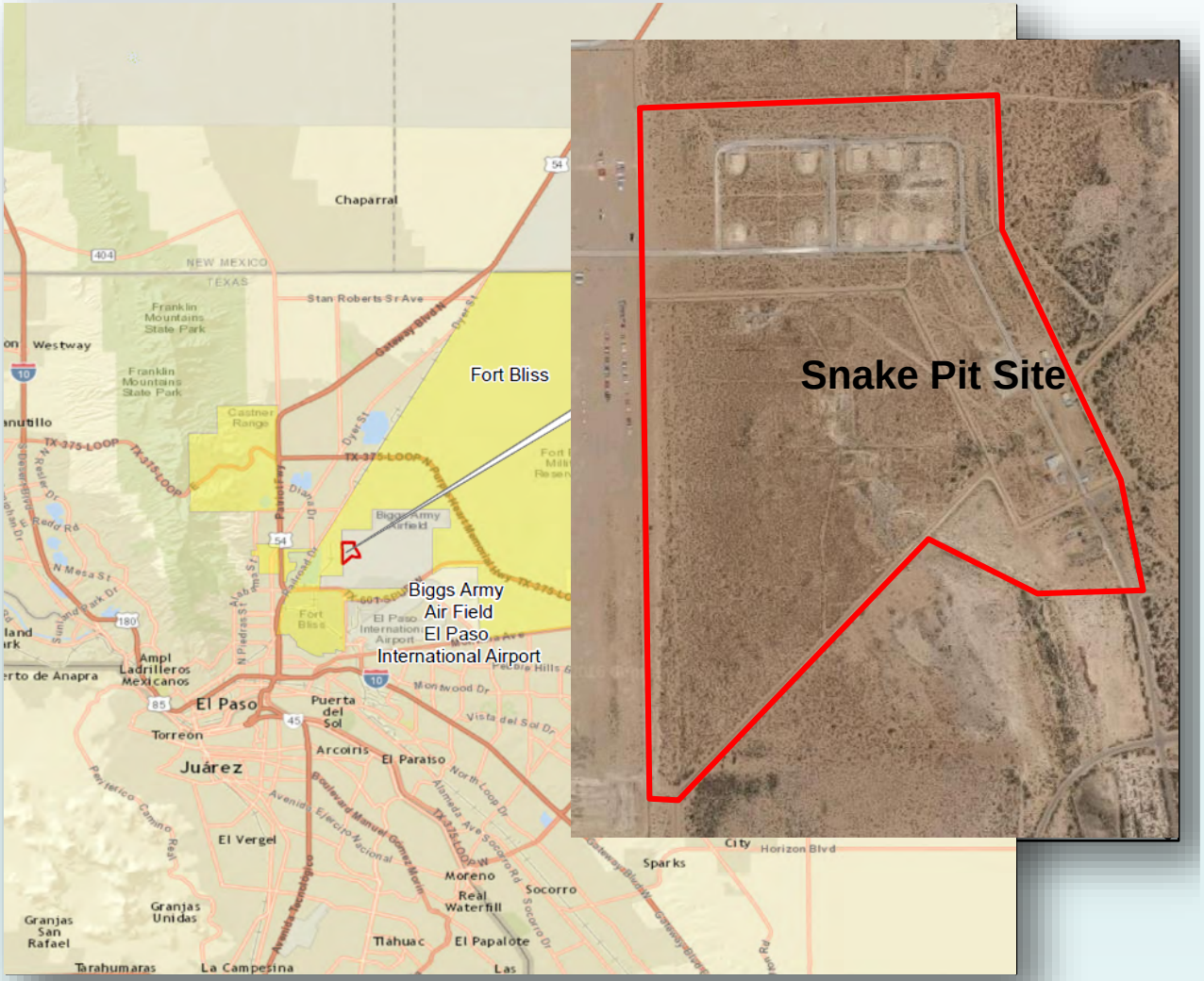
PRELIMINARY ASSESSMENT
SNAKE PIT SITE

Former US Biggs Army Air Field
Fort Bliss, Texas

Restoration Advisory Board
March 2017

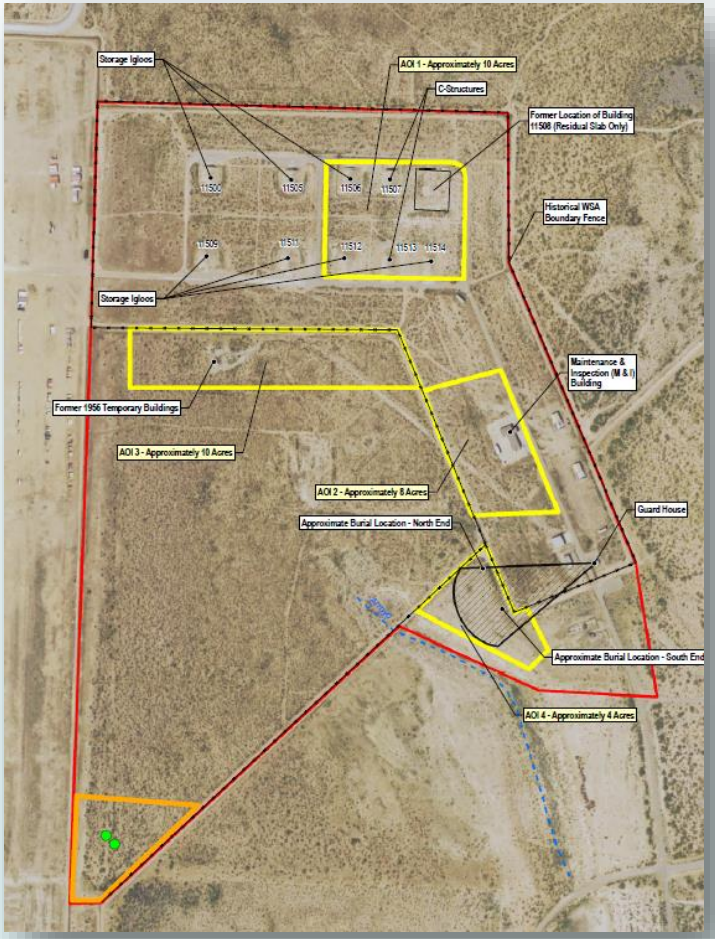
Site Setting

- Snake Pit Site is approximately 189 acres
- Designated as a Operational Storage Site location with a weapons storage area from 1954 to 1966



Basis for Concern

- The area was a former Strategic Air Command storage and maintenance facility for nuclear weapons.
- Anecdotal information indicated some of the low level radioactive waste may have been buried on-site
- Possible Disposal Areas could have been in a 32 acre area near the former maintenance facilities at four Areas of Interest

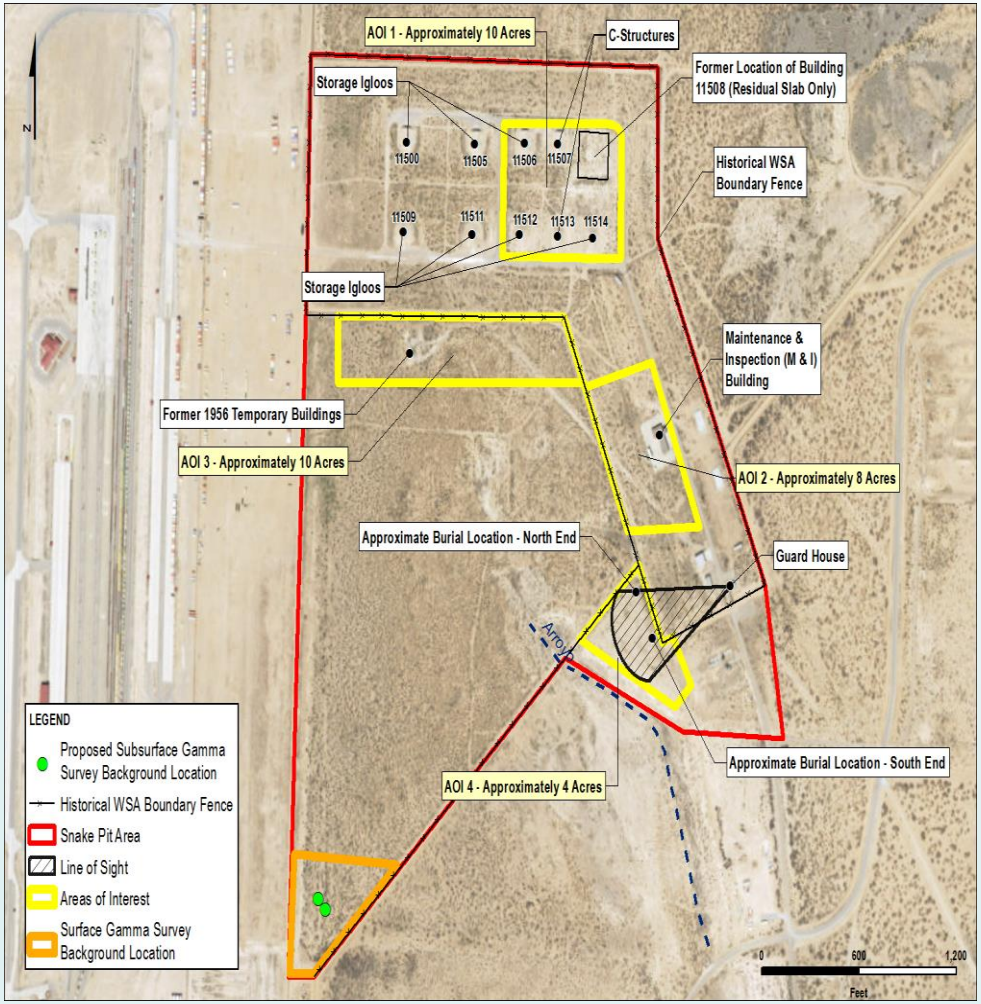


Initial Project Investigation

- Assessed the four Areas of Interest where disposal could have occurred
- Performed digital geophysical mapping surveys to traverse and detect potential disposal features or other subsurface features of interest
- Conducted a surface gamma radiation survey
- Performed focused surveys at selected locations to further characterize the subsurface conditions
- Issued initial report findings and recommendations

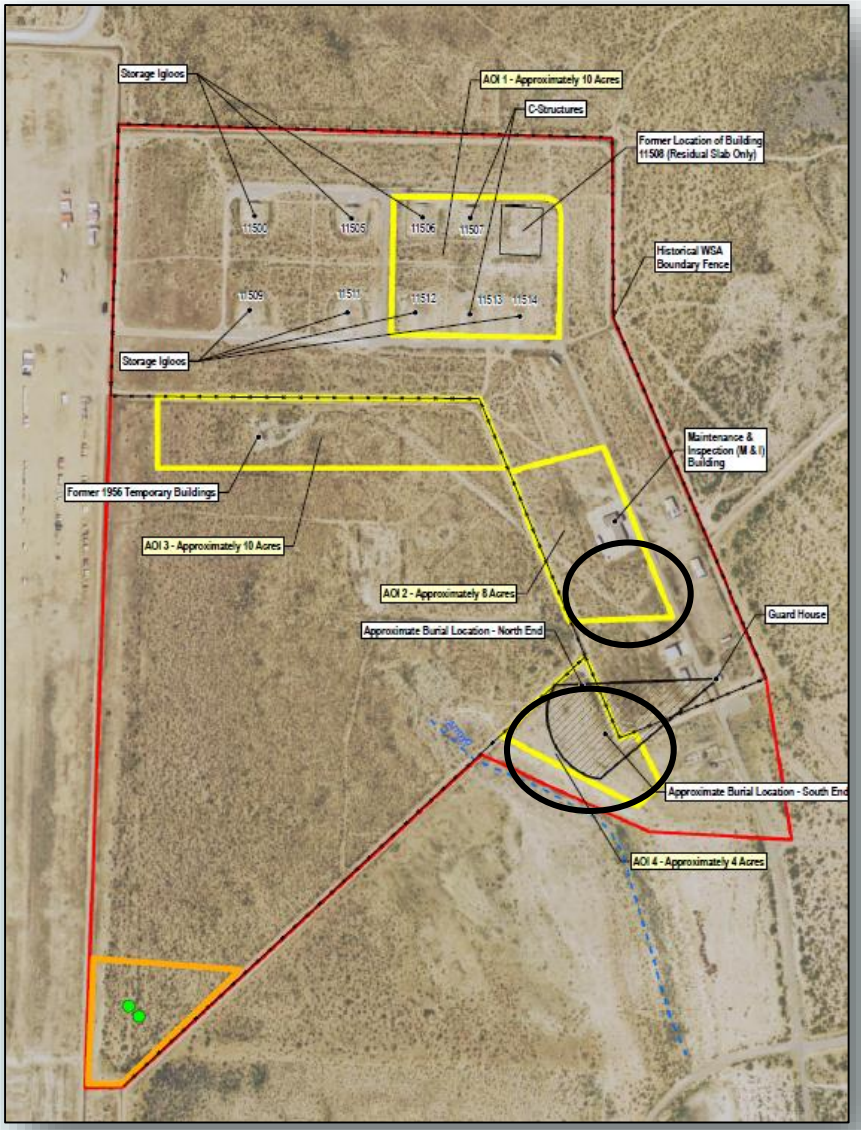
Investigation Results

- A total of 18 anomalous areas were detected based on electromagnetic survey results across the four Areas of Interest
- No elevated gamma detections were observed
  - Results from the Gamma Survey were determined to be considered elevated if they exceeded twice the average background concentrations.
- Each anomalous area was evaluated using Ground Penetrating Radar
  - 12 areas were determined to be small buried objects, utilities or high conductivity soils



Investigation Results

- Combined electromagnetic, GPR profile and gamma survey results were interpreted to determine if results indicate a potential waste disposal area
- Six Areas of Concern requiring subsurface investigation were identified in Areas of Interest No. 2 and No. 4

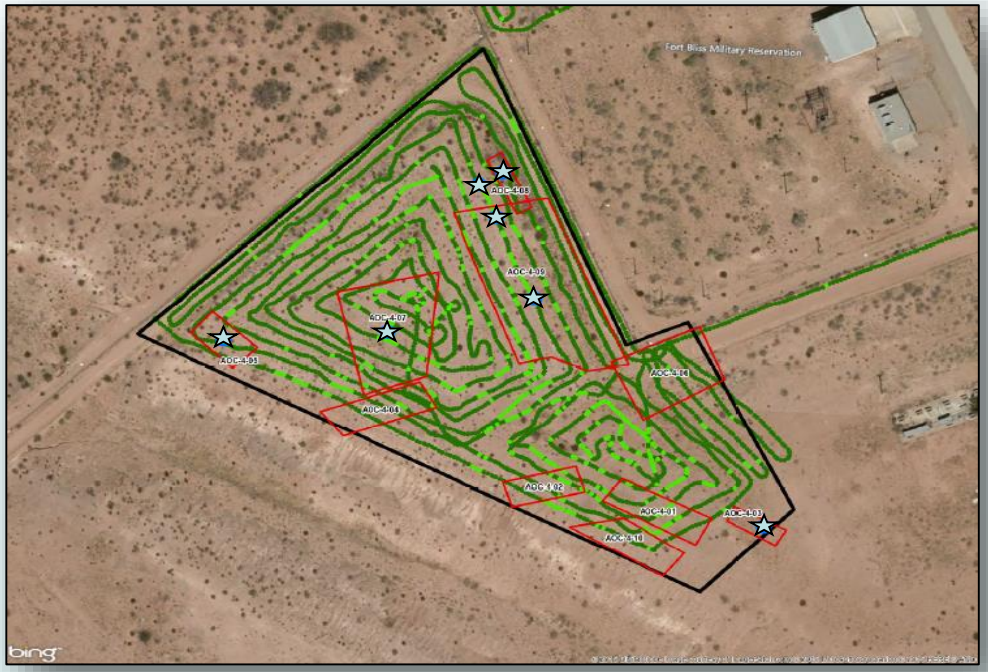


Area of Interest - 2

- One area of Concern was selected for boring and subsurface gamma ray survey
- Three borings up to 20’ were sampled every five feet
- No readings exceeded twice background

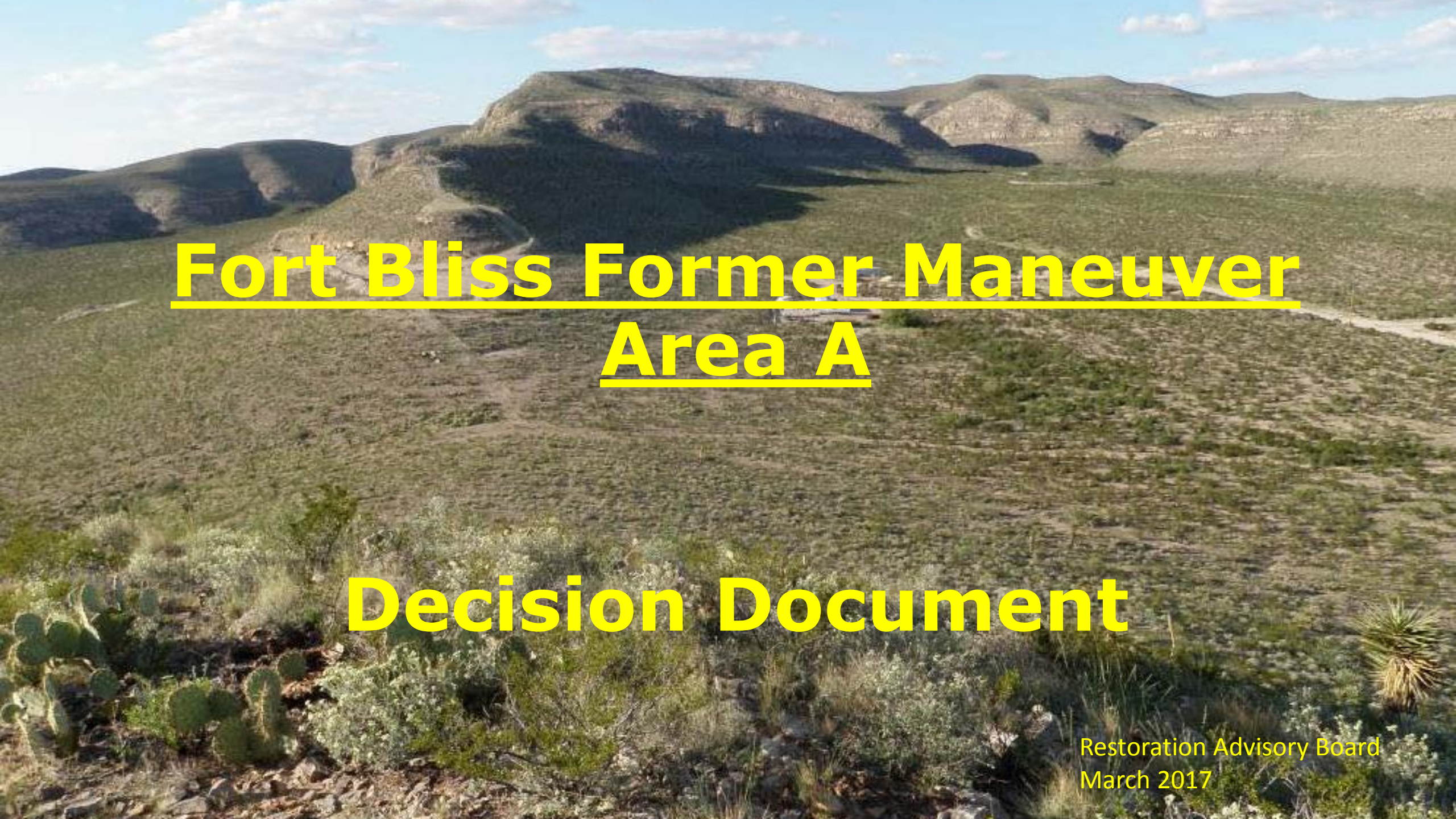
Area of Interest - 4

- Five Areas of Concern were selected for borings and subsurface gamma ray survey
- Seven borings up to 20’ were sampled every 5 feet
- No readings exceeded twice background



Conclusions

- Four Areas of Interest were investigated by Electromagnetics, Ground Penetrating Radar and Surface Gamma Surveys
- Results from the Gamma Survey were determined to be considered elevated and requiring additional investigation if they exceeded twice the average background concentrations.
- Six Areas of Concern were selected for subsurface gamma ray survey based upon the above screening
- No subsurface gamma reading exceeded twice background
- Based upon these findings, no further investigation is recommended

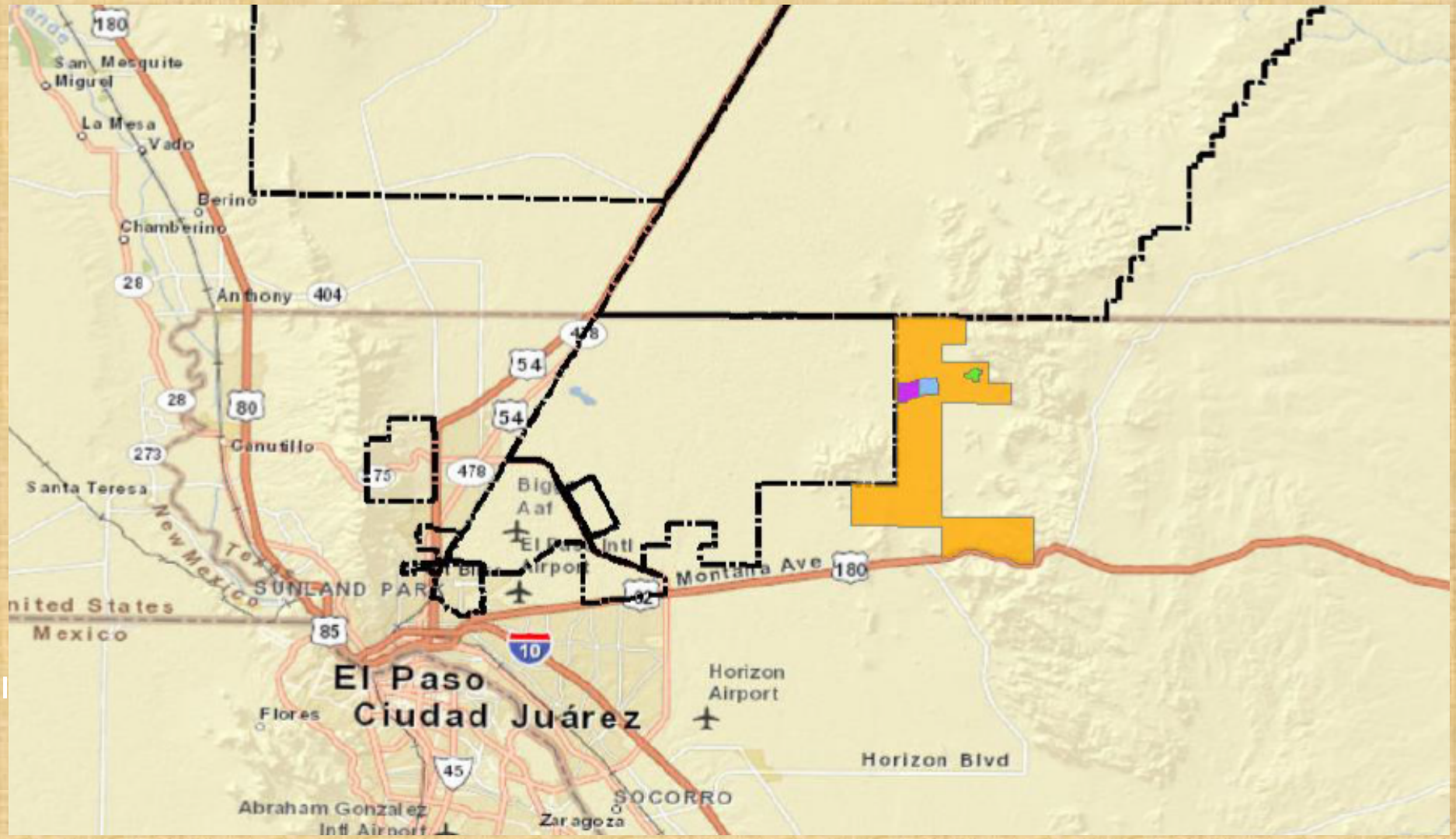


Fort Bliss Former Maneuver Area A

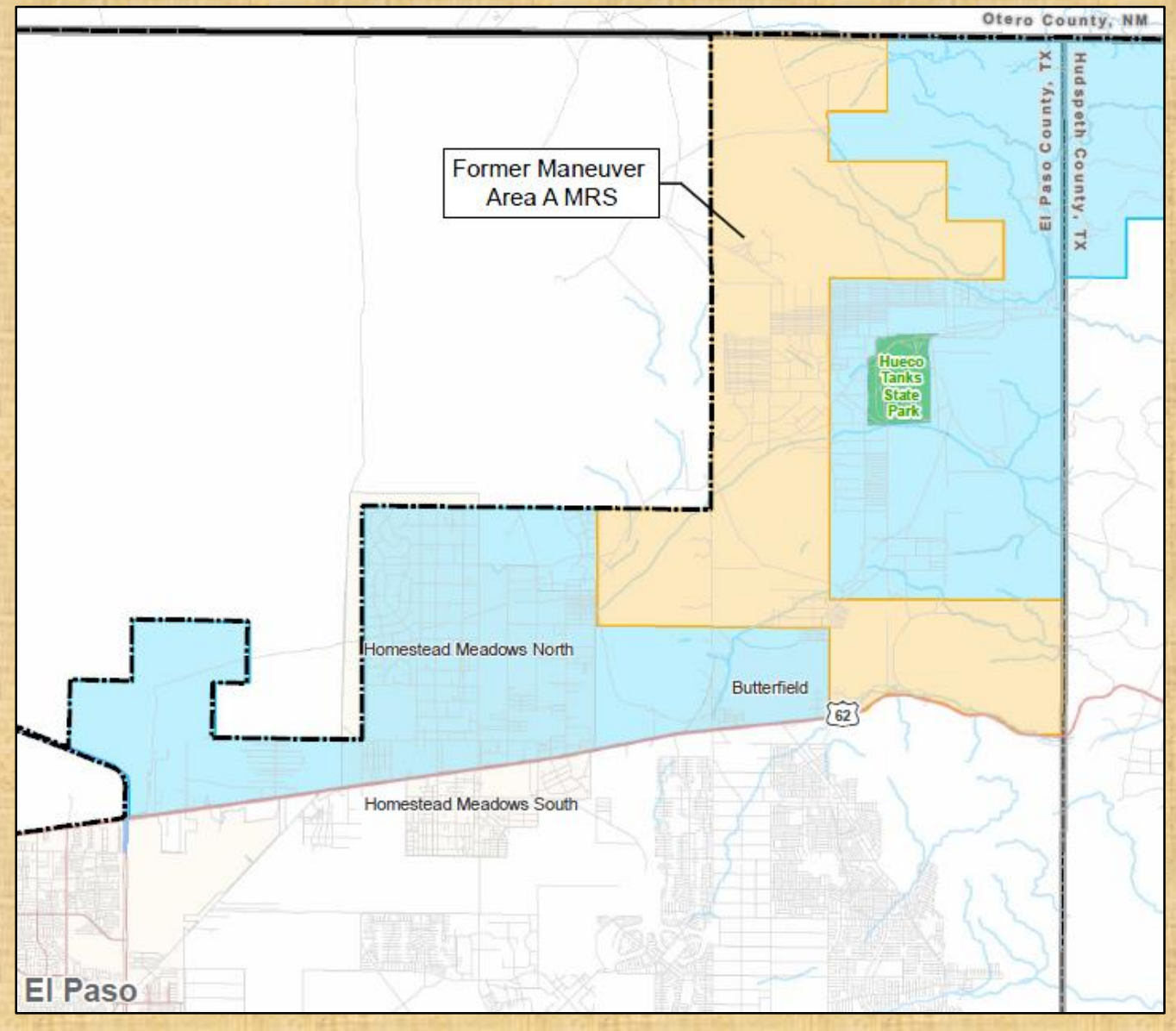
Decision Document

Restoration Advisory Board
March 2017

Former Maneuver Area: Location



Former Maneuver Area A: Location



The Former Maneuver Area A is bounded by Fort Bliss Installation land on the west, the Otero New Mexico County line on the north, the Hueco Tanks State Park on the east and US Highway 62 on the south.

Former Maneuver Area A

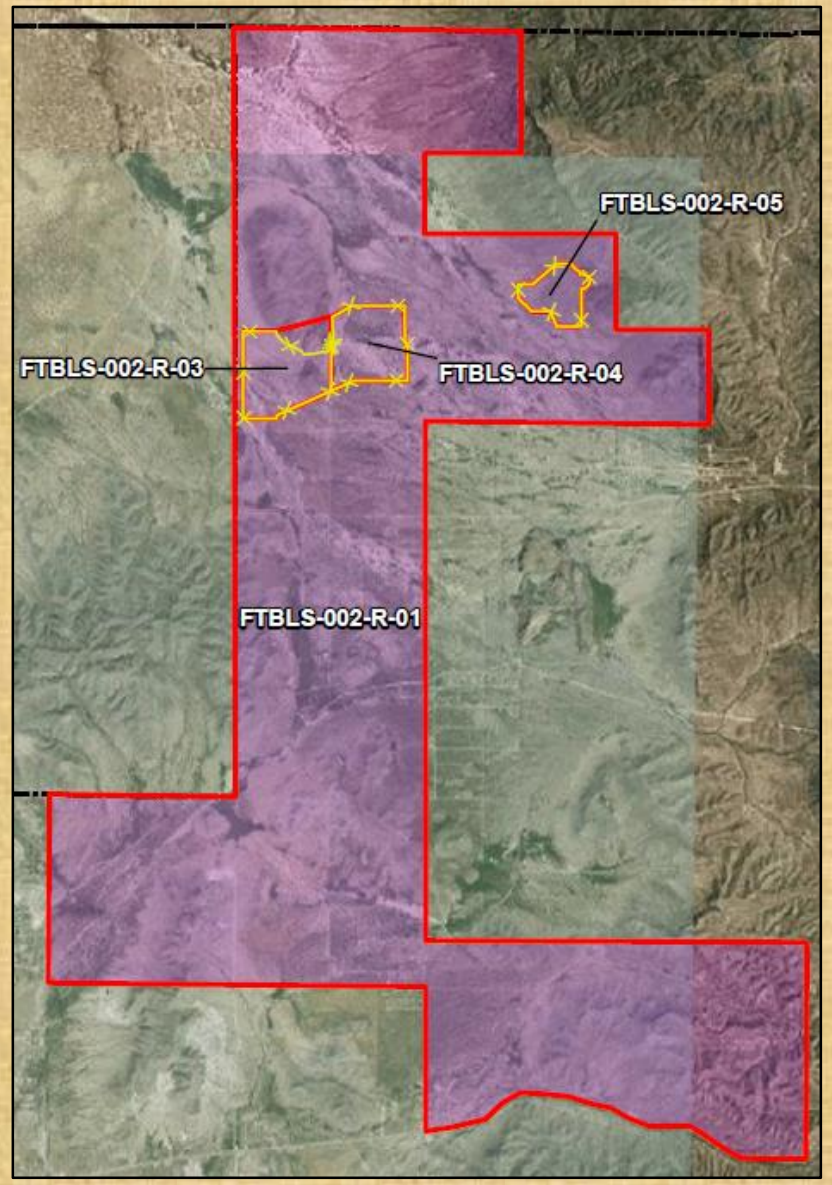
The Former Maneuver Area A encompasses 24,477 acres divided into numerous parcels. The majority of the area is undeveloped, with portions of residential homes, commercial business, ranching and light industry.

It was part of an expansion area acquired in phases by Fort Bliss beginning 1939. The entire acreage was relinquished by the Army in 1980.

The current contract is being performed by URS. The Feasibility Study was completed 2015. The Proposed Plan was completed in 2016.

The Decision Document is currently pending approval by the Army.

Former Maneuver Area A: Subdivisions



During the development of the FS, the Former Maneuver Area A was subdivided into four Munition Response Sites to facilitate future remedial actions, each of them distinguished by a MRS identification number:

- FTBLS-002-R-01
- FTBLS-002-R-03
- FTBLS-002-R-04
- FTBLS-002-R-05

For identification purposes the designation number for the remainder of the Former Maneuver Area (Area B) is FTBLS-002-R-02.

Munition Response Sites Information

- FTBLS-002-R-01
  - No Munitions and Explosives of Concern found
- FTBLS-002-R-03
  - 520 acres privately owned
  - One MEC Item found
- FTBLS-002-R-04
  - 397 acres owned by the Texas General Land Office
  - Two MEC Items found
- FTBLS-002-R-05
  - 203 acres owned by the Texas General Land Office
  - One MEC Item found

Former Maneuver Area A: Remediation Recommendations

Decision Document Recommendations:

- FTBLS-002-R-01: Public Awareness Program
- FTBLS-002-R-03: Munitions and Explosives of Concern Surface Clearance and Subsurface Removal
- FTBLS-002-R-04: MEC Surface Clearance and Subsurface Removal
- FTBLS-002-R-05: MEC Surface Clearance and Subsurface Removal
- All measures are subject to landowner and regulator approval

Schedule:

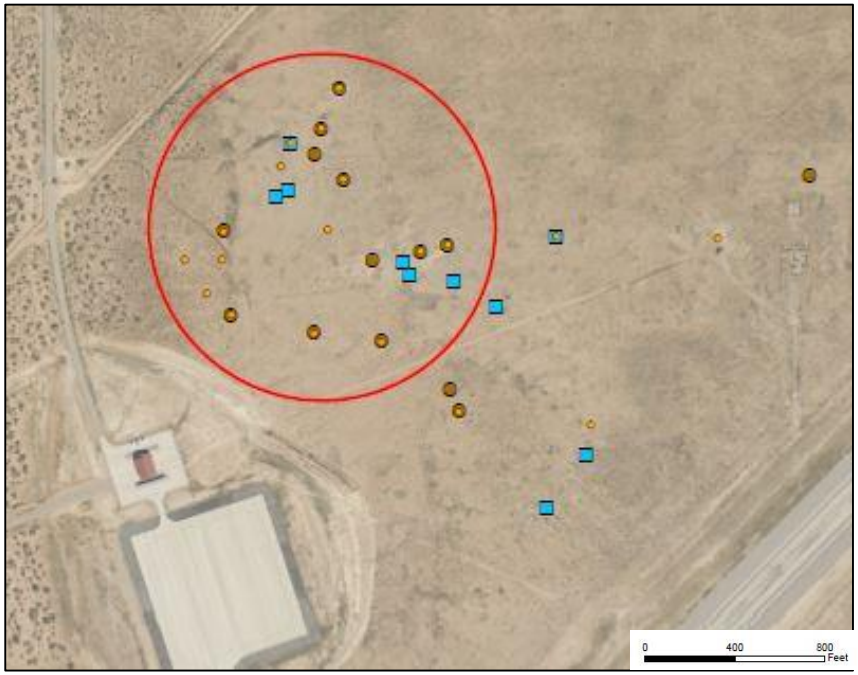
- The schedule will be determined after acceptance of the Decision Document

RAB Meeting 2017
Fort Bliss

Biggs OB/OD Site I

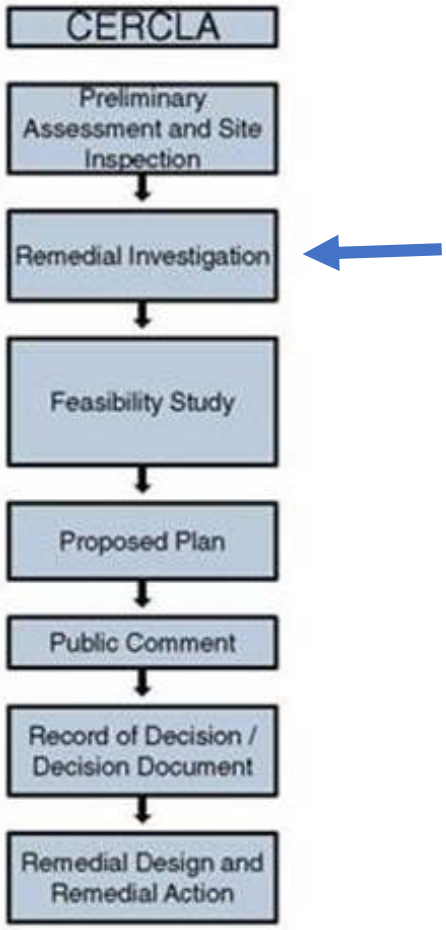
Biggs OB/OD Site I
Overview

- **Site Background**
  - 44-acre former U.S. Air Force Open Burn (OB)/Open Detonation (OD) site located west of the main Biggs Army Air Field runway
  - 2013 Memorandum to File recorded mounds containing several types of detonated/burned munitions, as well as unknown buried waste in trenches and detonation pits



Biggs OB/OD Site I
Overview

- **Site Background**
  - Based on historical observations, two types of contamination are/may be present:
    - Munitions and Explosives of Concern (MEC) - 20mm and 37mm projectiles, hand grenades, and small arms ammunition
    - Munitions Constituents (MC) in soil: explosives, metals (aluminum, antimony, copper, lead, and zinc), and polynuclear aromatic hydrocarbons (PAHs)
  - Conducting a Remedial Investigation (RI) to evaluate the nature and extent of MEC and potential MC contamination present



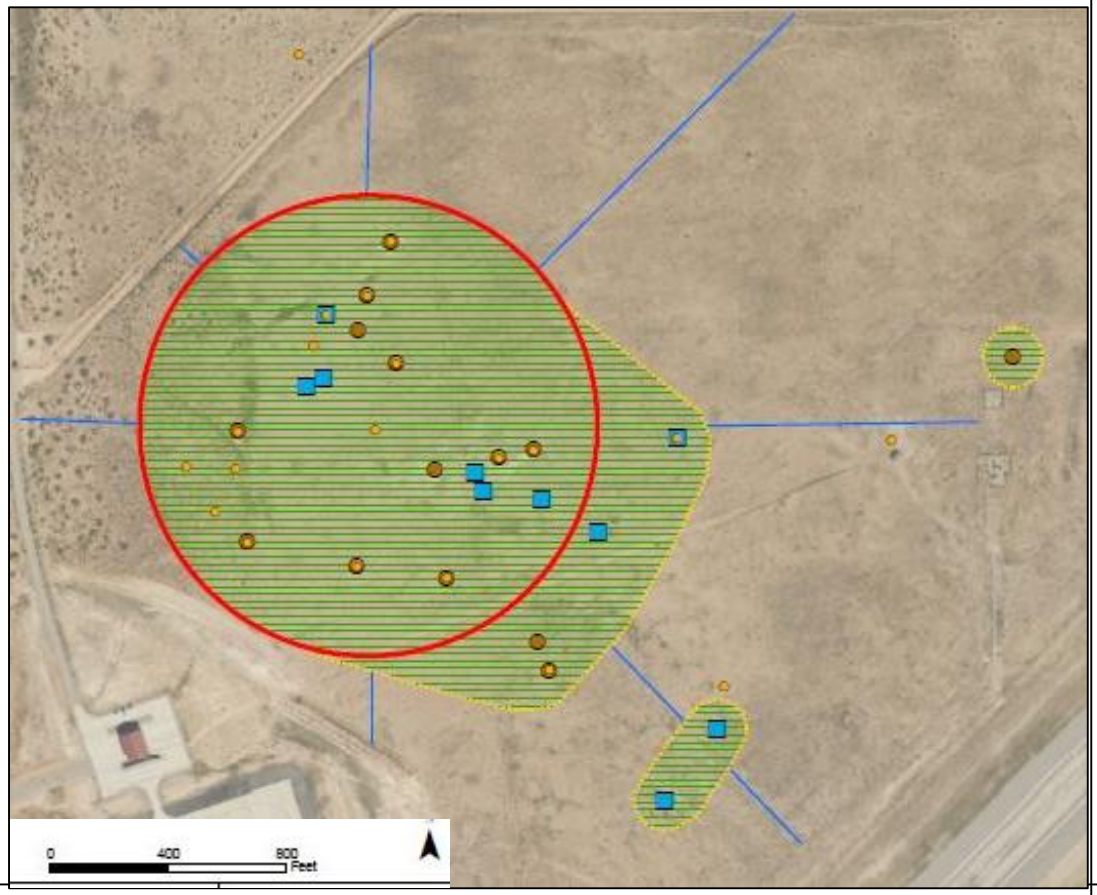
CERCLA - Comprehensive Environmental Response, Compensation, Liability Act

Biggs OB/OD Site I
Technical Approach

- **Performed a Geophysical Transect Survey**
  - Geophysical investigation to evaluate the presence of potential buried anomalies and identify potential disposal features
  - Used a towed array with an EM-61 - geophysical instrument with electro-magnetic sensors capable of mapping subsurface materials

Biggs OB/OD Site I
Technical Approach

- **Performed a Geophysical Transect Survey**
  - ~20 miles of geophysical transect lines at 25ft spacing
  - Performed transects radiating from the site to evaluate the extent of surficial material resulting as kick-out from the site

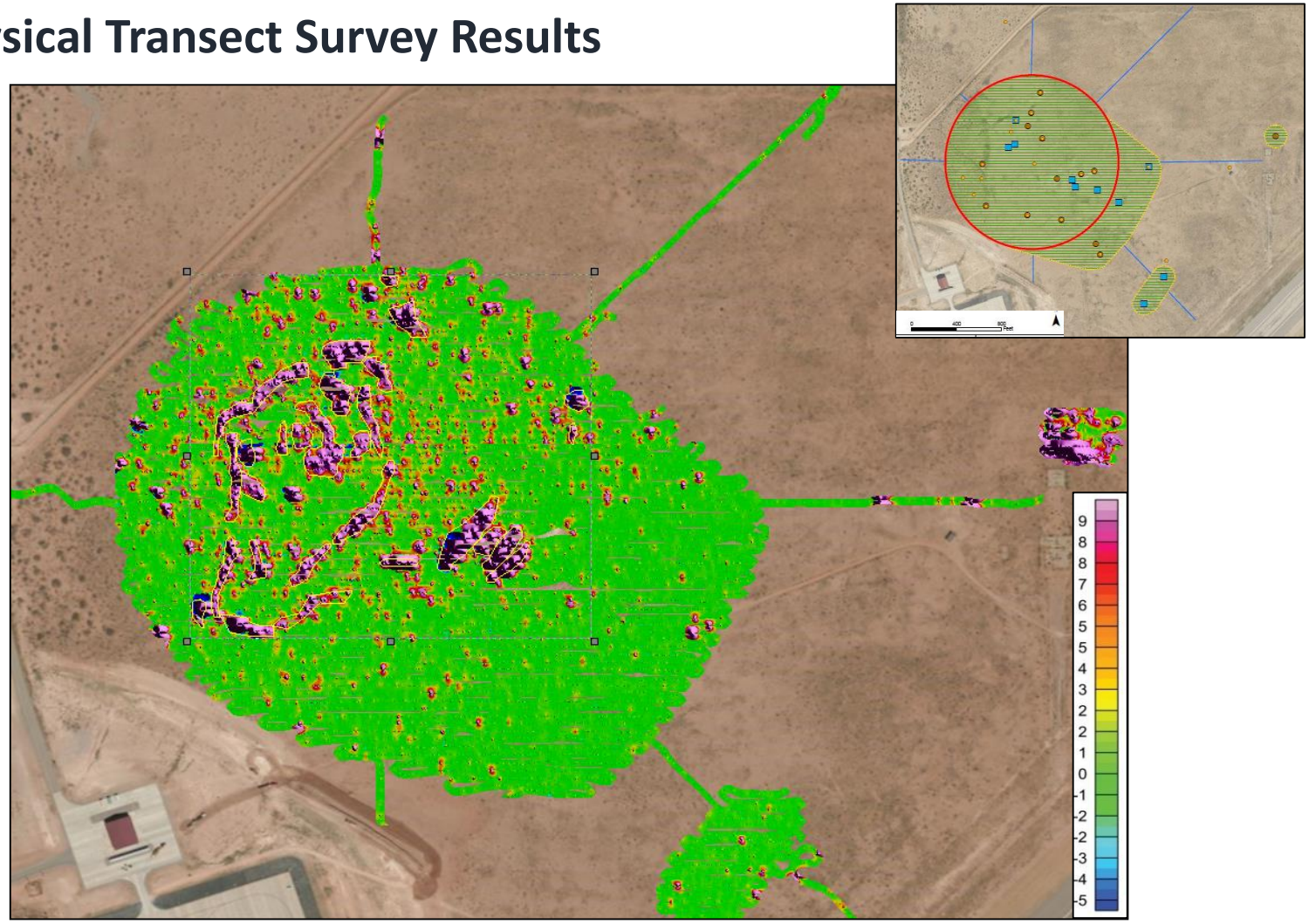


Biggs OB/OD Site I
Technical Approach

- **Conducted a Pre-Survey Surface Sweep**
  - Unexploded ordnance personnel walked the transects and removed surficial metal debris that might potentially mask detection of subsurface anomalies.
  - Munitions and explosives of concern encountered:
    - 32 – 20mm projectiles
    - 38 – 37mm cartridge cases and flash tubes
    - 40 – small arms ammunition
    - 1 – engine starter cart
    - 1 – 2.36 inch rocket motor
    - 1 – 2.75 inch FFAR shorting caps
    - 4 – fuze parts

Biggs OB/OD Site I and OB Site II
Technical Approach

Geophysical Transect Survey Results



Biggs OB/OD Site I
Technical Approach

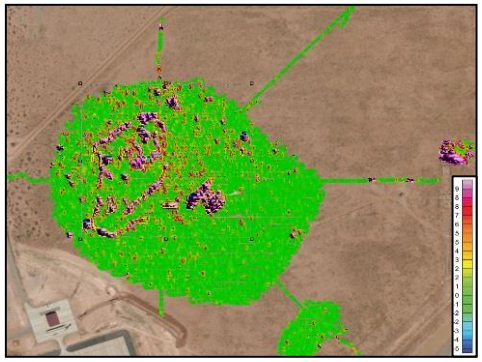
Conducted Intrusive Investigations

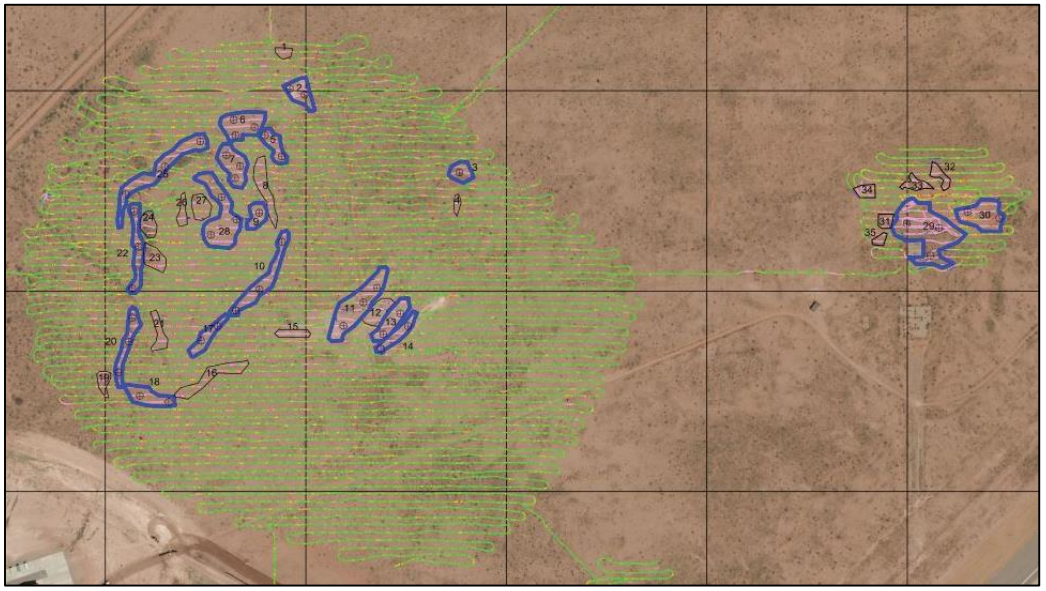
- 50 single-point anomalies were selected to investigate the nature of buried anomalies across the site

Biggs OB/OD Site I
Technical Approach

Performed Intrusive Investigations

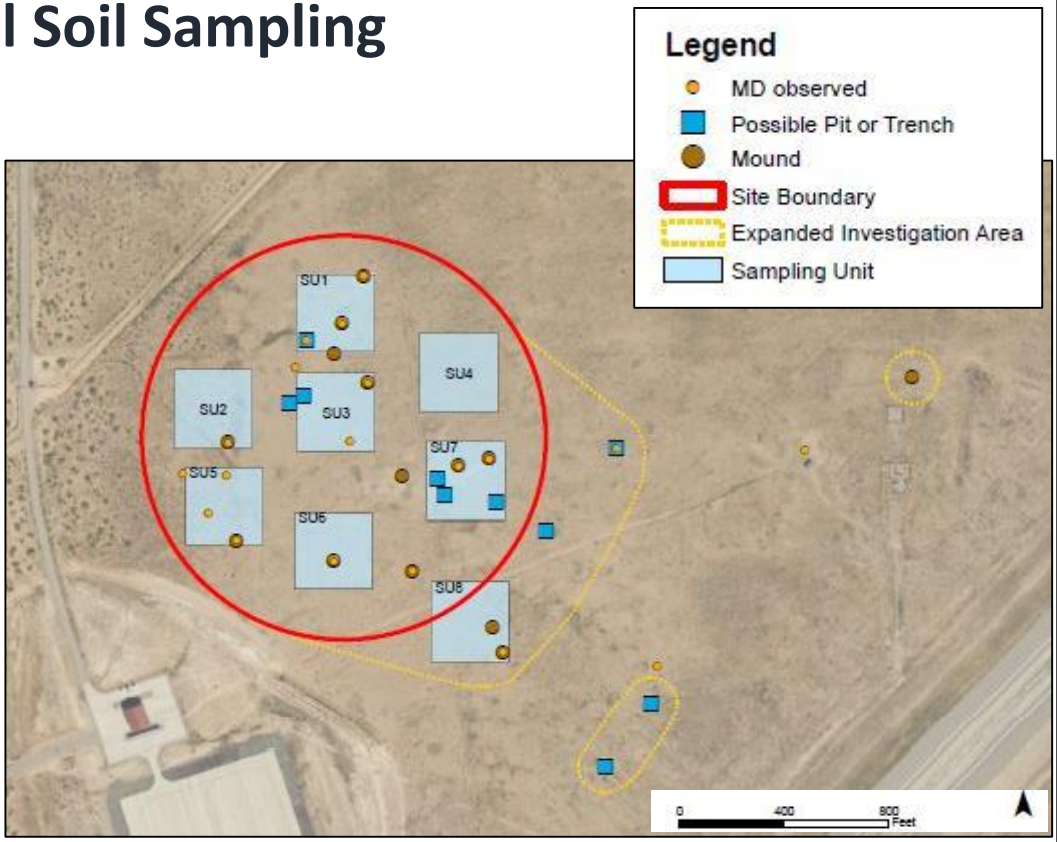
- Selected potential disposal features (i.e. trenches, test pits, etc.) for investigation
- Currently conducting exploratory excavations to help delineate the extent of potential buried material
- If munitions debris or munitions of explosives concern are found, soil samples will also be collected during the excavations





Biggs OB/OD Site I
Technical Approach

- **Performed Incremental Soil Sampling**
  - Soil samples were collected to evaluate the potential extent of soil contamination
  - Collected eight surface soil sample units. Each is 300ft by 300ft, and includes the collection of 100 “increments”
  - Samples analyzed for explosives, metals, and polynuclear aromatic hydrocarbons (PAHs)
  - Phase II planned if exceedances are present

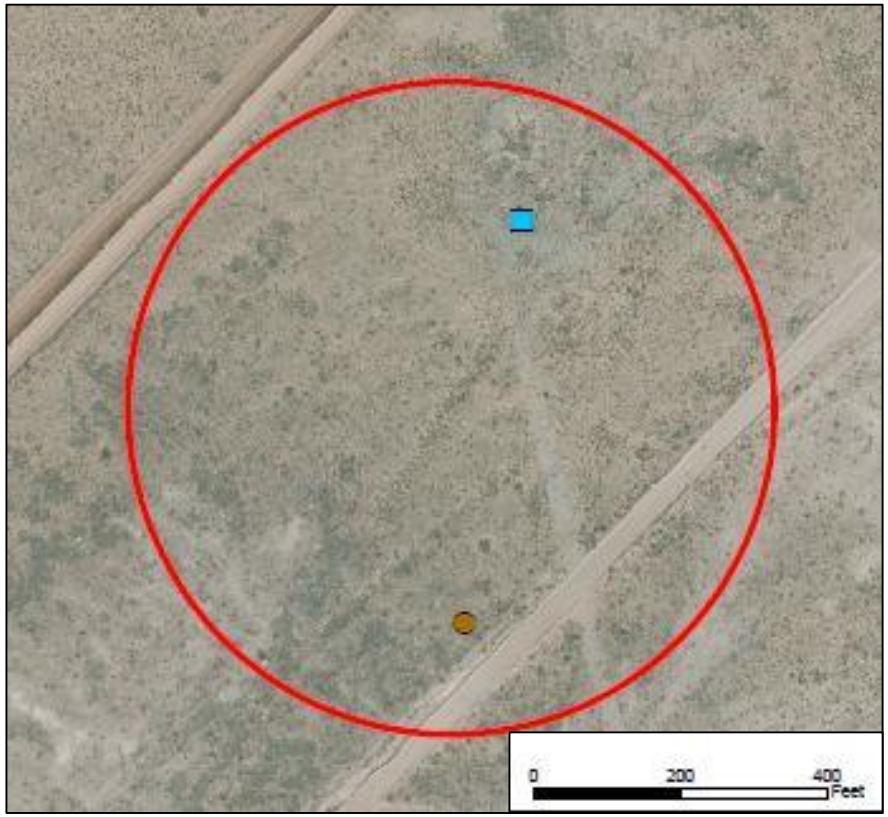


RAB Meeting 2017
Fort Bliss

Biggs OB Site II

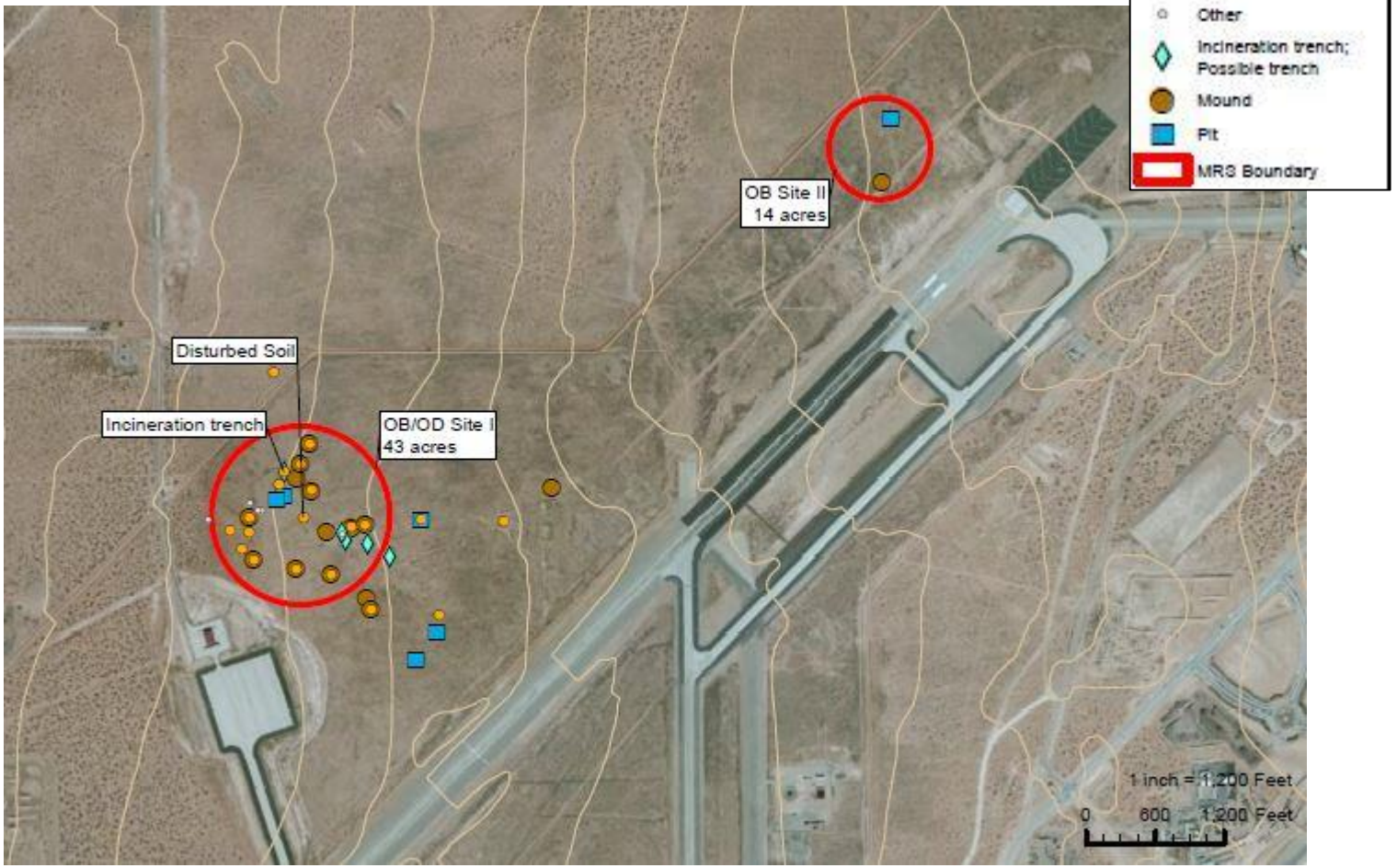
Biggs OB Site II
Overview

- **Site Background**
  - ~14-acre site located west of the main Biggs Army Air Field runway
  - 2013 Memorandum to File recorded a mound and a possible pit and suggested open burning might have been used for disposal in this area



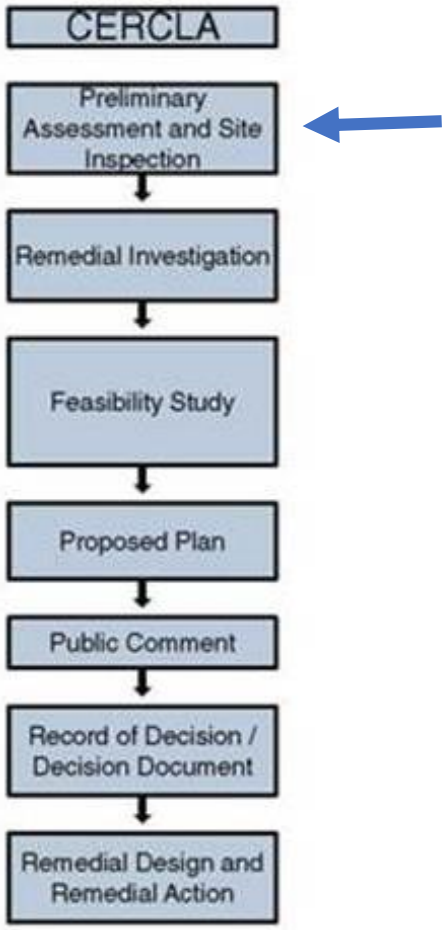
Biggs OB Site II
Overview

- **Site Background**



Biggs OB Site II
Overview

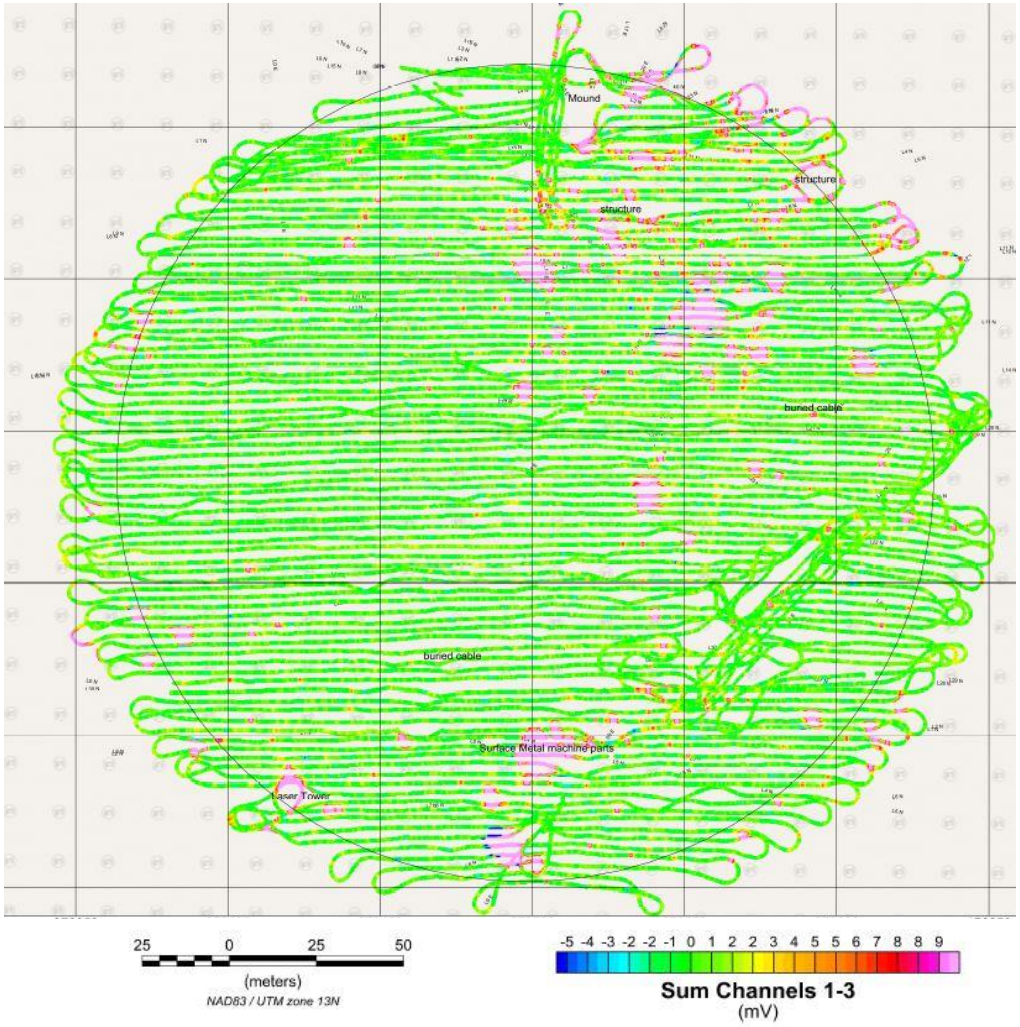
- **Site Background**
  - Two types of contamination may be present:
    - Munitions and Explosives of Concern (MEC) - 20mm and 37mm projectiles, hand grenades, and small arms ammunition. ***MEC not expected***
    - Munitions Constituents (MC) in soil: explosives, metals (aluminum, antimony, copper, lead, and zinc), and polynuclear aromatic hydrocarbons (PAHs)
  - Based on the lack of information on the site, a Site Inspection (SI) is being conducted to evaluate the presence or absence of both types of contamination



CERCLA - Comprehensive Environmental Response, Compensation, Liability Act

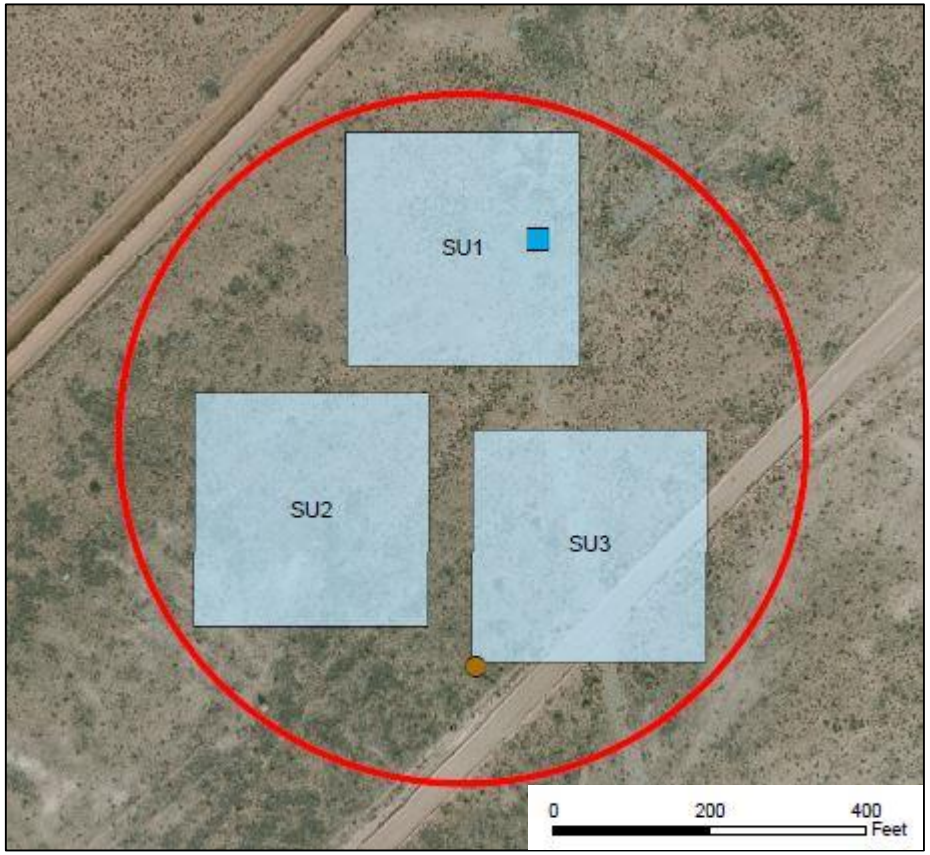
Biggs OB Site II
Technical Approach

- **Geophysical Transect Survey Results**
  - Performed surface clearance
    - Munitions and explosives of concern encountered included one 40 mm anti-aircraft projectile
  - Conducted 11.5 miles of geophysical transect, 10ft spacing



Biggs OB Site II
Technical Approach

- **Performed Incremental Soil Sampling**
  - Soil samples were collected to evaluate the potential presence of soil contamination
  - Collected three surface soil sample units - 300ft by 300ft which includes the collection of 100 “increments”
  - Samples analyzed for explosives, metals, and polynuclear aromatic hydrocarbons (PAHs)
  - Phase II planned if exceedance are present

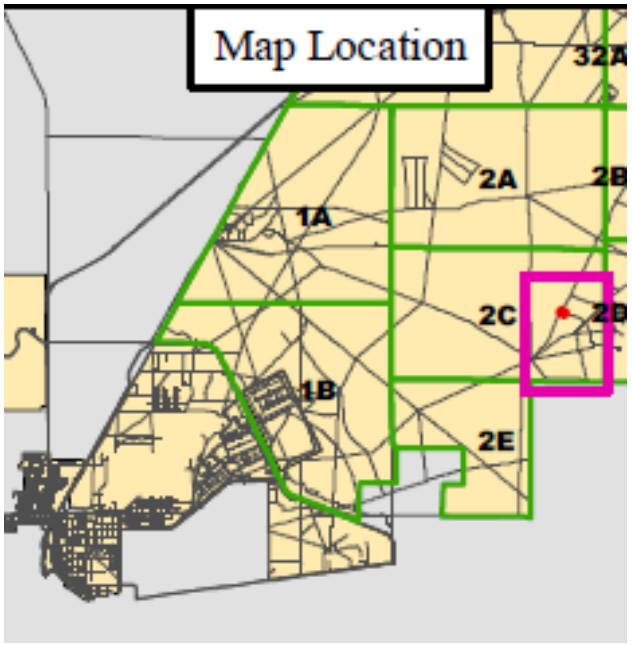


RAB Meeting 2017
Fort Bliss

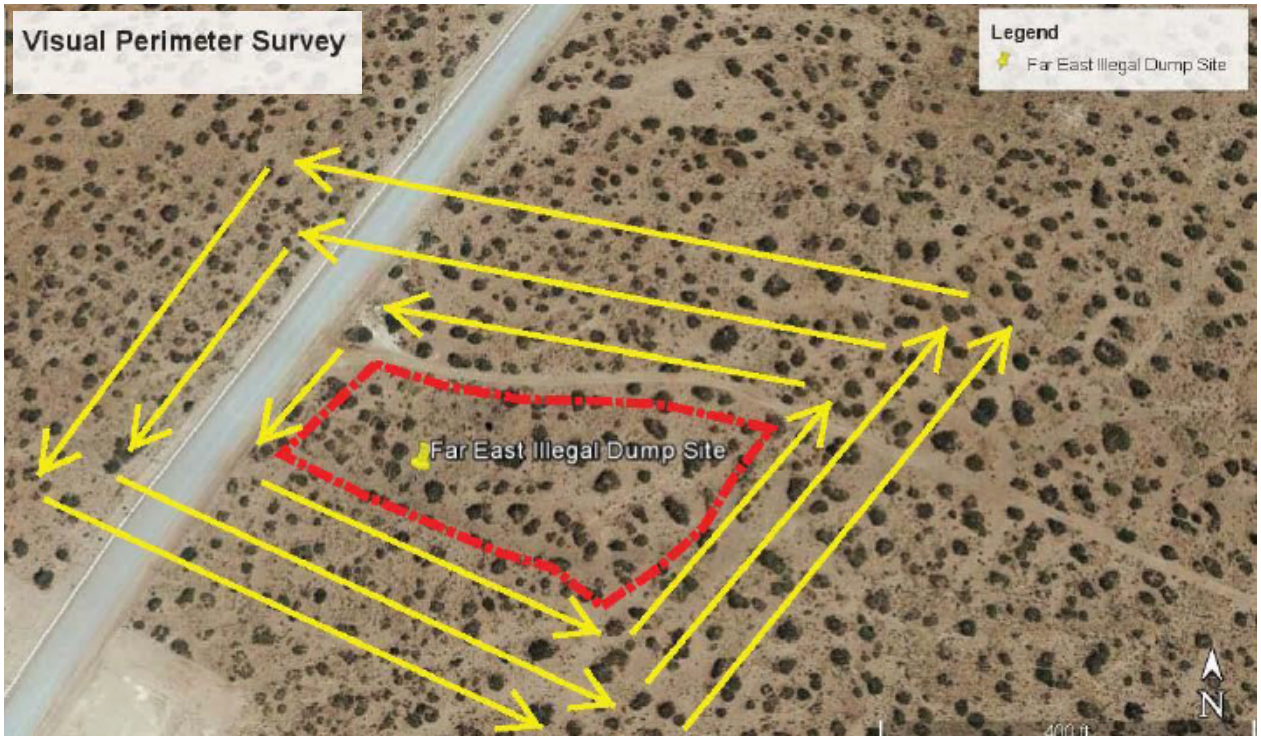
Far East Illegal Dump Site

Far East Illegal Dump Site– Site Location/Background

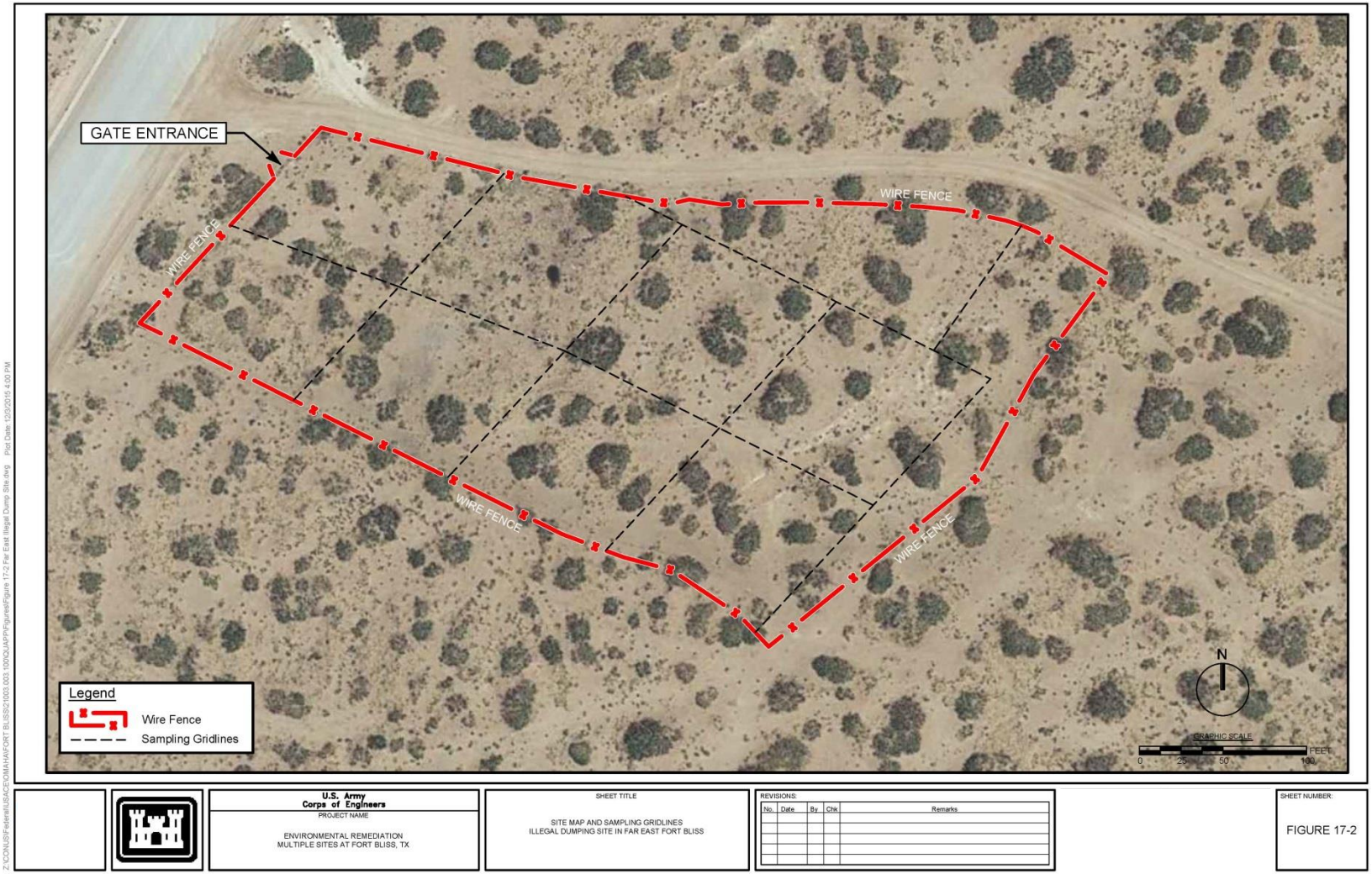
- The Far East Illegal Dump Site is a fenced-in 2.24-acre area parcel located in the eastern portion of Fort Bliss. Debris/waste encountered:
  - Syringes
  - Needles
  - Cans and bottles
  - Vehicle tires and parts.
- The Preliminary Assessment performed in 2014.
  - Collection and analysis of 12 soil samples
  - Results were reported below EPA screening levels for residential and industrial soils with the exception of arsenic and lead.
    - The arsenic level did not exceed the Texas state background level of 5.9 mg/kg
    - Lead levels in seven samples were above the state background level of 15 mg/kg.



Far East Illegal Dump Site– Technical Approach



Far East Illegal Dump Site– Technical Approach



Far East Illegal Dump Site
Fieldwork Results

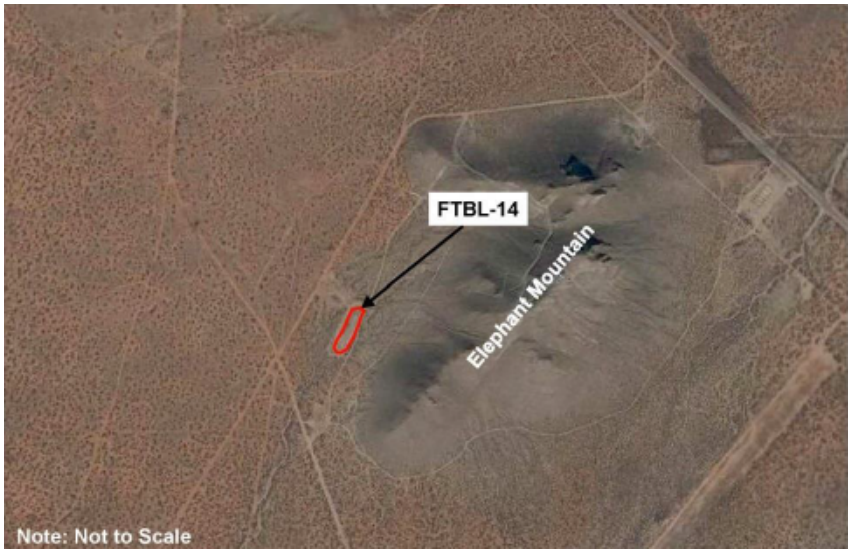
- A visual survey was performed on 01 March 2017 throughout the investigation area at an approximate transect spacing of 10-25 feet.
  - Noted waste/debris on the exterior fence line and just north of the exterior fence line in Grid 4 and south of the exterior fence line in Grid 8.
  - No other waste/debris were noted outside the controlled fence line area.
  - One discrete surface sample was collected at each of the areas.
- Soil sampling:
  - Started collecting the 15 point Multi-incremental surface samples within each grid starting at grid 1 (10 Grids total).
  - A photoionization detector (PID) was used to field screen each of the 15 locations for volatile organic compounds (VOC's)
  - A soil sample was taken at the location exhibiting the highest OVA-PID detection within each grid.
  - PID readings of 9999 parts per million (ppm), 1426 ppm, and 25 ppm were recorded in central portion of Grid 4.
- Background sampling:
  - A total of three surface and three subsurface samples were taken outside the fenced area.

RAB Meeting 2017
Fort Bliss

Oro Grande Landfill

Oro Grande Landfill–
Site Location/Background

- Past investigations at the Oro Grande Landfill have found that the landfill is composed of buried waste material including wood, plastic, paper, scrap metal, and demolition debris. The landfill is a pre-regulated landfill used by Fort Bliss.
- The RFI states that the extent of the buried waste is approximately 345 feet by 37 feet (0.29 acres) and averages 2.8 feet thick, but varies up to about 7 feet in thickness. The RFI Report estimates the quantity of debris as 2,300 CY; this was further refined to 2,075 CY following additional test pits. Samples were collected, and all contaminant levels were below the NMED Soil Screening Level (SSL)-Residential criteria.



Oro Grande Landfill – Technical Approach

- Fieldwork performed to-date:
  - The landfill area was cleared of vegetation on 07 February 2017 to prevent bird nesting.
  - A NM-licensed surveyor identified the boundary of the landfill.
  - Backfill materials will come from a borrow source approximately four miles from the site.
    - Backfill materials were sampled to ensure they are free of contamination prior to excavation. Results were below regulatory limits.
- Work to be performed:
  - Waste characterization samples of the landfill need to be collected prior to sending materials to the Otero-Greentree Landfill.
    - Documentation and sample results will need to be submitted for approval.
  - Clean cover soil (overburden) will be visually segregated, excavated and stockpiled on site. Waste materials will be excavated and temporarily stockpiled on-site prior to loading in dump trucks for disposal. Wastes will be removed to visual extents.
  - Confirmation samples will be collected from the base and walls of the excavation in areas determined visually to have been cleared of debris. Additional soil will be excavated if analytical results exceed residential screening levels.

Closed Castner Firing Range Remedial Investigation

Restoration Advisory Board Meeting

28 March 2017

What is Being Done?

- The Remedial Investigation (RI) will:
  - Characterize munitions response site (MRS) conditions
  - Determine nature and extent of munitions and explosives of concern (MEC) and munitions constituents (MC)
  - Determine risks/hazards to human health and environment
- What is not addressed in this project?
  - Development of cleanup alternatives
    - To be conducted during the next project phase
  - Future land use decisions
  - Munitions removal / remediation

General RI Approach

- Includes munitions and explosives of concern (MEC) and munitions constituents (MC) investigation
- Evaluate and utilize previous work
- Collect additional MEC and MC data to complete investigation:
  - Vertical and horizontal extent of MEC and MC
  - MEC density outside identified concentrated munitions use areas (CMUAs)
  - Identify additional CMUAs in high slopes, if present
  - Transportation potential of MEC and MC from high to low elevations
  - Overall risk to people and the environment

MEC Investigation Summary

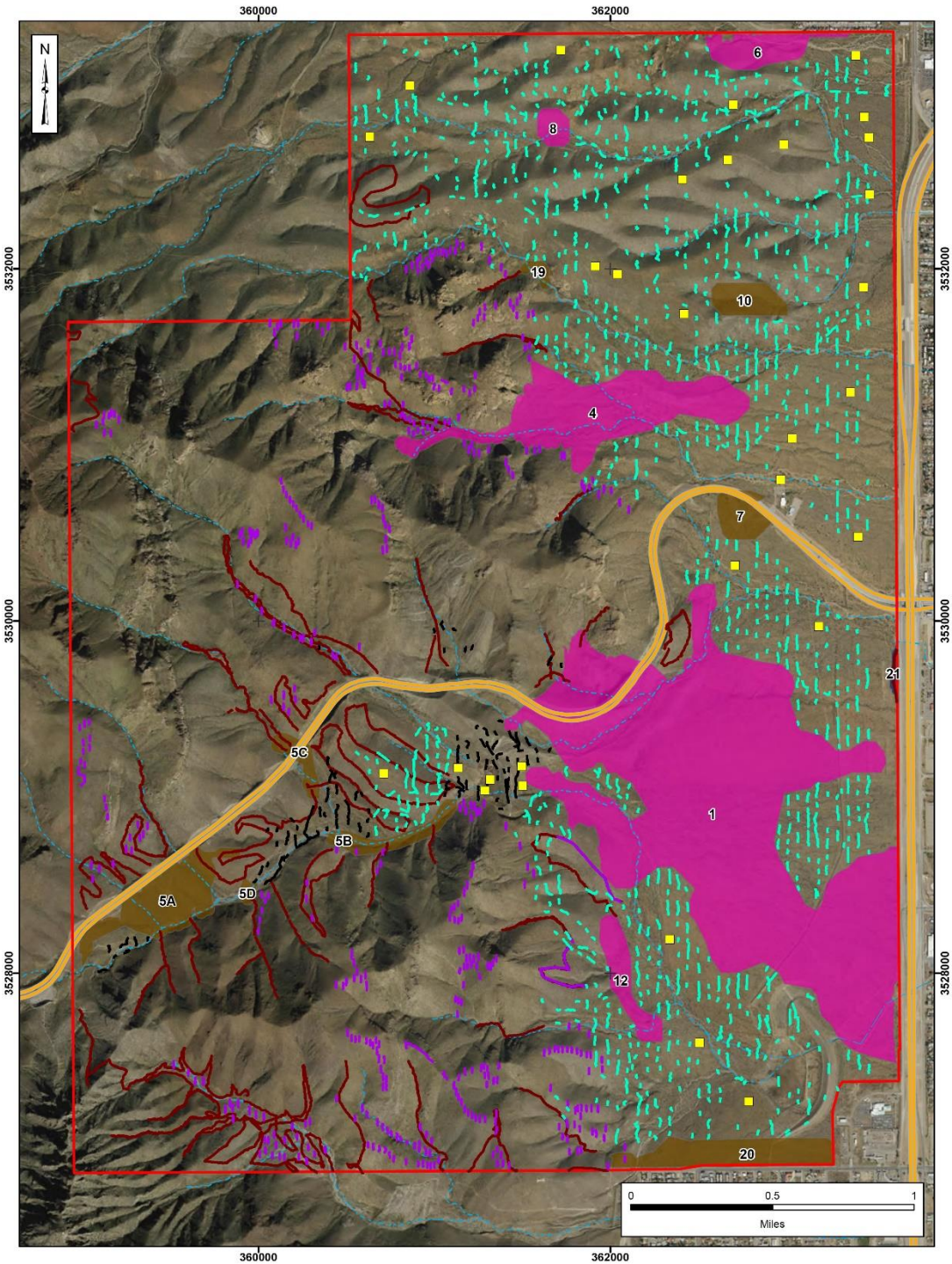
Data Type	Planned		Actual	
	units	acres	units	acres
Visual Survey	29.1 miles	70.5	33.8 miles	82.0
Statistical Requirement To Complete Delineation:				
Wide Area Assessment (WAA) Transects	1750 100-ft segments	16.07	1750	16.07
Digital Geophysical Mapping (DGM) Grids	22 grids	5.05	30 grids	6.71
Analog Transects	452 100-ft segments	4.15	466 100-ft segments	6.25
Total Acres		**25.27**		**29.03**

Intrusive Investigation

DGM Data Collection

Analog "mag and dig"

RI Approach - MEC



MRS Boundary

Intermittent Stream

High Anomaly Density - CMUA; No Investigation Performed

High Anomaly Density - NCMUA; No Investigation Performed

High Anomaly Density - Investigation Confirmed a NCMUA

IAVS Transect

WAA DGM Transect

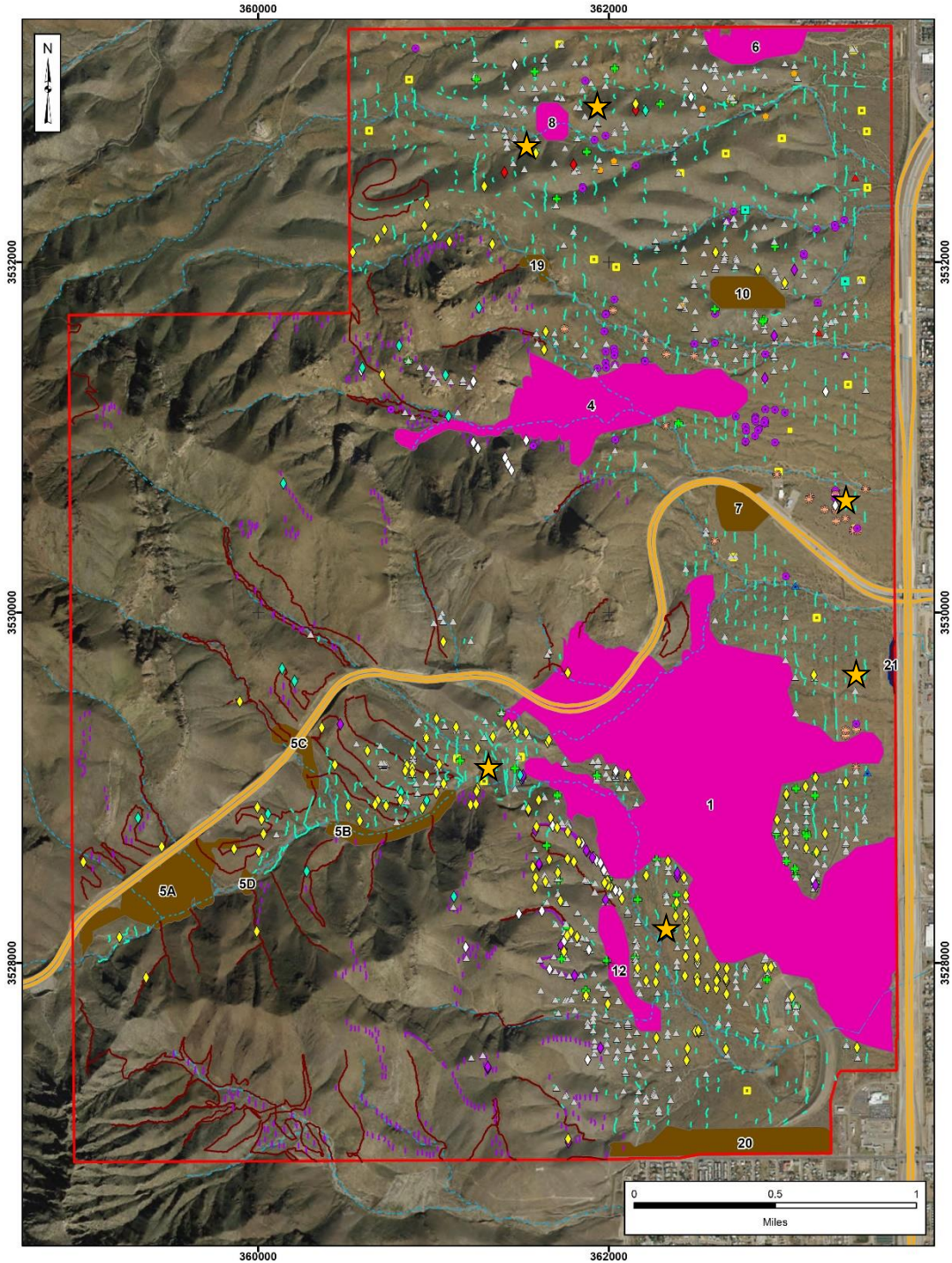
WAA DGM Lot converted to new DGM grid

Analog Mag-and-Dig Transect

DGM Grid

CMUA – Concentrated Munitions Use Area
NCMUA – Non-Concentrated Munitions Use Area
DGM – Digital Geophysical Mapping
IAVS – Instrument Assisted Visual Survey
MRS – Munitions Response Site
WAA – Wide Area Assessment

RI Dig Results



- MRS Boundary
- Intermittent Stream
- High Anomaly Density - CMUA; No Investigation Required
- High Anomaly Density - NCMUA; No Investigation Required
- High Anomaly Density - Additional Investigation Required to Determine if CMUA
- IAVS Transect
- Analog Transect
- WAA DGM Transect
- DGM Grid
- MEC Find

MD - Projectiles

- 20mm Projectile
- 37mm Projectile
- 40mm Projectile
- 75mm Projectile
- Projectile frag

Other Munitions Debris (MD)

- Flares
- Fragment
- Fuzes
- Grenade
- Mortar
- Illumination
- Practice Mines (Land)
- Rockets

RI and Historical MEC Finds

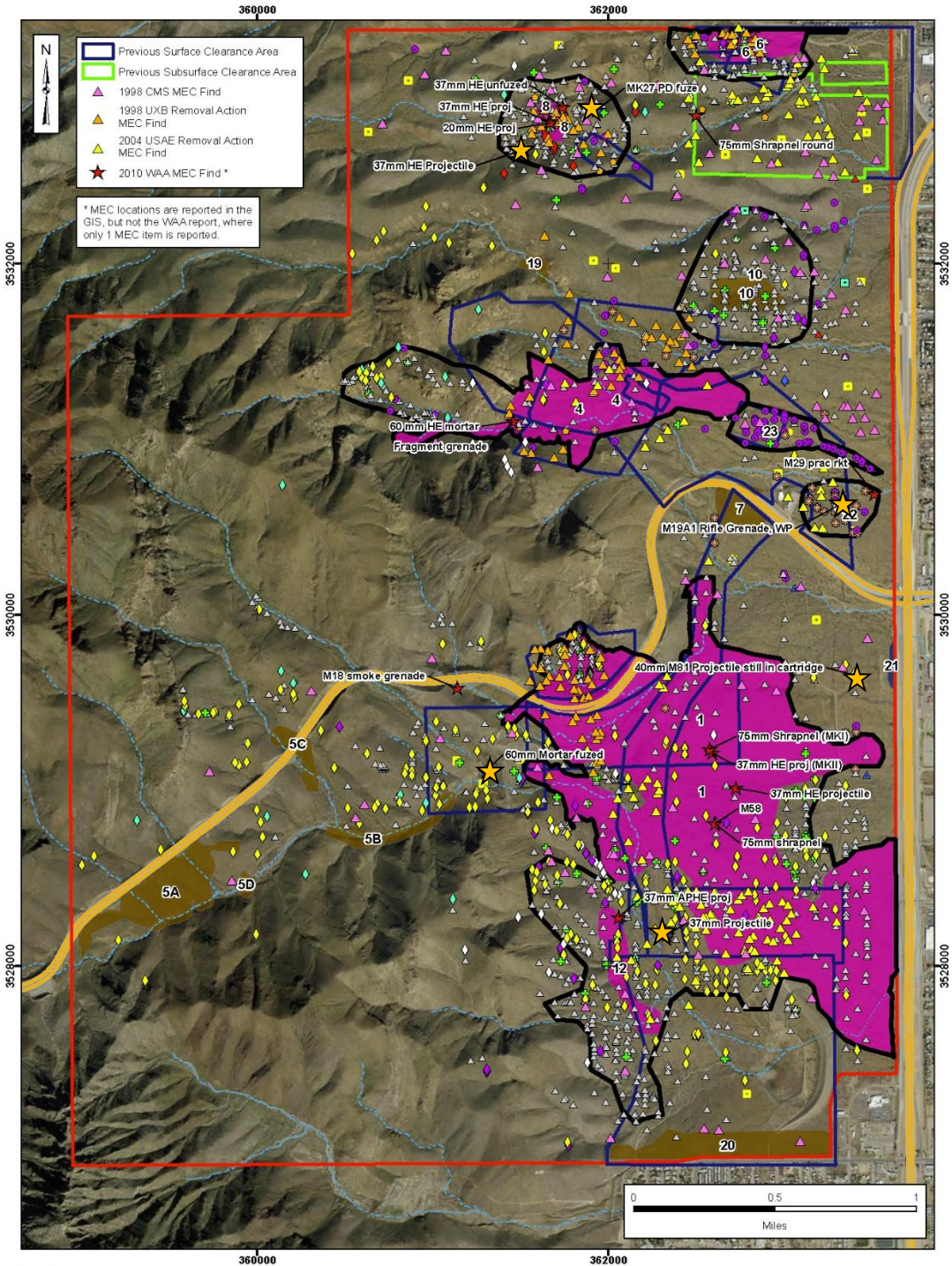
- MRS Boundary
- Intermittent Stream
- High Anomaly Density - CMUA; No Investigation Performed
- High Anomaly Density - NCMUA; No Investigation Performed
- High Anomaly Density - Investigation Confirmed a NCMUA
- Revised CMUA based on RI MEC data collection
- DGM Grid
- MEC Find (RI)

MD - Projectiles

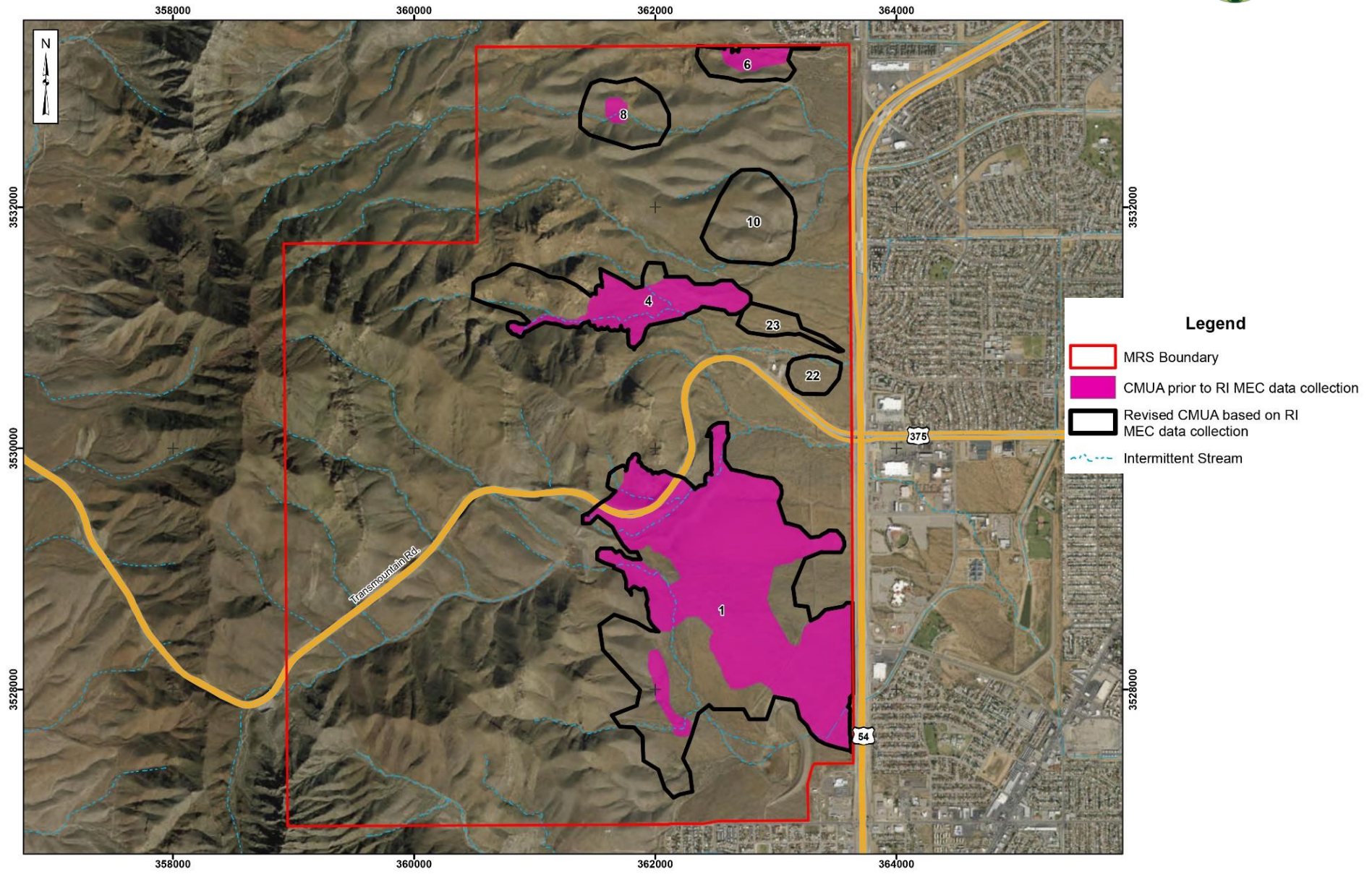
- 20mm Projectile
- 37mm Projectile
- 40mm Projectile
- 57mm Projectile
- 75mm Projectile
- Projectile frag

Other Munitions Debris

- Flares
- Fragment
- Fuzes
- Grenade
- Mortar
- Illumination
- Practice Mines (Land)
- Rockets



Revised CMUAs



MC Investigation – Phase I

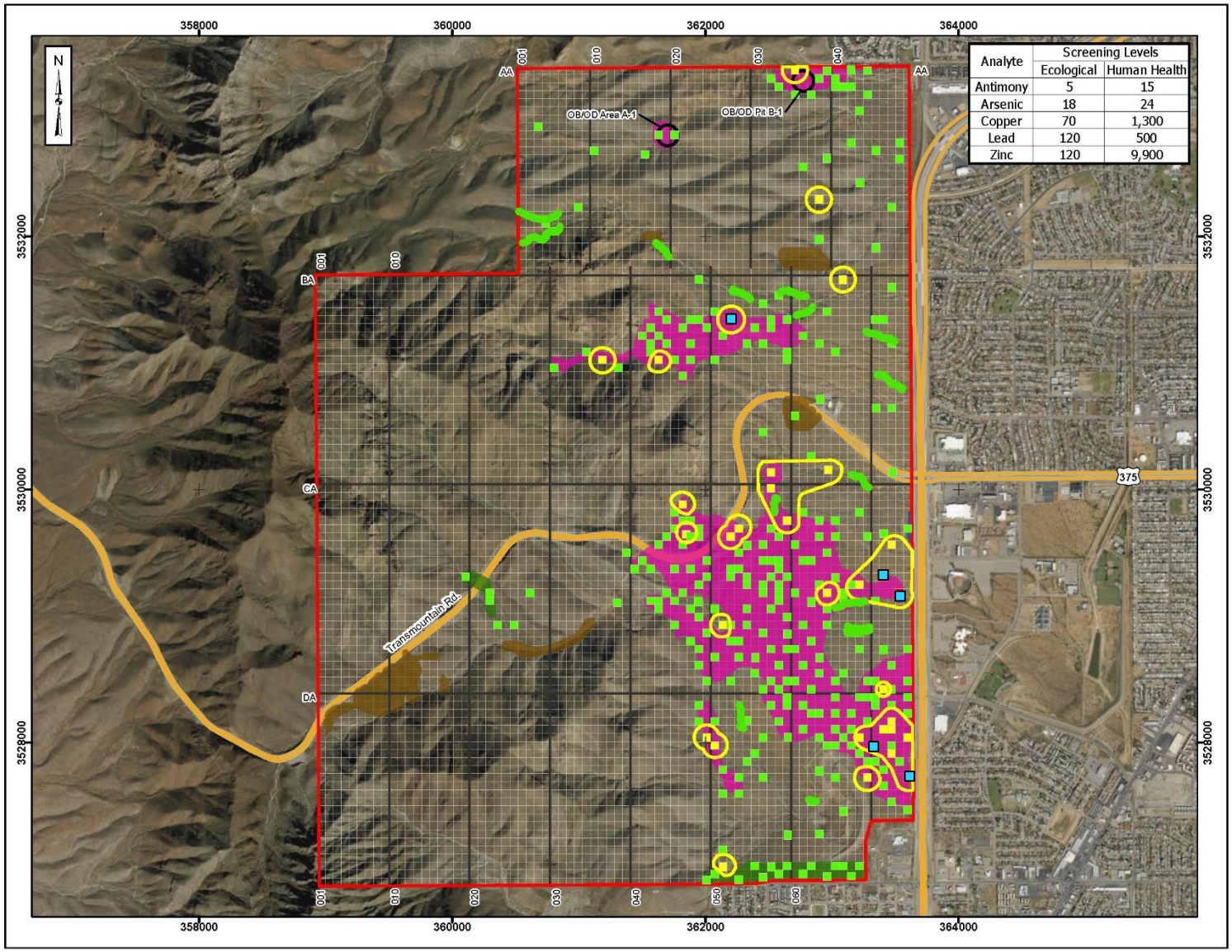
- Surface Soil Sampling
  - Area Wide Delineation
    - Incremental Sampling Methodology (ISM)
  - Small arms range backstop berms
- Drainage Area Sampling (arroyos)
  - Sediment samples
  - Surface water samples

Phase I Results Summary

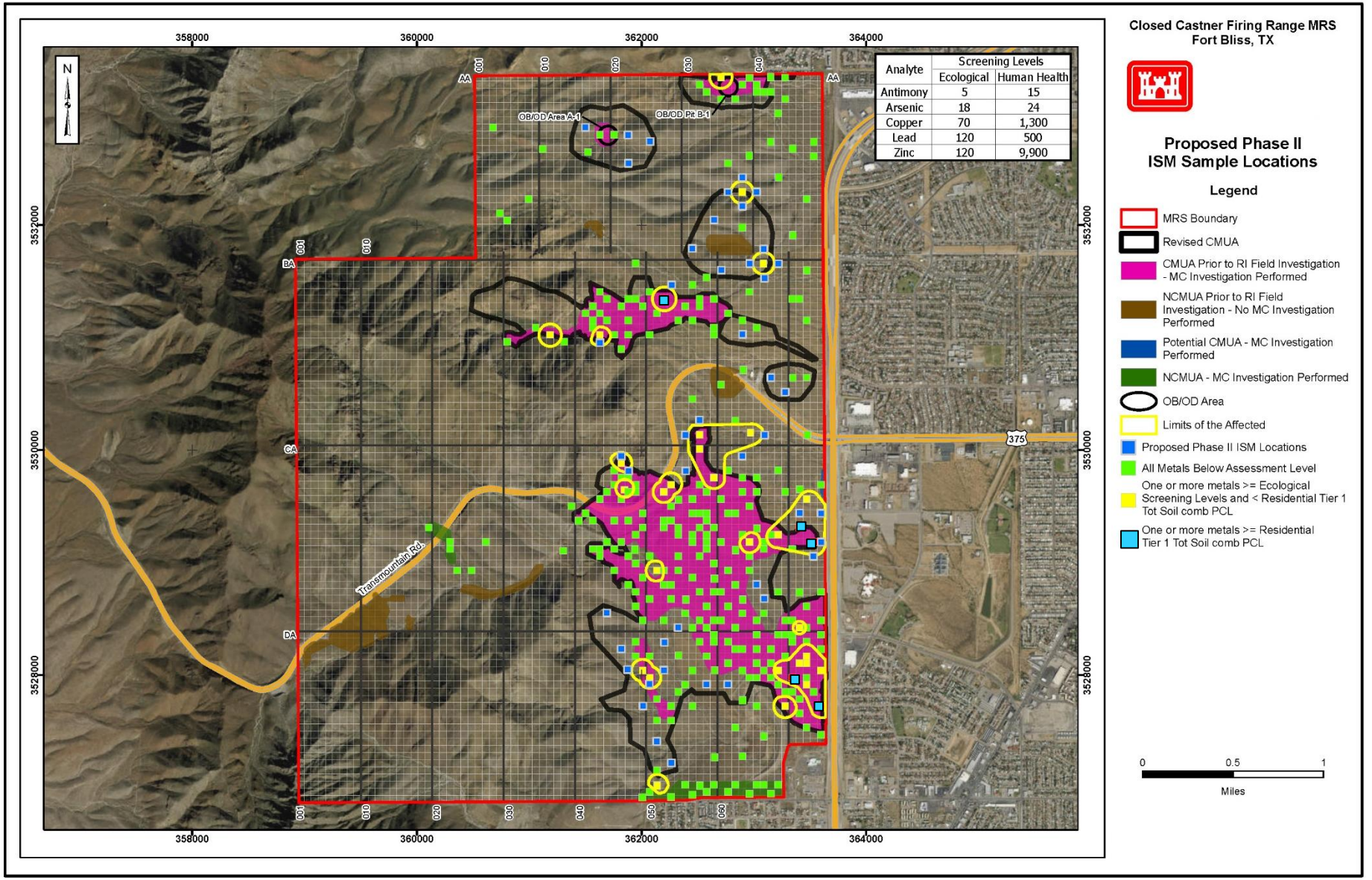
Area	# Samples	# Screening Exceedances		Next Step
		Ecological	Residential	
Area-Wide Soil (ISM)	149	28	5	Step out sampling (Phase II)
Berms (Soil)	69	6	1	Step out sampling (Phase II)
Sediment	52	12	2	Step out sampling (Phase II)
Surface Water – seeps	4*	0	0	None; investigation complete
Surface Water – arroyos	0**	0	0	None; investigation complete
Demolition shots (Soil)	6	0	0	None; investigation complete

** 18 locations were targeted; no water present in 14 locations during both visits*
*** 6 locations targeted; no water present during either visit*

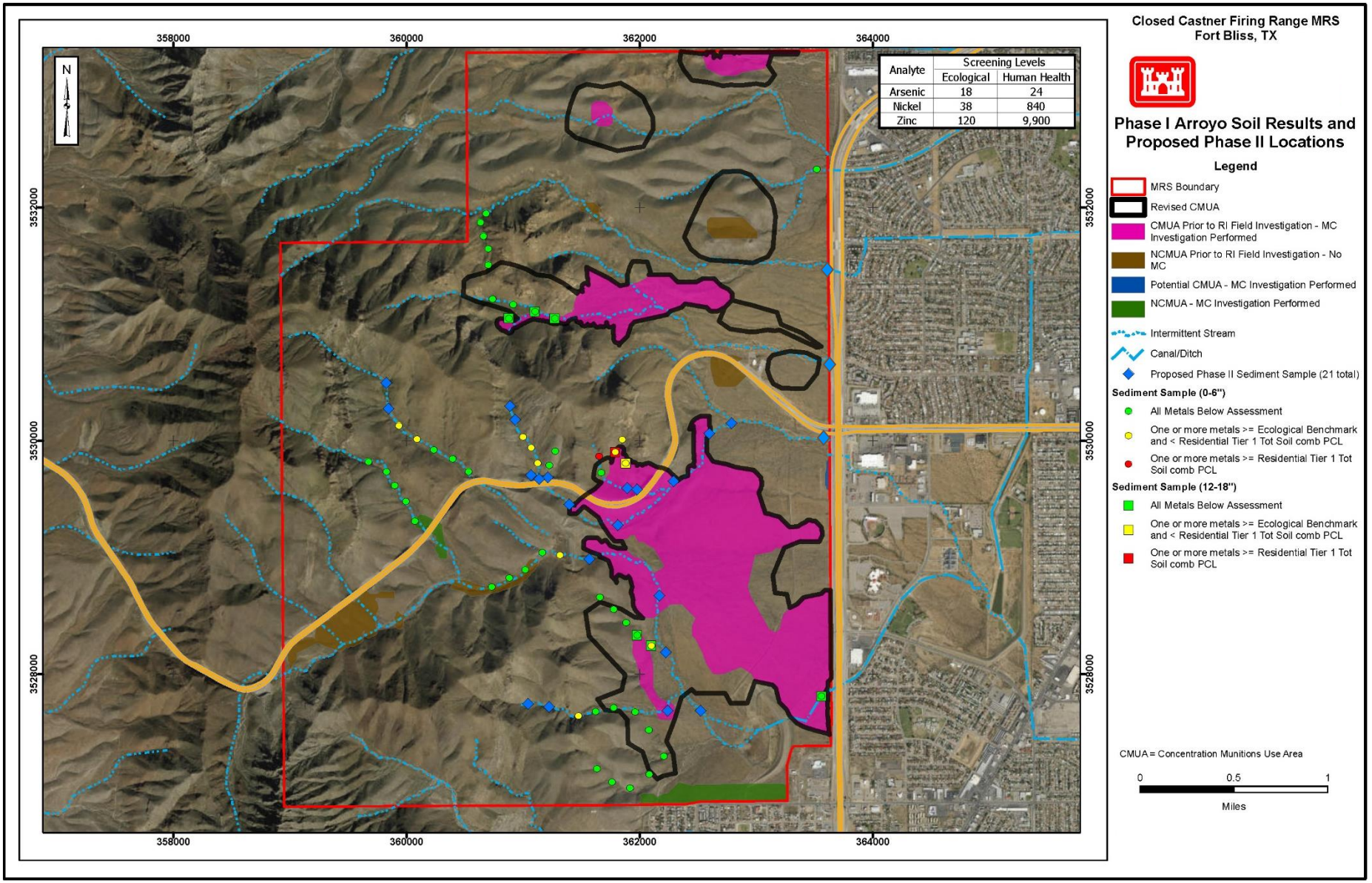
ISM Results - Metals



Phase II ISM Locations



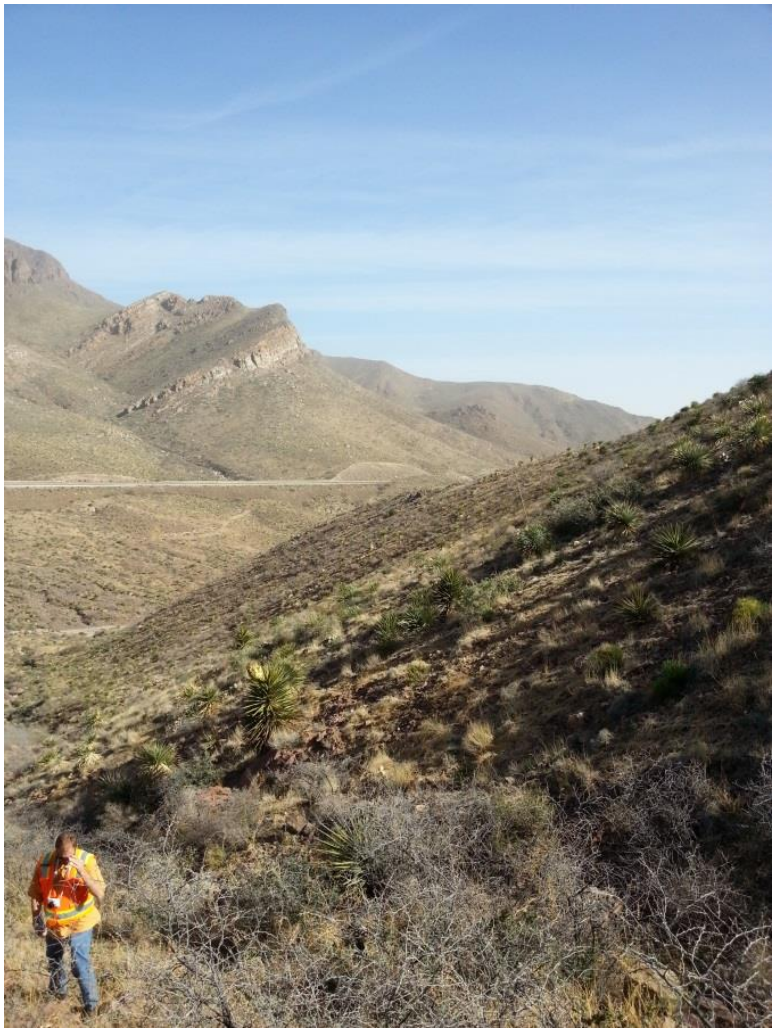
Phase I Sediment Results & Phase II Locations



Upcoming Project Schedule

Task	Expected Timeframe
Phase II Analytical Results	Early April 2017
Draft RI Report	~ May 2017
Castner Range Public Meeting	~ July 2017
Draft Final RI Report	~ August 2017

Questions?



Area of Interest North of Castner Range Remedial Investigation/Feasibility Study

Restoration Advisory Board Meeting

28 March 2017
6:30 PM

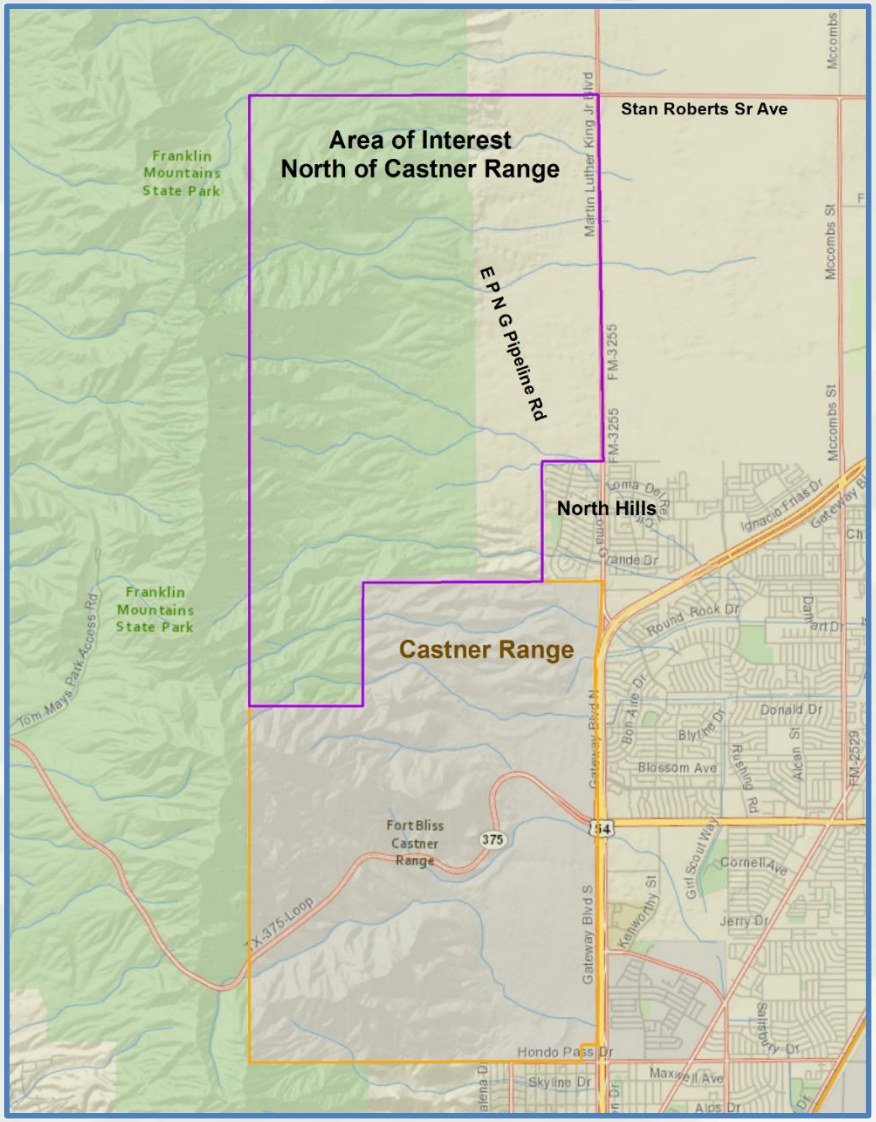
Project Overview

The Area of Interest (AOI) North of Castner Range is located in El Paso County, Texas, north of the closed Castner Range.

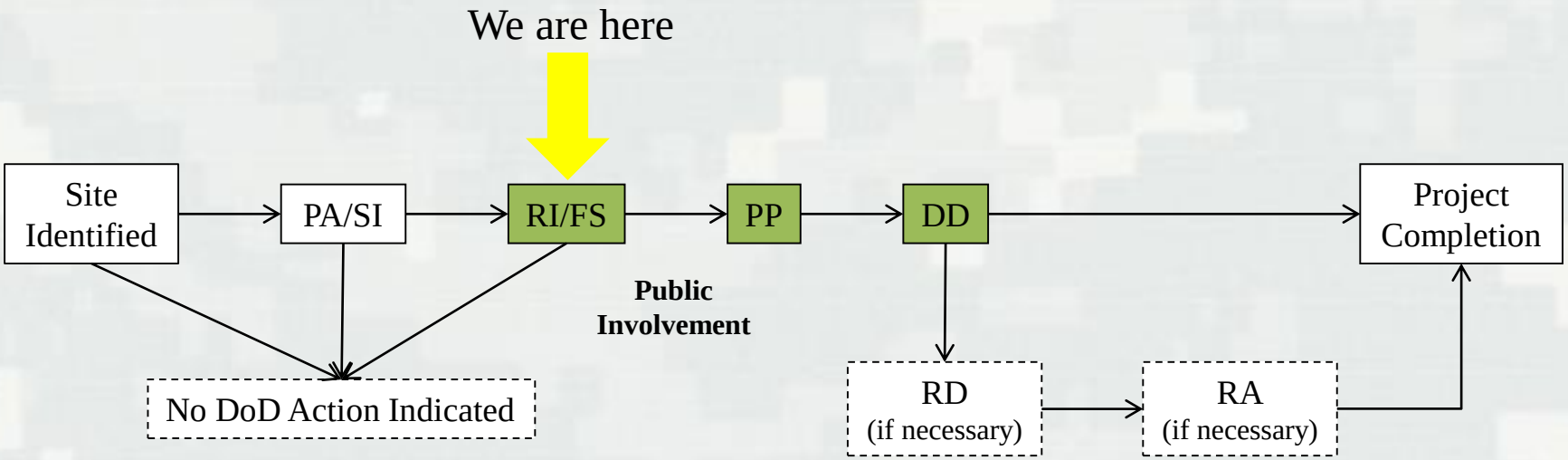
AOI North of Castner Range was never owned nor actively used by Fort Bliss.

Western portion of the AOI is owned by Franklin Mountains State Park and eastern portion owned by the City of El Paso.

North Hills neighborhood lies to the southeast and a quarry is in operation north of the AOI.



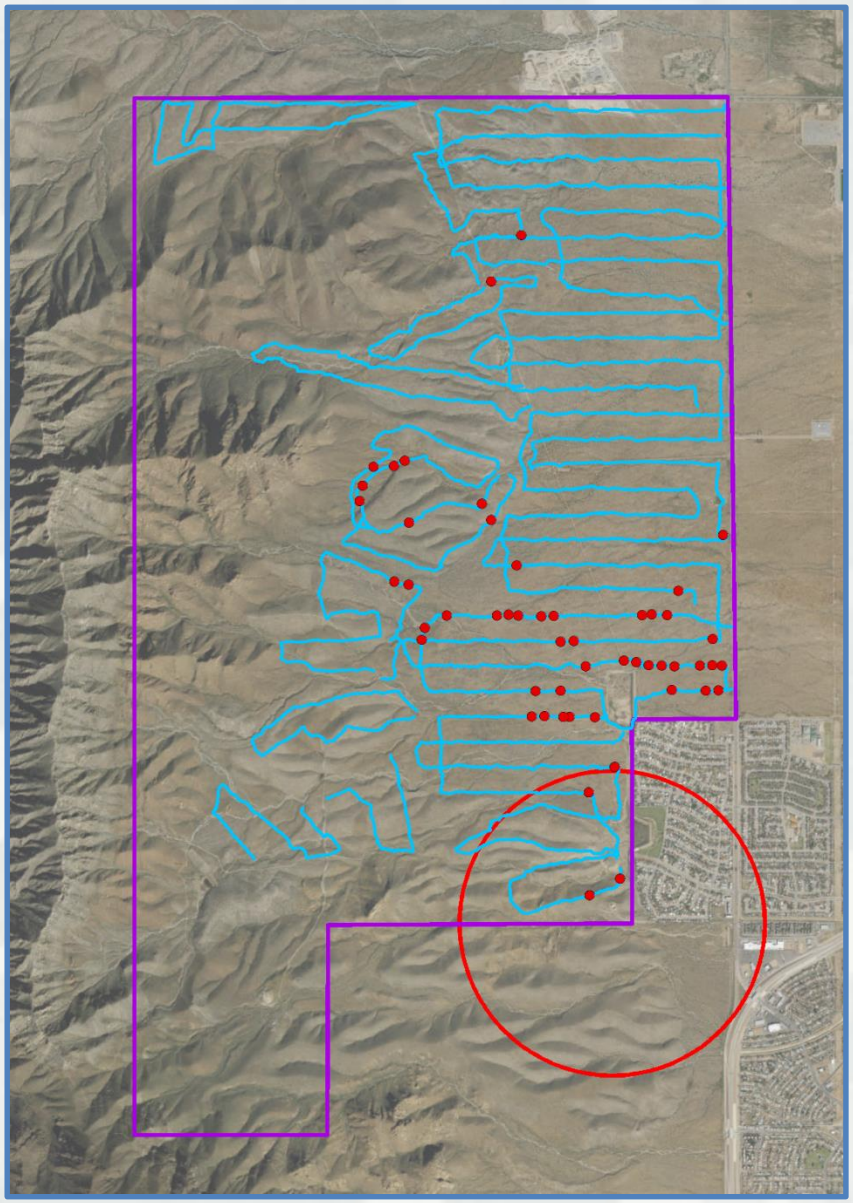
MMRP/CERCLA Process Flow



A removal action may be initiated at any time during the process if human health or the environment are in immediate danger

DD	Decision Document
FS	Feasibility Study
PA	Preliminary Assessment
PP	Proposed Plan
RA	Remedial Action
RD	Remedial Design
RI	Remedial Investigation
SI	Site Inspection

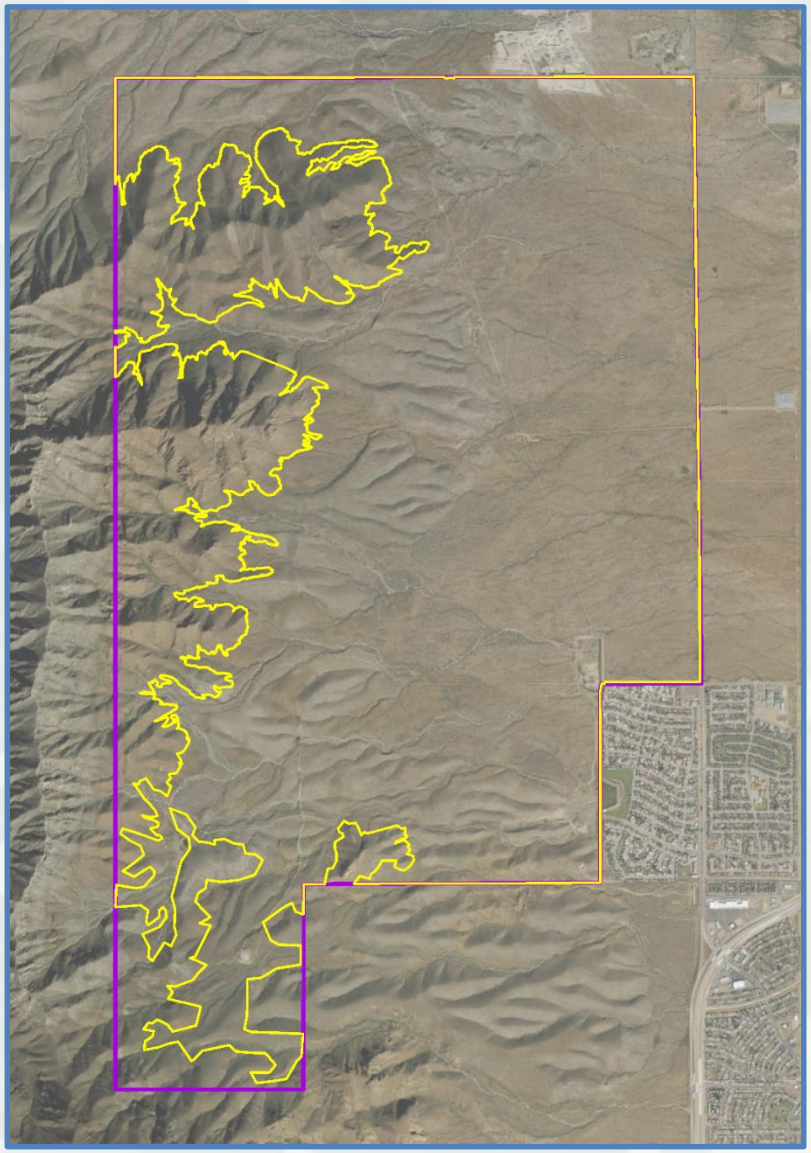
Site History



- Munitions debris (MD) items were identified during background sampling for Castner Range.
- A munitions and explosives of concern (MEC) reconnaissance survey was completed by the Corps of Engineers to focus future RI efforts.
- MD items were found during the survey including expended 75mm Shrapnel projectiles and fragments.
- Possible kick-out debris from the nearby open burn/open detonation (OB/OD) area or from overshoot during training exercises.

Remedial Investigation Area

- All accessible areas less than 30% slope will be investigated.
- A digital elevation model (DEM) was used to calculate slope.
- Total of approximately 5,860 acres were calculated to be less than 30% slope.



Current Planning Document Schedule

Planning Document	Status
Final Project Management Plan (PMP)	Complete
Final Quality Assurance Surveillance Plan (QASP)	Complete
Site Safety and Health Plan/Accident Prevention Plan (SSHP/APP)	Internal Review
Draft Explosives Site Plan (ESP)	Army Review
Draft Quality Assurance Project Plan (QAPP)	Internal Review
Historical Records Report (HRR)	In Progress
Community Relations Plan (CRP)	In Progress

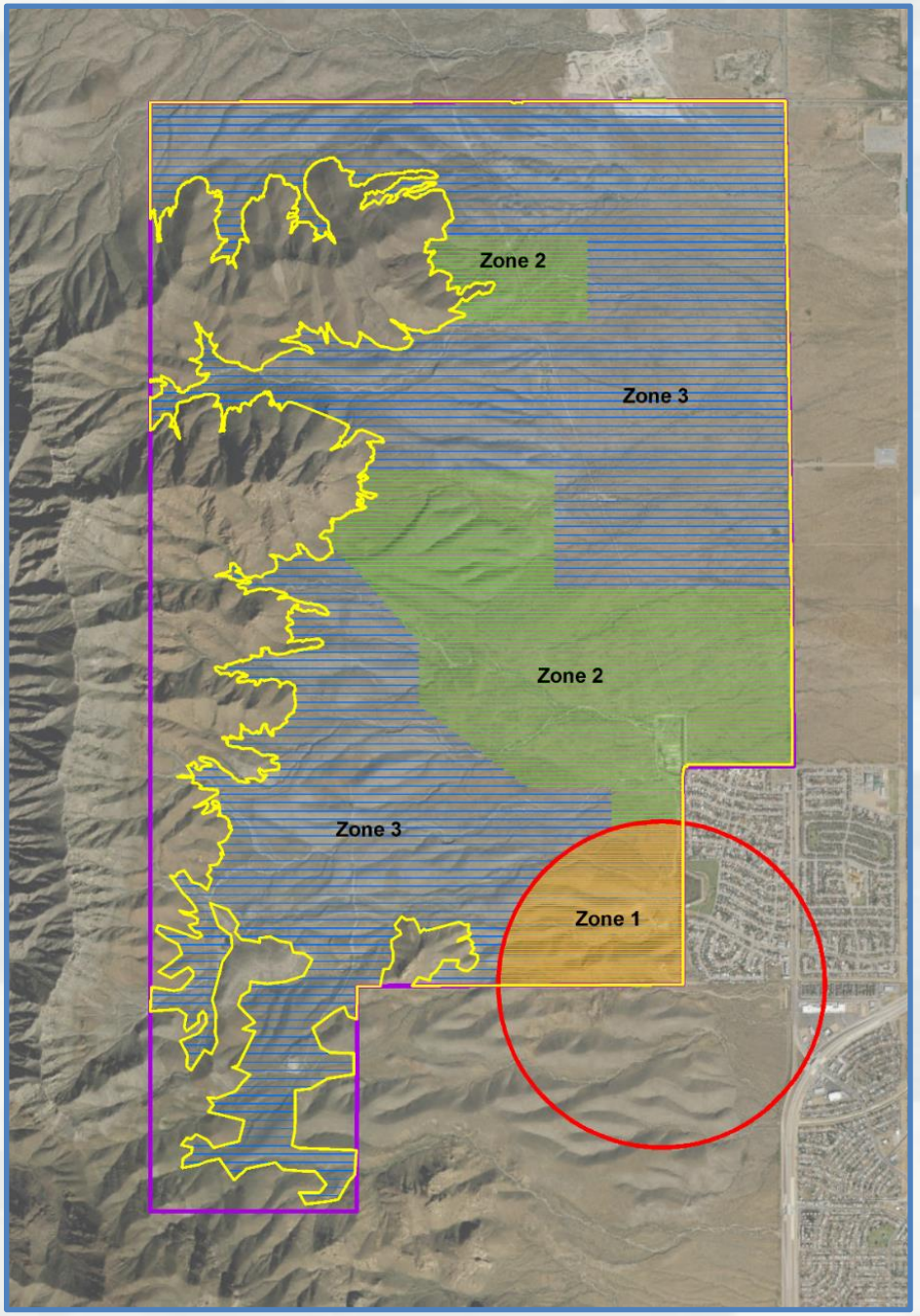
General Approach – MEC Investigation

The investigation area will be divided into three distinct zones based on the likely distribution of MEC and related subsurface geophysical anomalies.

(Zone 1) 330 acres within the estimated kick-out area of the former OB/OD range, which is most likely to contain MEC items.

(Zone 2) 1,456 acres in the portions of the AOI that USACE recommended for RI activities based on earlier investigation findings.

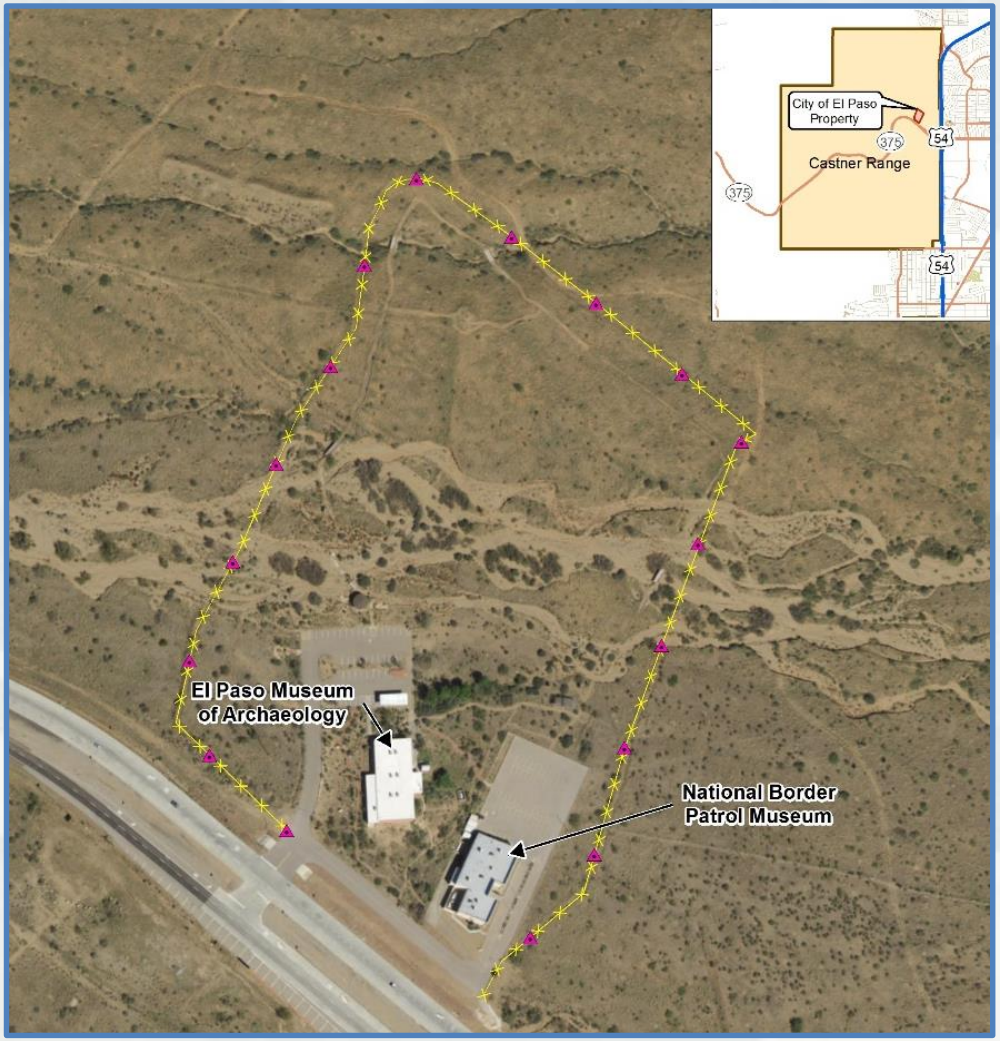
(Zone 3) 4,074 acres in remaining portion of AOI.



General Approach – MC Investigation

- Only soil samples will be collected. Groundwater will not be sampled (depth to groundwater is 300-500 feet bgs)
- Use a combination of biased composite sampling and incremental sampling (IS) to collect representative soil samples.
  - Composite samples: MEC demolition locations (Blow-in-place (BIP) or consolidated shot)
  - Incremental samples: Collected from potentially MC contaminated areas where MEC and MD are concentrated.

Archeology and Border Patrol Museums Fencing and Signage



Upcoming Project Schedule

Task	Status
Field Investigation	June through September 2017
TPP Meetings (3 total)	Meeting 1 - complete January 2017 Meeting 2 – Summer 2017 Meeting 3 – Fall 2017
RAB Meeting	Today
Public Meeting	Summer 2017
Final RI Report	Spring 2018
Final FS Report	Fall 2018
Final PP	Spring 2019
Final DD	Fall 2019

Questions/Comments