

**Draft Work Plan
Remedial Design (RD)/Remedial Action (RA)
Track 2 Bureau of Land Management Area B and
Munitions Response Site 16
Former Fort Ord, California**

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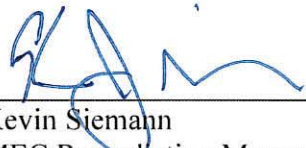



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Track 2 Bureau of Land Management Area B and Munitions
Response Site 16

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List of Acronyms

AGCMR	Advanced Geophysical Classification for Munitions Response
APP	Accident Prevention Plan
ARAR	Applicable or Relevant and Appropriate Requirement
Army	U.S. Department of the Army
BLM	Bureau of Land Management
BO	Biological Opinion
BRAC	Base Realignment and Closure
Burleson	Burleson Consulting, Inc.
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CMC	Central Maritime Chaparral
DDESB	Department of Defense Explosives Safety Board
DGM	digital geophysical mapping
DMM	discarded military munitions
DoD	Department of Defense
DTSC	Department of Toxic Substances Control
EM	Engineering Manual
EOD	Explosive Ordnance Disposal
EPA	U.S. Environmental Protection Agency
EPP	Environmental Protection Plan
ESA	Endangered Species Act
ESL	Explosives Storage Location
ESP	Explosives Siting Plan
ESS	Explosives Safety Submission
EZ	exclusion zone
FFA	Federal Facility Agreement
FORA	Fort Ord Reuse Authority
FS	Feasibility Study
GSV	Geophysical System Verification
HMP	Habitat Management Plan
KEMRON	KEMRON Environmental Services, Inc.
LUC	Land Use Control
LUCIP	Land Use Control Implementation Plan
MC	munitions constituents

List of Acronyms

MD	munitions debris
MDAS	material documented as safe
MDEH	material documented as an explosive hazard
MEC	munitions and explosives of concern
MMRP	Military Munitions Response Program
MPPEH	material potentially presenting an explosive hazard
MR	Munitions Response
MRA	Munitions Response Area
MRS	Munitions Response Site
NPL	National Priorities List
POMFD	Presidio of Monterey Fire Department
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RA	remedial action
RAO	remedial action objective
RACR	Remedial Action Completion Report
RAR	Remedial Action Report
RD/RAWP	Remedial Design/Remedial Action Work Plan
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RWQCB	Regional Water Quality Control Board
SSWP	Site-Specific Work Plan
SUXOS	Senior UXO Supervisor
TM	technical memorandum
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
UXO	Unexploded Ordnance

Definitions¹

Construction Support: Assistance provided by DoD explosive ordnance disposal (EOD) or UXO-qualified personnel and/or by personnel trained and qualified for operations involving chemical agent (CA), regardless of configuration, during intrusive construction activities on property known or suspected to contain UXO, other munitions that may have experienced abnormal environments (e.g., DMM), or 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: (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, 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 Military Munitions Response Program being conducted at the former Fort Ord, DMM does not include small arms ammunition .50 caliber and below.

Engineering Control (EC): The management of facility operations using engineering principles (e.g., facility design, operation sequencing, equipment selection, or process limitations). Source: (7).

Explosive Ordnance Disposal (EOD) Personnel: Military personnel who have graduated from the Naval School, Explosive Ordnance Disposal; are assigned to a military unit with a Service-defined EOD mission; and meet Service and assigned unit requirements to perform EOD duties. EOD personnel have received specialized training to address explosive and certain CA hazards during both peacetime and wartime. EOD personnel are trained and equipped to perform render safe procedures (RSP) on nuclear, biological, chemical, and conventional munitions, and on improvised explosive devices. Source: (7).

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

Feasibility Study (FS): A study undertaken to develop and evaluate alternatives for remedial action. Source: (3).

Impact Area: The 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 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

¹ Official definitions provided in Department of Defense Manual 6055.09-M, Change 2 of Volume 8 (DoD, 2010)

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: (7).

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).

Material Documented as Safe (MDAS): MPPEH that has been assessed and documented as not presenting an explosive hazard and for which the chain of custody has been established and maintained. This material is no longer considered to be MPPEH. Source: (7).

Material Documented as an Explosive Hazard (MDEH): MPPEH that cannot be documented as MDAS, that has been assessed and documented as to the maximum explosive hazards the material is known or suspected to present, and for which the chain of custody has been established and maintained. This material is no longer considered to be MPPEH. Source: (7).

Material Potentially Presenting an Explosives Hazard (MPPEH): Material that, prior to determination of its explosives safety status, potentially contains explosives or munitions (e.g., munitions containers and packaging material; munitions debris remaining after munitions use, demilitarization, or disposal; and range-related debris); or potentially contains a high enough concentration of explosives such that the material presents an explosive hazard (e.g., equipment, drainage systems, holding tanks, piping, or ventilation ducts that were associated with munitions production, demilitarization or disposal operations). Excluded from MPPEH are munitions within the DoD established munitions management system and other hazardous items that may present explosion hazards (e.g., gasoline cans, compressed gas cylinders) that are not munitions and are not intended for use as munitions. Source: (7).

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 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 thereof. The term does not include wholly inert items, improvised explosive devices, or 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)).

Military Munitions Response Program (MMRP): The MMRP is a program under which munitions responses are conducted. 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 Debris: Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal. Source: (7).

Munitions and Explosives of Concern (MEC): A term distinguishing specific categories of military munitions that may pose unique explosives safety risks: UXO, as defined in 10 U.S.C. 101(e) (5); DMM, as defined in 10 U.S.C. 2710(e)(2)); or munitions constituents (e.g., TNT, cyclotrimethylenetrinitramine [RDX]), as defined in 10 U.S.C. 2710(e)(3)), present in high enough concentrations to pose an explosive hazard. Source: (7). For the purposes of the Military Munitions Response Program being conducted for the former Fort Ord, MEC does not include small arms ammunition .50 caliber and below.

Munitions Response: Munitions response means response actions, including investigation, removal actions, and remedial actions, to address the explosives safety, human health, or environmental risks presented by UXO, discarded military munitions (DMM), or munitions constituents (MC), or to support a determination that no removal or remedial action is required. (32 CFR 179.3)

Munitions Response Area (MRA): Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples include former ranges and munitions burial areas. An MRA is comprised of one or more munitions response sites. Source: (7).

Munitions Response Site (MRS): A discrete location within an MRA that is known to require a munitions response. Source: (7).

Operating Grids: Typically, 100-foot by 100-foot parcels of land as determined by survey and recorded by GPS, marked at each corner with wooden stakes. Sites are divided into operating grids prior to the commencement of work by brush removal or MEC sweep teams. A single grid may be occupied by only one team at any time, and the grid system facilitates the maintenance of safe distances between teams. They are identified sequentially using an alphanumeric system (e.g., E-5). Source: (1).

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

Range-Related Debris: Debris, other than munitions debris, collected from operational ranges or from former ranges (e.g., target debris, military munitions packaging and crating material). Source: (7).

Remedial Investigation (RI): Process undertaken to determine the nature and extent of the problem presented by a release which emphasizes data collection and site characterization. The RI is generally performed concurrently and in an interdependent fashion with the feasibility study. Source: (3).

Removal Depth: The depth below ground surface to which all ordnance and other detected items are removed. Source: (1).

Surface Removal: Removal of MEC from the ground surface by UXO teams using visual identification sometimes aided by magnetometers. Source: (1).

Technology-Aided Surface Removal: A removal of UXO, DMM, or CWM on the surface (i.e., the top of the soil layer) only, in which the detection process is primarily performed visually, but is augmented by technology aids (e.g., hand-held magnetometers or metal detectors) because vegetation, the weathering of UXO, DMM, or CWM, or other factors make visual detection difficult. Source: (7).

Track 2 Sites: Sites at the former Fort Ord where MEC items were present, and a MEC removal has been conducted. These areas are evaluated in area-specific RI/FSSs to assess whether they are in a protective state based on their reasonably anticipated future land uses. Possible outcomes of a Track 2 RI/FSS and ROD could include no further action, land use controls, and/or additional MEC removal. Source: (1).

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)). For the purpose of the Military Munitions Response Program being conducted for the former Fort Ord, UXO does not include small arms ammunition .50 caliber and below.

UXO-Qualified Personnel: Personnel who have performed successfully in military EOD positions, or are qualified to perform in the following Department of Labor, Service Contract Act, Directory of Occupations, contractor positions: UXO Technician II, UXO Technician III, UXO Safety Officer, UXO Quality Control Specialist, or Senior UXO Supervisor. Source: (7).

UXO Technician: Personnel who are qualified for and filling Department of Labor, Service Contract Act, Directory of Occupations, contractor positions of UXO Technician I, UXO Technician II, and UXO Technician III. Source: (7).

Sources of the Above Definitions:

(1) Non-standard definition developed to describe Fort Ord-specific items, conditions, procedures, principles, etc. as they apply to issues related to the MEC cleanup.

(2) "Unexploded Ordnance (UXO): An Overview", October 1996. DENIX.

(3) Technical Guidance for Military Munitions Response Actions, Environmental and Munitions Center of Expertise Interim Guidance Document (IGD) 14-01, dated December 20, 2013.

(4) Survey of Munitions Response Technologies, June 2006. ITRC (Interstate Technology and Regulatory Council) with ESTCP (Environmental Security and Technology Certification Program) and SERDP (Strategic Environmental Research and Development Program).

(5) Evaluation of Statistical Methodologies used in U.S. Army Ordnance and Explosive Work. September 1999. Ostrouchov, George, Zimmerman, Gregory P., Beauchamp, John J., Federov, Valerii V., and Downing, Darryl J. Prepared by Oak Ridge National Laboratory for the U.S Army Engineering and Support Center.

(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 Response (OSWER) 9355.0-74FS-P, EPA 540-F-00-005. September 2000.

(7) Department of Defense Manual Number 6055.09-M, Volume 8, February 29, 2008, Administratively Reissued August 4, 2010; Change 1, March 12, 2012.

1 Introduction

This document serves as the Remedial Design/Remedial Action Work Plan (RD/RAWP) for implementation of the remedy selected for sites called “Bureau of Land Management (BLM) Area B” and “Munitions Response Site 16 (MRS-16)” at the former Fort Ord, California and described in the *Final Record of Decision (ROD), Track 2 BLM Area B and MRS-16, Former Fort Ord, California* (U.S. Department of the Army [Army], 2017).

The former Fort Ord is located in northwestern Monterey County, California, approximately 80 miles south of San Francisco (Figure 1). Since 1917, military units (e.g., cavalry, field artillery, and infantry) used portions of the former Fort Ord for training (e.g., maneuvers, live-fire) and other purposes. Because the military conducted munitions-related activities (e.g., live-fire training) on the facility, munitions and explosives of concern (MEC) (e.g., unexploded ordnance [UXO], discarded military munitions [DMM]) may be 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. For the purposes of the Fort Ord Military Munitions Response Program (MMRP) and this ROD, MEC does not include small arms ammunition (.50 caliber and below).

Fort Ord was placed on the National Priorities List (NPL) of Superfund sites by U.S. Environmental Protection Agency (EPA) on February 21, 1990, due to evidence of contaminated soil and groundwater. A Federal Facility Agreement (FFA) was signed by the Army, EPA, Department of Toxic Substances Control (DTSC), and Regional Water Quality Control Board (RWQCB). DTSC and RWQCB are parts of California EPA. The FFA established procedures and schedules for conducting Remedial Investigations (RIs) and Feasibility Studies (FSs) and requires Remedial Actions (RAs) be completed as expeditiously as possible. The former Fort Ord was selected in 1991 for Base Realignment and Closure (BRAC) and the base was officially closed in September 1994. The Army began investigating and removing MEC at the former Fort Ord in 1993 and a munitions response (MR) RI/FS was initiated in 1998. In April 2000, an agreement was signed between the Army, EPA, and DTSC to evaluate MEC at the former Fort Ord subject to the provisions of the FFA. The April 2000 agreement also formalized the regulatory agencies’ roles in the MMRP at Fort Ord.

The BLM Area B and MRS-16, remedial alternatives were evaluated in the *Final, Revision 2, Track 2 Munitions Response Remedial Investigation/Feasibility Study BLM Area B and MRS-16, Former Fort Ord, California* (Gilbane, 2015). Track 2 sites are areas at the former Fort Ord where MEC items were present and MEC removal has been conducted. BLM Area B consists of 1,597 acres which includes several MRSs and lands located in-between identified MRSs (Figure 2). The Army has conducted MRs (e.g., investigation, removal) at identified MRSs. Data about the type of military munitions used and relative risk at each MRS has been used to support the RI/FS. MRS-16 consists of approximately 81 acres along the southern boundary of BLM Area B (Figure 2). The Army completed an interim RA that included subsurface removal of munitions at MRS-16. The majority of the property within BLM Area B was transferred to BLM in 1996 for use as a habitat reserve. The Army plans to transfer the remainder of

BLM Area B and MRS-16 to BLM. Established trails and roads in BLM Area B are currently accessible to the public for recreational use. The completion of MR actions and the provision of explosive safety information and education has allowed recreational uses to be conducted safely. In 2012, the President of the United States designated current and future BLM lands at the former Fort Ord, including BLM Area B and MRS-16, as the Fort Ord National Monument.

BLM Area B and MRS-16 consist of low rolling hills dominated by Central Maritime Chaparral (CMC). The vegetation also includes oak woodland, grassland, and wetland areas. These areas support a diverse biological community that includes floral and faunal species considered rare, threatened, endangered, or of special concern or status. The floral and faunal species of concern are subject to various levels of protection under federal, state, and local laws and regulations.

The *Fort Ord Reuse Plan*, developed by the Fort Ord Reuse Authority (FORA) (FORA, 1997), identified land use categories for various areas of the former Fort Ord that included development areas as well as open space, recreation, and habitat management areas. Designated development and habitat reserve areas are also identified in the *Installation-Wide Habitat Management Plan (HMP) for Fort Ord* (U.S. Army Corps of Engineers [USACE], 1997) and associated updates and revisions. The HMP, as modified or updated, describes special management measures and habitat monitoring requirements for species of concern within the habitat reserve and development areas that apply to both the Army's environmental cleanup actions and BLM's land management under future uses. The Army's environmental cleanup actions are also subject to the Biological Opinion (BO) issued by U.S. Fish and Wildlife Service (USFWS) to protect the special-status natural resources (USFWS, 2015). Management guidelines for transferred properties, outlined in the HMP for the Natural Resource Management Area, including BLM Area B and MRS-16, includes habitat restoration, enhancement and monitoring, access control, prescribed burning, and an allowance for development-oriented use in as much as two percent of the area. In addition, BLM has identified recreational access (non-motorized) on established routes to be an important component of the current and future uses of the Fort Ord public lands managed by BLM.

The ROD for the Track 2 BLM Area B and MRS-16, dated May 03, 2017 (Army, 2017), addresses MEC that potentially remain in the BLM Area B and MRS-16 at the former Fort Ord (Figure 1). BLM Area B was subdivided into eight sub-areas to evaluate the presence of MEC during the RI/FS (Figure 3). Two different remedies were selected to apply to the eight different sub-areas of BLM Area B and MRS-16 (Figure 4).

The selected remedies include the following components:

Alternative 2 – Land use controls (LUCs) in MRS-16 and BLM Area B Sub-Areas B-1, B-2, B-3A, B-4, B-5, and B-6. The selected remedy includes:

- Public education. Such education will be based upon the Army's 3Rs (Recognize, Retreat, Report) Explosives Safety Education Program and include the provision of 3Rs educational materials in brochures and at outreach locations, and presented during public presentations and safety briefings. It will also encourage people to adhere to access management guidelines and may include trail markings, signage or other engineering controls, where warranted;

- Munitions recognition and safety training for people who conduct ground-disturbing or intrusive activities;
- Provision of construction support by UXO-qualified personnel for ground-disturbing or intrusive activities; and
- The prohibition against uses of the property that are inconsistent with the HMP, including but not limited to residential, school, and commercial/industrial development.

Alternative 3 – Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs for BLM Area B Sub-Areas B-2A and B-3. The selected remedy includes:

- Vegetation clearance using prescribed burning, and/or manual and mechanical cutting, depending on vegetation type and removal requirement, to allow MR workers to conduct removal activities safely;
- Technology-aided surface removal of munitions and detonation (with engineering controls) of munitions determined to be MEC;
- Digital geophysical mapping (DGM) in surface removal areas to provide a record of remaining anomalies to assist BLM in planning future ground-disturbing or intrusive (subsurface) activities (areas inaccessible to DGM equipment will be documented);
- Subsurface removal in selected areas (estimated to be 10 percent of acreage) that were identified in coordination with BLM to address the risk associated with specific reuse;
- Implementation of LUCs (e.g., public education, munitions recognition and safety training, construction support, and prohibition against inconsistent uses, as described in Alternative 2); and
- Post-remediation habitat monitoring (HMP species and habitat data collection, management, evaluation, and reporting).

The RA addresses the explosives safety risks from MEC that may be present. Potential risks related to soil contamination on the property have been evaluated under the Basewide Range Assessment that recommended no further action.

2 Purpose

This work plan is intended to implement the selected remedies identified in the ROD for MEC in BLM Area B and MRS-16. For BLM Area B sub-areas B-2A and B-3, this includes specifying the general requirements to accomplish prescribed burning, technology-aided surface removal, and limited subsurface removal.

The MEC RA involves two sub-areas, sub-area B-2A and B-3, to be identified in a site-specific work plan (SSWP). The SSWP will identify the features that correspond to the work areas such as historical use, known ranges, and most probable munitions. In order to accomplish the RA, BLM Area B has been segmented into work areas utilizing existing roads and trails. Vegetation clearance will be performed using prescribed burning, and/or mechanical and manual cutting, depending on vegetation type and removal requirements, to allow MR workers to conduct removal activities safely. The primary method of vegetation clearance in habitat reserve areas containing CMC is prescribed burning. The required mastication in CMC within BLM Area B has been coordinated with USFWS (USFWS, 2015). As shown on [Figure 5](#), three burn areas (A, B, and C) are anticipated for BLM Area B sub-area B-3. The remaining areas will have mechanical/manual vegetation removal.

The LUCs that apply to BLM Area B and MRS-16 are described in this work plan and will be described in more detail in the LUC Implementation Plan (LUCIP). The LUCIP will be prepared as a separate document from this work plan. The LUCIP will be updated prior to transfer of the remaining Army portion of BLM Area B and MRS-16 to BLM.

3 Remedial Objectives

The primary RA objective (RAO) for BLM Area B and MRS-16 is to support the designated use of the property as a habitat reserve as described in the HMP with public access as part of the Fort Ord National Monument. Based on this RAO, the Army intends to (1) conduct RAs to address MEC that potentially remain in BLM Area B sub-areas B-2A and B-3 and (2) implement institutional controls (herein referred to as LUCs) selected as part of the remedy to manage risks from any potentially remaining MEC in all of BLM Area B and MRS-16.

The RAs to address MEC include technology-aided surface removal and subsurface removals, in portions of the areas to address specific concerns regarding risk from reuse needs, such as proposed roads, fuel breaks, trails, and habitat restoration sites. DGM in accessible areas will be conducted to provide data to assist BLM in planning future activities. Prescribed burning is the primary vegetation clearance method in work areas containing CMC vegetation. During vegetation clearance and MEC removal operations, appropriate safety exclusion zone(s) (EZs) will be established to protect the public and temporary closures of roads and trails will be implemented as required.

The selected remedy will be implemented in a manner that complies with the Applicable or Relevant and Appropriate Requirements (ARARs) identified in the ROD. The ARARs are listed in [Appendix A](#).

4 Schedule

For BLM Area B sub-areas B-2A and B-3, the Army will produce a SSWP that describes the specific field work to be accomplished to support the prescribed burns and MEC remediation.

Draft SSWP	30 days after ROD signature
Agency and public review	30 days
Draft-Final SSWP	30 days after receipt of comments
Agency and public review	30 days
Final SSWP (if required)	30 days after receipt of comments
Draft Prescribed Burn Plan	30 days after ROD signature
Agency and public Review	30 days
Draft-Final Prescribed Burn Plan	30 days after receipt of comments
Agency and public review	30 days
Final Prescribed Burn Plan (if required)	30 days after receipt of comments
Technical Memorandum (TM) (work area-specific)	45 days after completion of DGM
TM Approval	14 days after receipt of TM
Draft Site-Specific Remedial Action Report (RAR) (work area-specific)	60 days after RAs are complete
Agency and public review	30 days
Draft-Final RAR	30 days after receipt of comments
Agency and public review	30 days
Final Site Specific RAR (if required)	30 days after receipt of comments
Remedial Action Completion Report (RACR)	Following the completion of field work
Draft LUCIP	90 days after ROD signature

(Note: Schedule refers to calendar days.)

5 Remedial Action

As shown in [Figure 4](#), the selected remedies consist of

- Technology-aided surface removal, with subsurface removal in selected areas, and LUCs to be implemented throughout BLM Area B sub-areas B-2A and B-3 and
- LUCs to be implemented throughout MRS-16 and BLM Area B sub-areas B-1, B-2, B-3A, B-4, B-5, and B-6.

The Army and EPA selected these alternatives because they will achieve both risk reduction through surface removal, and subsurface removal in select areas, of MEC that may be present in sub-areas B-2A and B-3, and risk management through implementation of LUCs throughout. The selected alternatives best balance the risk reduction and associated environmental impacts in supporting the anticipated future use of the site as a habitat reserve and National Monument.

5.1 Site-Specific Work Plan

A SSWP will be developed for BLM Area B sub-areas B-2A and B-3 that will identify planned work areas and procedures for vegetation clearance, surface and subsurface removals. Related site security and community relations actions will also be described. Subsurface removal will be conducted in certain portions of the areas (e.g., proposed roads, fuel breaks, trails, and habitat restoration sites) to reduce the potential risk to allow for their proposed reuse needs. Any known areas will be identified in the SSWP. Additional subsurface removal areas may be identified after surface removal is completed. These additional areas will be presented in the TM detailed in [Section 5.5](#).

5.1.1 Site Security

The BLM Area B Site Security Plan will be an appendix in the SSWP to establish and maintain the public safety. Appropriate safety EZs will be established during vegetation clearance and MEC removal operations to protect the public and temporary closures of roads and trails will be required. The Army will work with BLM to plan and implement appropriate public access management measures to accomplish remediation in a safe manner.

The BLM Area B Site Security Plan will describe site security measures that will be used to accomplish the field work without endangering the public. Signs will be placed in the parking areas for recreational users surrounding BLM Area B. Temporary fencing will also be utilized.

The access management measures will be described in the Site Security Plan of the SSWP. Public access management measures will be evaluated in coordination with BLM and adjacent landowners.

5.1.2 Community Relations

The Army is committed to involving the community in the Fort Ord cleanup process and will provide a Community Outreach Plan as an appendix in the SSWP. Established trails and roads in BLM Area B are currently accessible to the public for recreational use. Both BLM Area B and MRS-16 are designated as a

part of habitat reserve and are within the Fort Ord National Monument. Public access will be temporarily restricted when remediation is underway. To inform the public of remediation-related activities and to maintain public safety, the Army will provide community outreach specific to the BLM Area B RA.

5.2 Vegetation Clearance

Vegetation clearance is required to perform the RA in BLM Area B sub-areas B-2A and B-3. Based on the size of the sub-areas and the habitat type, the vegetation in sub-area B-2A will be mechanically and manually removed. Portions of the vegetation in sub-area B-3 will be mechanically removed and the remaining portions will be removed through prescribed burning. These areas will be identified in the SSWP.

5.2.1 Mechanical and Manual Vegetation Cutting

Mechanical vegetation clearance equipment will be used to cut the vegetation. Manual tools such as trimmers may be used in areas where the mechanical cutter cannot gain access, or to trim tree branches. Trees will be left in place with removing lower branches to allow access. Grass and oak woodland areas will receive only the minimal amount of cutting required to serve as effective containment for prescribed burning. In oak woodland areas, trees greater than four inches in diameter at breast height will be limbed up and not removed in their entirety. Oak trees less than four inches diameter at breast height will be removed in their entirety.

5.2.2 Prescribed Burning

Prescribed burning is the primary method of vegetation clearance in habitat reserve areas containing CMC. As shown on [Figure 5](#), three burn areas (A, B, and C) are anticipated for BLM Area B sub-area B-3. Multiple burn events may be conducted over a period of several days that could be interrupted by one or more days of no burning. One or two areas will be prepared for burning in any given year. Prescribed burning will be performed for vegetation clearance in conjunction with the Presidio of Monterey Fire Department (POMFD). POMFD will act as the Incident Commander during prescribed burn operations.

The major elements of prescribed burning include:

- Coordination with the local air district.
- Preparation of a burn plan that outlines the objectives of the burn, the burn area, and the range of environmental conditions under which the burn will be conducted; the workforce and equipment resources required to ignite, manage, and contain the fire; and communication procedures.
- Site preparation including establishment and maintenance of containment lines.
- Conducting the burn within the range of environmental conditions established in the burn prescription.
- Follow-up operations to ensure that the fire is fully contained within the containment lines.

A prescribed burn plan will be developed that identifies all planned burn areas in BLM Area B. Site preparation could include vegetation cutting in containment areas outside of BLM Area B. Related site security and community relations actions will also be described.

5.3 Technology-Aided Surface Removal

Technology-aided surface removal will be conducted throughout the entire BLM Area B sub-areas B-2A and B-3. Technology-aided surface removal procedures are governed by the *Final, Quality Assurance Project Plan, Superfund Response Actions, Former Fort Ord, California, Volume II, Munitions Response, Appendix A, Munitions and Explosives of Concern Remedial Action* (MEC QAPP; KEMRON Environmental Services, Inc. [KEMRON], 2016a). MEC detection instruments will be used to aid in the detection of surface MEC in areas where the ground surface is not visible. Recovered munitions and munitions debris (MD) will be evaluated by technically-qualified personnel and, if determined by evaluation to be MEC or material documented as an explosive hazard (MDEH), will be subjected to detonation.

5.4 Digital Geophysical Mapping

Digital surveys of BLM Area B sub-areas B-2A and B-3 shall provide a record of anomalies to assist future property owners in identifying areas where explosives safety support (e.g., onsite construction support) may be required for ground-disturbing or intrusive activities.

5.4.1 Standard DGM Techniques

The Project Geophysicist, augmented by the UXO Team, will implement DGM to locate subsurface anomalies. Processing of DGM data will occur concurrently with the ongoing DGM survey. DGM procedures are governed by the MEC QAPP (KEMRON, 2016a).

Site conditions (e.g., difficult terrain) may prevent a digital survey of certain areas from being conducted; these areas will be documented in the RAR and digital mapping records.

Digital mapping is currently being performed at the former Fort Ord using the EM61-MK2A. Other digital equipment may be used as long as the integrity of the geophysical mapping system equipment is successfully verified and demonstrated/documentated via geophysical system verification (GSV) process. Such equipment will be specified in the SSWP.

5.5 Technical Memorandum for Subsurface Removal

Following the completion of technology-aided surface MEC removal and DGM survey, the Army will review the data and submit a TM to EPA and DTSC that will present an evaluation of the work completed to date and, if necessary, recommend subsurface removals based on the results of the evaluation. Factors that will be considered when determining whether additional RAs are necessary include (a) the types and amounts of MEC recovered during the technology-aided surface removal; and (b) reasonably anticipated or known reuse activities that will occur. If the Army does not recommend additional removal actions it will document this recommendation and its rationale in the TM.

Each TM will be an addendum to the SSWP. The Army will coordinate each TM with BLM at the time of its preparation. TMs will be provided for regulatory agency (EPA and DTSC) review. These memorandums are subject to EPA approval in consultation with DTSC. To avoid impacts to rare, threatened, and endangered species, the completion and agency-approval of the TM will be expedited. This should allow additional required actions to be completed before the next growing season. These TMs and associated correspondence will be included in the Administrative Record.

5.6 Subsurface Removal

Subsurface removal will be conducted in selected areas that were identified in coordination with BLM to address the risk associated with specific reuse (e.g., proposed roads, fuel breaks, trails, and habitat restoration sites). The total area of subsurface removal is estimated to be approximately 10 percent of BLM Area B sub-areas B-2A and B-3. Planned subsurface removal areas will be identified in the SSWP and, if additional areas are identified after surface removal, in the TM for each work area.

The best available and appropriate geophysical detection equipment will be used based on site conditions. Throughout the removal process quality control/quality assurance (QC/QA) procedures will be implemented. Subsurface removal depths will be determined based on: (a) the types of munitions known or suspected to be present; (b) the typical depth at which such munitions may be encountered; and (c) the capabilities of the geophysical detection equipment.

Various technologies will be considered when determining the best geophysical method in support of the subsurface removal for BLM Area B sub-areas B-2A and B-3. The technologies and associated processes to be considered include Schonstedt magnetometer, Geonics EM61MK2 cart system, the MetalMapper EMI system, and the TEMTADS 2x2 system. Other processes (e.g., the use of advanced geophysical classification process), may be considered as they become available for field use. Subsurface removal procedures are governed by the MEC QAPP (KEMRON, 2016a).

The use of geophysical classification at Fort Ord is governed by the *Final, Quality Assurance Project Plan, Superfund Response Actions, Former Fort Ord, California, Volume II, Munitions Response, Appendix B, Advanced Geophysical Classification for Munitions Response Quality Assurance Project Plan* (AGCMR-QAPP; KEMRON, 2016b).

Recovered munitions and MD will be evaluated by technically-qualified personnel and, if determined by evaluation to be MEC or MDEH, will be subjected to detonation, either blown in-place or collected for consolidation shots. MEC and MDEH disposal procedures and notifications are described in the MEC QAPP (KEMRON, 2016a).

5.7 Material Potentially Presenting an Explosive Hazard (MPPEH) Management

The MEC QAPP (KEMRON, 2016a) contains MPPEH management procedures. MPPEH items discovered will be secured, evaluated by technically-qualified personnel, subjected to detonation, or transported to a secure location for processing. MPPEH will be processed as either material documented as an explosive hazard (MDEH), which would then be detonated, or as material documented as safe

(MDAS), which is then certified as safe for recycling. The following references provide the regulatory framework for processing and disposal of MPPEH.

- Department of Defense (DoD) 4160.21-M, Defense Materiel Disposition Manual (DoD, 2015)
- DoD Instruction 4140.62, Material Potentially Presenting Explosive Hazard (DoD, 2008, Incorporating Change 1, February 2014)
- DoD 6055.9-M (DoD, 2010, Incorporating changes through April 2012)
- Engineering Manual (EM) 200-1-15 (USACE, 2015)
- EM 385-1-97 (USACE, 2008, change 1, April 2013 and six errata sheets, June 2009 through May 2013)

5.8 Fort Ord Military Munitions Response Program (MMRP) Database

All data collected during execution of the Track 2 BLM Area B RA shall be stored in the Fort Ord MMRP database. The MEC QAPP (KEMRON, 2016a) describes the data collection during various activities to document field work and data processing for grid surveying, surface removal, geophysical mapping, and subsurface removal operations, as well as the database field descriptions for the required data.

5.9 Habitat Monitoring

The HMP requires that habitat monitoring be conducted following MEC RA to assess the recovery of HMP species. Monitoring will be conducted per the Vegetation Monitoring Plan and Wetland Monitoring and Restoration Plan (Burleson Consulting, Inc. [Burleson], 2006, 2009, 2015) for: (a) HMP annual plants; (b) HMP shrubs; and (c) wetland species. The results of the monitoring will be documented in annual reports submitted to USFWS and California Department of Fish and Wildlife (CDFW).

6 Quality Control (QC)

The SSWP will incorporate the QC processes defined in the MEC QAPP (KEMRON, 2016a) which describes the planning, implementation, acquisition, and assessment of data using effective methodologies and thorough QC activities for MEC removal. The QC processes defined in the AGCMR-QAPP (KEMRON, 2016b) will be incorporated where geophysical classification is used.

7 *Quality Assurance (QA)*

The Army will provide QA to assure that the Contractor's QC system is functioning as stated. Areas of QA include:

- Monitor contractor field practices, including announced and extemporaneous, unobtrusive observations.
- Review and observe field ground control and global positioning system (GPS) procedures. This is meant to avoid geo-referencing incompatibilities between the Army and the contractor.
- Independently examine data files and anomaly maps. QA will check the database against Team Leader data to ensure all anomalies flagged were excavated.
- Independently conduct surveys over a minimum of 10 percent of each grid where analog "mag and dig" (subsurface removal) and technology-aided surface removal is conducted.
- Independently conduct DGM QA which will include, as a minimum, 1 to 3 percent digital resurvey in subsurface removal areas.
- QA seeding and and/or QA digs may occur in areas of surface and subsurface removal.

8 Health and Safety

8.1 General

The Accident Prevention Plan (APP) for BLM Area B is part of the contract APP for the USACE contractor. The APP must adhere to the requirements of EM 385-1-1, USACE Safety and Health Requirements Manual (USACE, 2014). The Contractor will ensure Health and Safety training requirements for on-site project personnel have been established in accordance with Occupational Safety and Health Administration requirements for hazardous site workers (29 Code of Federal Regulations [CFR] 1910.120). The training requirements will be specified in the APP and are to be met before project personnel can begin site work.

8.2 Explosives Siting Plan (ESP)

BLM Area B sub-areas B-2A and B-3 will have an Explosives Siting Plan (ESP) that will conform to the requirements of DoD 6055.9-M, DoD Ammunition and Explosives Safety Standards. The ESP is intended to ensure the safety and security of explosive operations during removal activities within BLM Area B sub-areas B-2A and B-3.

8.2.1 Exclusion Zones

The Army will establish an EZ to protect the public and personnel in accordance with Department of Defense Explosives Safety Board (DDESB) standards. The required safety distances/zones will be described in the SSWP and the burn plan.

8.2.2 Explosives Storage and Planned Detonation

Explosives will be stored at the cited explosive storage location (ESL). All necessary coordination will be made prior to the request for explosives. Explosives will be receipted from the ESL and transported by contractor personnel as required. Once the Senior UXO Supervisor (SUXOS) has signed the receipt for the explosives, he will direct the detonation crew to commence the blow-in-place operation as expeditiously as safety will permit to reduce any security concerns over explosives. Explosive operations are to be performed, within the established EZ in accordance with the DDESB-approved Explosives Safety Submission (ESS) for intentional detonations.

8.2.3 Explosives Safety Submission (ESS)

The ESS will be submitted to DDESB for approval prior to fieldwork. All MR fieldwork will be conducted in accordance with DDESB and Army explosives safety standards.

9 Data Management

Data management is addressed in the MEC QAPP (KEMRON, 2016a) which describes the planning, implementation, acquisition, and assessment of data using effective methodologies and thorough QC activities for MEC removal.

10 Environmental Protection Plan

The Army is required by the HMP and BO to protect the natural resources of the former Fort Ord. The SSWP will include an Environmental Protection Plan (EPP) that describes the approach, methods, and procedures to be employed to protect the natural environment during performance of the RAs. Specifically, the EPP will describe the procedures and methods that will be implemented during site activities to minimize pollution, protect and conserve natural resources (including not removing trees), restore disturbed areas, and control noise and dust within reasonable limits.

The EPP will address the protection of special-status biological resources and implement mitigation measures identified in Chapter 3 of the HMP and the BO (USFWS, 2015) in addition to any subsequent BOs issued by the USFWS. The HMP was developed to meet the requirements of the federal Endangered Species Act (ESA) for Army actions during disposal and reuse of the former Fort Ord. The HMP identifies impacts and mitigation measures to be implemented during Army pre-disposal activities, such as cleanup of remediation sites. Implementation of the HMP and BO mitigation measures will ensure compliance with the ESA and the substantive requirements of the California ESA.

To protect sensitive habitats and rare, threatened, or endangered species that could be impacted by these activities, baseline monitoring surveys are conducted prior to remediation. Baseline surveys consist of shrub transect surveys to characterize the CMC vegetation communities on the sites and in the surrounding areas, and surveys to identify locations and population size of the HMP annual species – sand gilia, Monterey spineflower, and Seaside bird's-beak. Habitat monitoring will be conducted per the Vegetation Monitoring Plan and Wetland Monitoring and Restoration Plan (Burlison, 2006, 2009, 2015) for: (a) HMP annual plants; (b) HMP shrubs; and (c) wetland species. The results of the monitoring will be documented in annual reports submitted to USFWS and CDFW.

11 Reporting

At the completion of all RAs identified in a work area or a group of work areas, that are associated with the SSWP, the contractor will submit an RAR in accordance with EPA Office of Solid Waste and Emergency Response Directive 9320.2-22 for NPL Sites and the guidance for DoD facilities in the document *Recommended Streamlined Site Close Out and NPL Deletion Process for DoD Facilities* (DoD, 2006). Concurrent with issuing the final report, the Army will verify acceptance of the data deliverable in accordance with [Section 9.0](#) and that storage requirements are completed.

Once site-specific RARs are finalized, the work area or group of work areas will be considered closed and inspections and interim LUCs and annual monitoring as described in [Sections 12.0](#) and [13.0](#), respectively, will continue to be implemented.

At the completion of all RAs within BLM Area B, the Army will submit a RACR.

12 Land Use Control (LUCs)

The Army, in coordination with BLM and regulatory agencies, will develop a LUCIP. The LUCIP will address implementation, maintenance, monitoring, enforcement, and reporting of the LUCs that were selected as part of the remedy.

The Army previously transferred portions of BLM Area B to BLM, as documented in a Letter of Transfer dated 18 October 1996 (Army, 1996). The majority of the property within BLM Area B was transferred in 1996 to BLM as a habitat reserve. The Army will provide a property transfer document that: (a) informs BLM of the selected remedy, including land use or activity restrictions; (b) describes the MRS conducted on the property; (c) outlines appropriate procedures to be followed should suspected MEC be encountered; and (d) establishes BLM's obligations to maintain and enforce the land use and activity restrictions selected as part of the remedy. The property transfer documentation will reiterate the information specified in the previous Letter of Transfer and establish the land use restrictions for previously and subsequently transferred property within BLM Area B and MRS-16 regarding the risks associated with MEC that may remain present. It is anticipated the LUCIP would be updated to reflect the property transfer documentation.

The selected LUCs may be modified, with regulatory approval, in the future based on the five-year reviews or the results of MEC removal.

12.1 Key Elements for LUCs

The description of the LUCs that are selected as part of the remedy and their performance objectives are the following:

- **Public education:** Such education will be based upon the Army's 3Rs Explosives Safety Education Program and include the provision of 3Rs educational materials in brochures and at kiosks, and presented during public presentations and safety briefings. It will also encourage people to adhere to access management guidelines and may include trail markings, signage or other engineering controls, where warranted.

The performance objectives are: (a) to ensure that public land users are informed of the potential for MEC to be present and actions that should be taken if a suspected munitions item is encountered, and (b) to ensure that public land users report discovery of suspected MEC items to the appropriate authority.

- **Munitions recognition and safety training:** Munitions recognition and safety training will be required for people who conduct ground-disturbing or intrusive activities.

The performance objectives are: (a) to ensure that land users involved in ground-disturbing or intrusive activities are educated about the possibility of encountering MEC, and (b) to ensure that land users involved in ground-disturbing or intrusive activities stop the activity when encountering suspected MEC and report to the appropriate authority.

- Construction support: The provision of construction support by UXO-qualified personnel will be required for ground-disturbing or intrusive activities.

The performance objective is to ensure projects involving ground-disturbing or intrusive activities are coordinated with UXO-qualified personnel so discoveries of potential MEC items will be handled appropriately.

- Prohibited Reuses and Activities or Restrictions: The property transfer document will include the following land use or activity restrictions
 - Prohibit unauthorized public access;
 - Prohibit ground disturbing or intrusive activities outside of specified areas, unless construction support is provided by UXO-qualified personnel; and
 - Prohibit uses of the property that are inconsistent with the HMP (e.g., residential, school and commercial/industrial development).

The performance objective is to ensure that the restrictions remain in place until they are changed with the concurrence of the Army and EPA in consultation with DTSC.

13 Long-Term Management Measures

Long-term management measures will be further described in the LUCIP.

13.1 Property Transfer Documentation

The Army will provide a property transfer document that: (a) informs BLM of the selected remedy, including land use or activity restrictions; (b) describes the MR actions conducted on the property; (c) outlines appropriate procedures to be followed should suspected MEC be encountered; and (d) establishes BLM's obligations to maintain and enforce any land use and activity restrictions selected as part of the remedy. The Army previously transferred portions of BLM Area B to the Department of Interior, BLM, as documented in a Letter of Transfer dated 18 October 1996 (Army, 1996). The property transfer documentation will reiterate the information specified in the previous Letter of Transfer and establish the land use restrictions for previously and subsequently transferred property within BLM Area B and MRS-16 regarding the risks associated with MEC that may remain present. The property transfer documentation will also indicate that:

- Specified designated reuses that are approved at the time the Army transfers the property, and that BLM must maintain.
- The risks associated with MEC that may be present can significantly increase if changes are made to the designated and approved uses.

13.2 Annual Monitoring and Reporting

The Army will monitor BLM Area B and MRS-16 on an annual basis. The Army will collect information about and report on each MEC encounter that is unrelated to active removal activities and changes in site conditions that could increase the possibility of encountering MEC. The Army will report results of the annual monitoring to EPA and DTSC on a yearly basis. If MEC are encountered during use, the Army will notify EPA and DTSC as soon as practicable. If, as a result of these reviews, the Army proposes a modification of the remedy, the Army will submit the proposal to EPA and DTSC under the FFA.

13.3 Five-Year Review Reporting

The Army will conduct five-year reviews, under the Comprehensive Environmental Response, Compensation, and Liability Act Section 121(c) and the Fort Ord FFA, as part of the Fort Ord five-year review process. The five-year review will evaluate the protectiveness of the selected remedies. If, upon review, the Army recommends any modification of the remedies, the Army will submit the proposal to EPA and DTSC under the FFA. The next five-year review will occur in 2017.

14 References

- Burleson Consulting, Inc. (Burleson), 2006. *Draft, Wetlands Restoration Plan, Former Fort Ord, California*. September. [AR# BW-2453]
- Burleson, 2009. *Protocol for Conducting Vegetation Monitoring in Compliance with the Installation-Wide Multispecies Habitat Management Plan at Former Fort Ord*. March. [AR# BW-2454A]
- Burleson, 2015. *Revisions of Protocol for Conducting Vegetation Monitoring in Compliance with the Installation-Wide Multispecies Habitat Management Plan at Former Fort Ord*. April. [AR# BW-2745]
- Department of Defense (DoD), 2006, *Recommended Streamlined Site Close Out and NPL Deletion Process for DoD Facilities*.
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- DoD, 2015, Defense Materiel Disposition Manual, DoD 4160.21-M.
- Fort Ord Reuse Authority (FORA), 1997. *Fort Ord Reuse Plan*. [www.fora.org]
- Gilbane, 2015. *Final, Revision 2, Track 2 Munitions Response Remedial Investigation /Feasibility Study, BLM Area B and MRS-16, Former Fort Ord, California*. May. [AR# OE- 0802D]
- KEMRON, 2016a. *Final, Quality Assurance Project Plan, Superfund Response Actions, Former Fort Ord, California, Volume II, Munitions Response, Appendix A, Munitions and Explosives of Concern Remedial Action*. December. [AR# OE-0884A]
- KEMRON, 2016b. *Final, Quality Assurance Project Plan, Superfund Response Actions, Former Fort Ord, California, Volume II, Munitions Response, Appendix B, Advanced Geophysical Classification for Munitions Response*. August. [AR# OE-0868B]
- U.S. Army Corps of Engineers (USACE), 1997. *Installation-wide Multispecies Habitat Management Plan for Former Fort Ord, California (HMP)*. April. With technical assistance from Jones and Stokes, Sacramento, California. [AR# BW-1787]
- USACE, 2008. Explosives Safety and Health Requirements Manual, EM 385-1-97, (change 1, April 2013 and six errata sheets, June 2009 through May 2013), Washington, D.C.
- USACE, 2014. Safety: Safety and Health Requirements Manual, EM 385-1-1, November 30, Washington, D.C.

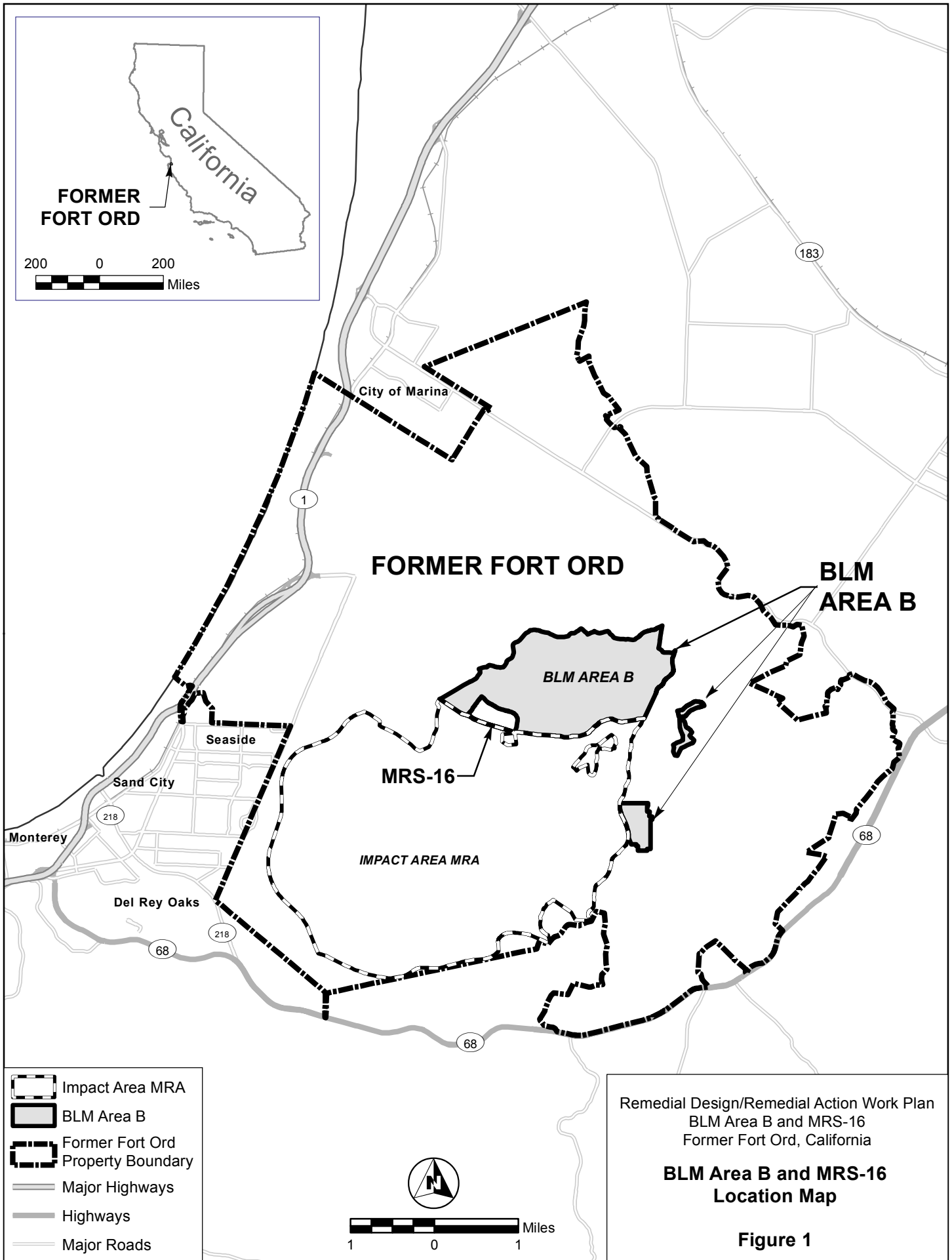
USACE, 2015, Environmental Quality – Technical Guidance in Military Munitions Response Actions, EM 200-1-15, Washington, D.C.

U.S. Department of the Army (Army), 1996. Letter of Transfer, A Portion of Former Fort Ord from the Department of the Army to the Department of the Interior, Bureau of Land Management. Parcel A, Parcel B and the Range Control Compound. October. [AR# OE-0152]

Army, 2017. *Final, Record of Decision, Track 2 Bureau of Land Management Area B and Munitions Response Site 16*. May. [AR# OE-0897]

U.S. Department of the Interior, Fish and Wildlife Service (USFWS), 2015. *Programmatic Biological Opinion for Cleanup and Property Transfer Actions Conducted at the Former Fort Ord, Monterey County, California (8-8-09-F-74)*. May 28, 2015. [AR# BW-2747]

FIGURES

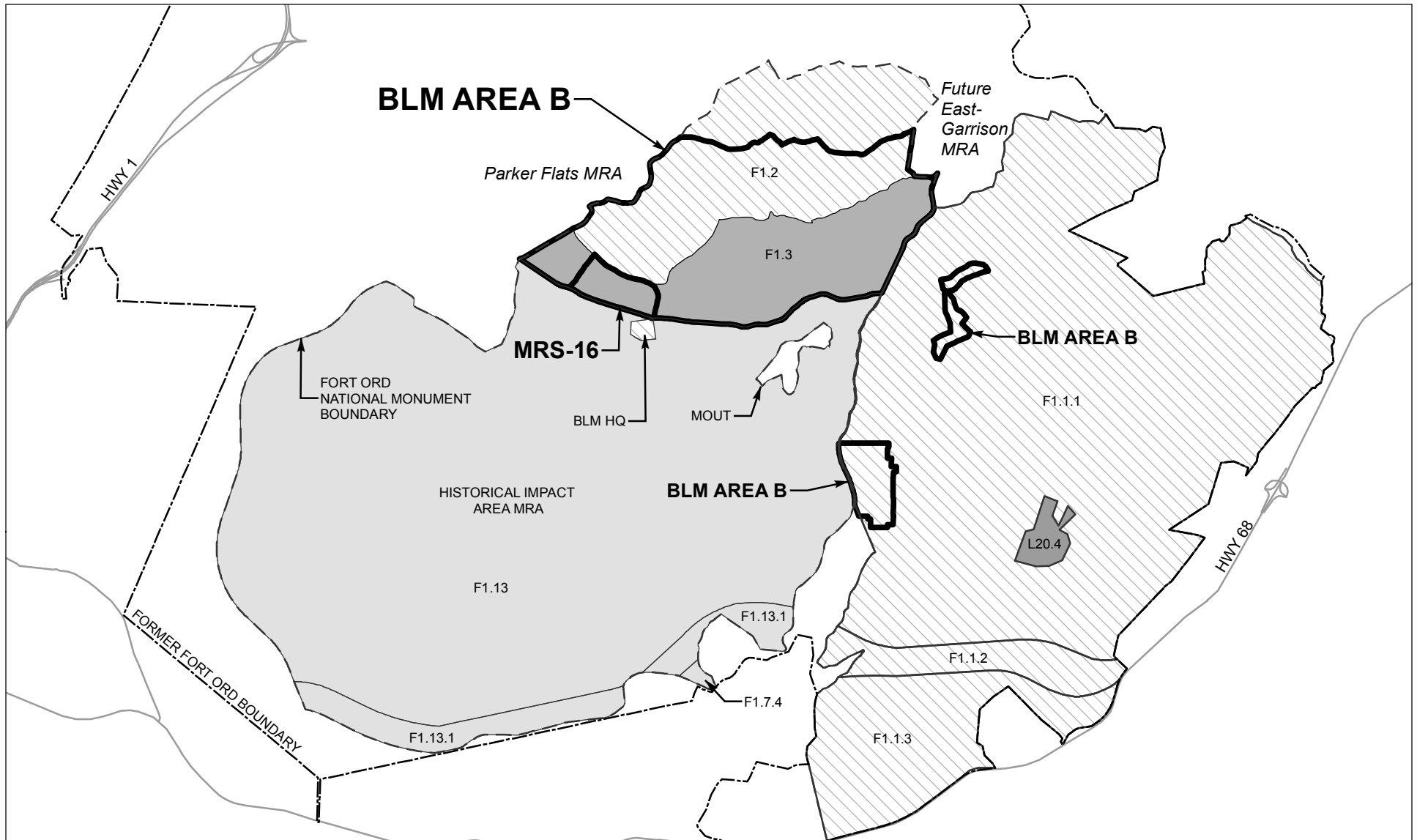








- Impact Area MRA
- BLM Area B
- Former Fort Ord Property Boundary
- Major Highways
- Highways
- Major Roads

Remedial Design/Remedial Action Work Plan
 BLM Area B and MRS-16
 Former Fort Ord, California

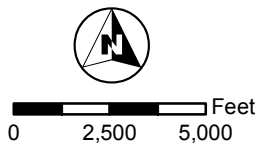
**BLM Area B and MRS-16
 Location Map**

Figure 1



-  Former Fort Ord Boundary
-  Fort Ord National Monument Boundary
-  BLM Area B
-  Impact Area MRA (to be transferred to BLM)
-  Property transferred to BLM
-  Property to be transferred to BLM

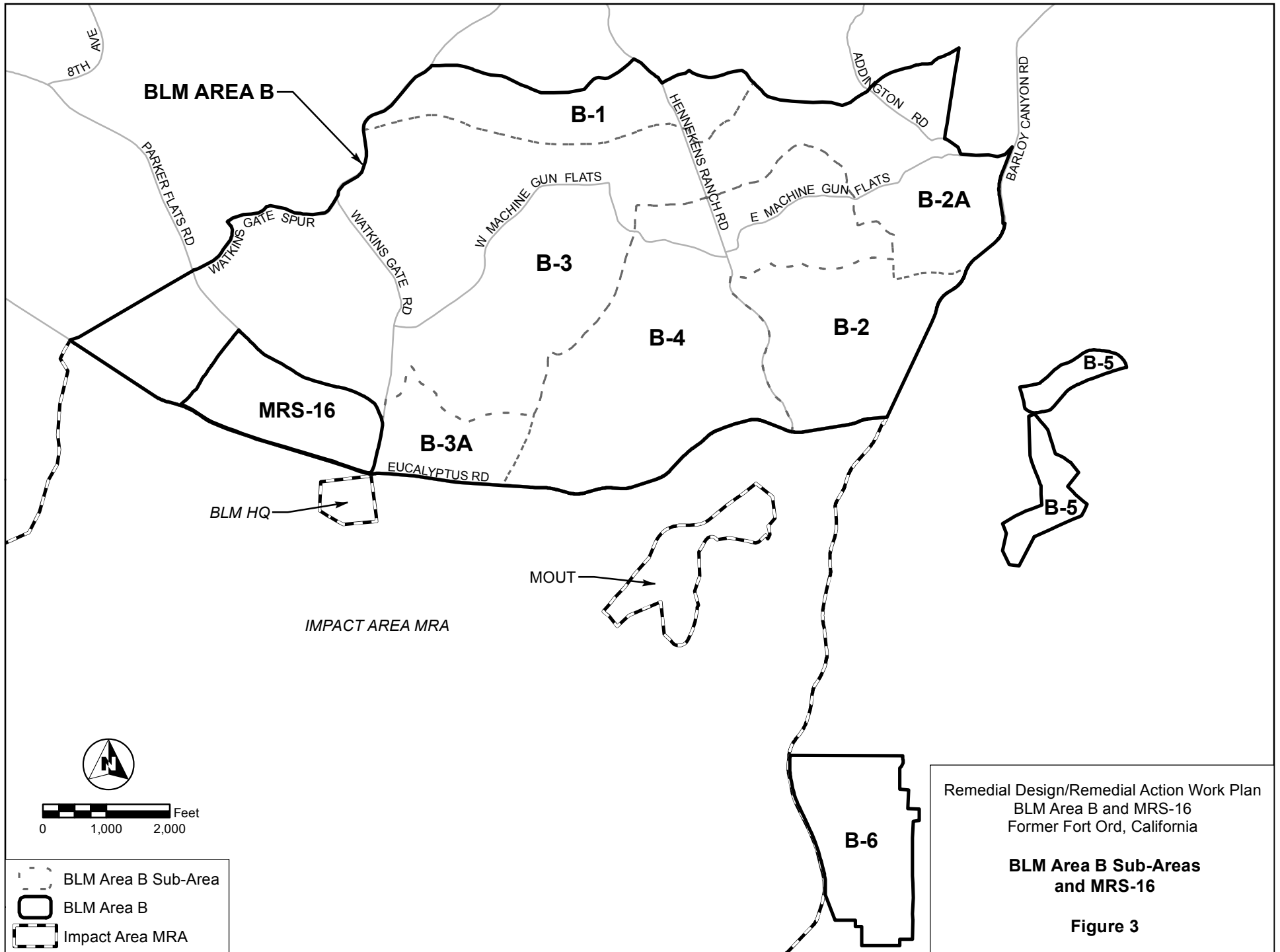
Notes:
 BLM = Bureau of Land Management
 MRA = Munitions Response Area
 MOUT = Military Operations in Urban Terrain
 F1.13 = Parcel ID

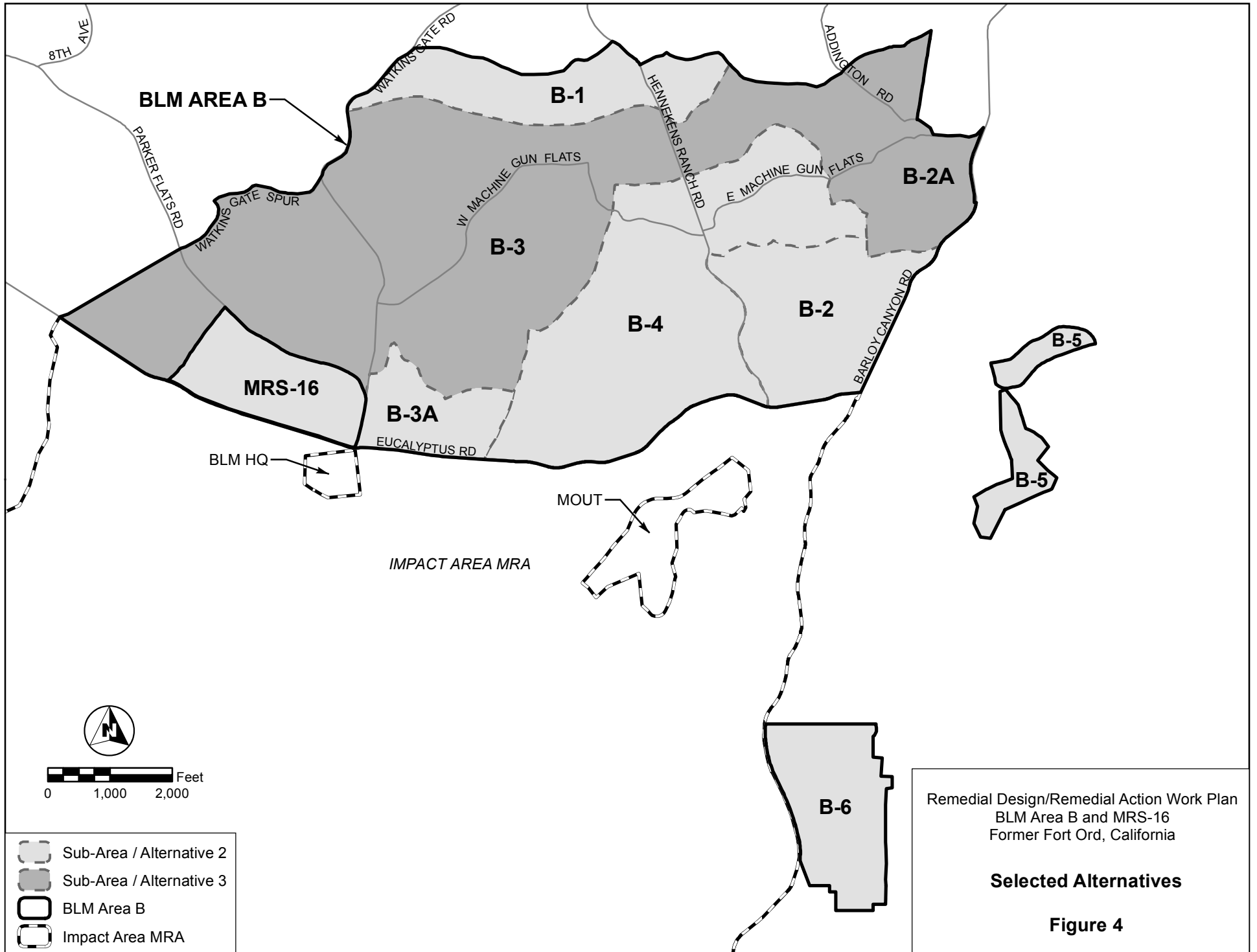


Remedial Design/Remedial Action Work Plan
 BLM Area B and MRS-16
 Former Fort Ord, California

**Fort Ord National Monument and
 Property Transfer Status**

FIGURE 2

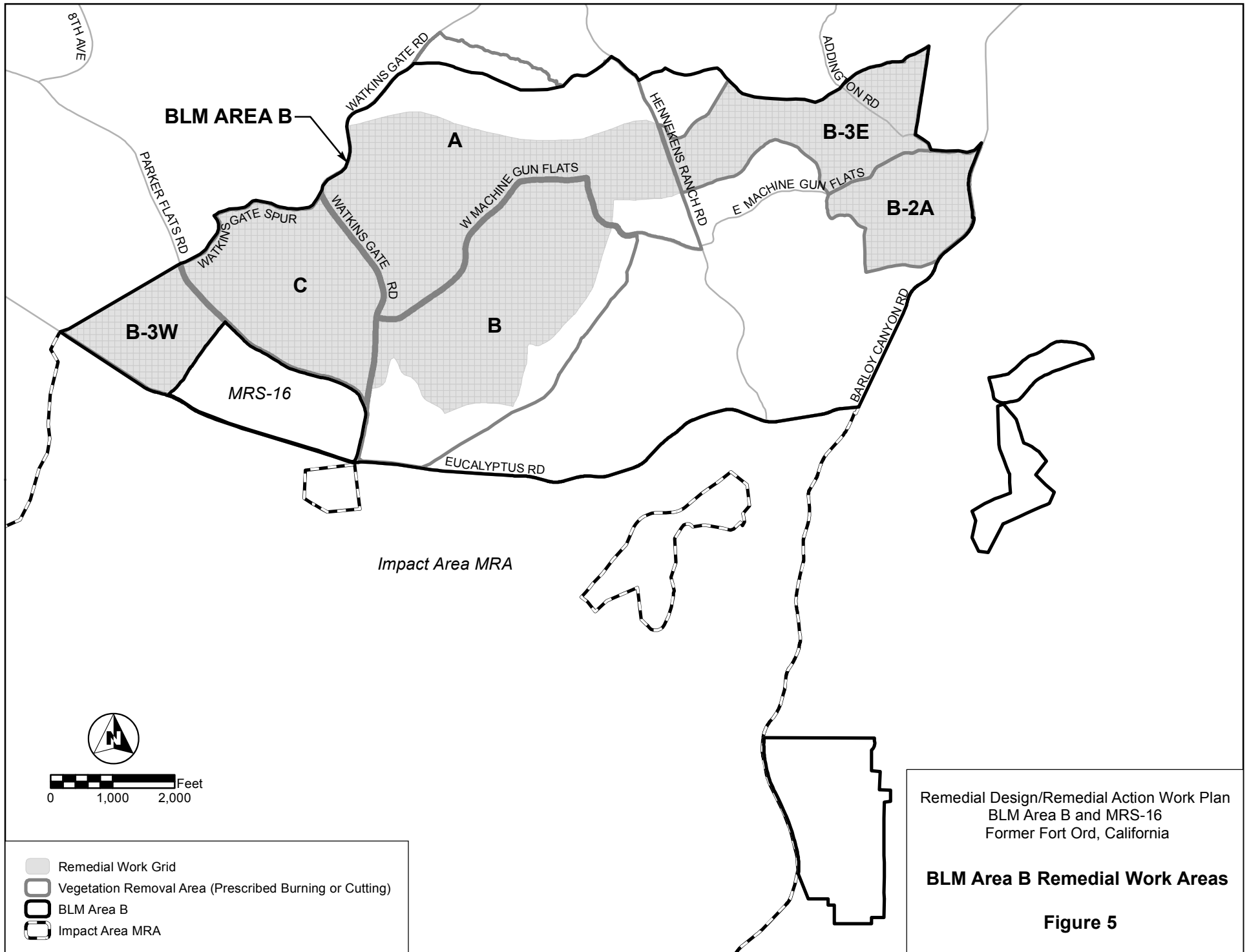




Remedial Design/Remedial Action Work Plan
 BLM Area B and MRS-16
 Former Fort Ord, California

Selected Alternatives

Figure 4



APPENDIX A

Appendix A. Applicable Or Relevant And Appropriate Requirements (ARARs)
Remedial Design/Remedial Action Work Plan, Track 2 BLM Area B and MRS-16, Former Fort Ord, California

Source or Authority	Requirement, Standard, or Criterion	Type*	Description	Remarks
Federal ARARs				
Hazardous Materials & Transportation Act	49 CFR Part 172.101	Applicable (3) /Chemical and Action	These regulations impose procedures and controls on the transportation of hazardous materials.	The regulations include specific standards of control and substantive requirements, criteria and limitations that may apply to the transport of detonation materials and selected recyclable ordnance materials.
Federal Resource Conservation and Recovery Act (RCRA), Subpart M (Military Munitions Rule)	40 CFR Parts 266 and 270	Relevant and Appropriate (2,3) / Chemical and Action	The regulations identify when military munitions on active ranges become subject to the regulatory definition of "solid waste", for purposes of Subtitle C, and if these wastes are hazardous, the management standards which apply.	Portions of the Rule may be relevant and appropriate, but those provisions of the Rule which exclude military munitions from RCRA Subtitle C regulations are not appropriate to the remediation of a closed range. The relevant portions relate to the management of MEC which is recovered, including characterization as hazardous waste and requirements for treatment, storage, and transportation. The Rule provides for the storage and transportation of recovered military munitions in accordance with DDESB standards.
State of California ARARs				
California Clean Air Act (Health and Safety Code)	Monterey Bay Unified Air Pollution Control District Rule 438 (Open Outdoor Fires; <i>Adopted 4-16-2003; Revised 9-15-2004; October 19, 2011; and September 19, 2012</i>)	Applicable (1) / Action	These prohibitory rules describe permit requirements, allowable days for burning, and restrictions. The rules include both substantive and procedural requirements regarding open burning.	<p>The rule includes specific standards of control. It also includes non-substantive procedural and administrative provisions with which the Army, under CERCLA, is not required to comply.</p> <p><u>Substantive requirements:</u> §3.4, prohibiting burn on no-burn days. The Army will conduct prescribed burns on allowable days in accordance with CCR Title 17, §80110. §3.7.10, burn shall be ignited only by devices and methods approved by the California Department of Forestry and Fire Protection (CDF). The Army will use ignition devices approved by CDF. §3.7, materials to be burned shall be dry and reasonably free of dirt, soil and visible surface moisture prior to burning, and shall be free from combustible impurities such as tires, tar paper, household rubbish, demolition or construction debris, and other materials not grown at a site. The Army will comply with this section by removing tires, structures and other debris from the sites prior to conducting prescribed burns, where it is safe to do so. MEC items have been removed from the areas where accessible and where it was safe to do so. Emissions from incidental detonation of MEC during prescribed burning are expected to be insignificant, based on a study conducted by the Army, in consultation with EPA and DTSC (<i>Technical Memorandum, Air Emissions from Incidental Ordnance Detonation During a Prescribed Burn on Ranges 43 through 48</i> (Harding ESE, 2001)). The study concluded that air pollutant emissions from incidental MEC detonation during a prescribed burn will be minor compared to emissions contributed directly from biomass burning, and will result in pollutant concentration well below health-protective regulatory screening levels.</p> <ul style="list-style-type: none"> The regulation is intended to protect the public health. The Army will substantively comply with this regulation by implementing the site preparation measures as described above, as well as conducting the burns in accordance with the smoke management program, and applying resources to contain the fire within the intended boundaries to minimize public exposure to smoke.

Source or Authority	Requirement, Standard, or Criterion	Type*	Description	Remarks										
California Health and Safety Code, Division 20	Title 22, CCR Division 4.5	Applicable (3) / Chemical and Action	The statute and regulations provide for identification of hazardous waste in §§66261. If a material is a hazardous waste, Division 4.5 provisions further regulate hazardous waste generators, transporters, and treatment, storage, and disposal facilities.	The Army will evaluate discovered items in accordance with the approved work plan to determine the presence of energetic materials or other constituents that would cause it to be characterized as a hazardous waste. <u>Substantive requirements:</u> <ul style="list-style-type: none"> Storage: onsite storage of explosive items will meet DoD standards (DDESB 6055.9-M). Transportation: offsite transportation of small arms ammunition will incorporate applicable manifesting and placarding requirements. Conforms to Defense Reutilization and Marketing Office (DRMO) instruction. Disposal/recycling: offsite disposal or recycling facility or facilities for small arms ammunition will be state and/or RCRA-authorized. 										
California Health and Safety Code	Title 22, CCR §66264.601-603	Relevant and appropriate (2) / Action	These regulations apply to hazardous waste treatment which is conducted in a device that does not meet the definition of a "container" in 22 CCR 66260.10 is characterized as a "Miscellaneous Unit" subject to the provisions of 22 CCR 66264.601-603. For activities where detonations are in a device that meet the 22 CCR 66260.10 definition of a container, the requirements for "temporary units," as set forth in 22 CCR 66264.553 apply.	The regulations include generally described narrative standards. Compliance with substantive requirements is achieved through regulatory coordination of site-specific work plans in accordance with CERCLA and FFA. Under CERCLA, the Army is not required to comply with procedural requirements such as obtaining a permit.										
California Health and Safety Code	Title 22, CCR §66265.382	Relevant and Appropriate (3) / Chemical and Action	Open burning of hazardous waste is prohibited except for the open burning and detonation of waste explosives. Waste explosives include waste which has the potential to detonate and bulk military propellants which cannot safely be disposed of through other modes of treatment. Detonation is an explosion in which chemical transformation passes through the material faster than the speed of sound (0.33 kilometers/second at sea level). Owners or operators choosing to open burn or detonate waste explosives shall do so in accordance with the following table and in a manner that does not threaten human health or the environment. <table border="0"> <tr> <td><u>lb. waste explosives</u></td> <td><u>Min. Distance from OB/OD to property</u></td> </tr> <tr> <td>0 to 100</td> <td>204 meters (670 feet)</td> </tr> <tr> <td>101 to 1,000</td> <td>380 meters (1,250 feet)</td> </tr> <tr> <td>1,001 to 10,000</td> <td>530 meters (1,730 feet)</td> </tr> <tr> <td>10,001 to 30,000</td> <td>690 meters (2,260 feet)</td> </tr> </table>	<u>lb. waste explosives</u>	<u>Min. Distance from OB/OD to property</u>	0 to 100	204 meters (670 feet)	101 to 1,000	380 meters (1,250 feet)	1,001 to 10,000	530 meters (1,730 feet)	10,001 to 30,000	690 meters (2,260 feet)	The requirement includes specific standards of control and addresses situations similar to those that may be addressed during remediation; detonation of MEC will comply with these requirements.
<u>lb. waste explosives</u>	<u>Min. Distance from OB/OD to property</u>													
0 to 100	204 meters (670 feet)													
101 to 1,000	380 meters (1,250 feet)													
1,001 to 10,000	530 meters (1,730 feet)													
10,001 to 30,000	690 meters (2,260 feet)													

Source or Authority	Requirement, Standard, or Criterion	Type*	Description	Remarks
California Clean Air Act (Health and Safety Code)	Title 17, CCR §80100 et. seq.	Relevant and Appropriate (1)/ Action	The regulations provide guidelines, programs and agency procedures for smoke management plans.	<p>The regulations are relevant and appropriate. The Army will comply with substantive elements of the regulations. Under CERCLA, the Army is not required to comply with procedural and administrative provisions; however these elements will be addressed as part of the remedial design/remedial action process.</p> <p><u>Substantive requirements:</u></p> <p>§80110(d) prohibiting burn on no-burn days. The Army will conduct prescribed burns on allowable days in accordance with CCR Title 17, §80110.</p> <p>§80145(o) (1) [local air district smoke management plan or other enforceable mechanisms shall] require the material to be burned to be free of material that is not produced on the property or in an agricultural or prescribed burning operation. Material not to be burned includes, but not limited to, tires, rubbish, plastic, treated wood, construction/demolition debris, or material containing asbestos. The Army will comply with this section by removing tires, structures and other debris from the sites prior to conducting prescribed burns, where it is safe to do so. MEC items have been removed from the ground surface of the areas where accessible and where it was safe to do so. Emissions from incidental detonation of MEC during prescribed burning are expected to be insignificant, based on a study conducted by the Army, in consultation with EPA and DTSC (<i>Technical Memorandum, Air Emissions from Incidental Ordnance Detonation During a Prescribed Burn on Ranges 43 through 48</i> (Harding ESE, 2001)). The study concluded that air pollutant emissions from incidental MEC detonation during a prescribed burn will be minor compared to emissions contributed directly from biomass burning, and will result in pollutant concentration well below health-protective regulatory screening levels.</p> <ul style="list-style-type: none"> • The regulation is intended to protect the public health. The Army will substantively comply with this regulation by implementing the site preparation measures as described above, as well as conducting the burns in accordance with the smoke management program, and applying resources to contain the fire within the intended boundaries to minimize public exposure to smoke.
State of California TBC - considered in the review of potential ARARs but not applicable or relevant and appropriate				
California Fish and Game Commission	Wetlands Resources (pursuant to § 703 of California Fish and Game Code; not a statute)	Policy (1,2,3)/ Location	This policy (1) seeks to provide for the protection, preservation, restoration, enhancement and expansion of wetland habitat in California; (2) strongly discourages development in or conversion of wetlands; and (3) opposes, consistent with its legal authority, any development or conversion which would result in a reduction of wetland acreage or wetland habitat values. To that end, the Commission (1) opposes wetland development proposals unless, at a minimum, project mitigation assures there will be "no net loss" of either wetland habitat values or acreage; and (2) strongly prefers mitigation which would achieve expansion of wetland acreage and enhancement of wetland habitat values.	<p>The policy provides for the protection of wetland resources.</p> <p>CDFW was heavily involved in the development of the HMP (and subsequent Wetland Resources Protection Plan specific to former Fort Ord), which include the development of mitigation measures to protect wetland resources.</p>

Source or Authority	Requirement, Standard, or Criterion	Type*	Description	Remarks
Compliance with Other Statutes and Regulations (that are mandatory, but are not ARARs)				
Endangered Species Act (16 USC §§ 1531-1543)	16 USC § 1536 (a) and (c); 16 USC § 1538 (a)(I)	Federal Law (1,2,3)	Federal agencies are required under Section 7 of the ESA to ensure that their actions do not jeopardize the continued existence of a listed species or result in destruction of or adverse modification of its critical habitat (16 USC § 1536). If the proposed action may affect the listed species or its critical habitat, consultation with the U.S. Fish and Wildlife Service (USFWS) and/or California Fish and Wildlife may be required (50 CFR § 402. 14). Additionally, Section 9 of the ESA prohibits the illegal taking of a listed species (16 USC§ 1538(a) (I).	The Army has completed an endangered species, Section 7 consultation, and the USFWS has issued several Biological Opinions for the Army disposal and reuse actions at the former Fort Ord. Endangered plant and animal species and critical habitats occur at Fort Ord. Each reuse area will be screened for potential impacts to any endangered species identified in the <i>Installation-Wide Multispecies Habitat Management Plan</i> (HMP; USACE, 1997) and additional requirements identified in subsequent documents (USACE, 2005; USFWS, 2015, Zander, 2002). The provisions of the HMP and referenced additional requirements satisfy the requirements of the ESA.
Migratory Bird Treaty Act (MBTA)	16 U.S.C. §§703-712	Federal Law (1,2,3)	The statute sections prohibit the taking, possession of, buying, selling, purchasing, or bartering of any migratory bird, including feathers or other parts, nest eggs, or products, except as allowed by regulations.	USFWS has issued a non-jeopardy biological opinion for Army predisposal actions to include the remediation of MEC, which provides that vegetation clearance activities occur outside the nesting seasons for migratory birds.

Note: A full list of statutes and regulations that were considered in the ARARs analysis is included in the BLM Area B and MRS-16 RI/FS (Gilbane, 2015) Table 5-1.

* 1 = Vegetation Clearance; 2 = MEC Removal; 3 = Detonation of MEC