



FIELD VARIANCE FORM

DATE: 27-SEPT-2012	PROJECT NAME: Future East Garrison Munitions Response Area	PROJECT LOCATION: Future East Garrison	
APPLICABLE DOCUMENT / SECTION:	Final Group 4 Remedial Investigation/Feasibility Study Work Plan, Volume 2 – Sampling and Analysis Plan, Appendix G Explosives Siting Plan		
SUBJECT:	<u>Appendix G; Update of Explosives Siting Plan to include updated minimum separation distance for 37mm projectile and addition of maximum fragmentation distance for soil sifting operations.</u>		

FIELD CHANGE CONDITION:

The Remedial Investigation at Future East Garrison Munitions Response Area (MRA) is being executed in accordance with the Final Group 4 Remedial Investigation/Feasibility Study Work Plan for the Future East Garrison MRA dated October 8, 2010 (“the Group 4 RI/FS Work Plan”).

An increased minimum separation distance (MSD) value for the 37millimeter (mm) MKI low explosive (LE) projectile is required. Based on previous munitions and explosives of concern (MEC) investigations and removal actions, the 37mm projectile is the munition with the greatest maximum fragmentation distance for the Future East Garrison MRA. Therefore, as stated in the Group 4 RI/FS Work Plan, the MSDs determined for unintentional and intentional detonations in the MRA are based on the MSD of the 37mm projectile.

Additionally the Explosive Siting Plan (Volume 2, Appendix G) does not include maximum fragmentation distance for soil sifting operations.

RECOMMENDED APPROACH / CHANGE:

It is recommended that the Explosives Siting Plan (Appendix G of the Group 4 RI/FS Work Plan) be updated to reflect the increased MSD value for the 37mm projectile for the addition of soil sifting operations procedures. The updates to the Explosives Siting Plan and the affected sections include the following:

- Addition of Section 1.2, Soil Sifting Operations, to include operations for the field activities associated with the soil sifting operations such as placement of equipment, transport of soil, and quality assurance procedures.
- Increased maximum fragmentation distance (MFD) for intentional detonations for the 37mm MK I, LE projectile from 816 ft to 824 ft (Section 1.5.1 [previously Section 1.4.1], Table 1, Figure 3 [Rev 1], and Figure 7 [Rev 1]).
- Increased hazardous fragment distance (HFD) MSD for nonessential personnel for unintentional detonation for the 37mm MK I, LE projectile from 68 ft to 70 ft (Section 1.5.2 [previously Section 1.4.2], Table 1, Figure 3 [Rev 1], and Figure 7 [Rev 1]).

The updated Explosives Siting Plan is provided as Attachment A to this field variance form. The Department of Defense Explosives Safety Board (DDESB) approval letter for the updated Explosives Siting Plan is provided as Attachment B to this field variance form.



IMPACT ON PRESENT AND COMPLETED WORK:

No impact to present or completed work.

REQUESTED BY: Kristie Reimer, ESCA Remediation Program Manager (ARCADIS)

☐

CLARIFICATION/FOR INFORMATION
ONLY

☒

MINOR CHANGE

☐

MAJOR CHANGE

ESCA RP TEAM APPROVALS: D. KEAN, G. CLARK, L. TEMPLE, C. SPILL

COMMENTS



WESTON | THE FUTURE

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FORA APPROVAL:

COMMENTS



APPROVED



REJECTED

FORA
STAN COOKFORA ESCA PROGRAM
MANAGER

SIGNATURE

DATE

ATTACHMENTS:

Attachment A: Appendix G: Explosives Siting Plan

Attachment B: Memorandum for Director, U.S. Army Defense Ammunition Center Attention: JMAC-ESM;
Dated Aug 31 2012; Subject DDESB Approval of Amendment 1, Explosives Site Plan, Remedial
Investigation/Feasibility Study, Future East Garrison Munitions Response Area, Former Fort Ord, Monterey
County, CA

FVF No. G4WP-004

ATTACHMENT A

FORA ESCA REMEDIATION PROGRAM

Appendix G: Explosives Siting Plan

FINAL Group 4 Remedial Investigation / Feasibility Study Work Plan Addendum

Volume 2 - Sampling and Analysis Plan Future East Garrison Munitions Response Area

Former Fort Ord
Monterey County, California

July 23, 2012

Prepared for:

FORT ORD REUSE AUTHORITY

920 2nd Avenue, Suite A
Marina, California 93933



Prepared Under:

**Environmental Services Cooperative Agreement
No. W9128F-07-2-01621**

and

FORA Remediation Services Agreement (3/30/07)

Document Control Number: 09595-09-079-045

Prepared by:



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7 MSDs and Fragmentation Characteristics for Projectile, 37mm Low Explosive MK I

ACRONYMS AND ABBREVIATIONS

Army	U.S. Department of the Army
ASP	Ammunition Supply Point
BRAC	Base Realignment and Closure
DDESB	Department of Defense Explosives Safety Board
ESCA RP	Environmental Services Cooperative Agreement Remediation Program
ESL	explosive storage location
ESP	Explosives Siting Plan
FORA	Fort Ord Reuse Authority
ft	foot or feet
FUDS	Formerly Used Defense Sites
HFD	hazardous fragment distance
LDSP	Land Disposal Site Plan
LE	Low Explosive
MCRFD	Monterey County Regional Fire District
MEC	munitions and explosives of concern
MFD	maximum fragmentation distance
MGFD	munition with the greatest fragmentation distance
mm	millimeter
MRA	Munitions Response Area
MSD	minimum separation distance
QA	quality assurance
RI	Remedial Investigation
SUXOS	Senior Unexploded Ordnance Supervisor
TSD	team separation distance
USACE	United States Army Corps of Engineers
UXO	unexploded ordnance
UXOSO	Unexploded Ordnance Safety Officer

1.0 INTRODUCTION

The former Fort Ord, in Monterey County, California is the focus of this Explosives Siting Plan (ESP) in support of a Remedial Investigation (RI) to be conducted at the Future East Garrison Munitions Response Area (MRA). This Future East Garrison RI covers approximately 252 acres that potentially contain munitions and explosives of concern (MEC). Detailed information about the Future East Garrison MRA can be found in Volume 1 of this Group 4 Remedial Investigation and Feasibility Study Work Plan. This plan for siting explosives operations conforms to the requirements of Data Item Description MR-005-004. The RI fieldwork is began in September 2010.

Figure 1 shows the location of the former Fort Ord and the general site layout. Figure 2 shows the RI area within the Future East Garrison MRA. Figure 3 includes all anticipated minimum separation distances (MSDs) for the Future East Garrison MRA RI area.

1.1 Explosive Storage Magazines

Explosive donor charges will be drawn from the established explosive storage location (ESL). The ESL is the former Fort Ord Ammunition Supply Point (ASP) shown on Figure 1. The Department of Defense Explosives Safety Board (DDESB) approved the siting and final safety submission for this ASP on March 8, 1990. The ASP's magazines are standard earth-covered facilities. After Fort Ord closed under Base Realignment and Closure (BRAC), DDESB approved a change to the use of the magazines and resited them to allow the U.S. Department of the Army (Army) to use the magazines for the storage of demolition materials for unexploded ordnance (UXO) contractors executing Fort Ord's munitions response actions. The Army used the magazines in this way for a number of years. The Army is no longer using the magazines and deeded transfer of the entire ESL to the Fort Ord Reuse Authority (FORA). The ESL will continue to be used for UXO contractor munitions response actions for approximately 7 years. Siting of these magazines is covered under the DDESB final approval of the "2nd Addendum to the 3rd Amendment to the 17 Feb 94 Land Disposal Site Plan (LDSP) for BRAC of Fort Ord, California," dated January 14, 2008 (ESCA RP Team 2008). The MSD requirements for each of the three earth-covered facilities being used at the ESL (Buildings 763, 764, and 765) are shown on Figures 4, 5, and 6.

1.2 Soil Sifting Operations

Portions of the Future East Garrison MRA RI area contain a relatively high density of magnetic clutter or physical obstructions (e.g., buried debris). It is anticipated that the areas expected to have a high density of subsurface anomalies that could be MEC, will be excavated and the soil screened. Armored heavy equipment will be used to excavate the soil from the areas identified for this activity. The soil will be loaded into dump trucks. The soil will be transported by the dump trucks to a central sifting area using designated haul routes. During earth-moving activities, only the equipment operators inside equipment fitted with blast shields will be authorized to be in the work area(s); all other personnel will remain outside the area's exclusion zone.

The removal of MEC during the RI at the Future East Garrison MRA includes manual excavations, mechanized excavations, and sifting of soil. Operators of excavation equipment and sifting equipment will be protected from accidental detonations caused by excavator buckets or sifting screens by fragment defeating shields/barricades complying both in material type and material thickness with those specified in DDESB TP 16's associated Fragmentation Database. Operators will also be protected by K24 blast distance or K18 if they are provided with a minimum of 9 decibels hearing protection.

Mechanical equipment and vehicles used in sifting operations will be armored with the appropriate thickness of Lexan or Plexiglas as indicated in TP16 to protect the equipment operators against any unintentional detonations of MEC items.

The Quality Assurance (QA) Program for the Future East Garrison MRA Removal Action includes seeding of the sifting operations to ensure recovery.

1.3 Engineering Controls

Engineering controls will be implemented during intentional detonations per the guidance set forth in HNC-ED-CS-S-98-7 Amendment 1, Use of Sandbags for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions. Only one item will be disposed of at a time when engineering controls are being employed.

In areas where an acceptable fragmentation distance cannot be achieved, items that are safe to move may be moved to another area as long as the movement does not require transportation on public roads. If movement to another area is not possible, engineering controls (in accordance with HNC-ED-CS-S-98-7) will be employed to reduce the fragmentation hazard.

1.4 Munitions and Explosives of Concern

All recovered MEC will be blown-in-place in the grid found; engineering controls will be utilized to mitigate the hazard posed by fragments produced by the detonation.

1.5 Minimum Separation Distance

Figure 3 includes all anticipated MSDs for the Future East Garrison MRA. The selection of the munition with the greatest fragmentation distance (MGFD) for the Future East Garrison MRA is based on the results of previous MEC investigations and removal actions in portions of the Future East Garrison MRA.

- The MGFD for the Future East Garrison MRA is the 37 millimeter (mm) MK I, Low Explosive (LE) projectile.

1.5.1 Maximum Fragmentation Distance MSD for Intentional Detonations

The maximum fragmentation distance (MFD) is in accordance with the Fragmentation Data Sheet for the 37mm MK I, LE projectile, and will be used for intentional detonations, mechanized excavations, and screening of soil, as shown on Figure 3. The MFD for the

37mm MK I, LE projectile is 824 feet (ft). Engineering controls for intentional detonations, per the guidance set forth in HNC-ED-CS-S-98-7 Amendment 1, Use of Sandbags for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions, will be employed to reduce the MFD.

The withdrawal distance or MSD for intentional detonations using sandbags is 200 ft, as shown on Figure 3. Engineering controls will be utilized for single item detonations only. Any inhabited buildings that fall within the MSD will be evacuated during MEC operations. All roadways will be blocked with road guards (or equivalent) to ensure that nonessential personnel do not enter the MSD during MEC activities.

1.5.2 Hazardous Fragment Distance MSD for Nonessential Personnel for Unintentional Detonations

The MSD for nonessential personnel is as shown on Figure 3. The hazardous fragment distance (HFD) will be used for unintentional detonations based on the Fragmentation Data Sheet (Figure 7). The MSDs for intentional and unintentional detonations are provided in Table 1.

Table 1: Minimum Separation Distances, 37mm MK1 LE

Minimum Separation Distance (MSDs)					
Unintentional Detonations (feet)		Intentional Detonations (feet)			
Hazardous Fragment- ation Distance (HFD)	Team Separation Distance (K40) ¹	MSD Without Engineering Controls ² (MFD-H)	Single Shots Using Sandbag Mitigation	K24 (used for Blast Distance without hearing protection)	K18 (used for Blast Distance with 9 > decibels hearing protection)
70	10	824	200	6	4

¹For Non-Essential Personnel based on the greater of K40 or the Hazardous Fragmentation Distance of the MGFD.

²For Non-Essential Personnel based on the greater of K328 or the Maximum Fragment Distance of the MGFD.

1.5.2.1 Authorization to Use Unintentional Detonation MSD HFD

United States Army Corps of Engineers (USACE) has intrusively investigated millions of surface MEC items and subsurface anomalies that have the potential to be UXO over the past 15 years on more than 1,000 project locations for Formerly Used Defense Sites (FUDS), BRAC, and active installations. These are extremely conservative estimates. On one project alone, USACE investigated over 3,000,000 anomalies, of which approximately 1.67% were UXO, with no accidents or unintentional detonations. For these reasons, the probability of an unintentional detonation, due to project activities, is assessed to be “Extremely Low,” and the use of the HFD, for unintentional detonations, is warranted and authorized for manual excavation and mechanical excavation where the excavation is to the side of the anomaly.

1.5.3 Team Separation Distance

Team separation distance (TSD) will be in accordance with the Fragmentation Data Sheet K40 distance as shown on Figure 7. TSD is 10 ft for the 37mm MK I, LE.

1.5.4 Increase of MSD

If, during the course of operations, a munition with a greater fragmentation distance is encountered, the MSD will immediately be adjusted in accordance with DDESB Technical Paper 16, and operations will continue. In response, an amendment to this ESP will be expeditiously submitted.

1.6 Demolition Areas

No dedicated demolition area will be established at the Future East Garrison MRA. MEC identified within the Future East Garrison MRA will be blown-in-place using engineering controls to mitigate the hazard posed by fragments produced by the detonation.

1.7 Footprint Areas

There are no identified disposal areas.

1.7.1 Detonation Site and Blow-in-Place

Recovered MEC will be blown-in-place within the investigation area or transect found within the Future East Garrison MRA. Material Potentially Presenting an Explosive Hazard and items requiring demilitarization may be stored in the MEC explosive magazine and added to future planned demolition shots. Items that are unsafe to move will be disposed of in the location where they are encountered.

Prior to initiation of demolition operations, all nonessential personnel will be evacuated from the exclusion zone. Before the demolition charges are primed, all avenues of ingress will be

physically blocked by guard personnel. Radio communications will be maintained between all involved parties at all times. Avenues of ingress are not to be opened without the permission of the Senior Unexploded Ordnance Supervisor (SUXOS). A constant state of vigilance will be maintained by all personnel to detect any intrusion into the fragmentation zone including flights by aircraft. Upon completion of disposal operations, the disposal team's UXO Technician III (Demolition Supervisor) and the Unexploded Ordnance Safety Officer (UXOSO) will visually inspect each disposal shot. The Technician III will perform a visual inspection of the disposal site(s). The UXOSO will stand by at a safe distance and be prepared to render assistance in the event of an emergency. Upon completion of this inspection and providing that there are no residual hazards, the SUXOS will authorize the resumption of operations.

Prior to any detonation, the SUXOS will initiate the appropriate notification and approval procedure. The SUXOS will schedule the demolition to allow sufficient time to complete all notifications and approvals.

Notifications and approvals will be conducted as follows:

- Complete the MEC Disposal Checklists and notifications for each disposal operation.
- Request that local fire authorities perform an on-site fire risk assessment. The fire risk assessment may be performed by the Monterey County Regional Fire District (MCRFD) dependent upon site conditions. Fire authorities will expedite risk assessments, if required, for demolition shots that cannot be delayed. Complete a Detonation Approval Checklist/Risk Assessment and submit to the FORA Environmental Services Cooperative Agreement Remediation Program (ESCA RP) Manager for approval.

1.7.2 Collection Points

Collection points are not applicable to this project.

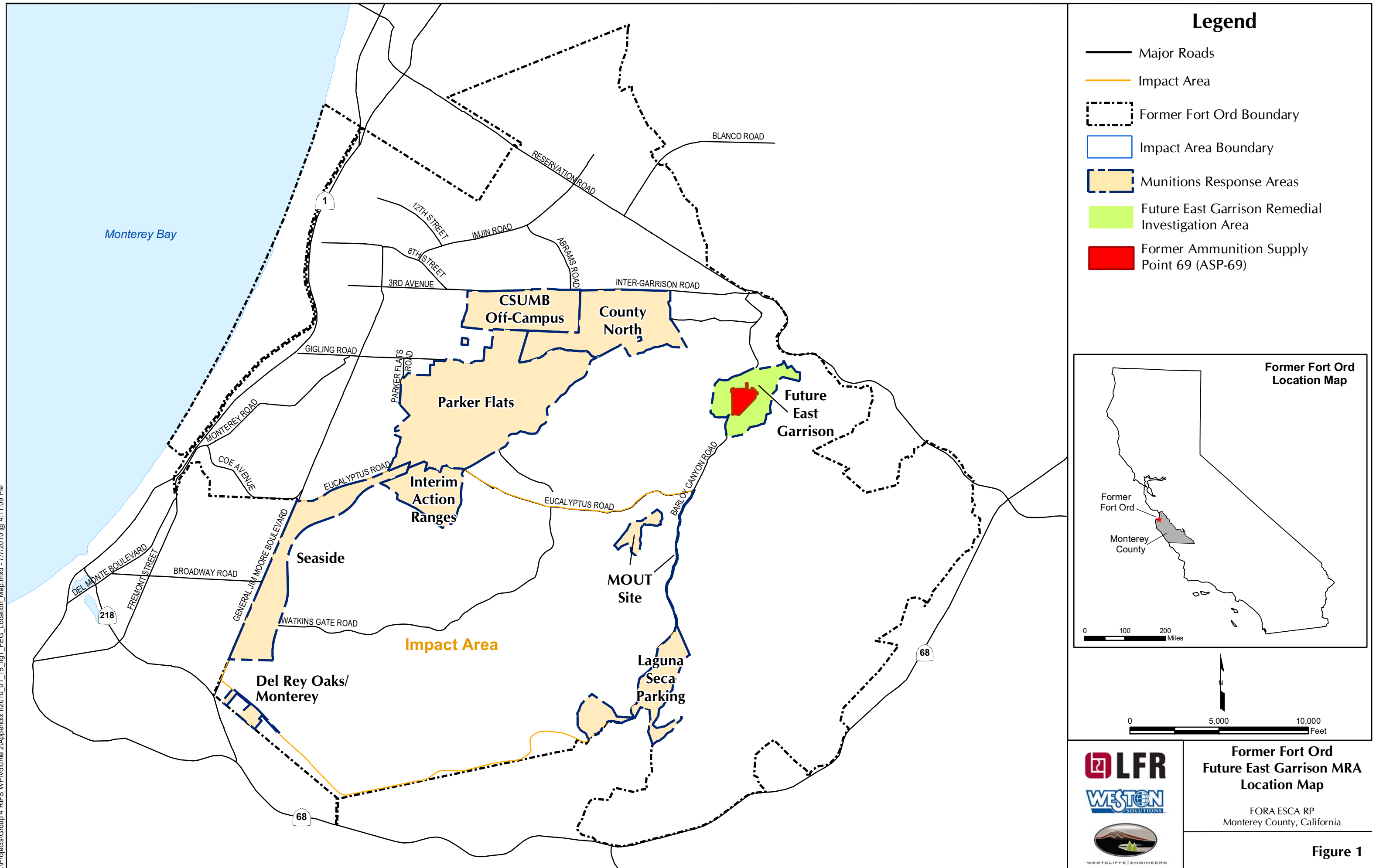
1.7.3 In-Grid Consolidated Shots

In-grid consolidated shots are not applicable to this project.

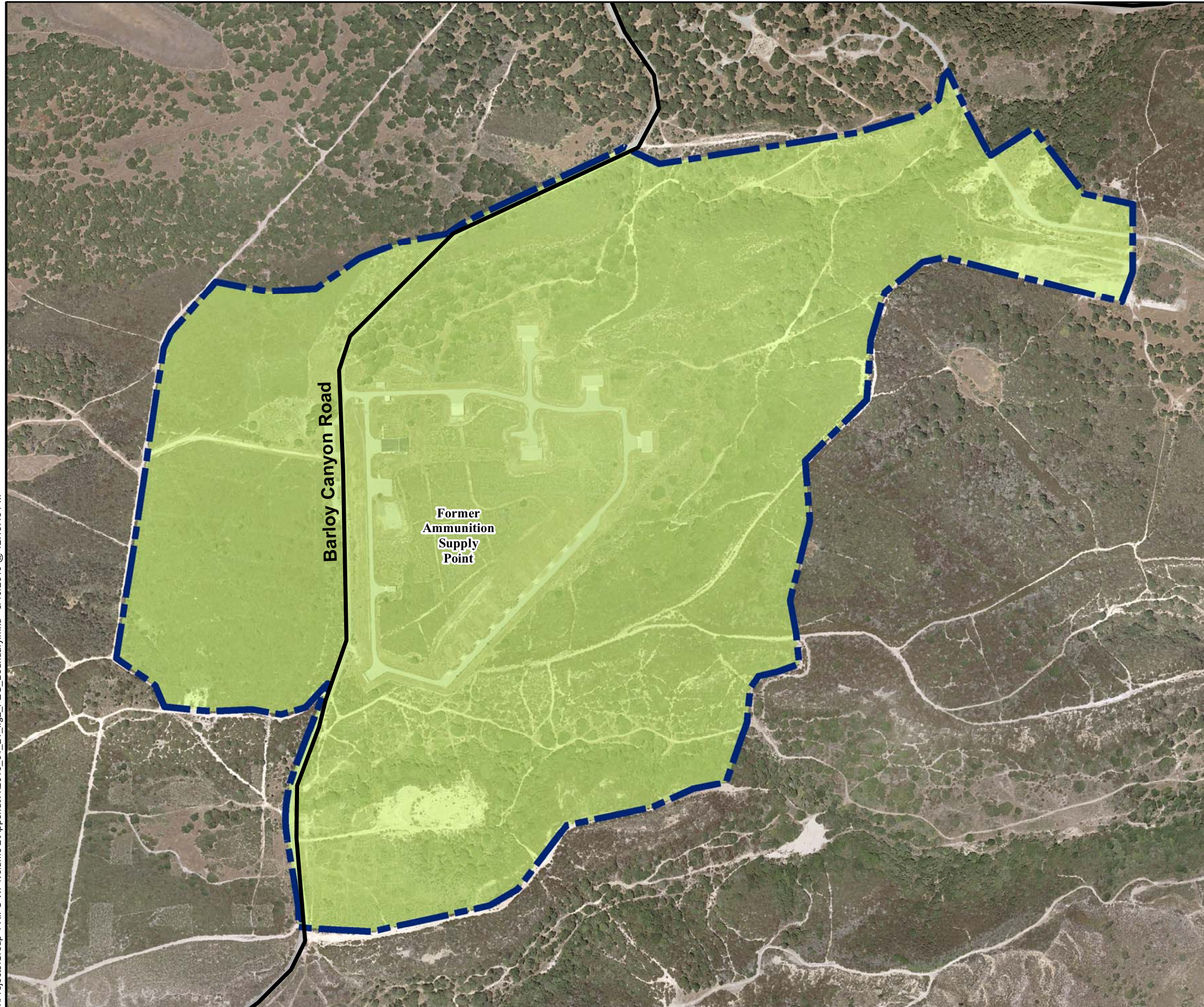
2.0 REFERENCES

Environmental Services Cooperative Agreement Remediation Program Team (ESCA RP Team). 2008. 2nd Addendum to the 3rd Amendment to the 17 Feb 94 Land Disposal Site Plan (LDSP) for BRAC of Fort Ord, California, Phase II Seaside Munitions Response Area (MRA) Removal Action, Former Fort Ord, Monterey County, California. January 14.



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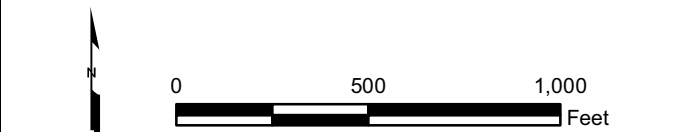
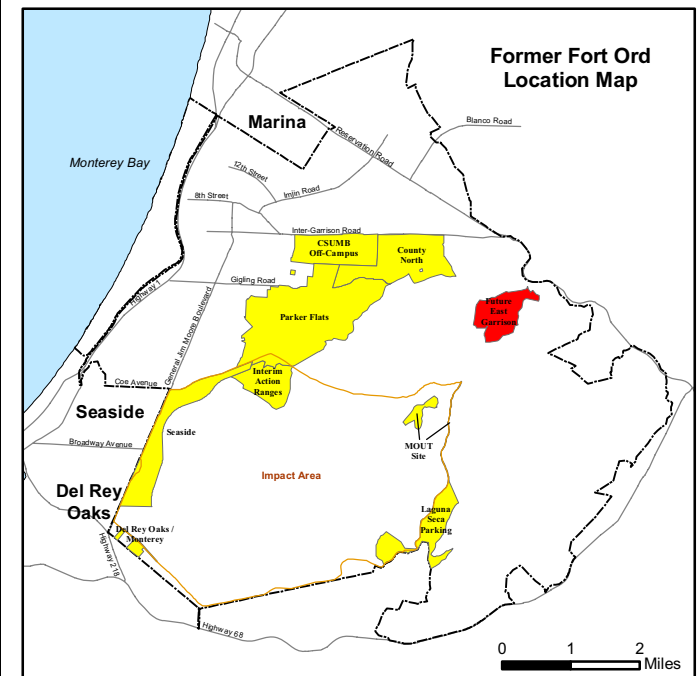


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Legend

-  Future East Garrison Remedial Investigation Area
-  Major Road






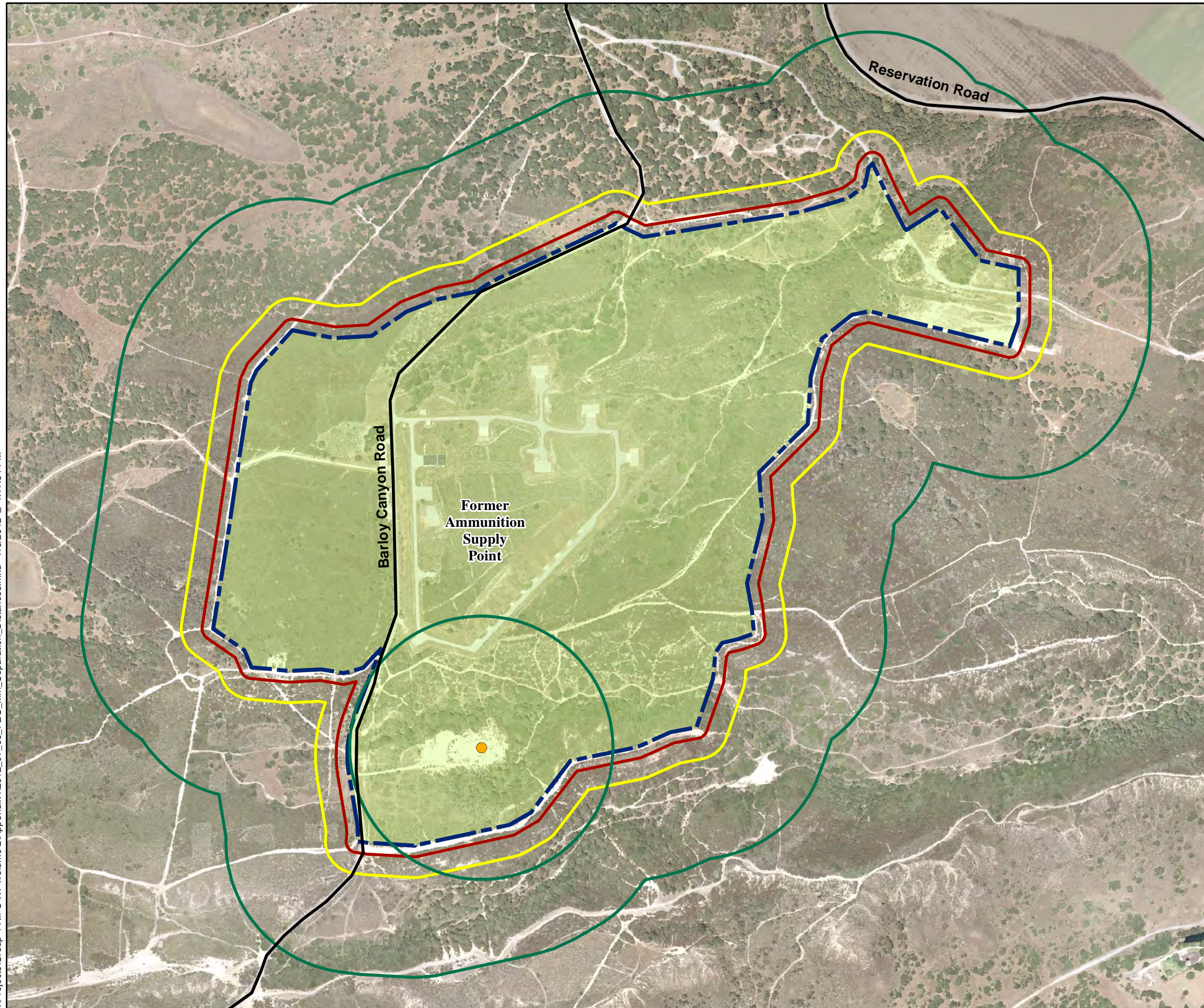



  	Future East Garrison MRA Remedial Investigation Area
	FORA ESCA RP Monterey County, California

Figure 2




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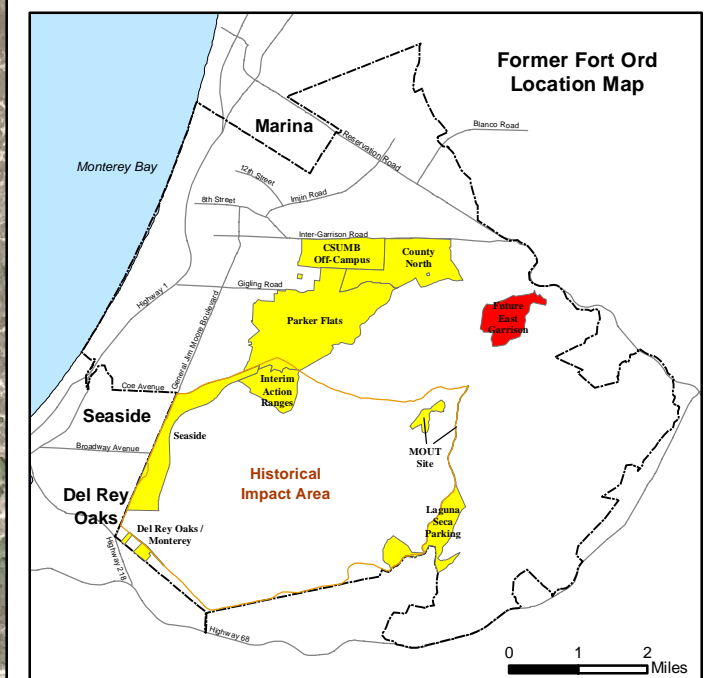


Legend

-  Future East Garrison Remedial Investigation Area
-  Major Road
-  Approximate Sift Plant Location

Minimum Separation Distances

-  Hazardous Fragmentation Distance of 70 Feet for Projectile, 37mm, LE MK I
-  Minimum Separation Distance of 200 Feet for Sandbagged Detonations
-  Maximum Fragmentation Distance of 824 Feet for Projectile, 37mm, LE MK I



0 600 1,200 Feet

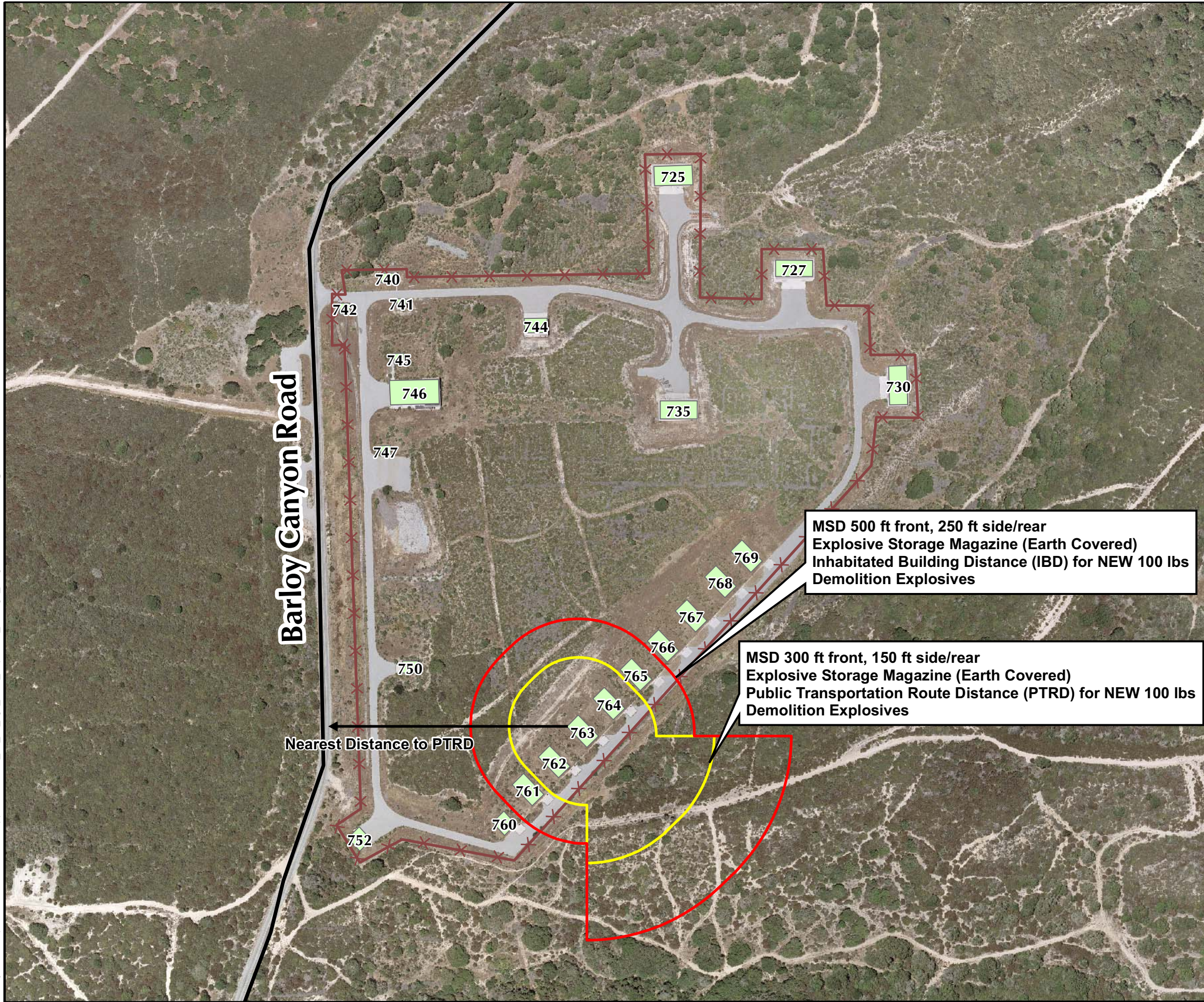


Future East Garrison MRA Remedial Investigation Minimum Separation Distances

FORA ESCA RP
Monterey County, California

Figure 3 (Rev 1)

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Legend

763 Structure

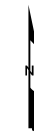
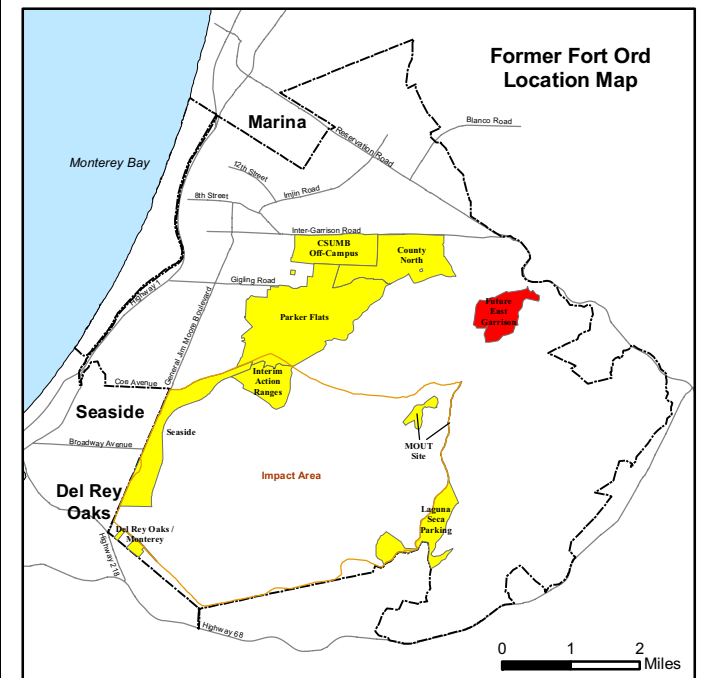
Major Road

Fence

Minimum Separation Distance (MSD)

Public Traffic Route

Inhabited Buildings



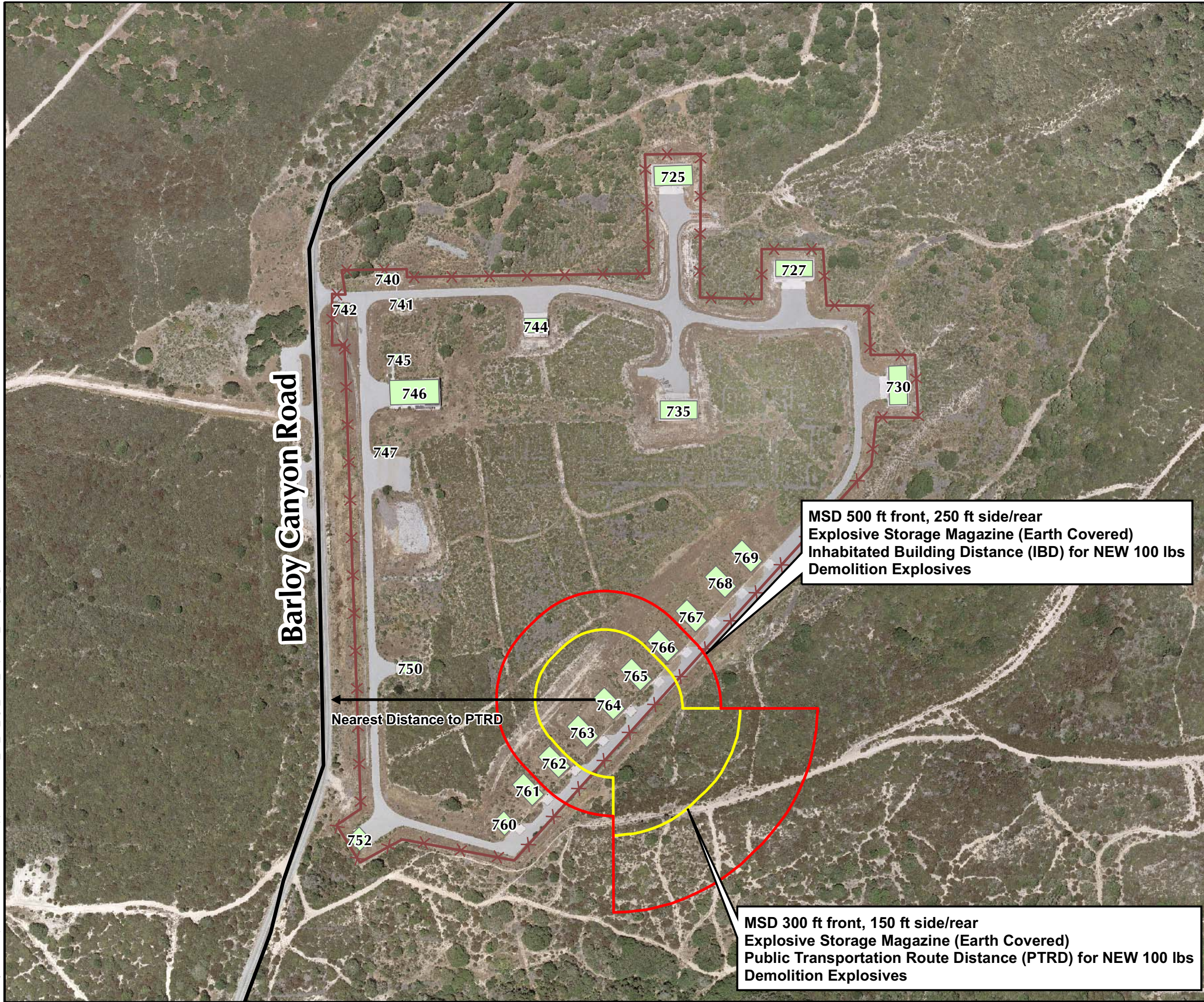
0 250 500 Feet



**Explosive Storage Location
(Building 763)
Minimum Separation Distances
FORA ESCA RP
Monterey County, California**

Figure 4

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Legend

764 Structure

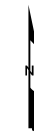
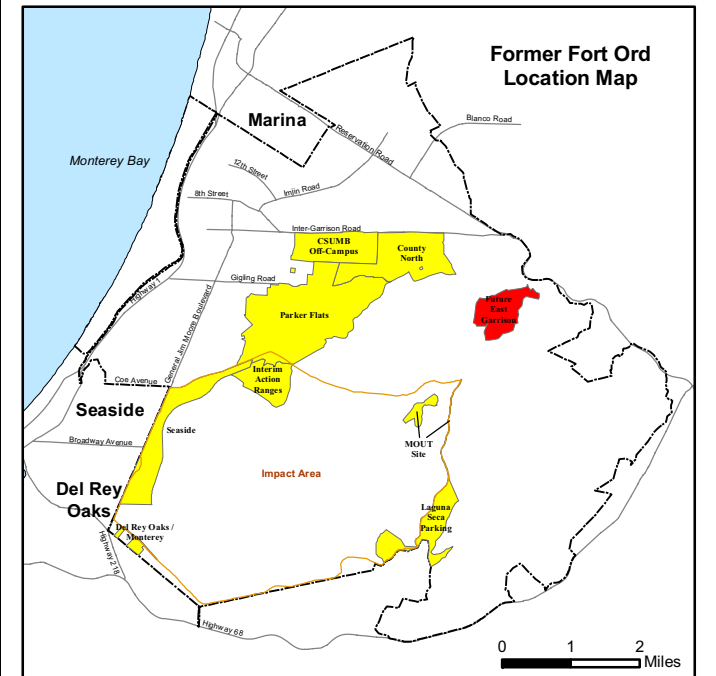
Major Road

Fence

Minimum Separation Distance (MSD)

Public Traffic Route

Inhabited Buildings



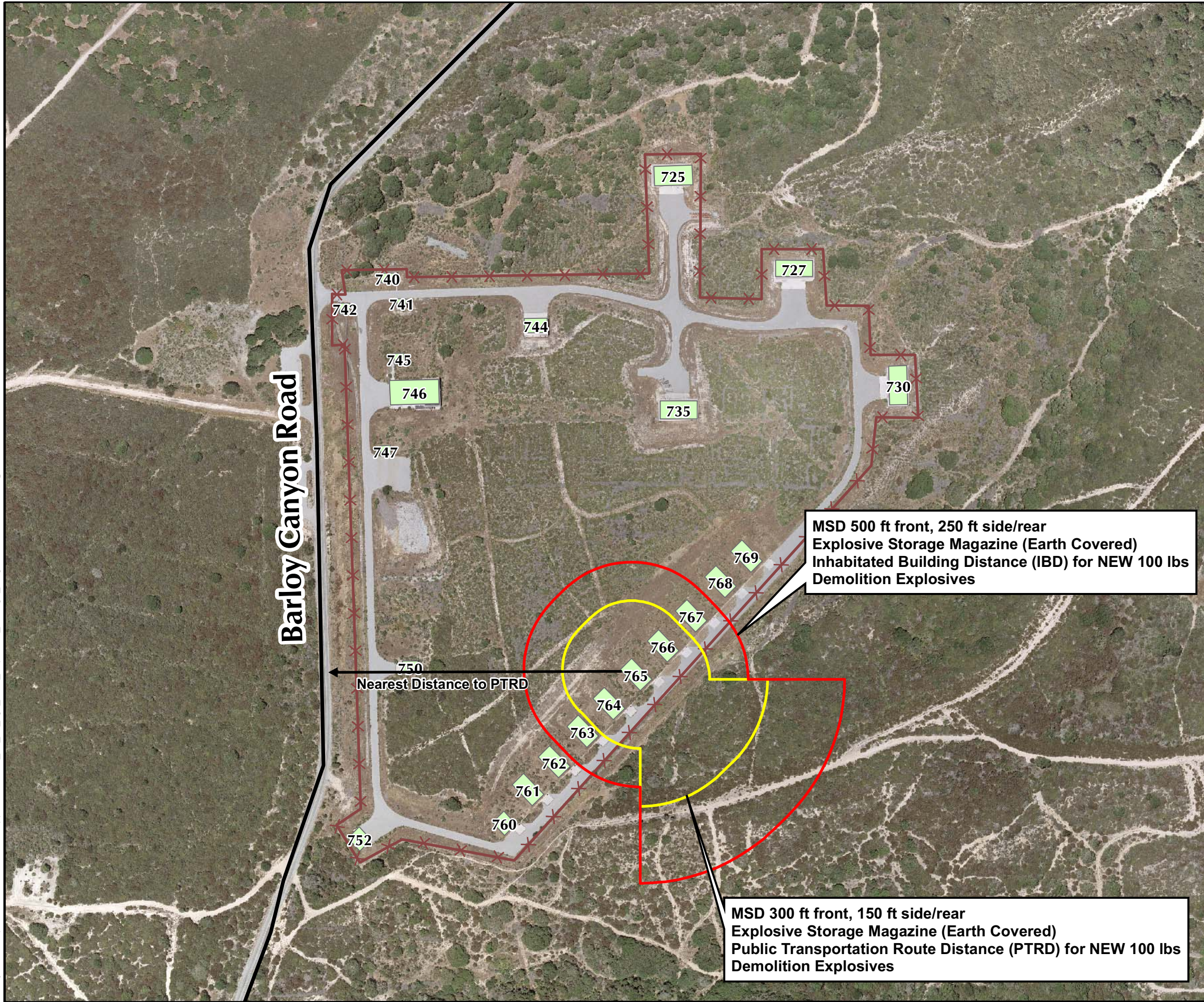
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**Explosive Storage Location
(Building 764)
Minimum Separation Distances
FORA ESCA RP
Monterey County, California**

Figure 5

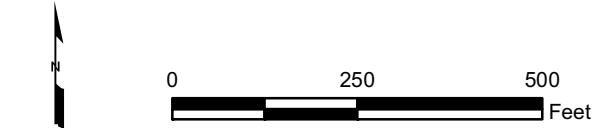
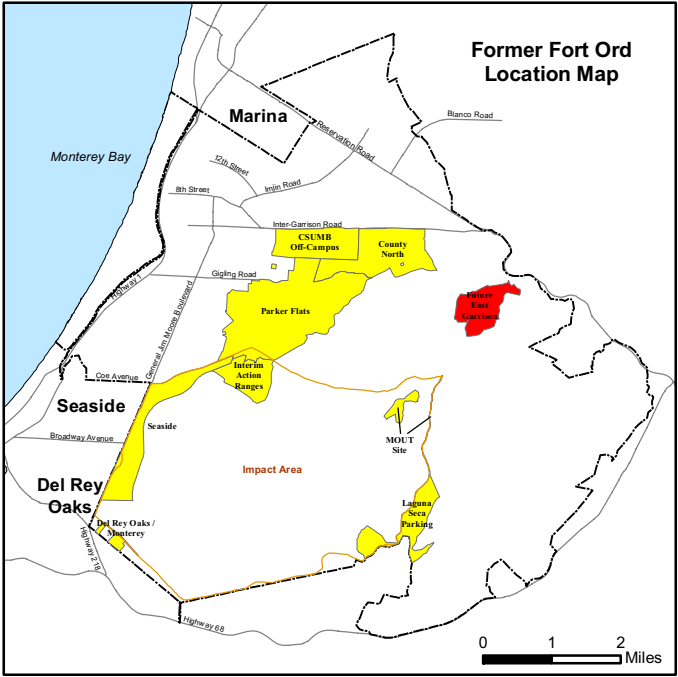
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Legend

- 765 Structure
- Major Road
- Fence
- Public Traffic Route
- Inhabited Buildings

Minimum Separation Distance (MSD)



Explosive Storage Location
(Building 765)
Minimum Separation Distances
FORA ESCA RP
Monterey County, California

Figure 6

Fragmentation Data Review Form

Database Revision Date 4/2/2012



Category: Black Powder Rounds

Munition: 37 mm Mk I, LE

Case Material: Steel, Mild

Fragmentation Method: Naturally Fragmenting

Secondary Database Category: Projectile

Munition Case Classification: Extremely Heavy Case

DODIC:

Date Record Created: 9/21/2004

Record Created By: MC

Last Date Record Updated: 9/14/2011

Individual Last Updated Record: SDH

Date Record Retired:

Munition Information and Fragmentation Characteristics

Explosive Type: Black Powder

Explosive Weight (lb): 0.034

Diameter (in): 1.4570

Cylindrical Case Weight (lb): 0.43100

Maximum Fragment Weight (Intentional) (lb): 0.0256

Design Fragment Weight (95%) (Unintentional) (lb): 0.0104

Critical Fragment Velocity (fps): 1789

Theoretical Calculated Fragment Distances

HFD [Hazardous Fragment Distance: distance to no more than 1 hazardous fragment per 600 square feet] (ft): 70

MFD-H [Maximum Fragment Distance, Horizontal] (ft): 824

MFD-V [Maximum Fragment Distance, Vertical] (ft): 599

Overpressure Distances

TNT Equivalent (Pressure): 0.4

TNT Equivalent Weight - Pressure (lbs): 0.014

Unbarricaded Intraline Distance (3.5 psi), K18 Distance: 4

Public Traffic Route Distance (2.3 psi); K24 Distance: 6

Inhabited Building Distance (1.2 psi), K40 Distance: 10

Intentional MSD (0.0655 psi), K328 Distance: 78

Note: Per V5.E3.2.2.1 of DoD 6055.09-M the minimum sited K328 distance may be no smaller than 200 ft.

Sandbag and Water Mitigation Options

TNT Equivalent (Impulse): 0.4

TNT Equivalent Weight - Impulse (lbs): 0.014

Kinetic Energy 10^6 (lb-ft²/s²): 0.0409

Single Sandbag Mitigation

Required Wall & Roof Thickness (in): 12

Expected Max. Throw Distance (ft): 25

Minimum Separation Distance (ft): 200

Double Sandbag Mitigation

Required Wall & Roof Thickness (in): 24

Expected Max. Throw Distance (ft): 10

Minimum Separation Distance (ft): 12.5

Water Mitigation

Minimum Separation Distance (ft): 200/200

Water Containment System: 5 gal carboys/ inflatable pool

Note: Use Sandbag and Water Mitigation in accordance with all applicable documents and guidance. If a donor charge larger than 32 grams is utilized, the above mitigation options are no longer applicable. Subject matter experts may be contacted to develop site specific mitigation options.

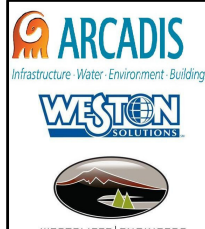
Minimum Thickness to Prevent Perforation

	Intentional	Unintentional
4000 psi Concrete (Prevent Spall):	1.99	1.43
Mild Steel:	0.29	0.20
Hard Steel:	0.24	0.17
Aluminum:	0.61	0.43
LEXAN:	3.04	2.44
Plexi-glass:	1.79	1.34
Bullet Resist Glass:	1.42	1.02

Item Notes

The 37 mm Mk I, LE was titled the 37 mm Mk I, LE practice in previous versions of the DDESB fragmentation database. The previous nomenclature was incorrect as the practice round is sand-loaded and has an inert fuze. The 37 mm Mk I, LE round was designed for use against personnel and light targets. As of 1944 the round was used for practice firing only which was probably the reason for the name confusion.

Distribution authorized to the Department of Defense and U.S. DoD contractors only for Administrative-Operational Use (17 October 2002). Other requests shall be referred to the Chairman, Department of Defense Explosives Safety Board, Room 856C, Hoffman Building 1, 2461 Eisenhower Avenue, Alexandria, VA 22331-0600.



MSDs and Fragmentation Characteristics for Projectile, 37 mm, Low Explosive MK I
FORA ESCA RP
Monterey County, California

Figure 7 (Rev 1)

FVF No. G4WP-004

ATTACHMENT B



**DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD
4800 MARK CENTER DRIVE, SUITE 16E12
ALEXANDRIA, VIRGINIA 22350-3606**

AUG 31 2012

DDESB-PE

MEMORANDUM FOR DIRECTOR, U.S. ARMY DEFENSE AMMUNITION CENTER
ATTENTION: JMAC-ESM

SUBJECT: DDESB Approval of Amendment 1, Explosives Site Plan, Remedial Investigation/Feasibility Study, Future East Garrison Munitions Response Area, Former Fort Ord, Monterey County, CA

- References: (a) DAC JMAC-ESM Memorandum of 20 August 2012, Subject: Explosives Site Plan, Amendment 1, Remedial Investigation/ Feasibility Study, Munitions Response Area Future East Garrison, Fort Ord, CA
- (b) DoD 6055.09-M, DoD Ammunition and Explosives Safety Standards, date varies by volume
- (c) DDESB TP-16, Methodologies for Calculating Primary Fragment Characteristics, Revision 3, 1 April 2009

The Department of Defense Explosives Safety Board (DDESB) Staff has reviewed the subject Amendment 1 to the explosives site plan (ESP) forwarded by reference (a) against the requirements of reference (b). Based on the information provided, approval is granted for removal and treatment of material potentially presenting an explosive hazard (MPPEH) and munitions and explosives of concern (MEC) at Former Fort Ord, Monterey County, CA. This approval is based on the following:


- a. This amendment adds mechanized low input unintentional detonation operations and revises the minimum separation distances (MSDs) based on the 2 April 2012 Fragmentation Data Review Form version of reference (c).
- b. The munition with the greatest fragmentation distance (MGFD) for the Future East Garrison Munitions Response Area remains the 37 mm Mk I LE Projectile; the MSD for teams for manual unintentional detonation operations is 10 feet (ft) and 70 ft for low input mechanized unintentional detonation operations, based respectively on K40 and the hazardous fragment distance (HFD) of the MGFD; the MSD for nonessential personnel from manual and low input mechanized unintentional detonation operations is 70 ft based on the HFD of the MGFD; and the MSD for all personnel from intentional detonations is 824 ft based on the maximum fragment distance of the MGFD.

c. Operators of mechanized equipment will be shielded from hazardous fragments based on an unintentional detonation from mechanized operations involving the MEC identified in reference (a). The use of barricades/shields is authorized as an engineering control to prevent fragment penetration provided the Army ensures usage per reference (c). Additionally, operators will be provided blast overpressure protection of 6 ft based on K24 of the MGFD.

d. The use of hearing protection is authorized as an engineering control for unintentional detonation operations to provide equivalent K24 blast overpressure protection for essential personnel at 4 ft based on K18 of the MGFD. The Army shall ensure hearing protection provides ≥ 9 decibel (dB) protection.

All other stipulations and requirements established via the original ESP remain in effect.

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