementing these measures in the Future East Garrison MRA over a period of 30 years is approximately \$281,000.

The Group 4 Risk Assessment (Volume 2; ESCA RP Team 2017b) estimated the Overall MEC Risk Scores for each receptor as “A”, the lowest risk. Although previous munitions responses (removal actions) have been conducted on the MRA, the potential exists for MEC to remain in the subsurface. Therefore, the risks associated with intrusive receptors (e.g., maintenance workers, construction workers, and trespassers) are assumed to remain at a level that requires mitigation. The three remedial alternatives developed to mitigate this risk are summarized below.

Alternative 1 – No Further Action

This alternative assumes no further action would be taken at the Future East Garrison MRA 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 NCP. There are minimal costs associated with implementation of this alternative.

Alternative 2 – Land Use Controls

This alternative assumes that LUCs, without additional MEC remediation on any portion of the Future East Garrison MRA, would be implemented to address potential MEC risks for intrusive or ground-disturbing reuse. The LUCs alternative consists of military munitions recognition and safety training, construction support, access management measures, continuation of the existing residential use restriction in the area designated for non-residential development reuse or for habitat reserve, and restrictions against inconsistent uses (applicable to the habitat reserve areas). The components of the alternative are described below:

Military Munitions Recognition and Safety Training - People who conduct intrusive operations during the designated reuses and development at the Future East Garrison MRA would be required to attend the military munitions recognition and safety training to increase their awareness of and ability to recognize when they may have encountered a munition. Prior to planned intrusive activities, the property owner would be required to notify FORA or its successor to provide military munitions recognition and safety training to every worker who will perform intrusive activities.

Construction Support - UXO-qualified personnel would perform construction support to manage the risk associated with the potential presence of military munitions during intrusive or ground-disturbing activities at Future East Garrison MRA reuse areas. Construction support would be arranged during the planning stages of the project, in accordance with the local municipal code requirements for an excavation permit, prior to the start of 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 suspect munitions items are encountered. If military munitions are encountered during construction support activities, the intrusive and ground-disturbing work will immediately cease; no attempt will be made to disturb, remove, or destroy munitions or suspect munitions encountered, and the local law enforcement agency will be immediately notified. Local law enforcement will request appropriate explosives or munitions emergency response from Explosive Ordnance Disposal or local bomb squad with equivalent training.

For onsite support, UXO-qualified personnel must attempt to identify and remove explosive hazards encountered in the construction footprint prior to intrusive construction activities. If authorized, recovered MEC will be either destroyed on site in compliance with approved procedures, or securely stored pending arrival of Explosive Ordnance Disposal or local bomb squad.

Construction support may be applicable in the short-term during development of the reuse area, or in the long-term during established reuse. Based on the site information, on-call construction support is generally expected to be sufficient to support the anticipated future reuse of the property.

Access Management Measures - Access management measures would be required in the portions of Future East Garrison MRA designated for habitat reserve. Access management measures such as informational displays, fencing, and security patrols, would be implemented to discourage access by unauthorized personnel to habitat reuse areas outside of trails. Access outside of trails would be allowed for specific personnel conducting authorized activities (such as biologists performing habitat monitoring activities).

Residential Use Restriction - Residential use restriction placed on the Future East Garrison MRA property at the time of property transfer to FORA would be maintained only for areas designated for non-residential development reuse or for habitat reserve. Restrictions prohibiting residential use in the designated future residential reuse area would be removed. For the purpose of this decision document, residential use includes: single family or multi-family residences; childcare facilities; playgrounds; hospitals; nursing homes or assisted living facilities; and any type of educational facility for children or young adults in grades kindergarten through 12.

Restrictions Against Inconsistent Uses - For the habitat reserve, Parcels E11b.6.1 and E11b.7.1.1, uses that are inconsistent with the HMP would be prohibited, including but not limited to residential, school, and commercial/industrial development.

The LUCs included in this alternative are based on the planned reuse of the Future East Garrison MRA. The specific details of LUCs would be presented in the RD/RA Work Plan and/or LUCIP/OMP. The cost associated with implementing this alternative is estimated to be \$771,000. In addition, a long-term management cost of \$281,000 applies to this alternative.

Alternative 3 – Additional Subsurface MEC Remediation

This alternative assumes that a subsurface removal of military munitions would be conducted throughout the entire footprint of the Future East Garrison MRA. This alternative includes implementing the appropriate type of vegetation clearance, if necessary, and the implementation of additional munitions

responses (e.g., investigation and removal actions). Vegetation clearance would be conducted in a manner consistent with the HMP (USACE 1997) and ARARs.

Additional subsurface munitions removal actions would involve a geophysical survey to identify anomalies, investigation of selected anomalies, and the removal of military munitions to the depth of detection. During intrusive activities, exclusion zones will be established and maintained in compliance with the current version of DoD's Fragmentation Data Review Form (Frag Data Base) for the munition with the greatest fragmentation distance (MGFD) expected to be encountered. The best available and appropriate detection technologies will be used to conduct geophysical surveys. Standard industry procedures based on the DoD Explosive Ordnance Disposal 60A (SERIES) will be used for the detonation of MEC. Locations at which recovered MEC will be destroyed by open detonation or using DoD Explosives Safety Board (DDESB)-approved contained destruction technology will be sited based on DoD explosives safety criteria (DoD M 6055.9, Ammunition and Explosive Safety Standards (VOL 1 to 8) or DoD Explosives Safety Regulation 6055.9). If appropriate, engineering controls (see Frag Data Base) or the buried explosion module will be used.

The RD/RA Work Plan or a similar document will detail the vegetation clearance methods, and the detection and detonation technologies, to include engineering controls, to be used. Post-remediation habitat monitoring would be required within the habitat reserve area. The cost associated with implementing this alternative is estimated to be \$9 million. In addition, a long-term management cost of \$281,000 applies to this alternative.

2.13. Principal Threat Wastes

Munitions responses have been completed by the Army and FORA at the Future East Garrison MRA. MEC items which would meet the Principal Threat Waste (PTW) criteria identified as part of the investigation have already been addressed. Military munitions that may remain present, if encountered, may constitute a principal threat to human health due to the potential for it to pose an explosive hazard if moved, handled or disturbed. Munitions, if encountered, and determined by qualified personnel (e.g., UXO-qualified personnel) to pose an explosive hazard are normally destroyed on site and would be a PTW as defined by CERCLA, the NCP and EPA guidance. The selected remedy includes LUCs because detection technologies may not have detected every military munition present. The source materials that may constitute principal threats at the Future East Garrison MRA are MEC that potentially remain below the ground surface (in the subsurface).

The selected remedy will address the residual threats through implementing the following LUCs:

- Military munitions recognition and safety training for workers who will conduct ground-disturbing or intrusive activities;
- Construction support to manage the risk associated with the potential presence of military munitions for ground-disturbing or intrusive activities;
- Access management measures in areas designated for habitat reserve;
- Restrictions prohibiting residential use (as defined in this ROD) in areas designated for non-residential development reuse or for habitat reserve; and
- Restrictions against inconsistent uses (applicable to the habitat reserve areas).

2.14. Selected Remedy

2.14.1. Summary of the Rationale for the Selected Remedy

Each alternative developed for the Future East Garrison MRA was assessed against the nine EPA evaluation criteria described in Table 3. Using the results of this assessment, the alternatives were compared and a remedy selected for the MRA. The remedy that best meets the nine evaluation criteria is Alternative 2 (Land Use Controls). This remedy was selected because LUCs will be protective of human health for future land users, and would be effective in the short- and long-term at mitigating the risk to workers conducting ground-disturbing or intrusive activities from MEC that is potentially present. This remedy will require a low level of effort to implement, a moderate level of effort to administer over time, and would be cost effective. The remedy can be implemented in a manner consistent with Federal and State guidance.

The Army and EPA have jointly selected the remedy. The DTSC reviewed the ROD and its concerns were addressed.

Community acceptance is discussed in the Responsiveness Summary (Section 3.0). The selected remedy is further described below.

2.14.2. Description of the Selected Remedy

The selected remedial alternative for the Future East Garrison MRA is Alternative 2 (Land Use Controls). LUCs and their implementation strategy are described below.

Land Use Controls

The LUCs that will be implemented at the Future East Garrison MRA include requirements for: (1) military munitions recognition and safety training for workers who will conduct ground-disturbing or intrusive activities; (2) construction support to manage the risk associated with the potential presence of military munitions for ground-disturbing or intrusive activities; (3) access management measures in areas designated for habitat reserve; (4) restrictions prohibiting residential use (as defined in this ROD) in areas designated for non-residential development reuse or for habitat reserve; and (5) restrictions against inconsistent uses (applicable to the habitat reserve areas).

- **Military munitions recognition and safety training** - For the areas addressed in this ROD, ground-disturbing or intrusive activities are expected to occur. Personnel who conduct ground-disturbing or intrusive operations at these areas will be required to attend the military munitions recognition and safety training to increase their awareness of and ability to recognize when they may have encountered a munition. Prior to conducting ground-disturbing or intrusive activities, the property owner will be required to notify FORA or its successor to provide military munitions recognition and safety training to every worker who will perform ground-disturbing or intrusive activities.

Military munitions recognition and safety training will be evaluated as part of the five-year review process to determine if the training program should continue. If further evaluation indicates that this LUC is no longer necessary, the program may be discontinued with regulatory approval.

- **Construction support** - Construction support to manage the risk associated with the potential presence of military munitions performed by UXO-qualified personnel is required during intrusive or ground-disturbing activities at the Future East Garrison MRA reuse areas. Construction support will be arranged during the planning stages of the project, in accordance with the local municipal code

requirements for an excavation permit, prior to the start of intrusive or ground-disturbing 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 suspect munitions items are encountered during intrusive activities. If military munitions are encountered 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. Local law enforcement will request appropriate explosives or munitions emergency response from Explosive Ordnance Disposal or local bomb squad with equivalent training.

For onsite support, UXO-qualified personnel must attempt to identify and remove any explosive hazards in the construction footprint prior to intrusive construction activities. If authorized, recovered MEC will be either destroyed on site in compliance with approved procedures, or securely stored pending arrival of Explosive Ordnance Disposal or local bomb squad.

Construction support may be applicable in the short-term during development of the reuse area, or in the long-term during established reuse. Based on the site information, on-call construction support is generally expected to be sufficient to support the anticipated future reuse of the property, but onsite construction support may be appropriate depending on the type and location of planned intrusive activities.

Construction support will be evaluated as part of the five-year review process to determine if the LUC should continue. If the munitions-related data collected during the development of the reuse areas indicates that this LUC is no longer necessary, construction support may be discontinued with regulatory approval.

- **Access management measures** - Access management measures will be required in the portions of Future East Garrison MRA designated for habitat reserve. Access management measures such as informational displays, fencing, and security patrols, will be implemented to discourage access by unauthorized personnel to habitat reuse areas outside of trails. Access outside of trails will be allowed for specific personnel conducting authorized activities (such as biologists performing habitat monitoring activities).
- **Restrictions prohibiting residential use** - Residential use restriction placed on the Future East Garrison MRA property at the time the property was transferred to FORA will be maintained for the areas designated for future non-residential development reuse or habitat reserve. For the purpose of this document, residential reuse includes: single family or multi-family residences; childcare facilities; playgrounds; hospitals; nursing homes or assisted living facilities; and any type of educational facility for children or young adults in grades kindergarten through 12.
- **Restrictions against inconsistent uses** - For the habitat reserve, Parcels E11b.6.1 and E11b.7.1.1, uses that are inconsistent with the HMP are prohibited, including but not limited to residential, school, and commercial/industrial development.

2.14.3. Land Use Control Implementation Strategy

The performance objectives for the LUCs that are part of the remedy are the following:

- **Military munitions recognition and safety training:** (1) to ensure that land users involved in ground-disturbing or intrusive activities are educated about the possibility of encountering military munitions; and (2) to ensure that land users involved in ground-disturbing or intrusive activities stop the activity when a suspect munition or munition is encountered and report the encounter to the appropriate authority.
- **Construction support:** supports the management of the risk associated with the potential presence of military munitions during ground-disturbing or intrusive activities, and ensures such activities are coordinated with UXO-qualified personnel so encounters with a suspect munition or a munition will be handled properly. Mechanisms for implementing the requirement for construction support may include local ordinance(s), and details of implementation will be described in the RD/RA Work Plan and/or LUCIP/OMP for the LUCs.
- **Access management measures:** to discourage access by unauthorized personnel to habitat reuse areas outside of trails. Implementation details, such as informational displays, fencing and security patrols, will be described in the RD/RA Work Plan and/or LUCIP/OMP for the LUCs.
- **Restrictions prohibiting residential use:** to ensure that any proposals to allow residential use (as defined in this ROD) in areas designated for future non-residential development reuse or habitat reserve, or any proposals for modifications to residential restrictions in areas designated for future non-residential development reuse or habitat reserve, are approved by EPA and Army in coordination with DTSC.
- **Restrictions against inconsistent uses (applicable to the habitat reserve):** to maintain the integrity of the habitat management and conservation systems that are in place until EPA and the Army determine that they are no longer necessary.

Each component of the LUCs will remain in place until EPA and DTSC concur that the site is protective of human health and the environment without the LUC so as to allow for unrestricted use and exposure. This concurrence may be based on: (1) new information (e.g., limited geophysical mapping, site development); or (2) where the depth of soil disturbance related to ground-disturbing or intrusive activities is sufficient to address the uncertainty of MEC remaining in the subsurface and military munitions encountered during such activities is removed.

For any proposals for a land use change that are inconsistent with the use restrictions and assumptions described in this ROD, the recipient of the property must consult with and obtain the approval of the Army, EPA and, as appropriate, State regulators, or the local authorities in accordance with the federal deed and the provisions of the CRUP. The land use restrictions and notices set forth in the federal deed and provisions set forth in the CRUP run with the land and are binding upon all future owners and occupants of the property.

The LUCs and the implementation actions will be explained in more detail in the RD/RA Work Plan and/or LUCIP/OMP. In accordance with the ESCA, the AOC, and the FFA Amendment No.1, FORA will prepare a LUC remedial design which shall contain implementation, monitoring and maintenance actions, including periodic inspections and reports. Within 90 days of the signature of the ROD, FORA shall provide the LUC remedial design to EPA and DTSC for review and approval.

As part of the implementation, the RD/RA Work Plan and/or LUCIP/OMP will also describe the following long-term management measures:

- **Land use restrictions:** The deed to FORA for the Future East Garrison MRA parcels restricts residential use. The deed will be modified to remove the residential use restriction on the designated

future residential reuse area. The residential use restriction will remain for the areas designated for future non-residential development reuse or habitat reserve. Residential use includes: single family or multi-family residences; childcare facilities; playgrounds; hospitals; nursing homes or assisted living facilities; and any type of educational facility for children or young adults in grades kindergarten through 12. It should be noted that the CRUP for the Future East Garrison MRA parcels restrict residential use. The DTSC will modify the CRUP, as appropriate, to be consistent with the identified remedy. For the habitat reserve, Parcels E11b.6.1 and E11b.7.1.1, uses that are inconsistent with the HMP are prohibited, including but not limited to residential, school, and commercial/industrial development.

- **Annual monitoring and reporting:** FORA, or its successor entity under the ESCA and the AOC, will perform annual monitoring and reporting. FORA or its successor entity will notify the regulatory agencies, as soon as practicable, of MEC-related data identified during use of the property, and report the results of monitoring activities annually.
- **Five-year review reporting:** Five-year reviews will be conducted by the Army in accordance with CERCLA Section 121(c) and the Fort Ord FFA. The five-year review will evaluate the protectiveness of the selected remedy. Based on the evaluation, the selected LUCs may be modified or discontinued, with the approval of the EPA and DTSC.

Under the ESCA and the AOC, FORA will implement the selected remedy. The RD/RA Work Plan and/or LUCIP/OMP will include requirements to ensure future property owners are informed of the potential of encountering MEC. The RD/RA Work Plan and/or LUCIP/OMP will specify that future property owners will be informed through the following mechanisms:

- notices and disclosures included in federal deeds at the time of property transfer;
- annual notification to property owners of the munitions recognition and safety training requirements and information on how to obtain the training;
- annual distribution of educational literature to property owners that warns of the dangers associated with military munitions, includes images of the military munitions that may be present, and the safety and notification procedures to follow if a munition or suspect munition is encountered; and
- coordination with local jurisdictions prior to ground-disturbing or intrusive activities, as required by the local Digging and Excavation on the Former Fort Ord Ordinance.

The standard procedure for reporting an encounter with a munition or suspect munition in the transferred former Fort Ord property is to report the encounter immediately to the local law enforcement agency having jurisdiction on the property. Local law enforcement will request appropriate explosives or munitions emergency response from Explosive Ordnance Disposal or local bomb squad, which has the training required to evaluate and remove or destroy the munition encountered, as required under applicable laws and regulations.

During on-call construction support, any encounter with military munitions will be reported to local law enforcement for a response by Explosive Ordnance Disposal or local bomb squad personnel. If the military munitions are determined to be MEC, the probability of encountering MEC will be reassessed. If the probability of encountering MEC is low, construction may resume with construction support. If the probability of encountering MEC is moderate to high, onsite construction support or the conduct of an additional munitions response is required. If onsite construction support is required, UXO-qualified personnel will attempt to identify and remove any explosive hazard in the construction footprint prior to intrusive construction activities. If authorized, recovered MEC will be either destroyed on site in

compliance with approved procedures, or securely stored pending arrival of Explosive Ordnance Disposal or local bomb squad.

FORA or its successor will notify the regulatory agencies, as soon as practicable, of MEC-related data identified during use of the property, and report the results of monitoring activities annually. The Army will conduct five-year reviews. If additional evaluation or work or modification of the selected remedy is proposed based on such review, it will be implemented in accordance with Paragraph 34 of the AOC, or Section C.4.1.7 of the ESCA.

Pursuant to the ESCA, the AOC and the FFA Amendment No.1, FORA assumes full responsibility for completion of necessary CERCLA response actions (except Army Obligations) which include implementing, maintaining, reporting, and enforcing the land use controls. Although the Army has already transferred the responsibilities to implement, maintain, monitor, report on, and enforce LUCs to another party by contract, property transfer agreement, or through other means, the Army retains the ultimate responsibility for remedy integrity. Future property owners will also have responsibilities to act in accordance with the LUCs as specified in the deed.

2.14.4. Summary of the Estimated Remedy Costs

For those alternatives whose life-cycle is indeterminate or exceeds 30 years, for the purposes of evaluating and comparing alternatives as specified in EPA's Remedial Investigation/Feasibility Study Guidance (EPA 1988), a period of 30 years is used for estimating long-term O&M costs. For the Future East Garrison MRA, the life-cycle is indeterminate; therefore, long-term O&M costs were estimated over a period of 30 years. Capital and long-term O&M costs for implementing and maintaining LUCs under Alternative 2 are estimated at a total of approximately \$771,000 for the reuse areas within the Future East Garrison MRA. Capital and long-term O&M costs for implementing and maintaining Long-Term Management Measures are estimated at approximately \$281,000 for the reuse areas within the MRA. Therefore, the total estimated 30-year Net Present Value cost of the remedy is approximately \$1.1 million. Long-term O&M costs are based on a 0.7 percent real interest rate for Years 1-7 (assumed duration for development and construction), and a 1.4 percent real interest rate for Years 8-30 (established reuse). A detailed, activity-based breakdown of the estimated costs associated with implementing and maintaining the remedy is provided in the Group 4 Feasibility Study (Volume 3; ESCA RP Team 2017b).

2.14.5. Expected Outcomes of Selected Remedy

The expected outcomes of the selected remedy would be protection of human health and the environment through implementation of LUCs.

If residential use, as defined in this ROD, is planned for the designated future non-residential development reuse or habitat reserve reuse portions of the Future East Garrison MRA included in this ROD, the plans will be subjected to regulatory agency and Army review and approval.

2.15. Statutory Determinations

The selected remedy satisfies the requirements of Section 121 of CERCLA as follows:

- Protection of Human Health and the Environment: The selected remedy provides protection for both human health and the environment through implementation of LUCs to mitigate the risk from potentially remaining MEC.

- Compliance with Applicable or Relevant and Appropriate Requirements: The selected remedy can 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 a CRUP with the DTSC at the time the property was transferred to FORA. 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 CRUP and the DTSC will modify the CRUP, as appropriate, to be consistent with the identified remedy.
- Cost Effectiveness: The selected remedy is a cost-effective solution for reducing the risks to human health and the environment. The Net Present Value of the total estimated costs for the reuse areas within the Future East Garrison MRA is approximately \$1.1 million (including long-term management measures costs of \$281,000) for the selected remedy of Land Use Controls (Alternative 2), which is well below the estimate for Additional MEC Remediation (Alternative 3) of approximately \$9 million (including long-term management measures costs of \$281,000). In addition, costs for Alternative 3 may be higher than estimated because: (1) after additional munitions responses are completed, these areas would require re-evaluation of potential risk from MEC that may remain present; and (2) the areas are likely to continue to require additional risk mitigation measures (e.g., LUCs) to protect human health during development and long-term reuse. There are minimal costs associated with Alternative 1.
- Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable: The principal threats at the Future East Garrison MRA have already been treated (i.e., munitions removal actions have been completed) utilizing permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable.
- Preference for Treatment as a Principal Element: The principal threats at the Future East Garrison MRA have already been addressed (i.e., munitions removal actions have been completed), satisfying the statutory preference for treatment as a principal element (i.e., reducing the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element through treatment).
- Five-Year Review Requirements: Because the selected remedy may result in MEC potentially remaining within the Future East Garrison MRA, a statutory review will be conducted by the Army within five years after initiation of the remedial action to ensure the remedy is, or will be, protective of human health and the environment. The purpose of a five-year review is to gather updated information, evaluate the condition of the site, and determine if the site remains safe from contamination that might be left at the site. The next five-year review will occur in 2022.

2.16. Documentation of Significant Changes from Preferred Alternative of Proposed Plan

As described in Section 2.4., the Proposed Plan for the Future East Garrison MRA was released for public comment on September 28, 2017, and a public meeting was held on October 19, 2017. This Proposed Plan identified the preferred remedial alternative for the Future East Garrison MRA. Comments collected over the 30-day public comment period between October 4, 2017, and November 2, 2017, did not necessitate any significant changes to the conclusions or procedures outlined in the Group 4 RI/FS and Group 4 Proposed Plan.

3. RESPONSIVENESS SUMMARY

3.1. Proposed Plan Overview

Based on the Group 4 RI/FS, dated June 21, 2017, the Army identified a preferred remedial alternative of LUCs. The preferred remedial alternative presented in the Group 4 Proposed Plan includes the following LUCs:

- Military munitions recognition and safety training (for workers who will conduct ground-disturbing or intrusive activities, such as construction workers and maintenance workers)
- Construction support by UXO-qualified personnel (for ground-disturbing or intrusive activities)
- Access management measures (applicable to the habitat reserve areas)
- Restrictions prohibiting residential use in areas designated for non-residential development reuse or for habitat reserve
- Restrictions against inconsistent uses (applicable to the habitat reserve areas)

3.2. Background on Community Involvement

Focused community involvement for the Group 4 Proposed Plan involved a notice of availability of the Proposed Plan for review, a 30-day public comment period, a public meeting, and a responsiveness summary to address comments received on the Group 4 Proposed Plan.

The Group 4 Proposed Plan notice of availability was published in the Monterey County Herald and the Salinas Californian newspapers on October 4, 2017. The 30-day public comment period began on October 4, 2017, and closed on November 2, 2017.

The public meeting was held on October 19, 2017, to present the Group 4 Proposed Plan to a broader community audience. At this meeting, representatives from the Army and regulatory agencies were present, and the public had the opportunity to submit written and oral comments about the Proposed Plan. Representatives from FORA were also present at the public meeting to answer questions on the Group 4 Proposed Plan. Copies of the comments received on the Proposed Plan and a transcript of the public comments are available at the Fort Ord Administrative Record at www.fortordcleanup.com.

The responsiveness summary responds to written comments received during the Group 4 Proposed Plan public comment period as well as oral comments expressed during the Proposed Plan public meeting. A summary of public comments submitted during the Proposed Plan public comment period and the Army's responses to the comments are provided in the following section.

3.3. Summary of Comments Received During the Public Comment Period and Department of the Army Responses

Public comments received during the Group 4 Proposed Plan public comment period and the Army's responses are summarized below.

Comments were received from the public: (1) at the public meeting held on October 19, 2017; and (2) in written comments received during the 30-day public comment period from October 4, 2017, to November 2, 2017.

Comment summaries are provided below and have been categorized based on the focus of each comment. The categories are:

- A. Selected Remedy and Remedy Implementation
- B. Other Comments

A1: A commenter requested clarification of whether the Army or FORA developed the alternatives presented in the Proposed Plan. The commenter stated that only three alternatives were evaluated and stated that the alternatives limit other considerations. In addition, the commenter indicated that the public is being encouraged to accept LUCs as the preferred alternative.

Response: Working with the community throughout the cleanup process is an important priority to the Army. The Army strives to do this through, in part, making the cleanup information available to the public and inviting the public to participate in the decision-making process. A public participation process is also being implemented by FORA as part of the ESCA Remediation Program at the former Fort Ord. The Future East Garrison MRA is part of the ESCA Remediation Program.

The three remedial alternatives evaluated for the Future East Garrison MRA were developed by FORA in accordance with the EPA's Remedial Investigation/Feasibility Study Guidance (EPA 1988). The process for development of the remedial alternatives is presented in the Feasibility Study (Group 4 RI/FS, Volume 3; ESCA RP Team 2017b). The objectives of the Feasibility Study are to describe the process used to develop, evaluate, and compare remedial alternatives, and select preferred alternatives that will meet the remedial action objectives for the Future East Garrison MRA. General response actions and process options for the Future East Garrison MRA were identified and screened following the EPA's guidance, as provided in Section 3.0 of the Feasibility Study. Options which passed the screening were combined into comprehensive alternatives for remediation of the Future East Garrison MRA, as presented in Section 4.0 of the Feasibility Study. Section 5.0 of the Feasibility Study presents the detailed analysis the remedial alternatives. The preferred alternative is identified in Section 6.0. The preferred alternative was presented in the Group 4 Proposed Plan for public comment.

Under CERCLA, the Army follows the public participation and community involvement process, and encourages members of the local community and other interested parties to review cleanup documents and make comments on proposed cleanup decisions. Public comments are considered before any action is selected. The Army, in conjunction with the regulatory agencies, takes comments into consideration prior to making a cleanup decision.

A2: A commenter expressed concern that a LUCs remedy shifts risk to future developers and land owners and will likely fail. The commenter also provided an example of a transferred area of the former Fort Ord. Additionally, the commenter expressed concern for the ability of the Monterey County to implement LUCs with respect to staffing, budget, training, and chain of command. The commenter lacks confidence in LUCs and noted that FORA is likely to sunset soon.

Response: As presented in the Group 4 RI/FS, remedial alternatives were evaluated using the nine CERCLA evaluation criteria to manage the risk to future land users from MEC that potentially remains in the properties. The LUC remedy (Alternative 2) was determined to best meet the CERCLA evaluation criteria and will be protective of human health during development and reuse by requiring safety training and construction support for intrusive activities, and restricting residential use (i.e., sensitive uses, as defined in this ROD) in areas designated for non-residential reuse or for habitat reserve.

The property underlying the Future East Garrison MRA will be transferred from FORA to Monterey County after EPA certifies the completion of the remedial action. The final remedy selected for the Future East Garrison MRA will be implemented by FORA, and its successor under the ESCA. However, the Army is ultimately responsible for the integrity of the remedy.

Regarding implementation of LUCs by Monterey County, a RD/RA Work Plan and/or LUCIP/OMP will be prepared by FORA outlining implementation of the selected remedy. The plan will be coordinated with the jurisdiction. Monterey County will be responsible for conducting annual LUC inspections and monitoring for the Future East Garrison MRA and submitting annual LUC monitoring reports to FORA. FORA will monitor compliance with LUC monitoring and reporting obligations per a 2008 agreement with FORA and DTSC (Administrative Record No. OE-0714A). Annual LUC monitoring reports and annual LUC status reports cover the environmental restrictions, covenants and controls for the properties, including the military munitions recognition and safety training, construction support, access management measures, residential use restrictions, and restrictions prohibiting inconsistent uses (applicable to habitat reserve areas). The remedy will be evaluated by the Army during the five-year review process to determine whether the selected remedy continues to be protective of human health and the environment.

The ESCA and AOC contemplated the eventual sunset of FORA and made provisions for a successor in interest to perform FORA's Long-Term Obligations. The ESCA states that the successor should be able to meet the technical obligations and responsibilities required under the ESCA and the AOC.

Discussion of the jurisdiction budget associated with LUC implementation is outside the scope of the Group 4 Proposed Plan and Record of Decision.

A3: A commenter expressed support for Alternative 2 as the selected remedy; however, stated it would be advantageous to review past completed cleanups before making any decisions.

Response: The remedial alternatives for the Future East Garrison were developed based on the site-specific information about the MRA. The three remedial alternatives developed for the Future East Garrison MRA were evaluated to determine the effectiveness of each to provide mitigation of potentially remaining MEC risks for potential reusers given the anticipated future land use. As described in the Proposed Plan, LUCs and MEC removals were evaluated as remedial alternatives using the nine CERCLA evaluation criteria. The LUC remedy best meets the protectiveness criteria by requiring safety training and construction support for intrusive activities, and restricting residential use (i.e., sensitive uses, as defined in this ROD) in areas designated for non-residential reuse or for habitat reserve. The selected LUCs are appropriate to address risks from MEC that may potentially remain at the site during reuse.

The Army evaluates remedies for past cleanups during the five-year review process to determine whether the selected remedy continues to be protective of human health and the environment. The remedy selected for the Future East Garrison will be evaluated during the next five-year review process in 2022. Information on the cleanup of the former Fort Ord is available to the public is available through the Former Fort Ord Environmental Cleanup website at www.fortordcleanup.com. Locations of the Fort Ord Administrative Record and Information Repositories are presented in Section 2.4 of this ROD.

A4: A commenter recommended designating the Future East Garrison MRA as permanent open space be considered as the commenter considers residential reuse a dangerous idea.

Response: As described in the Group 4 RI/FS (ESCA RP Team 2017b) and summarized in Section 2.7 of this ROD, subsurface MEC removals to the depth of detection have been completed over the Future East Garrison MRA, with the exception of isolated areas with steep terrain having no evidence of munitions

use, and areas under existing roadways, structures, paved areas, and fences. All detected military munitions were removed. As described in the Group 4 RI/FS (ESCA RP Team 2017b), assessment of the available literature, removal results, remedial investigation results and equipment performance results indicate that the removal actions and remedial investigation conducted in the Future East Garrison MRA successfully detected, excavated, and recovered MEC items that may present an imminent safety hazard and that additional data has been collected and evaluated to appropriately characterize the nature and extent of MEC in order to propose a preferred remediation alternative pursuant to CERCLA.

The reasonably anticipated future land uses for the Future East Garrison MRA were established based on input from the underlying land use jurisdiction. The designated future land uses for the MRA are based upon the Fort Ord Base Reuse Plan (FORA 1997). Future land use information is also included in the HMP (USACE 1997) and modifications to the HMP provided in *Assessment, East Garrison – Parker Flats Land Use Modifications, Fort Ord, California* (Zander 2002), as described in Section 2.9 of this ROD.

Final or actual land use decisions will be made by the local jurisdiction and must be consistent with land use restrictions placed on the property. The jurisdiction will be the final decision-maker regarding land use and the associated aspect of development that may occur.

A5: A comment was made expressing the importance of documenting that recreational use on trails is considered “consistent use” and that access be provided to trails within the habitat reserve area.

Response: With respect to land use controls, inconsistent uses are uses that are inconsistent with the HMP, as specified in the deed for the property, for the habitat reserve portion of the Future East Garrison MRA. Recreational activities occurring within authorized recreational areas generally would not be considered inconsistent with the HMP.

As described in this ROD, access management measures, such as informational displays, fencing, and security patrols, will be implemented to discourage access by unauthorized personnel to habitat reserve areas outside of authorized trails. Access management measures are not intended to restrict recreational use of trails within the habitat reserve area. Recreational users were identified as a type of receptor anticipated in the habitat reserve areas, and were evaluated in the Group 4 Risk Assessment (Volume 2; ESCA RP Team 2017b).

B1: A commenter expressed concern with the lack of vapor intrusion studies. The commenter previously expressed the same concern with respect to the Draft Final Group 4 RI/FS and stated that the response provided was inadequate.

Response: The Group 4 RI/FS, Proposed Plan, and Record of Decision address explosive safety risks from MEC that potentially remain at the Future East Garrison MRA. As provided in responses to comments on Draft Final Group 4 RI/FS, included in Appendix G of the Final Group 4 RI/FS (ESCA RP Team 2017b), the possibility of soil vapor intrusion has been evaluated by the Army at the former Fort Ord remedial sites that have been contaminated with volatile organic compounds. No potential for soil vapor intrusion was identified in the Future East Garrison MRA. Information regarding the Army’s environmental investigations and remedial actions to address potential groundwater contamination and soil vapor intrusion at Fort Ord is available through the Army’s website at www.fortordcleanup.com.

B2: A commenter noted that the potential presence of hazardous and toxic waste chemicals of concern in soil is being addressed under the Army Basewide Range Assessment Program, and groundwater cleanup

is being conducted by the federal government; however, the Proposed Plan does not include discussion of the associated cleanup.

Response: The Basewide Range Assessment (BRA) Program evaluated the potential presence of hazardous and toxic waste chemicals of concern (COCs) within the former Fort Ord (Shaw 2012). The objectives of the BRA investigation were to identify which areas could be eliminated from consideration for potential COC remediation, and to identify areas that require additional investigation for potential chemical contamination or should be considered for remediation/habitat mapping related to COCs. As discussed in Section 2.5 of this ROD, based on the BRA, no further evaluation was recommended for historical areas within the Future East Garrison MRA (Shaw 2012).

After many years of groundwater studies and testing, no groundwater contamination has been detected in the Future East Garrison MRA. Information regarding the Army's environmental investigations and remedial actions to address potential groundwater contamination at Fort Ord is available through the Army's website at www.fortordcleanup.com.

B3: A commenter expressed concern that a nearby water supply well has a higher hardness and higher dissolved solids than other supply wells and is concerned that ground water is altered negatively by munitions debris that was present in the subsurface. The commenter also expressed that details of groundwater monitoring and treatment are not sufficiently documented and limited information provided in the 4th Five-Year Review and the February 2017 "Groundwater Cleanup update".

Response: The Group 4 Proposed Plan and Record of Decision address explosives safety risk from MEC that potentially remain at the Future East Garrison MRA.

The potential presence of chemicals of concern in soil is being addressed under the Army Basewide Range Assessment Program. Based on the Basewide Range Assessment, no further evaluation was recommended for historical areas within the Future East Garrison MRA in the Final Basewide Range Assessment Report (Shaw 2012). After many years of groundwater studies and testing, no groundwater contamination has been detected in the Future East Garrison MRA.

4. REFERENCES

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TABLES

Table 1. Summary of Munitions Response Site (MRS) Investigations
Record of Decision, Group 4 Munitions Response Area,
Former Fort Ord, California

MRS Site Number	Site Acreage	Site Name	Past Use	Site Investigation Status *
MRS-11	23	Demolition Training Area, Hand Grenade Area	Troop training and maneuvers; hand grenade training; engineering and demolition operations/training; pre-WWII training (short period of time or the area was not the intended target area)	Subsurface MEC removal completed across site, including soil scraping and sifting in area totaling less than one acre.
MRS-23	6	Demolition Area, Engineer Training Area/Field Expedient Area, Mechanical Training Area	Engineering and demolition operations/training	Subsurface MEC removal completed across site.
MRS-42	19	Rifle Grenade Range, Demolition Area, Former Ammunition Supply Point	Troop training and maneuvers; rifle grenade training; demolition operations/training; pre-WWII training (short period of time or the area was not the intended target area)	Subsurface MEC removal completed across site, including soil scraping and sifting in two areas totaling less than one acre, except under existing roadways, structures, paved areas, and fences.
MRS-42 EXP	32	Rifle Grenade Range, Demolition Area, Former Ammunition Supply Point	Troop training and maneuvers; rifle grenade training; demolition operations/training; pre-WWII training (short period of time or the area was not the intended target area)	Subsurface MEC removal completed across site, except in four 100-ft by 100-ft grids with steep terrain having no evidence of munitions use, under existing roadways, structures, paved areas, and fences.
Areas Outside of MRS Boundaries	172	Parcel E11b.6.1 and portions of Parcels L20.19.1.1, E11b.8, and E11b.7.1.1	Troop training and maneuvers; possible Stokes mortar impact area in east-central portion of Parcel E11b.7.1.1; parking/staging area in portion of Parcel E11b.6.1; portion of Parcel L20.19.1.1 includes section of Barloy Canyon Road; portion of E11b.8 formerly used as an Ammunition Supply Point.	Subsurface MEC removal completed in areas outside MRS boundaries except: a small asphalt area having no evidence of munitions use in Parcel E11b.6.1 and four isolated areas with steep terrain having no evidence of munitions use in Parcel E11b.7.1.1; and under existing roadways, structures, paved areas, and fences in Parcels L20.19.1.1 and E11b.8. Surface MEC removal was completed in a small asphalt area of Parcel E11b.6.1.

Table 1. Summary of Munitions Response Site (MRS) Investigations
Record of Decision, Group 4 Munitions Response Area,
Former Fort Ord, California

Acronyms

MEC = munitions and explosives of concern

MRS = munitions response site

WWII = World War II

Footnotes

* All identified MEC were removed during MEC removal actions.

Table 2. Summary of Transfer Parcels
Record of Decision, Group 4 Munitions Response Area,
Former Fort Ord, California

Transfer Parcel No.	Approx. Acreage	Planned Reuse *
E11b.6.1	48	Habitat reserve
E11b.7.1.1	129	Habitat reserve
E11b.8	58	Residential development
	10	Non-residential development
L20.19.1.1	7	Non-residential development

Footnote

* Planned use information obtained from the *FORA Fort Ord Reuse Plan* (FORA 1997), *Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California* (HMP; USACE 1997b) and modifications to the HMP provided in *Assessment, East Garrison – Parker Flats Land Use Modifications, Fort Ord, California* (Zander 2002).

Table 3. Summary of Remedial Alternatives Evaluation and Comparison
Record of Decision, Group 4 Munitions Response Area, Former Fort Ord, California

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 ¹	Implementability	Cost ²	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	Not acceptable	Not acceptable
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	\$771,000	Acceptable as the preferred alternative	Acceptable to some community members
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 4 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	\$9,070,000	Not selected	Acceptable to some community members

Acronyms

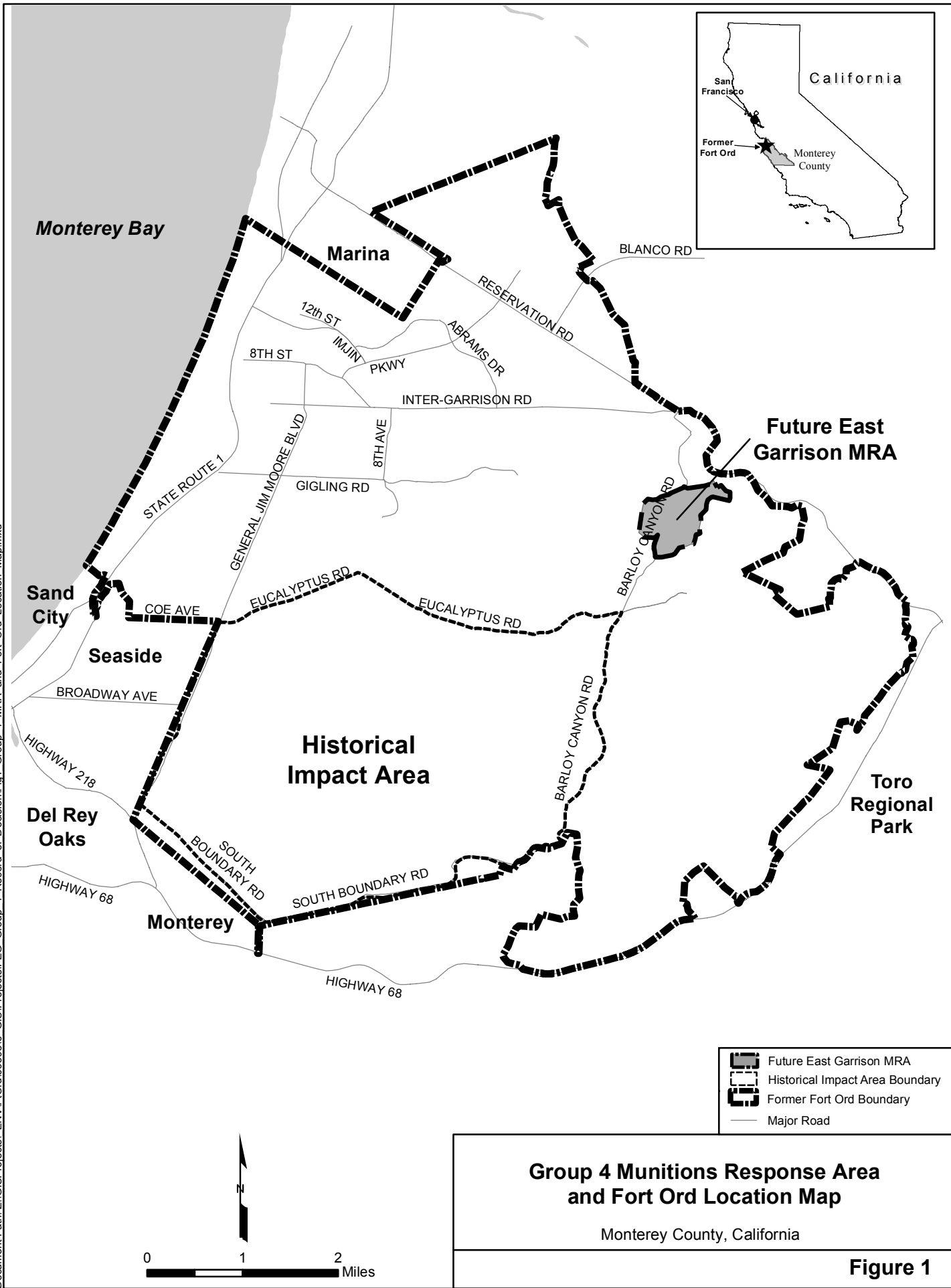
ARARs = applicable or relevant and appropriate requirements
 CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
 EPA = U.S. Environmental Protection Agency
 LUC = Land Use Controls
 MEC = munitions and explosives of concern
 RI/FS = Remedial Investigation/Feasibility Study

Footnotes

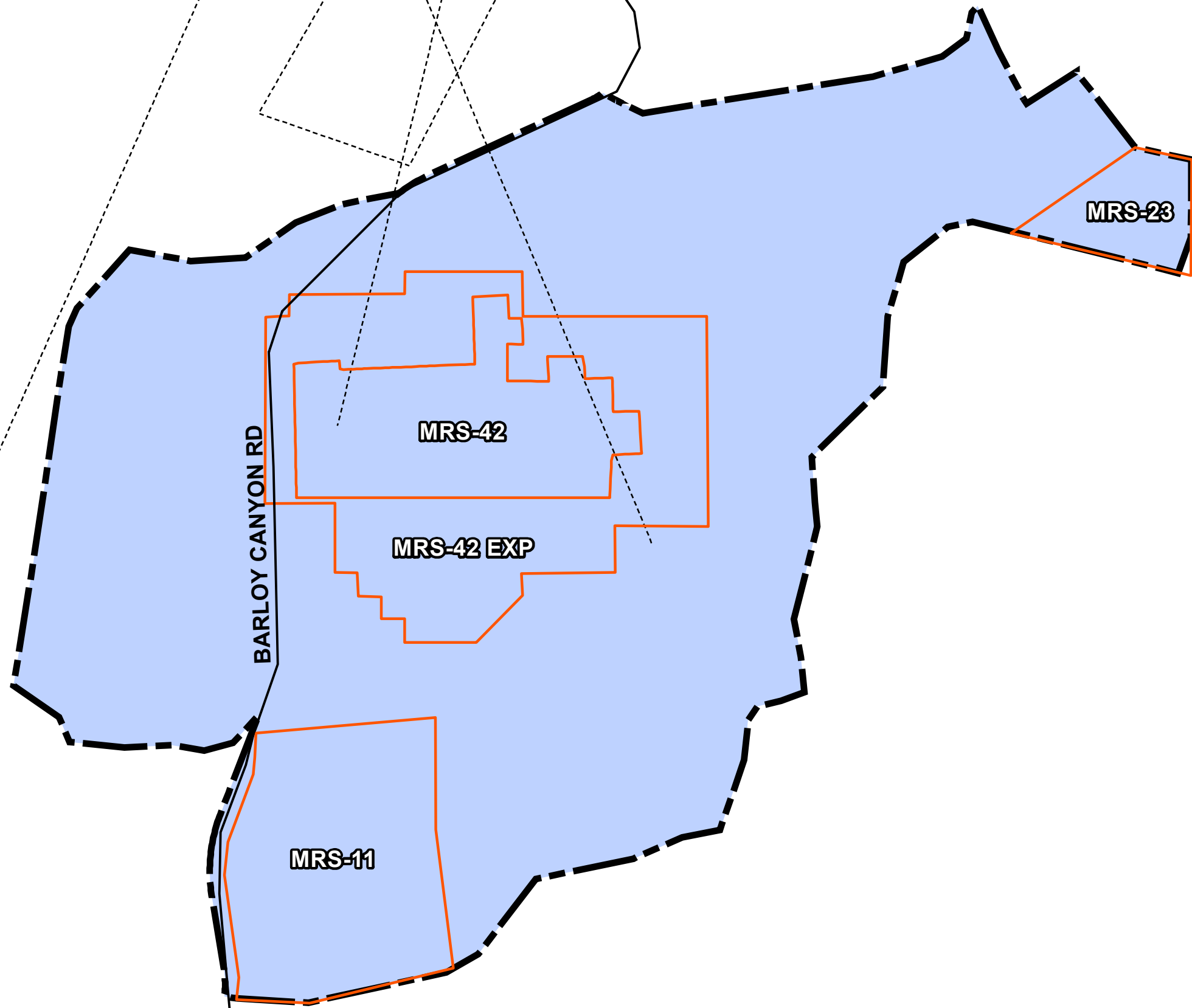
¹ = Completed MEC removal actions already provide for reduction of volume.
² = Costs do not include long-term management costs for each alternative.

FIGURES

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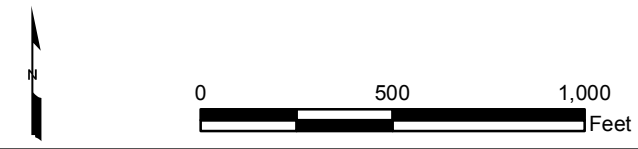
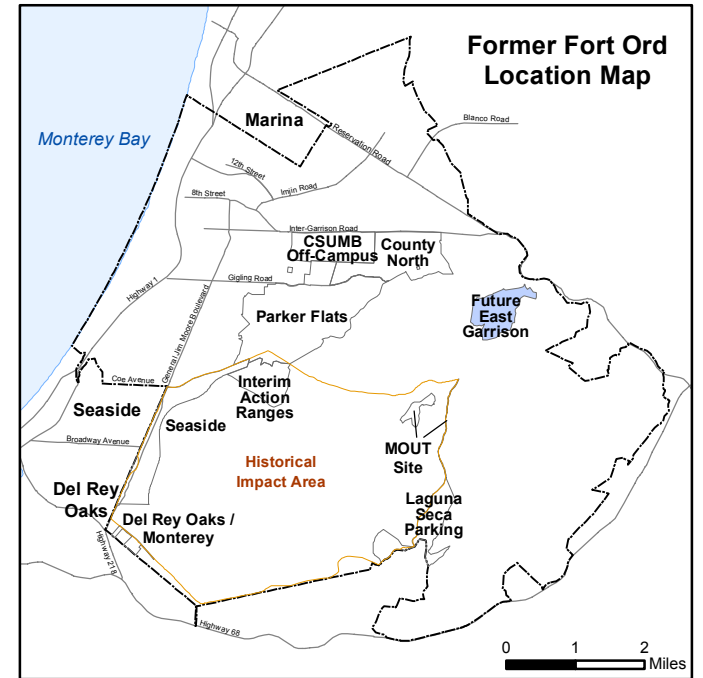


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Legend

- Munitions Response Area
- Future East Garrison MRA
- Munitions Response Site
- Firing Range
- Major Road

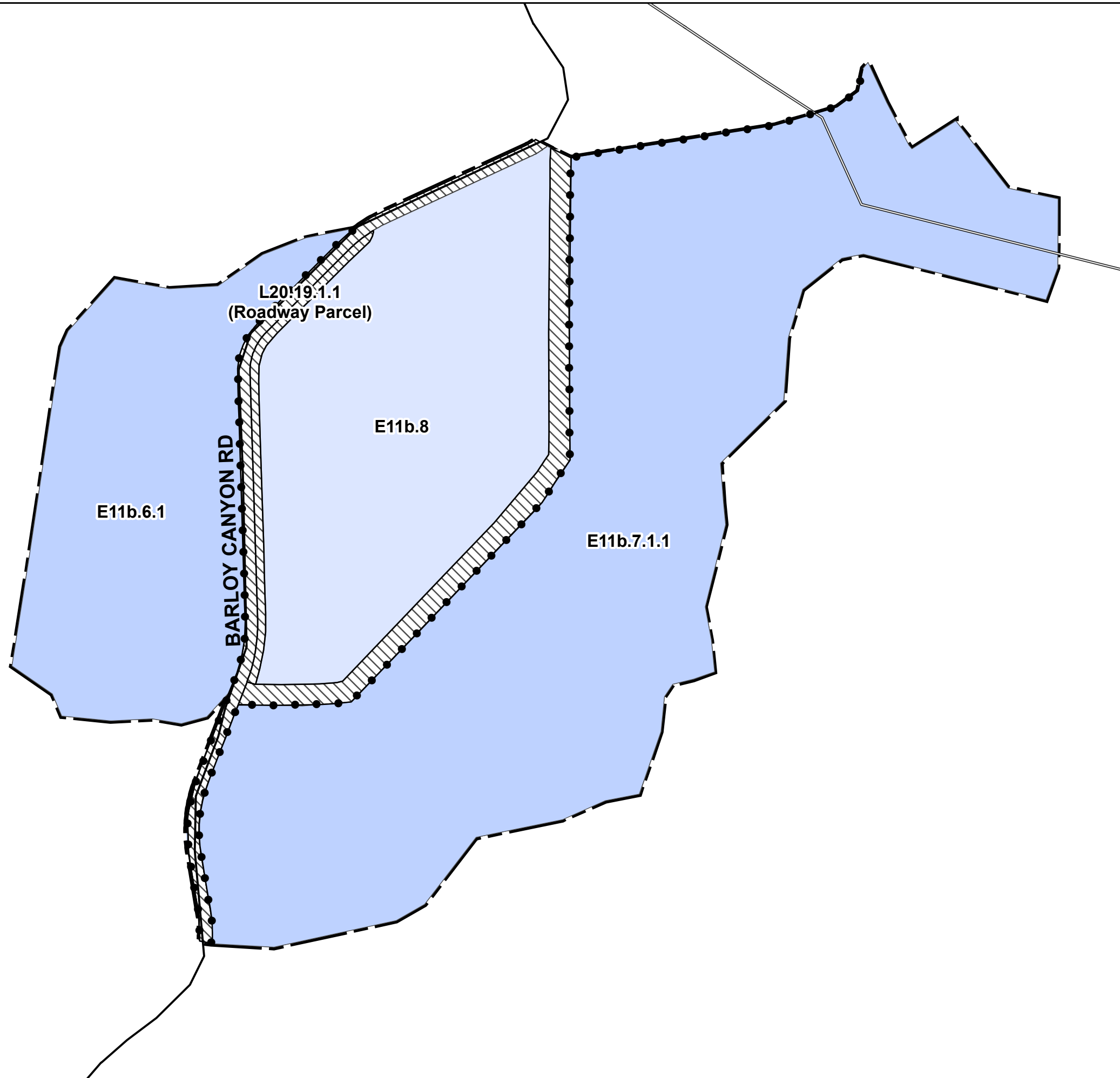


Future East Garrison Munitions Response Area and Munitions Response Sites

Monterey County, California

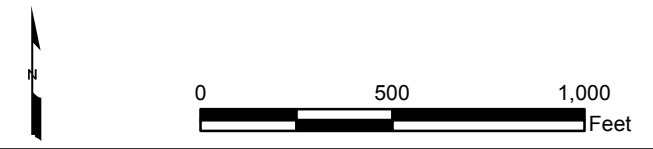
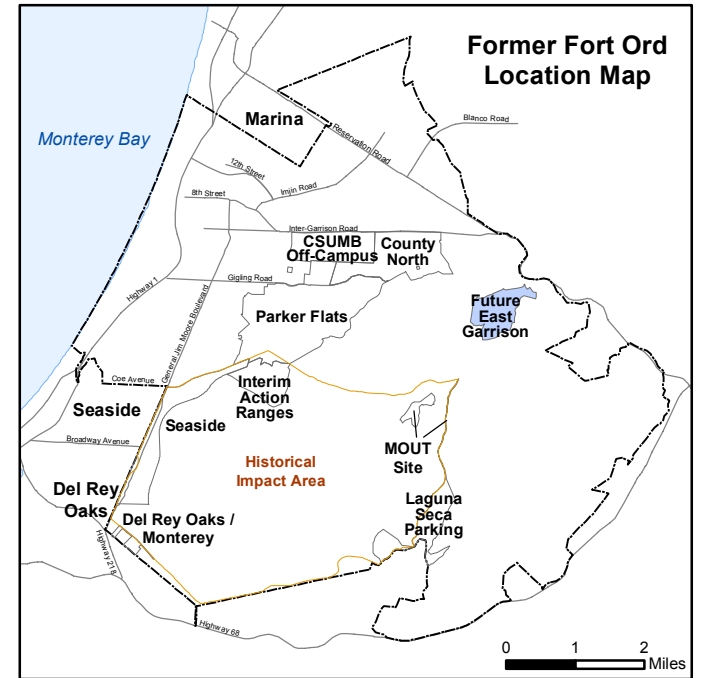
Figure 2

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Legend

- Habitat Reserve Reuse Area**
(area subject to Land Use Controls including munitions recognition and safety training, construction support, access management measures, residential use restriction, and restrictions prohibiting inconsistent use)
- Residential Reuse Area**
(area subject to Land Use Controls including munitions recognition and safety training, and construction support)
- Non-Residential Development Reuse Area**
(area subject to Land Use Controls including munitions recognition and safety training, construction support, and residential use restriction)
- Future East Garrison MRA**
- E11b.8 **USACE Parcel**
- Borderland Interface**
- Major Road**
- Natural Gas Pipeline**



Future East Garrison Munitions Response Area Planned Reuses

Monterey County, California

Figure 3

APPENDIX A

GLOSSARY OF MILITARY MUNITIONS RESPONSE PROGRAM TERMS

APPENDIX A

Glossary of Military Munitions Response Program Terms

Administrative Record – A compilation of all documents relied upon to select a remedial action pertaining to the investigation and cleanup of the former Fort Ord. *Source:* (1).

After Action Report (AAR) – A report presenting the results of munitions and explosives of concern (MEC) investigation, sampling and/or removal actions conducted at a site pertaining to the investigation and cleanup of the former Fort Ord. *Source:* (1).

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. *Source:* (1).

Construction Support – Assistance provided by the Department of Defense (DOD), explosive ordnance disposal (EOD) or unexploded ordnance (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., discarded military munitions [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. *Source:* (3).

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. *Source:* (7).

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 unexploded ordnance (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)).

For the purposes of the basewide Military Munitions Response Program (MMRP) being conducted at the former Fort Ord, DMM does not include small arms ammunition.

Engineering Control (EC) – A variety of engineered remedies to contain and/or reduce contamination, and/or physical barriers intended to limit access to property. Some examples of ECs include fences, signs, guards, landfill caps, soil covers, provision of potable water, slurry walls, sheet pile (vertical caps), pumping and treatment of groundwater, monitoring wells, and vapor extraction systems. *Source:* (5).

Expended – The state of munitions debris (MD) in which the main charge has been expended leaving the inert carrier. *Source:* (1).

Feasibility Study (FS) – An evaluation of potential remedial technologies and treatment options that can be used to clean up a site. *Source:* (1).

Historical Impact Area – The historical impact area consists of approximately 8,000 acres in the southwestern portion of former Fort Ord, bordered by Eucalyptus Road to the north, Barloy Canyon Road to the east, South Boundary Road to the south, and North-South Road (renamed General Jim

Moore Boulevard) to the west. *Source:* (1).

Institutional Control (IC) – (a) Non-engineered instruments such as administrative and/or legal controls that minimize the potential for human exposure to contamination by limiting land or resource use; (b) are generally to be used in conjunction with, rather than in lieu of, engineering measures such as waste treatment or containment; (c) can be used during all stages of the cleanup process to accomplish various cleanup-related objectives; and (d) should be “layered” (i.e., use multiple ICs) or implemented in a series to provide overlapping assurances of protection from contamination. *Source:* (6).

Land Use Controls (LUCs) – 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 encompass a variety of engineered remedies to contain or reduce contamination, or physical barriers to limit access to real property, such as fences or signs. *Source:* (3).

Magnetometer – An instrument used to detect ferromagnetic (iron-containing) objects. Total field magnetometers measuring the strength of the earth’s natural magnetic field at the magnetic sensor location. Gradient magnetometers, sensitive to smaller near-surface metal objects, use two sensors to measure the difference in magnetic field strength between the two sensor locations. Vertical or horizontal gradients can be measured. *Source:* (4).

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 (DOD), 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 of the above.

The term does not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components, other than 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) – Department of Defense (DOD)-established program to manage the environmental, health and safety issues presented by munitions and explosives of concern (MEC). *Source:* (1).

Mortar – Mortars typically range from approximately 1 inch to 11 inches in diameter or larger, and can be filled with explosives, toxic chemicals, white phosphorus or illumination flares. Mortars generally have thinner metal casing than projectiles but use the same types of fuzing and stabilization. *Source:* (2).

Munitions Constituents (MC) – Any materials originating from unexploded ordnance (UXO), discarded military munitions (DMM), or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions (10 U.S.C. 2710 (e) (3)).

Munitions Debris (MD) – Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal. *Source:* (3).

Munitions and Explosives of Concern (MEC) – Distinguishes specific categories of military munitions that may pose unique explosives safety risks, such as: (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) munitions constituents (e.g., Trinitrotoluene [TNT], Cyclotrimethylene trinitramine [RDX]), as defined in 10 U.S.C. 2710(e)(3), present in high enough concentrations to pose an explosive hazard. (32 CFR 179.3).

For the purposes of the basewide Military Munitions Response Program (MMRP) being conducted for the former Fort Ord, MEC does not include small arms ammunition.

Munitions Response Area (MRA) – Any area on a defense site that is known or suspected to contain unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC). Examples are former ranges and munitions burial areas. A MRA comprises of one or more munitions response sites (MRSs). (32 CFR 179.3).

Munitions Response Site (MRS) – A discrete location within a Munitions Response Area (MRA) that is known to require a munitions response. (32 CFR 179.3).

No Further Action – Determination following a remedial investigation or action that a site does not pose a significant risk and so requires no further activity under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). *Source:* (1).

Projectile – An object projected by an applied force and continuing in motion by its own inertia, as a bullet, bomb, shell, or grenade. Also applied to rockets and to guided missiles. *Source:* (2).

Proposed Plan – A plan that identifies the preferred alternative for a site cleanup, and is made available to the public for comment. *Source:* (1).

Record of Decision (ROD) – A ROD is the document used to record the remedial action decision made at a National Priorities List property. The ROD will be maintained in the project Administrative Record and project file. *Source:* (1).

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. *Source:* (1).

Small Arms Ammunition – Ammunition, without projectiles that contain explosives (other than tracers), that is .50 caliber or smaller, or for shotguns. *Source:* (3).

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 materials; and (C) remain unexploded, whether by malfunction, design, or any other cause. (10 U.S.C. 101(e)(5)(A through C)).

For the purposes of the basewide Military Munitions Response Program (MMRP) being conducted for the former Fort Ord, UXO does not include small arms ammunition.

UXO-Qualified Personnel – Personnel who have performed successfully in military explosives ordnance disposal (EOD) positions, or are qualified to perform in the following Department of Labor, Service Contract Act, Directory of Occupations, contractor positions: Unexploded Ordnance (UXO) Technician II, UXO Technician III, UXO Safety Officer, UXO Quality Control Specialist or Senior UXO Supervisor. *Source:* (3)

Sources:

- (1) Non-standard definition developed to describe Fort Ord-specific items, conditions, procedures, principles, etc. as they apply to issues related to the munitions and explosives of concern (MEC) cleanup.
- (2) U.S. Department of Defense Environment, Safety and Occupational Health Network and Information Exchange. 1996. Unexploded Ordnance (UXO): An Overview. October.
- (3) U.S. Department of Defense Manual Number 6055.09, Volume 8, SUBJECT: DoD Ammunition and Explosives Safety Standards: Glossary, Incorporating Change 2. January 24, 2018.
- (4) Survey of Munitions Response Technologies, June 2006. ITRC with ESTCP (Environmental Security and Technology Certification Program) and SERDP (Strategic Environmental Research and Development Program).
- (5) Compendium of Department of Defense Acronyms, Terms, and Definitions. The Interstate Technology and Regulatory Council (ITRC) Work Group (Unexploded Ordnance Work Team), December 2000.
- (6) Institutional Controls: A Site Managers' Guide to Identifying, Evaluating, and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups. US EPA Office of Solid Waste and Emergency Responses (OSWER) 9355.0-74FS-P, EPA 540-F-00-005. September, 2000.
- (7) Covenant to Restrict Use of Property, Environmental Restriction, County of Monterey – Munitions and Explosives of Concern, Fort Ord Reuse Authority (FORA) Early Transfer Parcels. May 8, 2009.