

APPENDIX A

COST ESTIMATES FOR IMPLEMENTATION OF ALTERNATIVES

**Attachment A1. Land Use Controls Unit Costs
Feasibility Study, Parker Flats MRA RI/FS,
Fort Ord, California**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
Construction Monitoring [1]				
MEC Personnel & Equipment	1	day	\$2,400	\$2,400
Cost Subtotal				\$2,400
Cost Contingency	10%	of Cost Subtotal		\$240
Total Cost				\$2,640
CONSTRUCTION MONITORING COST PER DAY <i>(rounded to nearest hundred)</i>				\$2,600

MEC Recognition Training [2]				
Onsite Training	1	week	\$200	\$200
Coordination/Management	1	week	\$50	\$50
Cost Subtotal				\$250
Cost Contingency	10%	of Cost Subtotal		\$25
Total Cost				\$275
MEC RECOGNITION TRAINING COST PER WEEK <i>(rounded to nearest hundred)</i>				\$300

DEFINITIONS

MEC = Munitions and Explosives of Concern

GIS = Geographical Information System

ASSUMPTIONS

These costs are for comparison purposes only, and have an accuracy of +50/-30%. Many design variables and necessary prefield activities have not been established. Cost estimates will be refined after the field preparation/design is completed.

[1] Assumes two-person qualified MEC personnel team visually observing construction activities.

[2] Assumes weekly training and/or refresher training of construction crews.

Checked MS
Approved EP

**Attachment A2. Additional MEC Remediation Units Costs - Unpaved Areas
Feasibility Study, Parker Flats MRA RI/FS,
Fort Ord, California**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CAPITAL COSTS				
Survey (Boundary & Grid)	758	acres	\$535	\$405,530
Follow up Veg Clearance	758	acres	\$2,570	\$1,948,060
Digital Survey of Anomalies	758	acres	\$4,670	\$3,539,860
Reacquire Anomalies	758	acres	\$560	\$424,480
Digital Excavation & Remove MEC	758	acres	\$9,850	\$7,466,300
Detonation & Engineering Controls	758	acres	\$820	\$621,560
GIS / Database	758	acres	\$1,040	\$788,320
Quality Control	758	acres	\$1,230	\$932,340
Site Restoration - MEC Removal	758	acres	\$225	\$170,550
Range Residue Removal	758	acres	\$140	\$106,120
Total Field Costs [1]				\$16,403,120
Reporting [2]	1	lump sum	\$187,200	\$187,200
Cost Subtotal				\$16,590,320
Cost Contingency	10%	of Cost Subtotal		\$1,659,032
Total Capital Costs				\$18,249,352
TOTAL ALTERNATIVE COSTS				\$18,249,352
TOTAL COST PER ACRE				\$24,076
TOTAL COST PER ACRE				\$24,000
				<i>(rounded to nearest thousand)</i>

DEFINITIONS

MEC = Munitions and Explosives of Concern
GIS = Geographical Information System

Checked MS
Approved EH

ASSUMPTIONS

These costs are for comparison purposes only, and have an accuracy of +50/-30%.
Many design variables and necessary prefield activities have not been established.
Cost estimates will be refined after the field preparation/design is completed.

[1] Assumes digital geophysical survey using best appropriate technology followed by anomaly reacquisition and excavation of identified anomalies; detonations where required. Although MEC removal using analog techniques has been conducted at these locations, previous work procedures included leaving range residue and munitions debris behind. These metallic items would contribute to the number of anomalies identified and selected for digital excavation.

[2] Reporting includes Site Specific Work Plan and After Action Report.

**Attachment A3. Additional MEC Remediation Unit Costs - Paved Areas
Feasibility Study, Parker Flats MRA RI/FS,
Fort Ord, California**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CAPITAL COSTS				
Survey (Boundary & Grid)	35	acres	\$535	\$18,725
Follow up Veg Clearance	0	acres	\$2,570	\$0
Digital Survey of Anomalies (a)	35	acres	\$3,570	\$124,950
Reacquire Anomalies	35	acres	\$560	\$19,600
Digital Excavation & Remove MEC (b)	35	acres	\$12,355	\$432,425
Detonation & Engineering Controls	35	acres	\$820	\$28,700
GIS / Database	35	acres	\$1,040	\$36,400
Quality Control	35	acres	\$1,230	\$43,050
Site Restoration - MEC Removal	0	acres	\$225	\$0
Range Residue Removal	35	acres	\$140	\$4,900
Total Field Costs [1], [3]				\$708,750
Reporting [2]	1	lump sum	\$68,405	\$68,405
Cost Subtotal				\$777,155
Cost Contingency	10%	of Cost Subtotal		\$77,716
Total Capital Costs				\$854,871
TOTAL ALTERNATIVE COSTS				\$854,871
TOTAL COST PER ACRE				\$24,425
TOTAL COST PER ACRE				\$24,000

DEFINITIONS

MEC = Munitions and Explosives of Concern

GIS = Geographical Information System

Checked MS
Approved C/S

ASSUMPTIONS

These costs are for comparison purposes only, and have an accuracy of +50/-30%.
Many design variables and necessary prefield activities have not been established.
Cost estimates will be refined after the field preparation/design is completed.

[1] Assumes digital geophysical survey using best appropriate technology followed by anomaly reacquisition and excavation of identified anomalies; detonations where required. Although MEC removal using analog techniques has been conducted at these locations, previous work procedures included leaving range residue and munitions debris behind. These metallic items would contribute to the number of anomalies identified and selected for digital excavation.

[2] Reporting includes Site Specific Work Plan and After Action Report.

[3] Results of testing EM61-Mk2 electromagnetic sensor over asphalt at the Parsons compound (portion of MRS-13B) indicates anomalies can be identified through the asphalt. It should be noted that fencing and items (such as bins, pallets, storage areas, concrete structures) currently located in MRS-13B will impact the geophysical surveys. Relocation of these items or removal of fences is not included with this estimate. In addition, utilities will need to be identified using multiple geophysical techniques. Power lines along Parker Flats roads may impact use of geophysical instruments by potentially increasing false positives from interference.

[a] Geophysical survey costs over paved asphalt are less than those for un-paved areas.

[b] Digital excavation costs are higher due to added use of heavy equipment to assist with excavation through asphalt.

**Table A1. Long Term Management Measures
Cost Estimate - Parker Flats MRA
Feasibility Study, Parker Flats MRA RI/FS,
Fort Ord, California**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CAPITAL COSTS				
File Initial Deed Notice	8	reuse area	\$5,000	\$40,000
Modify or Remove Deed Notice	8	reuse area	\$5,000	\$40,000
Subtotal Capital Costs				\$80,000
Capital Cost Contingency	10%	of Capital Costs		\$8,000
TOTAL CAPITAL COSTS				\$88,000
ANNUAL LTM COSTS				
Annual Monitoring	1	Entire MRA	\$5,000	\$5,000
5-Year Review Reporting	1	Entire MRA	\$3,000	\$3,000
Subtotal Annual Costs				\$8,000
Annual Cost Contingency	10%	of Annual Costs		\$800
TOTAL ANNUAL COSTS				\$8,800
30 YEAR ANNUAL LTM COSTS				
NPV LTM (3.1% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$170,275
TOTAL CAPITAL & 30 YEAR LTM COSTS				\$258,275
TOTAL 30 YEAR NPV COST PARKER FLATS MRA				\$258,000
				<i>(rounded to nearest thousand)</i>

DEFINITIONS

LTM = Long Term Management

NPV = Net Present Value

OMB = President's Office of Management and Budget

ASSUMPTIONS

These costs are for comparison purposes only, and have an accuracy of +50/-30%. Many design variables and necessary prefield activities have not been established. Cost estimates will be refined after the field preparation/design is completed.

Checked MS
Approved CS

**Table A2. Remedial Alternatives Cost Estimate
Monterey Peninsula College EVOC
Feasibility Study, Parker Flats MRA RI/FS,
Fort Ord, California**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
LAND USE CONTROLS (For Unit Costs, See Attachment A1)				
ANNUAL LTM COSTS (Years 1-7 During Development)				
MEC Recognition Training	2	week	\$300	\$600
Construction Monitoring	5	day	\$2,600	\$13,000
Subtotal				\$13,600
Annual Cost Contingency	10%	of Annual Costs		\$1,360
TOTAL ANNUAL COSTS (YEARS 1-7)				\$14,960
ANNUAL LTM COSTS (Years 8-30 During Reuse)				
MEC Recognition Training	1	week	\$300	\$300
Construction Monitoring	0.5	day	\$2,600	\$1,300
Subtotal				\$1,600
Annual Cost Contingency	10%	of Annual Costs		\$160
TOTAL ANNUAL COSTS (YEARS 8-30)				\$1,760
30 YEAR ANNUAL LTM COSTS				
YEARS 1-7 NPV LTM (2.3% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$95,714
YEARS 8-30 NPV LTM (2.8% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$29,552
TOTAL 30 YEAR LTM COSTS				\$125,266
LAND USE CONTROLS TOTAL 30 YEAR NPV COST			<i>(rounded to nearest thousand)</i>	\$125,000
ADDITIONAL MEC REMEDIATION (For Unit Costs, See Attachment A2)				
CAPITAL COSTS				
MEC Remediation	222	acre	\$24,000	\$5,316,000
ADDITIONAL MEC REMEDIATION TOTAL COST			<i>(rounded to nearest thousand)</i>	\$5,316,000

DEFINITIONS

LTM = Long Term Management
 NPV = Net Present Value
 OMB = President's Office of Management and Budget

ASSUMPTIONS

These costs are for comparison purposes only, and have an accuracy of +50/-30%.
 Many design variables and necessary prefield activities have not been established.
 Cost estimates will be refined after the field preparation/design is completed.

Checked MS
 Approved EJ

**Table A3. Remedial Alternatives Cost Estimate
Monterey Horse Park
Feasibility Study, Parker Flats MRA RI/FS,
Fort Ord, California**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
LAND USE CONTROLS (For Unit Costs, See Attachment A1)				
ANNUAL LTM COSTS (Years 1-7 During Development)				
MEC Recognition Training	4	week	\$300	\$1,200
Construction Monitoring	10	day	\$2,600	\$26,000
Subtotal				\$27,200
Annual Cost Contingency	10%	of Annual Costs		\$2,720
TOTAL ANNUAL COSTS (YEARS 1-7)				\$29,920
ANNUAL LTM COSTS (Years 8-30 During Reuse)				
MEC Recognition Training	1	week	\$300	\$300
Construction Monitoring	0.5	day	\$2,600	\$1,300
Subtotal				\$1,600
Annual Cost Contingency	10%	of Annual Costs		\$160
TOTAL ANNUAL COSTS (YEARS 8-30)				\$1,760
30 YEAR ANNUAL LTM COSTS				
YEARS 1-7 NPV LTM (2.3% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$191,428
YEARS 8-30 NPV LTM (2.8% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$29,552
TOTAL 30 YEAR LTM COSTS				\$220,980
LAND USE CONTROLS TOTAL 30 YEAR NPV COST			<i>(rounded to nearest thousand)</i>	\$221,000

ADDITIONAL MEC REMEDIATION (For Unit Costs, See Attachment A2)

CAPITAL COSTS

MEC Remediation	183	acre	\$24,000	\$4,382,400
-----------------	-----	------	----------	-------------

ADDITIONAL MEC REMEDIATION TOTAL COST	<i>(rounded to nearest thousand)</i>	\$4,382,000
--	--------------------------------------	--------------------

DEFINITIONS

LTM = Long Term Management

NPV = Net Present Value

OMB = President's Office of Management and Budget

ASSUMPTIONS

These costs are for comparison purposes only, and have an accuracy of +50/-30%.

Many design variables and necessary prefield activities have not been established.

Cost estimates will be refined after the field preparation/design is completed.

Checked MS
Approved [Signature]

**Table A4. Remedial Alternatives Cost Estimate
Habitat Reserve Area
Feasibility Study, Parker Flats MRA RI/FS,
Fort Ord, California**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
LAND USE CONTROLS (For Unit Costs, See Attachment A1)				
ANNUAL LTM COSTS (Years 1-7 During Development)				
MEC Recognition Training	4	week	\$300	\$1,200
Construction Monitoring	2	day	\$2,600	\$5,200
Subtotal				\$6,400
Annual Cost Contingency	10%	of Annual Costs		\$640
TOTAL ANNUAL COSTS (YEARS 1-7)				\$7,040
ANNUAL LTM COSTS (Years 8-30 During Reuse)				
MEC Recognition Training	1	week	\$300	\$300
Construction Monitoring	0.5	day	\$2,600	\$1,300
Subtotal				\$1,600
Annual Cost Contingency	10%	of Annual Costs		\$160
TOTAL ANNUAL COSTS (YEARS 8-30)				\$1,760
30 YEAR ANNUAL LTM COSTS				
YEARS 1-7 NPV LTM (2.3% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$45,042
YEARS 8-30 NPV LTM (2.8% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$29,552
TOTAL 30 YEAR LTM COSTS				\$74,594
LAND USE CONTROLS TOTAL 30 YEAR NPV COST			<i>(rounded to nearest thousand)</i>	\$75,000

ADDITIONAL MEC REMEDIATION (For Unit Costs, See Attachment A2)

CAPITAL COSTS

MEC Remediation	148	acre	\$24,000	\$3,547,200
-----------------	-----	------	----------	-------------

ADDITIONAL MEC REMEDIATION TOTAL COST			<i>(rounded to nearest thousand)</i>	\$3,547,000
--	--	--	--------------------------------------	--------------------

DEFINITIONS

LTM = Long Term Management

NPV = Net Present Value

OMB = President's Office of Management and Budget

ASSUMPTIONS

These costs are for comparison purposes only, and have an accuracy of +50/-30%.

Many design variables and necessary prefield activities have not been established.

Cost estimates will be refined after the field preparation/design is completed.

Checked MS

Approved EJ

**Table A5. Remedial Alternatives Cost Estimate
Central Coast Veterans Cemetery
Feasibility Study, Parker Flats MRA RI/FS,
Fort Ord, California**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
LAND USE CONTROLS (For Unit Costs, See Attachment A1)				
ANNUAL LTM COSTS (Years 1-7 During Development)				
MEC Recognition Training	4	week	\$300	\$1,200
Construction Monitoring	10	day	\$2,600	\$26,000
Subtotal				\$27,200
Annual Cost Contingency	10%	of Annual Costs		\$2,720
TOTAL ANNUAL COSTS (YEARS 1-7)				\$29,920
ANNUAL LTM COSTS (Years 8-30 During Reuse)				
MEC Recognition Training	1	week	\$300	\$300
Construction Monitoring	1	day	\$2,600	\$2,600
Subtotal				\$2,900
Annual Cost Contingency	10%	of Annual Costs		\$290
TOTAL ANNUAL COSTS (YEARS 8-30)				\$3,190
30 YEAR ANNUAL LTM COSTS				
YEARS 1-7 NPV LTM (2.3% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$191,428
YEARS 8-30 NPV LTM (2.8% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$53,563
TOTAL 30 YEAR LTM COSTS				\$244,991
LAND USE CONTROLS TOTAL 30 YEAR NPV COST			<i>(rounded to nearest thousand)</i>	\$245,000

ADDITIONAL MEC REMEDIATION (For Unit Costs, See Attachment A2)

CAPITAL COSTS				
MEC Remediation	102	acre	\$24,000	\$2,448,000

ADDITIONAL MEC REMEDIATION TOTAL COST	<i>(rounded to nearest thousand)</i>	\$2,448,000
--	--------------------------------------	--------------------

DEFINITIONS

LTM = Long Term Management

NPV = Net Present Value

OMB = President's Office of Management and Budget

Checked MS
Approved CP

ASSUMPTIONS

These costs are for comparison purposes only, and have an accuracy of +50/-30%.

Many design variables and necessary prefield activities have not been established.

Cost estimates will be refined after the field preparation/design is completed.

**Table A6. Remedial Alternatives Cost Estimate
 Monterey County Development Reserve
 Feasibility Study, Parker Flats MRA RI/FS,
 Fort Ord, California**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
LAND USE CONTROLS (For Unit Costs, See Attachment A1)				
ANNUAL LTM COSTS (Years 1-7 During Development)				
MEC Recognition Training	4	week	\$300	\$1,200
Construction Monitoring	5	day	\$2,600	\$13,000
Subtotal				\$14,200
Annual Cost Contingency	10%	of Annual Costs		\$1,420
TOTAL ANNUAL COSTS (YEARS 1-7)				\$15,620
ANNUAL LTM COSTS (Years 8-30 During Reuse)				
MEC Recognition Training	1	week	\$300	\$300
Construction Monitoring	1	day	\$2,600	\$2,600
Subtotal				\$2,900
Annual Cost Contingency	10%	of Annual Costs		\$290
TOTAL ANNUAL COSTS (YEARS 8-30)				\$3,190
30 YEAR ANNUAL LTM COSTS				
YEARS 1-7 NPV LTM (2.3% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$99,937
YEARS 8-30 NPV LTM (2.8% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$53,563
TOTAL 30 YEAR LTM COSTS				\$153,500
LAND USE CONTROLS TOTAL 30 YEAR NPV COST			<i>(rounded to nearest thousand)</i>	\$153,000

ADDITIONAL MEC REMEDIATION (For Unit Costs, See Attachment A2)

CAPITAL COSTS				
MEC Remediation	36	acre	\$24,000	\$864,000
ADDITIONAL MEC REMEDIATION TOTAL COST			<i>(rounded to nearest thousand)</i>	\$864,000

DEFINITIONS

LTM = Long Term Management

NPV = Net Present Value

OMB = President's Office of Management and Budget

Checked MS
 Approved CJ

ASSUMPTIONS

These costs are for comparison purposes only, and have an accuracy of +50/-30%.

Many design variables and necessary prefield activities have not been established.

Cost estimates will be refined after the field preparation/design is completed.

**Table A7. Remedial Alternatives Cost Estimate
Monterey County Public Facilities
Feasibility Study, Parker Flats MRA RI/FS,
Fort Ord, California**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
LAND USE CONTROLS (For Unit Costs, See Attachment A1)				
ANNUAL LTM COSTS (Years 1-7 During Development)				
MEC Recognition Training	4	week	\$300	\$1,200
Construction Monitoring	1	day	\$2,600	\$2,600
Subtotal				\$3,800
Annual Cost Contingency	10%	of Annual Costs		\$380
TOTAL ANNUAL COSTS (YEARS 1-7)				\$4,180
ANNUAL LTM COSTS (Years 8-30 During Reuse)				
MEC Recognition Training	1	week	\$300	\$300
Construction Monitoring	0.5	day	\$2,600	\$1,300
Subtotal				\$1,600
Annual Cost Contingency	10%	of Annual Costs		\$160
TOTAL ANNUAL COSTS (YEARS 8-30)				\$1,760
30 YEAR ANNUAL LTM COSTS				
YEARS 1-7 NPV LTM (2.3% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$26,744
YEARS 8-30 NPV LTM (2.8% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$29,552
TOTAL 30 YEAR LTM COSTS				\$56,296
LAND USE CONTROLS TOTAL 30 YEAR NPV COST			<i>(rounded to nearest thousand)</i>	\$56,000

ADDITIONAL MEC REMEDIATION (For Unit Costs, See Attachment A2)

CAPITAL COSTS				
MEC Remediation	3	acre	\$24,000	\$72,000
ADDITIONAL MEC REMEDIATION TOTAL COST			<i>(rounded to nearest thousand)</i>	\$72,000

DEFINITIONS

LTM = Long Term Management

NPV = Net Present Value

OMB = President's Office of Management and Budget

Checked MS

Approved CS

ASSUMPTIONS

These costs are for comparison purposes only, and have an accuracy of +50/-30%.

Many design variables and necessary prefield activities have not been established.

Cost estimates will be refined after the field preparation/design is completed.

**Table A8. Remedial Alternatives Cost Estimate
Army Maintenance Center
Feasibility Study, Parker Flats MRA RI/FS,
Fort Ord, California**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
LAND USE CONTROLS (For Unit Costs, See Attachment A1)				
ANNUAL LTM COSTS (Years 1-7 During Development)				
MEC Recognition Training	1	week	\$300	\$300
Construction Monitoring	1	day	\$2,600	\$2,600
Subtotal				\$2,900
Annual Cost Contingency	10%	of Annual Costs		\$290
TOTAL ANNUAL COSTS (YEARS 1-7)				\$3,190
ANNUAL LTM COSTS (Years 8-30 During Reuse)				
MEC Recognition Training	1	week	\$300	\$300
Construction Monitoring	0.5	day	\$2,600	\$1,300
Subtotal				\$1,600
Annual Cost Contingency	10%	of Annual Costs		\$160
TOTAL ANNUAL COSTS (YEARS 8-30)				\$1,760
30 YEAR ANNUAL LTM COSTS				
YEARS 1-7 NPV LTM (2.3% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$20,410
YEARS 8-30 NPV LTM (2.8% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$29,552
TOTAL 30 YEAR LTM COSTS				\$49,962
LAND USE CONTROLS TOTAL 30 YEAR NPV COST			<i>(rounded to nearest thousand)</i>	\$50,000

ADDITIONAL MEC REMEDIATION (For Unit Costs, See Attachment A3)

CAPITAL COSTS				
MEC Remediation	36	acre	\$24,000	\$852,000

ADDITIONAL MEC REMEDIATION TOTAL COST			<i>(rounded to nearest thousand)</i>	\$852,000
--	--	--	--------------------------------------	------------------

DEFINITIONS

LTM = Long Term Management

NPV = Net Present Value

OMB = President's Office of Management and Budget

Checked MS

Approved [Signature]

ASSUMPTIONS

These costs are for comparison purposes only, and have an accuracy of +50/-30%.

Many design variables and necessary prefield activities have not been established.

Cost estimates will be refined after the field preparation/design is completed.

**Table A9. Remedial Alternatives Cost Estimate
MST Facility
Feasibility Study, Parker Flats MRA RI/FS,
Fort Ord, California**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
LAND USE CONTROLS (For Unit Costs, See Attachment A1)				
ANNUAL LTM COSTS (Years 1-7 During Development)				
MEC Recognition Training	2	week	\$300	\$600
Construction Monitoring	2	day	\$2,600	\$5,200
Subtotal				\$5,800
Annual Cost Contingency	10%	of Annual Costs		\$580
TOTAL ANNUAL COSTS (YEARS 1-7)				\$6,380
ANNUAL LTM COSTS (Years 8-30 During Reuse)				
MEC Recognition Training	1	week	\$300	\$300
Construction Monitoring	0.5	day	\$2,600	\$1,300
Subtotal				\$1,600
Annual Cost Contingency	10%	of Annual Costs		\$160
TOTAL ANNUAL COSTS (YEARS 8-30)				\$1,760
30 YEAR ANNUAL LTM COSTS				
YEARS 1-7 NPV LTM (2.3% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$40,819
YEARS 8-30 NPV LTM (2.8% Real Interest Rate, OMB Circular A-94, Appendix C, January, 2005)				\$29,552
TOTAL 30 YEAR O&M COSTS				\$70,371
LAND USE CONTROLS TOTAL 30 YEAR NPV COST			<i>(rounded to nearest thousand)</i>	\$70,000

ADDITIONAL MEC REMEDIATION (For Unit Costs, See Attachment A2)

CAPITAL COSTS				
MEC Remediation	27	acre	\$24,000	\$648,000
ADDITIONAL MEC REMEDIATION TOTAL COST			<i>(rounded to nearest thousand)</i>	\$648,000

DEFINITIONS

LTM = Long Term Management
 NPV = Net Present Value
 OMB = President's Office of Management and Budget

Checked MS
 Approved CT

ASSUMPTIONS

These costs are for comparison purposes only, and have an accuracy of +50/-30%.
 Many design variables and necessary prefield activities have not been established.
 Cost estimates will be refined after the field preparation/design is completed.

ATTACHMENT

ADDITIONAL MEC REMEDIATION ALTERNATIVE— POTENTIAL APPLICABLE
OR RELEVANT AND APPROPRIATE REQUIREMENTS

**ATTACHMENT. Additional MEC Remediation Alternative—Potential Applicable Or Relevant And Appropriate Requirements (ARARs)
Feasibility Study, Parker Flats MRA RI/FS, Former Fort Ord, California**

Source or Authority	Requirement, Standard, or Criterion	Type	Description	Remarks
			Federal ARARs	
Endangered Species Act (16 USC §§ 1531–1543)	16 USC § 1536 (a) and (c); 16 USC § 1538 (a)(1)	Applicable (1,2,3)* / Location	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 USFWS and/or California Fish and Game 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)(1).	The Army has completed an endangered species, Section 7 consultation, and the USFWS has issued a Biological Opinion for the Army disposal and reuse actions at 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 April 1997 Habitat Management Plan for the former Fort Ord. The provisions of the HMP satisfy the requirements of the ESA. A forthcoming USFWS Biological Opinion is expected for <i>contra costa goldfields</i> and <i>tiger salamander</i> that may apply to Habitat Reserve in some of these areas that will also be considered prior to implementation of any actions.
Migratory Bird Treaty Act (MBTA)	16 U.S.C. §§703-712	Applicable (1,2,3) / Location	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.	The requirement includes specific standards of control. U.S. Fish and Wildlife Service 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.
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.

**ATTACHMENT. Additional MEC Remediation Alternative—Potential Applicable Or Relevant And Appropriate Requirements (ARARs)
Feasibility Study, Parker Flats MRA RI/FS, Former Fort Ord, California**

Source or Authority	Requirement, Standard, or Criterion	Type	Description	Remarks
			State of California ARARs	
California Endangered Species Act	Fish and Game Code §§ 2051 et seq.; §2080.	Relevant and Appropriate (1,2,3) / Location	The statute sections provide a declaration of policy and definitions. Section 2080 provides that no person shall take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts.	Section 2080 includes specific standards of control with respect to the taking of endangered or threatened species. Under CERCLA, the Army is not required to comply with non-substantive, procedural and administrative provisions of §2051. The Army has coordinated the development of the HMP with CDFG and that mitigation measures to protect both State and federal rare, threatened and endangered species have been identified and will be implemented during the Army's action of MEC remediation if selected for implementation.
California Fish and Game Code	§3511	Relevant and Appropriate (1,2,3) / Location	This statute section prohibits taking or possessing fully protected birds or parts thereof, listed as: (a) American peregrine falcon (<i>Falco peregrinus anatum</i>) (b) Brown pelican (c) California black rail (<i>Laterallus jamaicensis coturniculus</i>) (d) California clapper rail (<i>Rallus longirostris obsoletus</i>) (e) California condor (<i>Gymnogyps californianus</i>) (f) California least tern (<i>Sterna albifrons browni</i>) (g) Golden eagle (h) Greater sandhill crane (<i>Grus canadensis tabida</i>) (i) Light-footed clapper rail (<i>Rallus longirostris levipes</i>) (j) Southern bald eagle (<i>Haliaeetus leucocephalus leucocephalus</i>) (k) Trumpeter swan (<i>Cygnus buccinator</i>) (l) White-tailed kite (<i>Elanus leucurus</i>) (m) Yuma clapper rail (<i>Rallus longirostris yumanensis</i>).	The requirement includes specific standards of control that may apply to the American peregrine falcon (some possibility), golden eagle (slight possibility), brown pelican (not likely but possible), and California least tern (not likely but possible). Vegetation clearance activities will occur outside the nesting seasons for these protected birds.
California Fish and Game Code	§3513	Relevant and Appropriate (1,2,3) / Location	This statute section declares that it is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act.	The requirement includes specific standards of control. U.S. Fish and Wildlife Service has issued a non-jeopardy biological opinion for Army predisposal actions to include the remediation of MEC. In addition, vegetation clearance activities will occur outside the nesting seasons for migratory birds.
California Fish and Game Code	§3503.5	Relevant and Appropriate (1,2,3) / Location	This statute section prohibits the take, possession or destruction of any birds in the orders of Falconiformes or Strigiformes, or to take, possess, or destroy the nest or eggs of any such bird, except as provided in the code.	The requirement includes specific standards of control that may apply to vultures, hawks, ospreys, falcons and owls. Vegetation clearance activities will occur outside the nesting seasons for these birds.
California Fish and Game Code	Title 14, CCR §472	Relevant and Appropriate (1,2,3) / Location	This regulation limits the taking of nongame birds and mammals except for specified species.	The requirement includes specific standards of control that may affect American crows. Vegetation clearance activities will occur outside the nesting seasons.
California Fish and Game Code	§4800 et. seq.	Relevant and Appropriate (1,2,3) / Location	This statute section declares that it is unlawful to take, injure, possess, transport or sell any mountain lion.	The requirement includes specific standards of control. Due to the size of vegetation clearance and MEC remediation activities that may be selected for implementation, it is unlikely that mountain lions will be negatively affected. In fact, the use of fire to set back plant community succession will result in an improvement to wildlife habitat that will benefit mountain lions.

**ATTACHMENT. Additional MEC Remediation Alternative—Potential Applicable Or Relevant And Appropriate Requirements (ARARs)
Feasibility Study, Parker Flats MRA RI/FS, Former Fort Ord, California**

Source or Authority	Requirement, Standard, or Criterion	Type	Description	Remarks
California Fish and Game Code	Title 14, CCR §§40-42	Relevant and Appropriate (1,2,3) / Location	These regulations make it unlawful to take, possess, purchase, propagate, sell, transport, import, or export any native reptile or amphibian, unless under special permit.	<p>The requirement includes specific standards of control that may apply to black legless lizard and coast horned lizard.</p> <p>CDFG was heavily involved in the development of the Installation-Wide Multispecies Habitat Management Plan (HMP) which included the development of mitigation measures to protect the California black legless lizard.</p>
California Clean Air Act (Health and Safety Code)	Monterey Bay Unified Air Pollution Control District Rule 407	Applicable (1) / Action	This rule provides substantive limitations on the conditions under which open outdoor fires may be conducted.	<p>The rule includes specific substantive limitations. 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></p> <p>§3.3, prohibiting burn on no-burn days. The Army will conduct prescribed burns on allowable days in accordance with CCR Title 17, §80110.</p>

**ATTACHMENT. Additional MEC Remediation Alternative—Potential Applicable Or Relevant And Appropriate Requirements (ARARs)
Feasibility Study, Parker Flats MRA RI/FS, Former Fort Ord, California**

Source or Authority	Requirement, Standard, or Criterion	Type	Description	Remarks
California Clean Air Act (Health and Safety Code)	Monterey Bay Unified Air Pollution Control District Rule 432	Applicable (1) / Action	The prohibitory rule describes permit requirements, allowable days for burning, and restrictions. The rule includes 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></p> <p>§3.3, prohibiting burn on no-burn days. The Army will conduct prescribed burns on allowable days in accordance with CCR Title 17, §80110.</p> <p>§3.5.1, burn shall be ignited only by devices and methods approved by the California Department of Forestry and Fire Protection. The Army will use ignition devices approved by CDF.</p> <p>§3.5.5, 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. Numerous 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, applying resources to contain the fire within the intended boundaries, and offering voluntary temporary relocation to any Monterey County residents who wish to relocate during the prescribed burns, to minimize public exposure to smoke.

**ATTACHMENT. Additional MEC Remediation Alternative—Potential Applicable Or Relevant And Appropriate Requirements (ARARs)
Feasibility Study, Parker Flats MRA RI/FS, Former Fort Ord, California**

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 programmatic work plan to determine the presence of energetic materials or other constituents that would cause it to be characterized as a hazardous waste. Substantive requirements: <ul style="list-style-type: none"> Storage: onsite storage of MEC items occur in a designated bunker that meets the standard of DDESB 6055.9 STD, including security measures such as fences, signs, and an alarm system. Transportation: offsite transportation of small arms ammunition and subcaliber MEC items 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 and subcaliber MEC items 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 plan and Detonation Sampling and Analysis Plan with EPA and DTSC 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>lb. waste explosives</td> <td>Min. Distance from OB/OD to property</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>	lb. waste explosives	Min. Distance from OB/OD to property	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 under Additional MEC Remediation. If this alternative is selected for implementation, the actions taken will comply with these requirements.
lb. waste explosives	Min. Distance from OB/OD to property													
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)													
California Fish and Game Code	§1900 et. seq.	Relevant and Appropriate (1,2,3)/ Action	These statute sections sets forth programmatic and administrative provisions, and in §1908, provides that no person shall import into the state, or take, possess, or sell within this state, except as incident to the possession or sale of the real property on which the plant is growing, any native plant, or any part or product thereof, that the commission determines to be an endangered native plant or rare native plant	Although the definition of “person” in the statute does not apply to the Army, the standards of control are relevant and appropriate, and the citation is therefore considered as ARAR. The Army is implementing the HMP which contains mitigation measures designed to protect the continued survival of rare and endangered plants.										

**ATTACHMENT. Additional MEC Remediation Alternative—Potential Applicable Or Relevant And Appropriate Requirements (ARARs)
Feasibility Study, Parker Flats MRA RI/FS, Former Fort Ord, California**

Source or Authority	Requirement, Standard, or Criterion	Type	Description	Remarks
California Fish and Game Code	Title 14, CCR §783 et. seq.	Relevant and Appropriate (1,2,3)/ Action	These regulations provide that no person shall import into the State, export out of the State or take, possess, purchase, or sell within the State, any endangered species, threatened species, or part or product thereof, or attempt any of those acts, except as otherwise provided in the California Endangered Species Act, Fish and Game Code Section 2050, et seq. (“CESA”), the Native Plant Protection Act, the Natural Community Conservation Planning Act, the California Desert Native Plants Act, or as authorized under this article in an incidental take permit. The regulations also provide programmatic and administrative procedures for incidental take permits.	<p>The Section includes specific standards of control with respect to taking rare or endangered plants. Although the definition of “person” in the statute does not apply to the Army, the standards of control are relevant and appropriate, and the citation is therefore considered as ARAR.</p> <p>The Army is implementing the HMP which contains mitigation measures designed to protect the continued survival of threatened and endangered species.</p>
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. Numerous 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, applying resources to contain the fire within the intended boundaries, and offering voluntary temporary relocation to any Monterey County residents who wish to relocate during the prescribed burns, to minimize public exposure to smoke.

**ATTACHMENT. Additional MEC Remediation Alternative—Potential Applicable Or Relevant And Appropriate Requirements (ARARs)
Feasibility Study, Parker Flats MRA RI/FS, Former Fort Ord, California**

Source or Authority	Requirement, Standard, or Criterion	Type	Description	Remarks
			Regulations that were considered as potential ARARs but were not considered applicable.	
California Fish and Game Code	§3005		The statute section prohibits the taking of birds or mammals, except non-game mammals, with any net, pound, cage, trap, set line or wire, or poisonous substance. Included in the term “taking” is the killing of birds or mammals by poison.	Birds and mammals will be protected by achieving the identified Remedial Action Objectives (RAOs). Further, the scope of the remedial actions does not include intentional taking of birds and mammals with unlawful devices.
California Fish and Game Code	§4000 et. seq.		This statute section provides that a fur-bearing mammal may be taken only with a trap, firearm, bow and arrow, poison under a proper permit, or with the use of dogs.	The scope of the remedial actions does not involve intentional taking of fur-bearing mammals with unlawful devices.
California Fish and Game Code	Title 14, CCR §460		This regulation makes it unlawful to take Fisher, marten, river otter, desert kit fox and red fox.	The remedial actions will not result in the take of Fisher, marten, river otter, desert kit fox and red fox. The species of red fox protected by the State is located in the Sierra Nevada mountain range. The species of red fox located at former Fort Ord is an introduced species and is not protected by this section.
California Clean Air Act	Health and Safety Code §41701		This statute section prohibits the discharge into the atmosphere from any source whatsoever any air contaminant for a period or periods aggregated more than three minutes in any one hour which is dark or darker than No. 2 on the Ringelmann Chart or obscures the view to a degree equal to or greater than smoke.	Agricultural burning for which a permit has been granted pursuant to Article 3 (commencing with §41850, emission limitations for agricultural burning) are exempt from this requirement per §41704(b). Any prescribed burns that would be conducted for vegetation removal prior to MEC remediation will be conducted under MBUAPCD Rule 407, which implements the requirements of Article 3 (California Health and Safety Code §41850 et. seq.). The exemption applies though the Army is not required to obtain a permit under CERCLA.

1 = Vegetation Clearance; 2 = MEC Remediation; 3 = Detonation of MEC

Checked MS Approved EB