Site 39 Soil Remediation
OU2 Landfill Capping
Groundwater Treatment Plant Relocation

Community Involvement Mobile Workshop
March 1, 2014
Technical Review Committee
March 4, 2014

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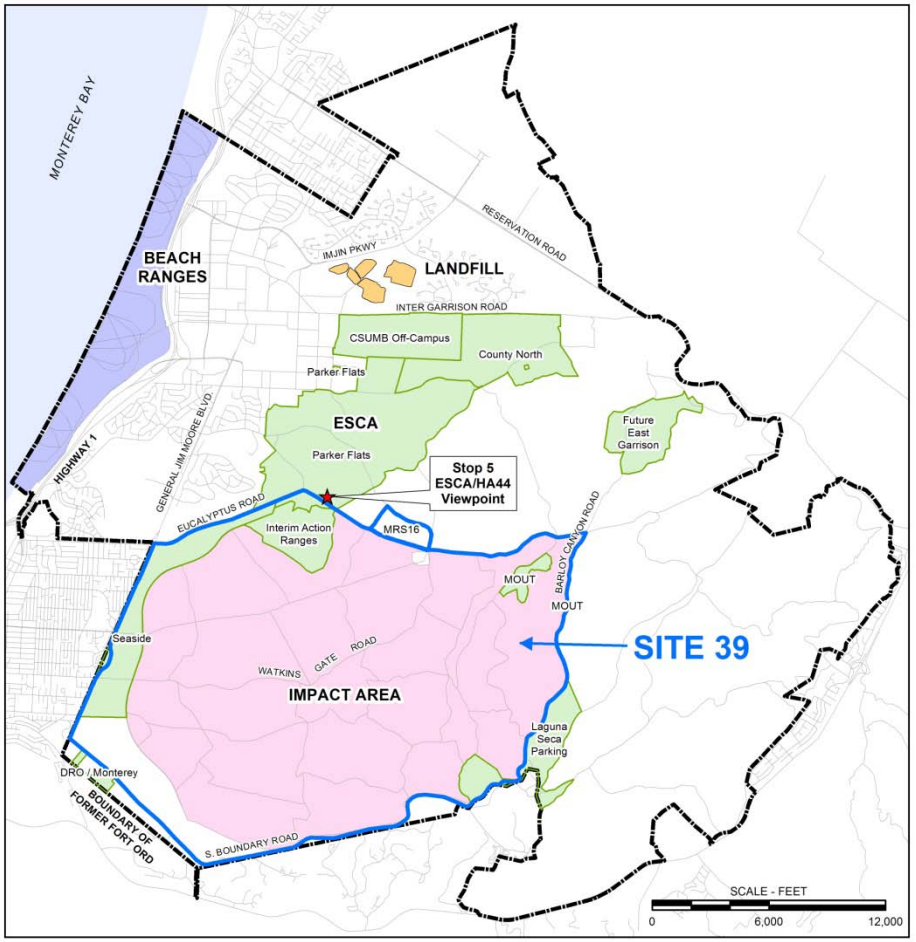
CB&I

Site 39

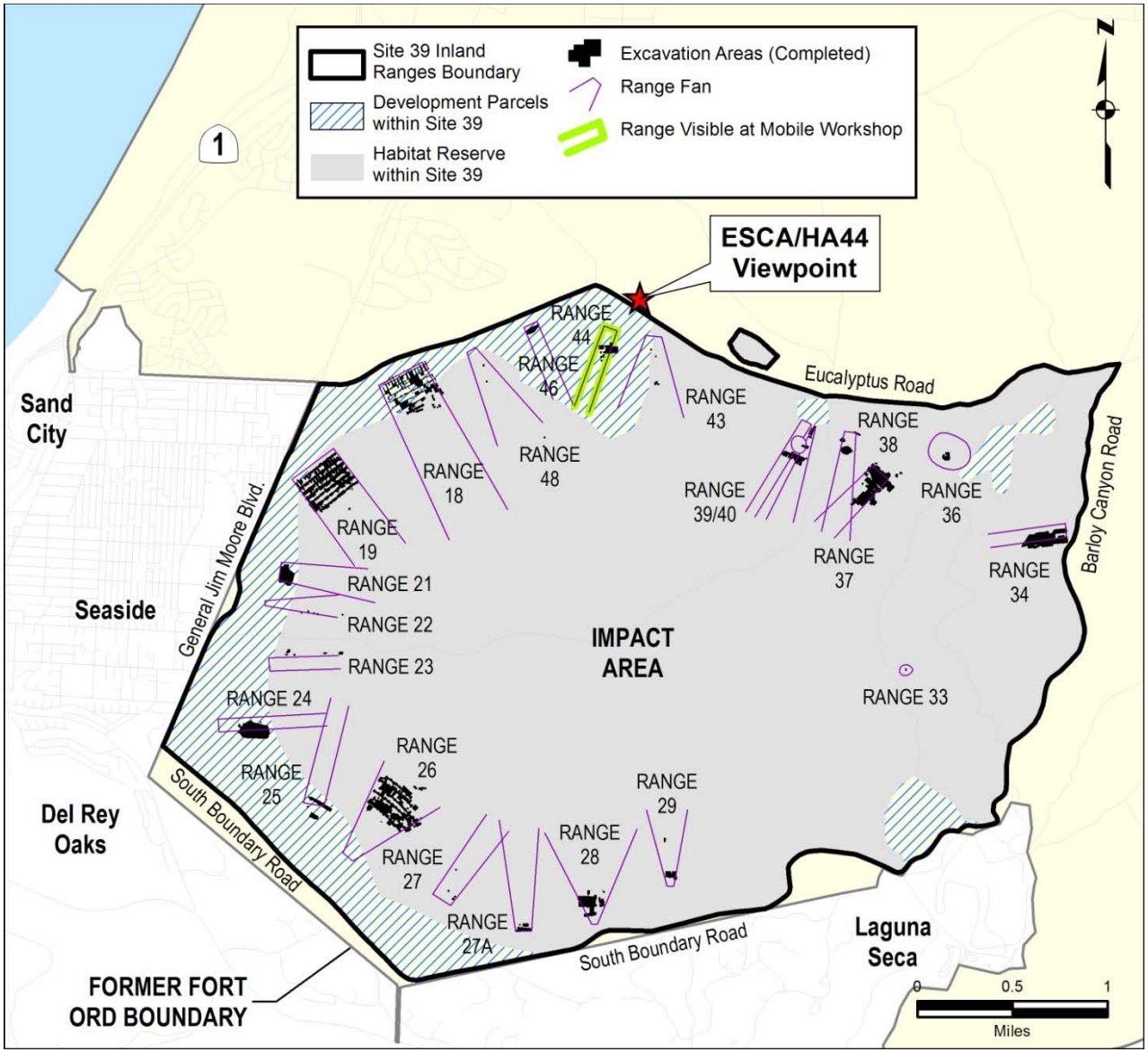
- Ranges or “historical areas” (HAs) used for live fire training with various weapons
- Mostly within the 8,000 acre Impact Area
  - Munitions issues are addressed by the Track 3 Record of Decision (ROD)
  - Chemical contamination is addressed by the Basewide Remedial Investigations Sites ROD (1997) and the ROD Amendment (2009)



Site 39 Remediation

- Removal of soil with lead or explosives above levels of concern for human health and ecological receptors
- Remediation to below average concentrations allows areas with high habitat quality to remain in place
- 80 HAs in Site 39
  - 6 HAs remediated in 2003 (60,000 cubic yards)
  - 18 HAs remediated in 2010 to 2013 (150,000 cubic yards)
  - 42 designated as no further action
  - Known Site 39 soil remediation has been completed
  - Remaining HAs require further evaluation following munitions response actions

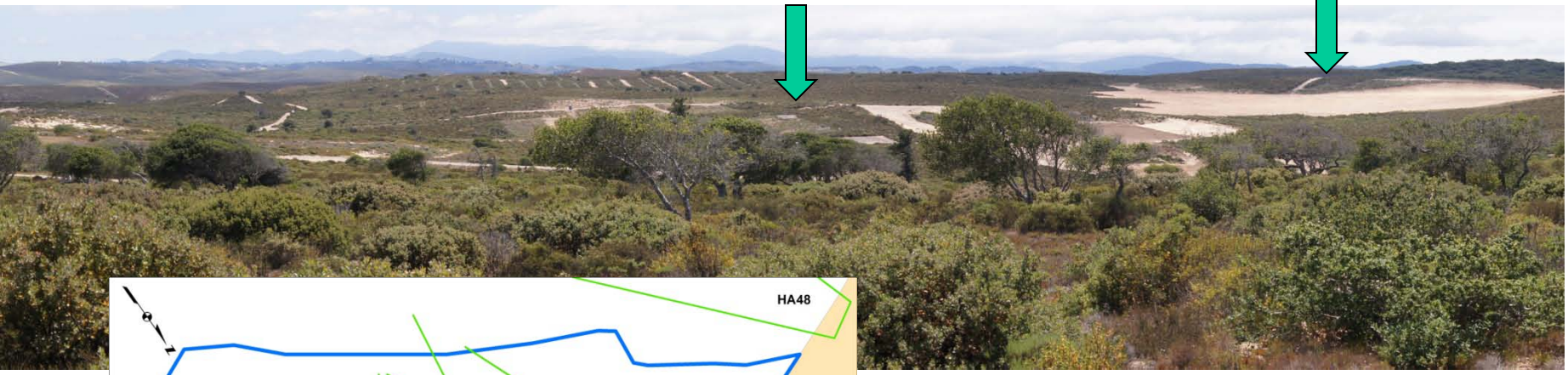
Completed Range Remediation

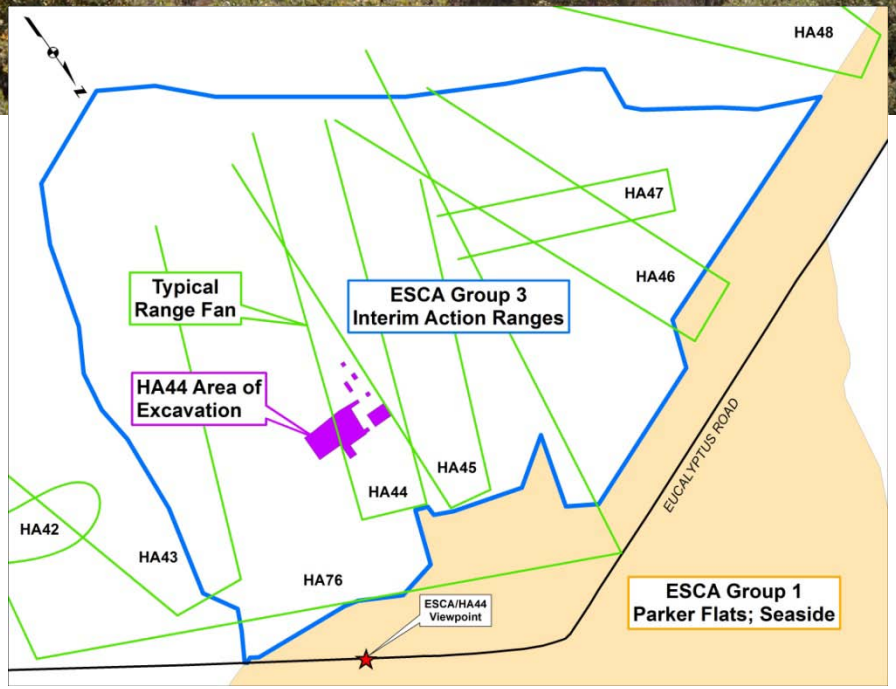


ESCA and HA 44 Viewpoint

HA 44 soil remediation

ESCA MEC remediation



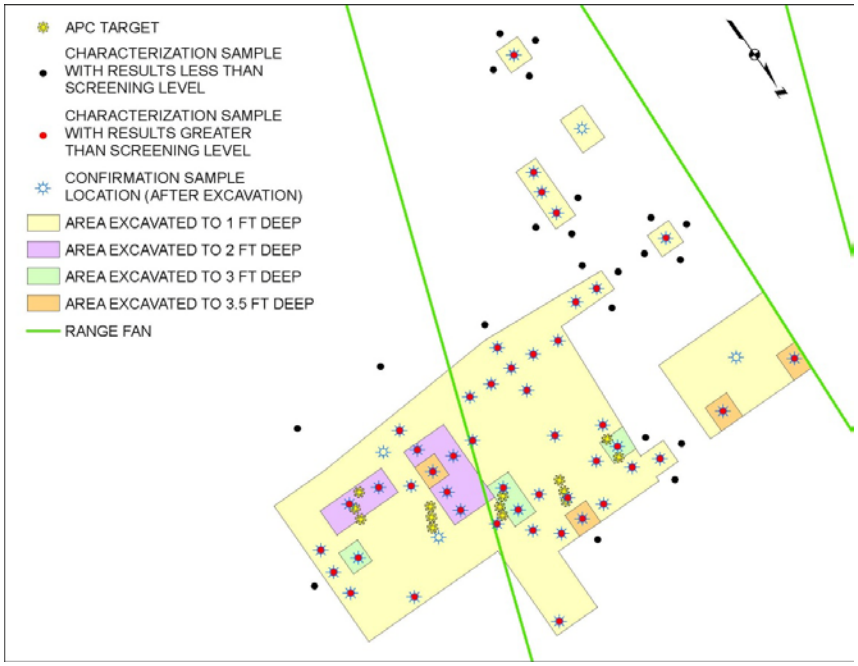


View south from Eucalyptus Road

HA 44 Completed in 2010

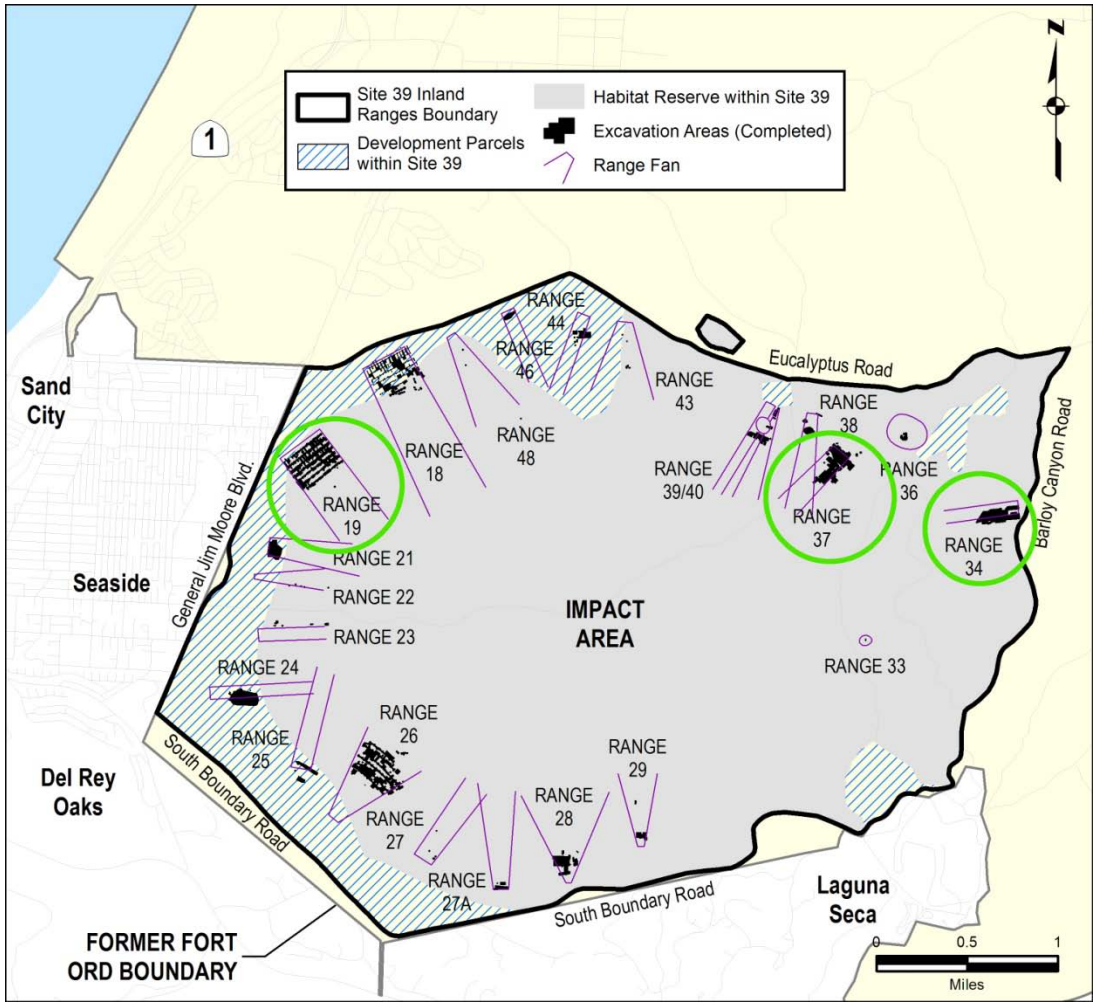
Rockets or mortars fire at isolated targets

Mixed Use Range
Sampled for Explosives and Metals

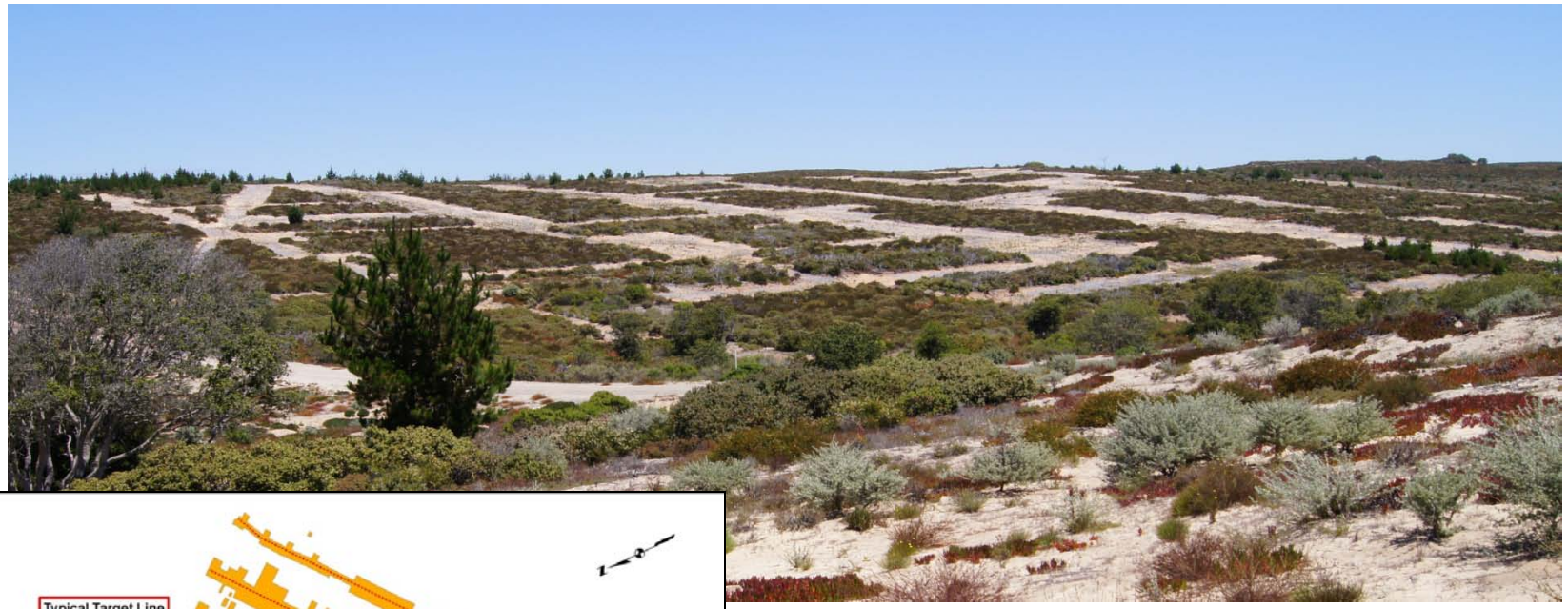


Residues from explosives found near targets
Munitions remediation needed before soil excavation

Examples of Range Remediation
Not visited during mobile workshop



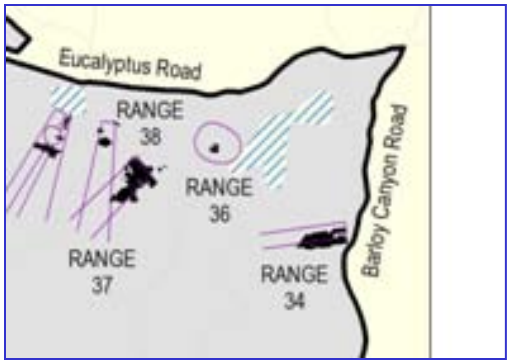
HA 19 Remediation Completed in 2010



View from General Jim Moore Boulevard

HA 34 Excavation Completed in 2011

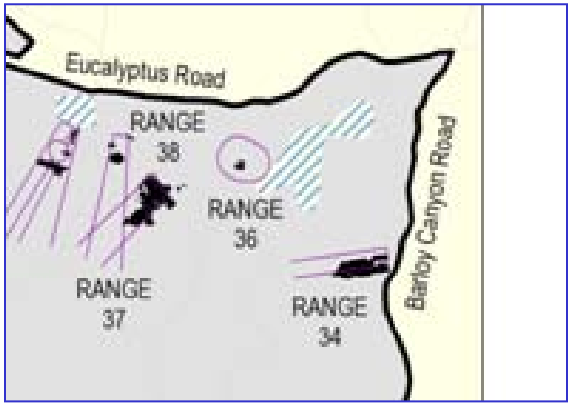
29,000 cy excavated



HA 34 Erosion Control Completed in 2013

HA 37 Completed 2013

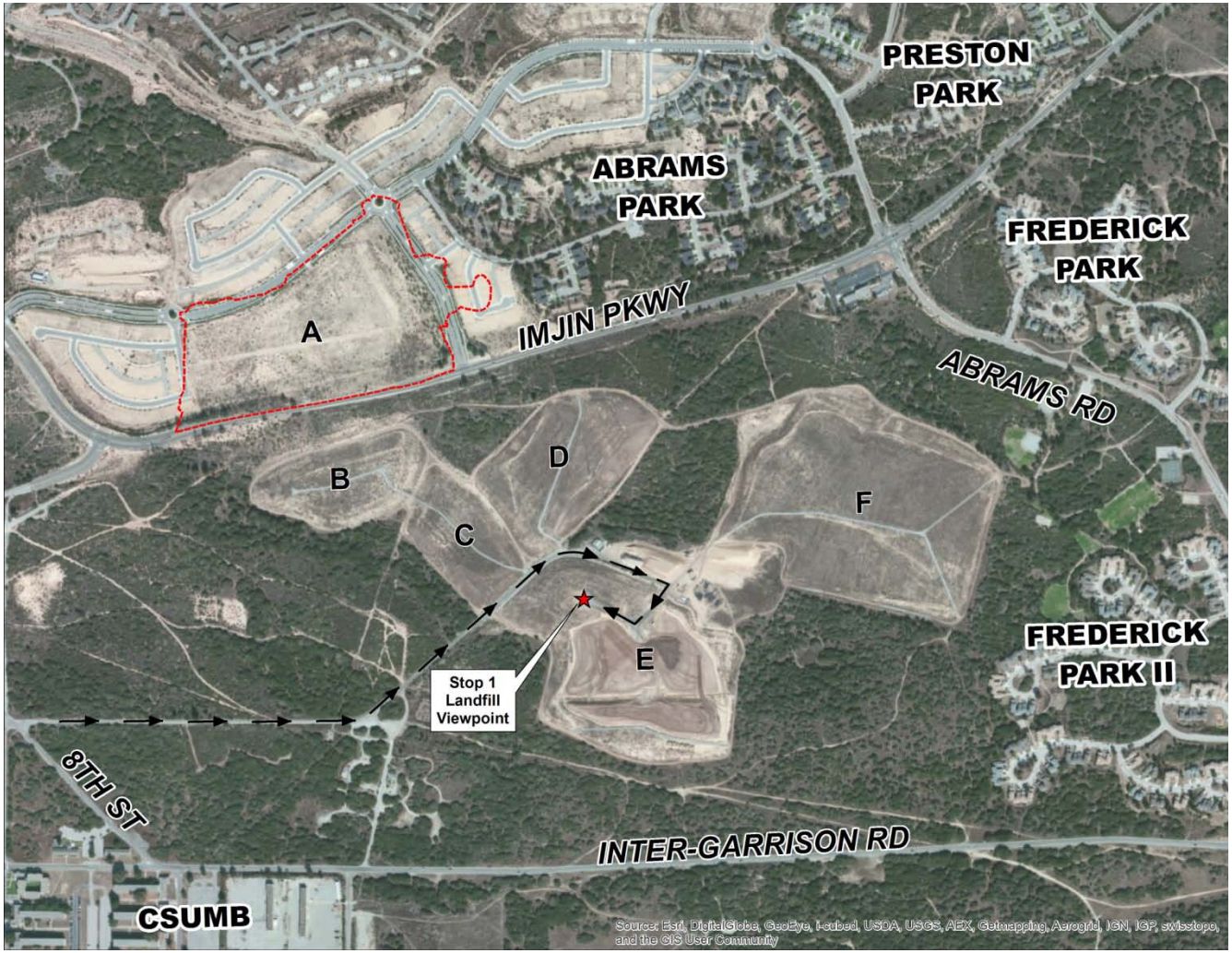
33,600 cy excavated



Operable Unit 2 (OU2) Landfills

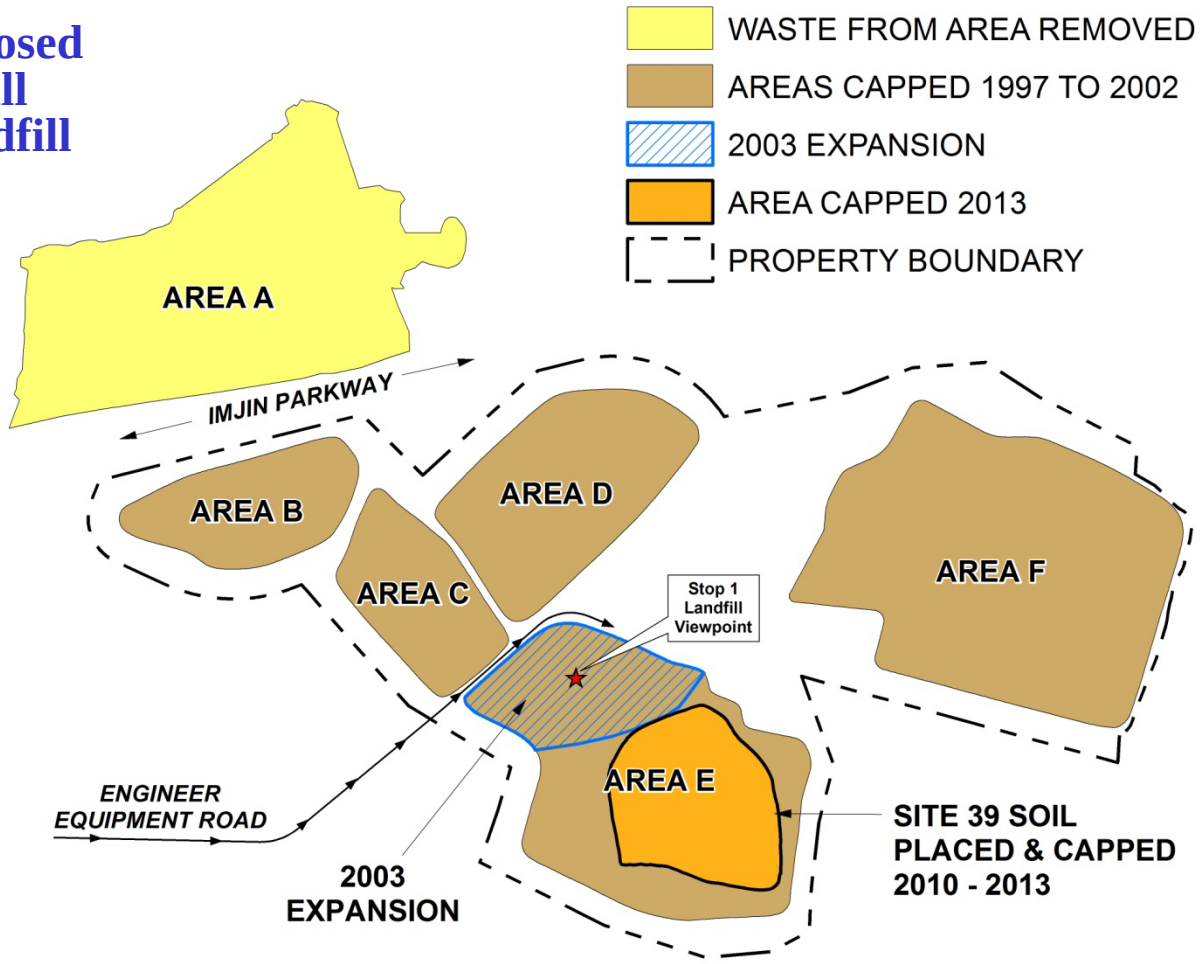
- Used for residential and on-base waste disposal, 1956 to 1987
- Record of Decision 1994
- Cover constructed in 3 phases
  - 1997 to 1998
  - 2002 to 2003
  - 2013
- Landfill incorporates soils from other Fort Ord remediation sites, placed under the cover

Aerial View

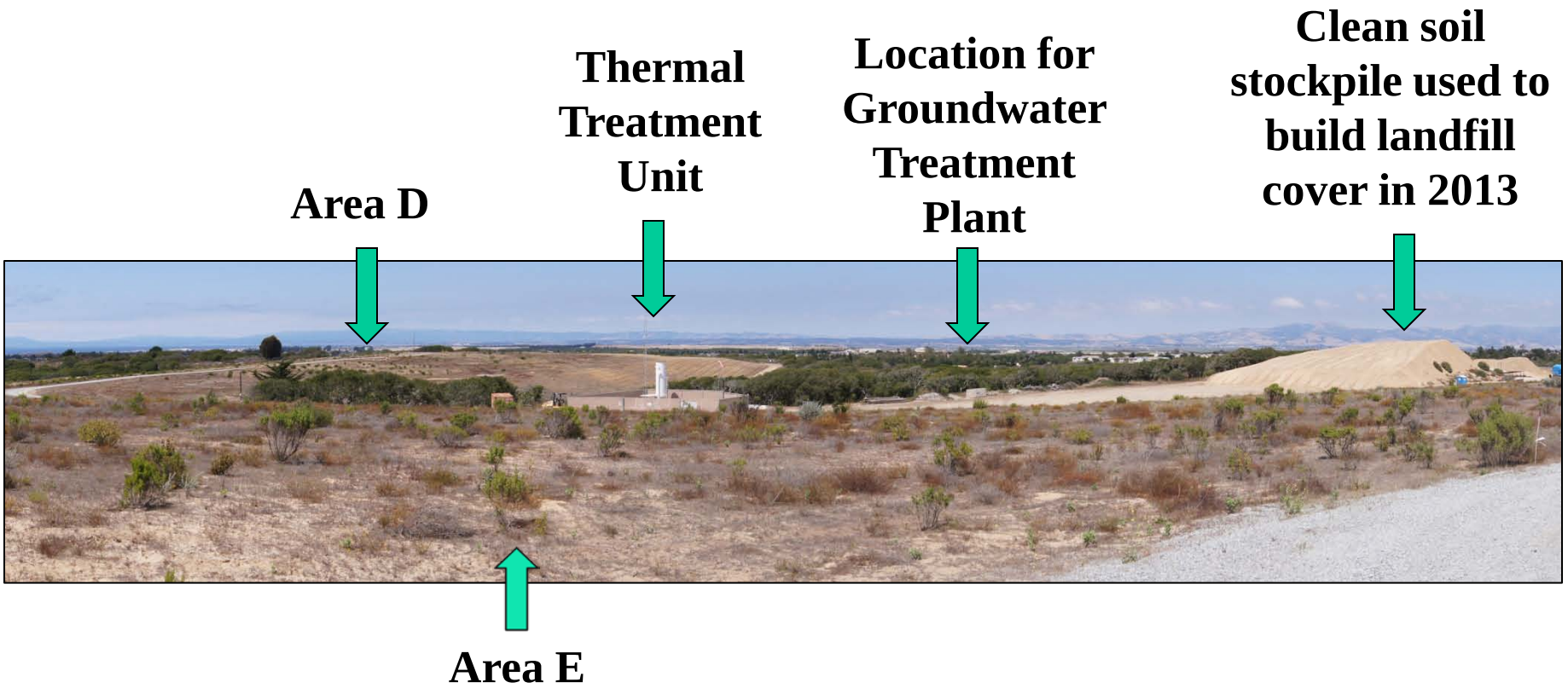

PRESTON PARK
ABRAMS PARK
FREDERICK PARK
IMJIN PKWY
ABRAMS RD
A
B
C
D
E
F
Stop 1 Landfill Viewpoint
FREDERICK PARK II
8TH ST
INTER-GARRISON RD
CSUMB
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Landfill Status

Area A was clean closed by transferring all wastes to other landfill areas



Landfill Panorama from Area E (2011)



Landfill Panoramas from Area E During Placement of Site 39 soil in 2013

Area F

Ramp for unloading Site 39 soil

Area E now capped

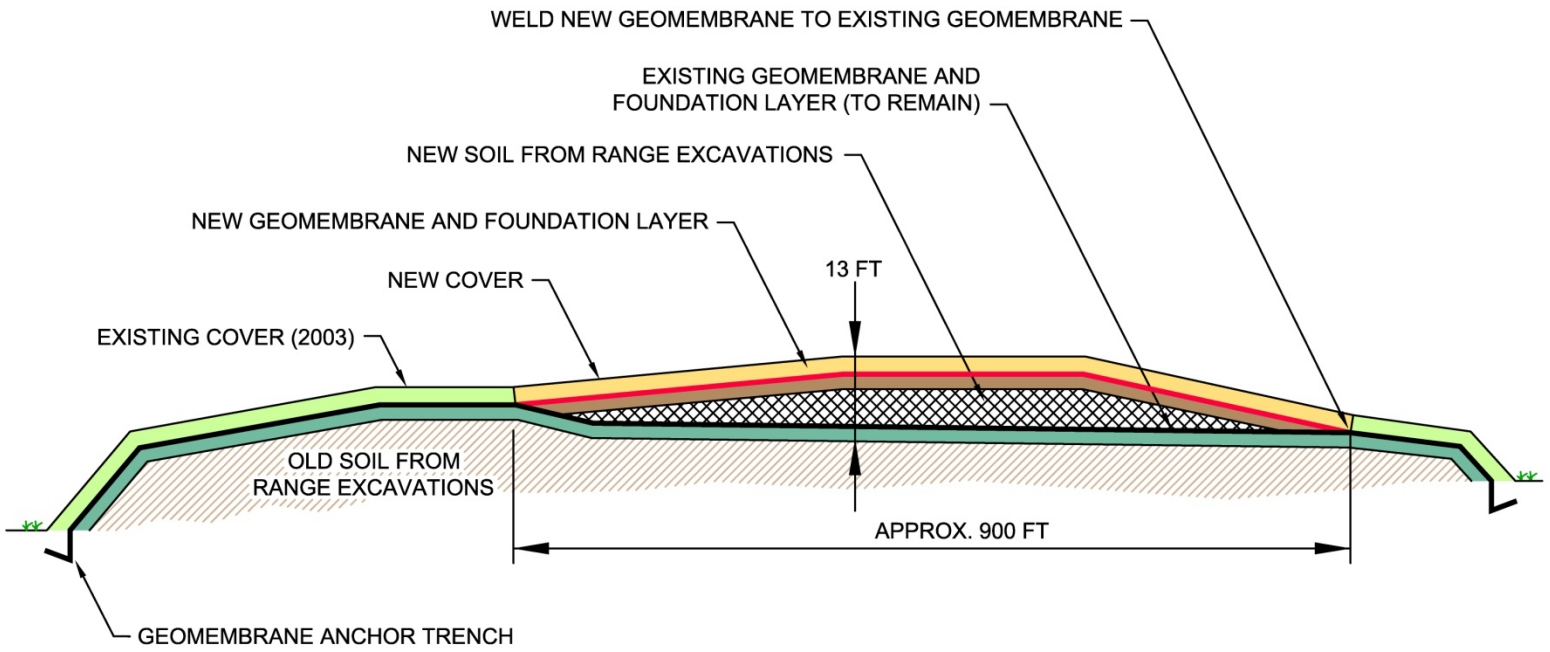
Transportation of Site 39 Soils to the Landfill

Transport using covered trucks

Placement at the landfill

Area E Landfill Cap Construction - 2003

Cross Section for Cover Installed in 2013



Capping Area E in 2013

Factory inspection

Laying out rolls

Joining seams

Welding seams

Pushing out vegetative cover

Hydroseeding

Capping Area E in 2013

Completed geomembrane

Completed cover

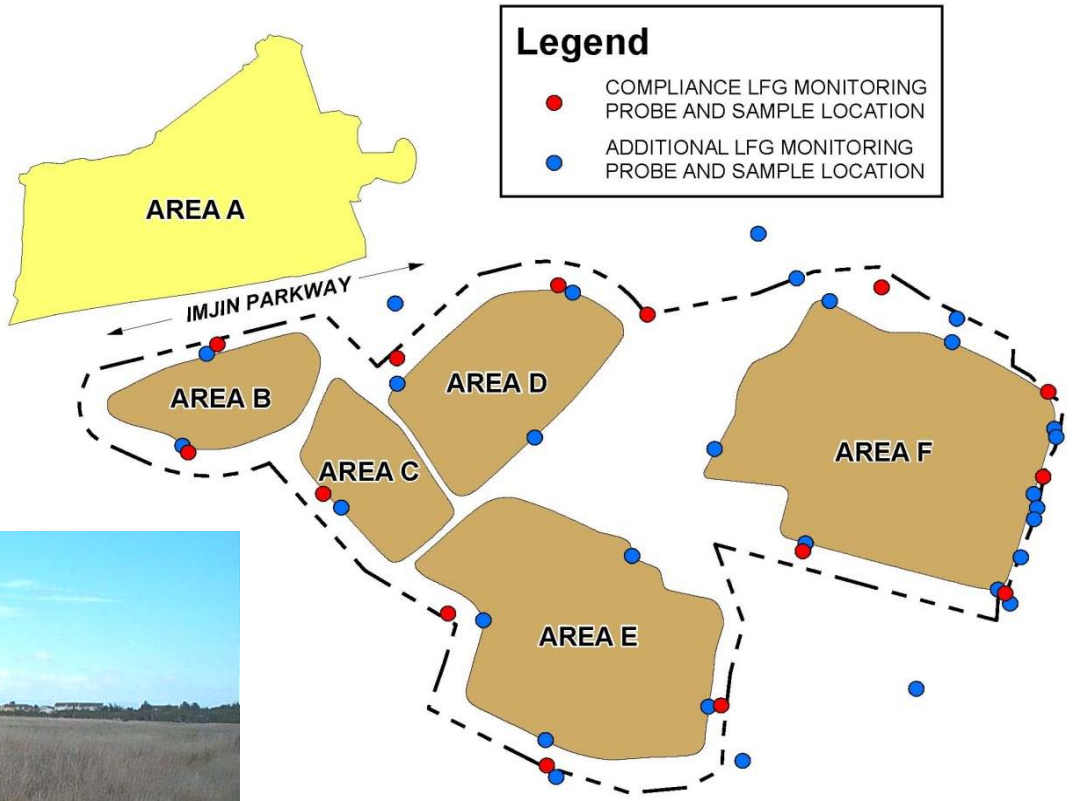
Landfill Gas

- Produced in all landfills when organic waste decomposes
- Gases are mostly methane and carbon dioxide with small amounts of other organic gases (similar to compounds that have been found in groundwater beneath the landfill)
- Monitoring for landfill gas required by regulation is part of routine maintenance
- Landfill gas is extracted and treated

Landfill Gas Monitoring Locations

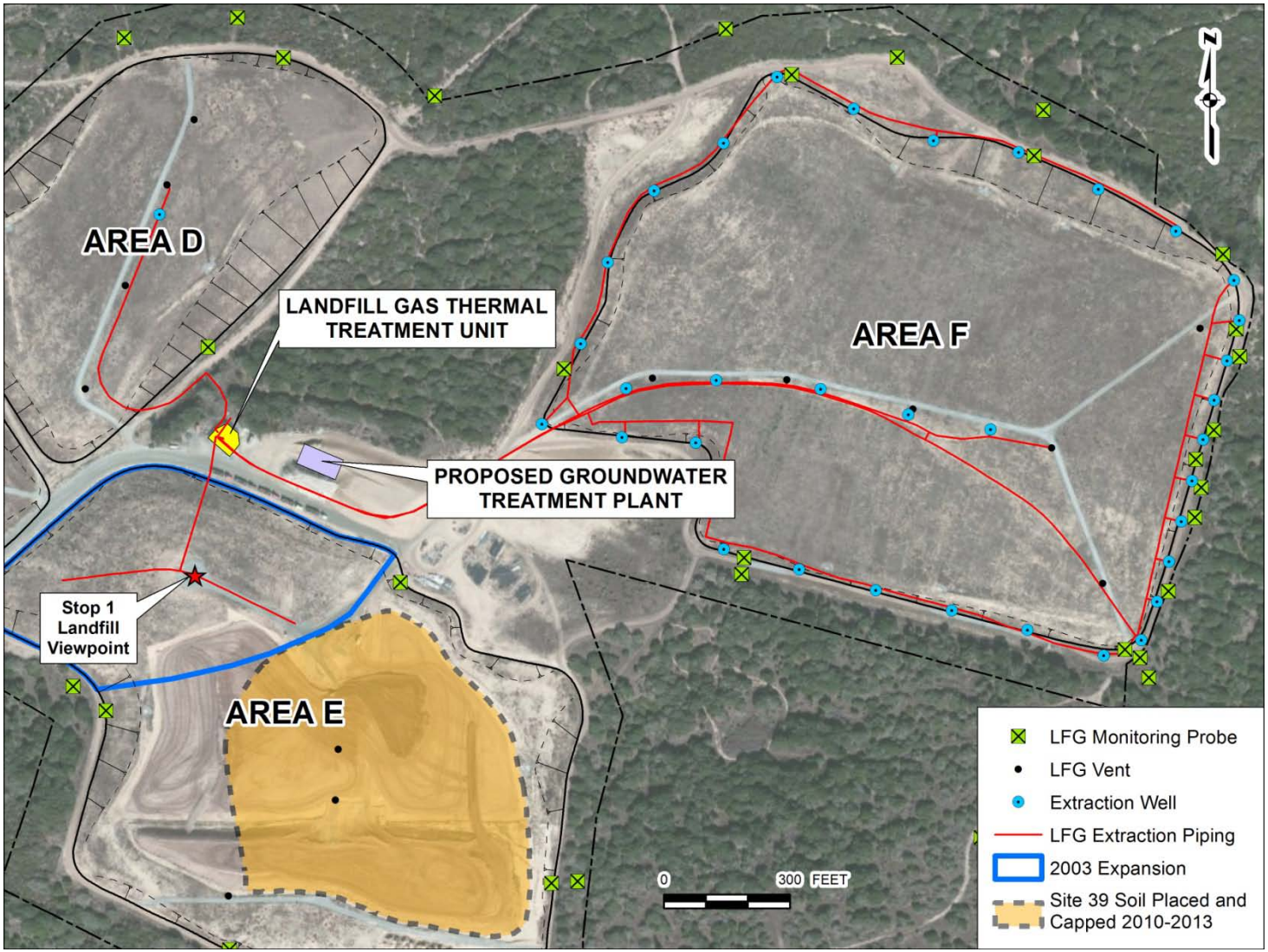
Monitoring is required by State regulation to show that methane does not exceed 5% at landfill perimeter

Monitoring of probes and ambient air has demonstrated no impact to surrounding community

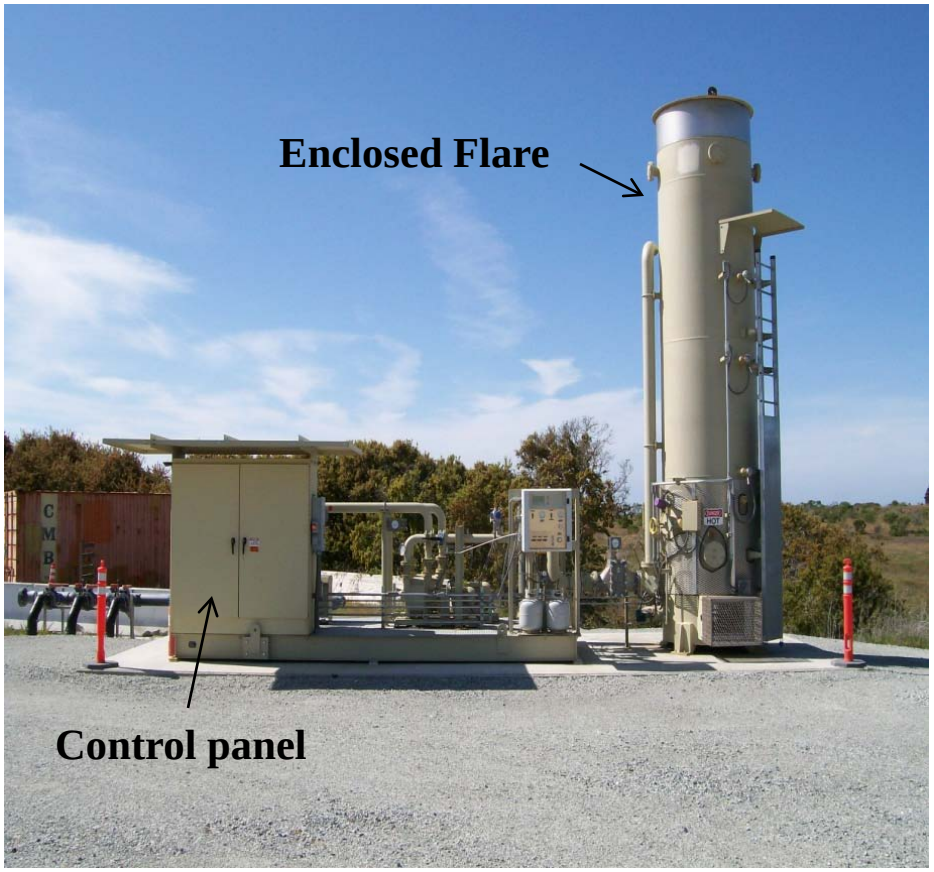


Methane is monitored below ground with "perimeter probes" installed all around the landfill property boundary

Landfill Gas Extraction and Treatment

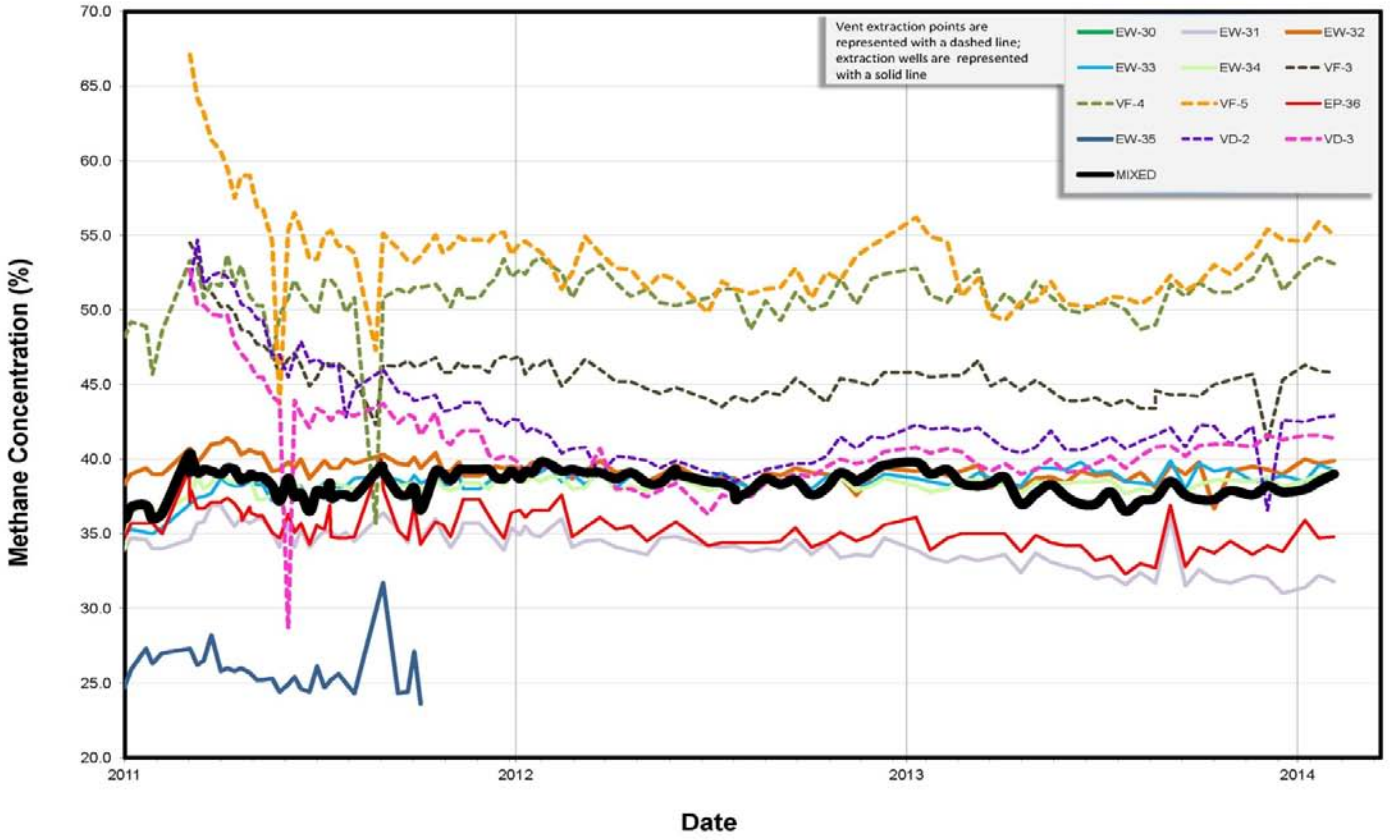


Landfill Gas Thermal Treatment Unit (TTU)



- Industry standard design
- High temperature destruction of organic compounds including methane
- Operating since August 2006
- Destroys volatile organic compounds that otherwise potentially could reach groundwater or the atmosphere

Methane Concentration vs. Time
OU2 Landfill Extraction Sources
2011 to present



TTU is operated intermittently to maintain a constant methane concentration at the TTU

Army Plans to Move the Treatment Plant to the OU2 Landfill

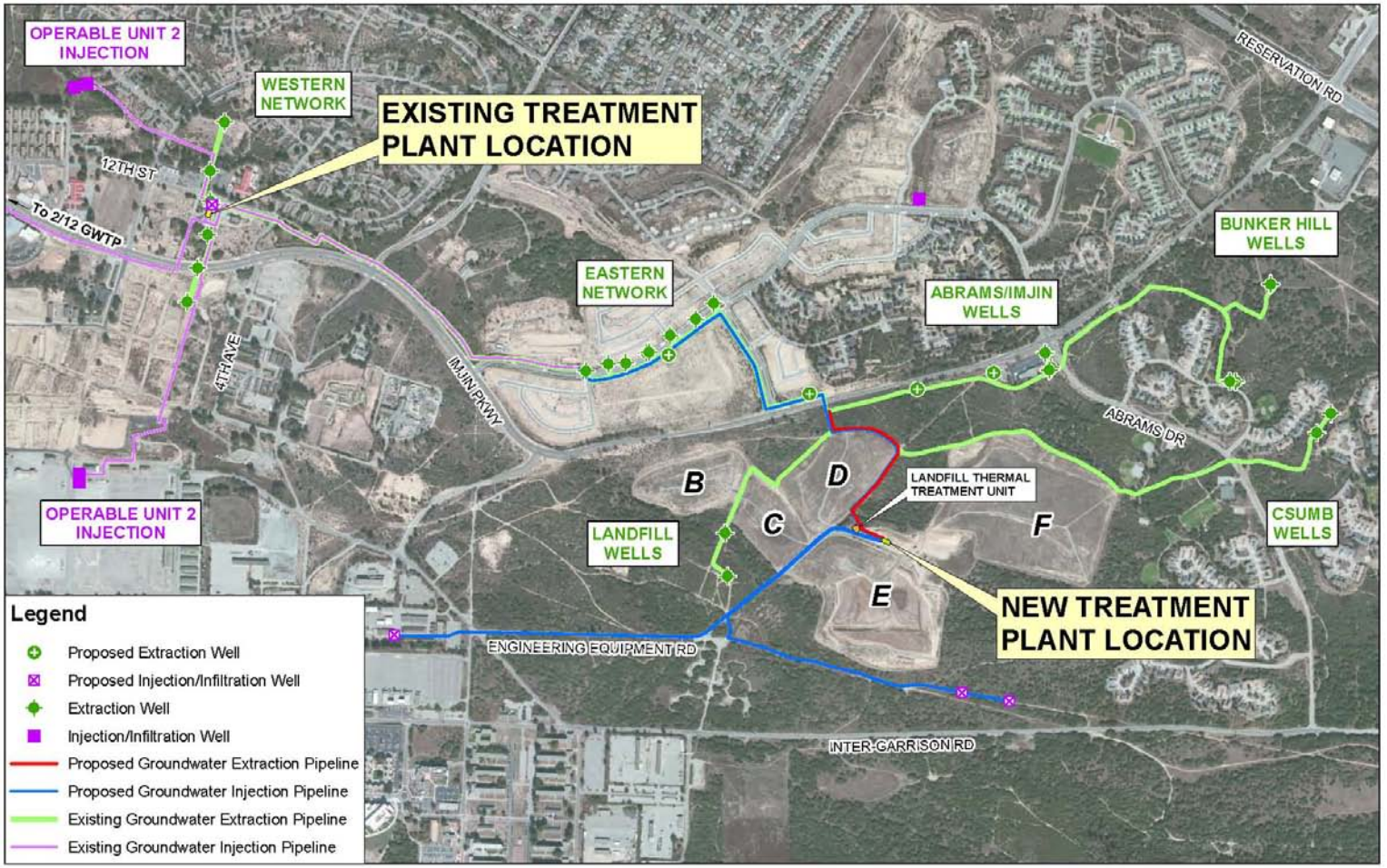
- Frees up existing location for development
- Fits in with refurbishment of the existing equipment
- Groundwater extraction is now focused in the landfill area where new wells and pipelines will be installed
- Consolidates operations next to existing thermal treatment unit
- Same remedy: extraction, treatment with granular activated carbon, injection of treated water
- Can be achieved with only a short treatment shut down

Operable Unit 2 Groundwater Treatment Plant - Current Location on 12th St

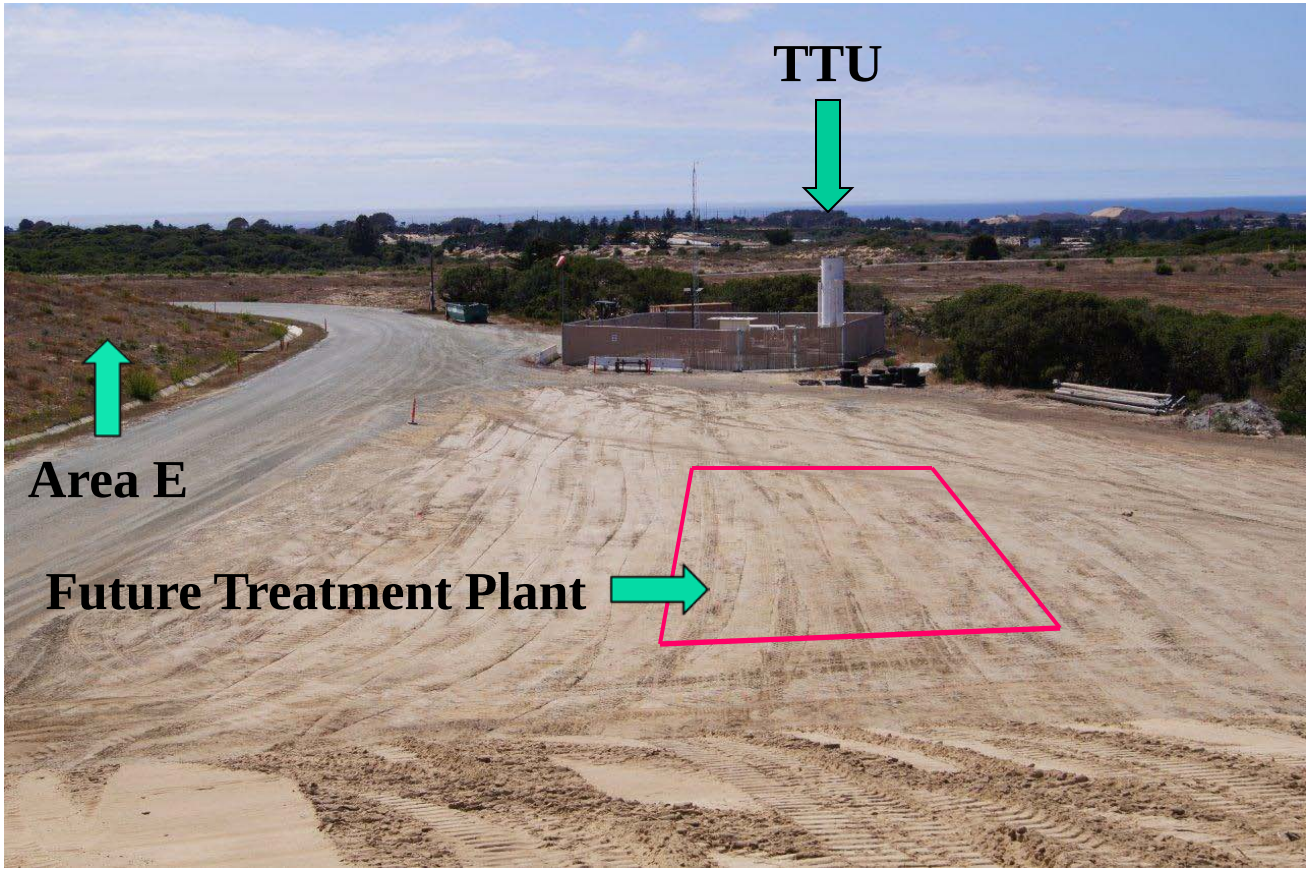
Current Aerial View

View from 12th St.

OU2 Groundwater Extraction System



New Location for OU2 Groundwater Treatment Plant



For More Information

Visit the Army's website at:

www.fortordcleanup.com

Fort Ord Administrative Record

Building 4463 Gigling Road, Room 101

Ord Military Community, CA 93944-5008