U.S. Army Corps of Engineers
Huntsville Center
Los Angeles District

Community Update

U.S. Army

Update 2

1996 Ordnance and Explosives Investigation At East Elliott, San Diego, California

The U.S. Army Corps of Engineers (USACE) is preparing a series of Community Updates to inform citizens of the status and findings of ordnance and explosives (OE) cleanup actions at East Elliott, located in San Diego County. East Elliott is a 3,200-acre (5-square mile) area that lies within the boundaries of the City of San Diego. The site is bordered by Marine Corps Air Station Miramar, the City of Santee, State Highway 52, and Mission Trails Regional Park (Figure 1).

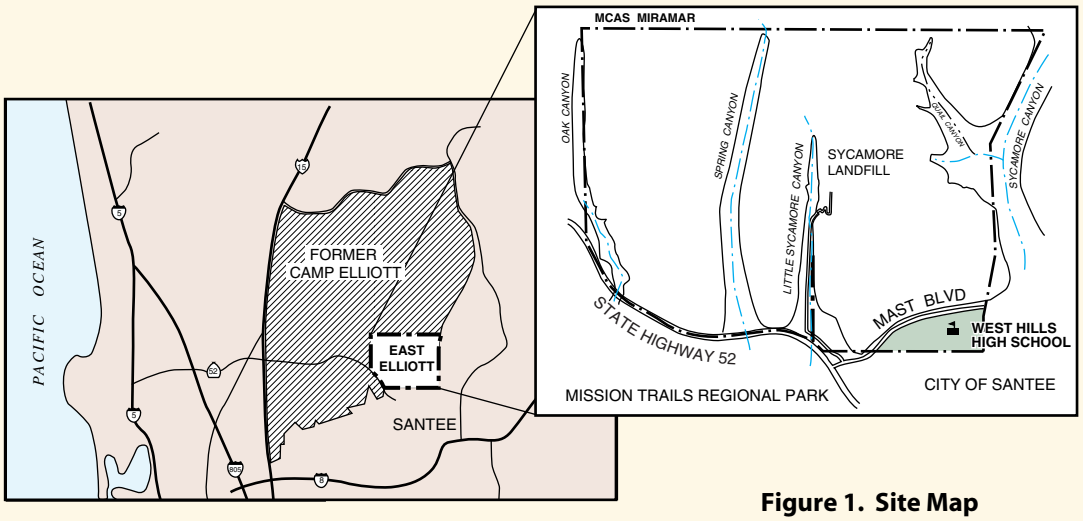


Figure 1. Site Map

Site Background

East Elliott comprises the southeast corner of the former U.S. Marine Corps Camp Elliott, a training facility that was active from 1917 (as Camp Kearney) to 1960 and once occupied 30,500 acres. During the 1940s and 1950s live-fire training involving tanks and artillery resulted in the presence of OE, including unexploded ordnance (UXO), within the area of East Elliott. This community update discusses an OE investigation that was conducted by USACE in 1996 to assess risk potential from OE at East Elliott. The results of the investigation were reported in the Ordnance and Explosives Sampling Draft Removal Report, issued in March 1997. The site investigation was conducted by CMS Environmental Inc., under contract with USACE.

East Elliott Today

The 3,200 acres that comprise East Elliott were sold to private individuals, developers, and the City of San Diego during the period 1963 to 1974. Current land use at East Elliott consists of undeveloped open space and the Sycamore Landfill, a 170-acre Class III privately-operated sanitary landfill. The open space within East Elliott consists of 165 parcels owned by individuals, development firms, two school districts. and a public utility company.

GLOSSARY

Ordnance and Explosives (OE) - OE describes anything related to munitions designed to cause damage to personnel or material through explosive force, incendiary action, or toxic effects. OE may include intact munitions, or munitions fragments.

Unexploded Ordnance (UXO) - Ordnance and explosives that have been primed, fused, armed, or otherwise prepared for action, and have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installation, personnel, or material and remain unexploded by either malfunction, design, or other cause.

The majority of East Elliott is undeveloped at present, and unrestricted access along its southern boundary makes it attractive for a variety of recreational uses, including hiking, mountain biking, jogging, motor biking, horseback riding, and off-road vehicle use. Rock climbers also use several clusters of large boulders located near the southeast corner of the site. Several dirt roads and trails are located along the ridges and canyons.

1996 Ordnance Site Investigation at East Elliott

The 1996 OE investigation was conducted to assess the nature and extent of OE contamination that may be present at the site as a result of past ordnance training at East Elliott. The information gathered during the OE investigation was used in the development of the Engineering Evaluation/Cost Analysis (EE/CA), a feasibility study to examine potential removal actions at East Elliott. The EE/CA, which was finalized in August 1999, calls for OE removal actions for the majority of the areas within the East Elliott boundary. The EE/CA will be more fully discussed in Community Update 4, to be released in October 1999.

To evaluate the nature and extent of ordnance contamination at East Elliott, an OE investigation of the area was conducted by USACE from September through December 1996. The investigation approach included dividing East Elliott into four sectors (Figure 2) for the purposes of evaluating risk and developing recommendations for each sector.

• **Sector 1** (750 acres), including the area adjacent to Marine Corps Air Station Miramar where the proposed City of San Diego landfill between Oak and Spring Canyons would be located.

• **Sector 2** (650 acres), including the area that will eventually be occupied by the Sycamore Landfill under current plans for expansion.

• **Sector 3** (750 acres), including undeveloped open space north of Highway 52 and adjacent to Mission Trails Regional Park.

• **Sector 4** (1,050 acres), which consists entirely of undeveloped open space, and is the area of East Elliott most frequently used for recreational activities.

A total of 89 survey grids, each measuring 100 by 200 feet, were sampled within the four sectors (Figure 3). Brush was thinned within the entire area of each survey grid. The OE observed on the ground surface was mapped and removed. Each survey grid was then swept using a magnetometer and all anomalies were mapped and flagged. When all subsurface anomalies were mapped within a survey grid, a statistical computer program, SiteStats/GridStats, was used to randomly select which subsections within the larger survey grids would have subsurface anomalies excavated and identified. As these anomalies were excavated, the statistical program determined how many anomalies within the grid should be sampled. Based on the number of OE discovered in the sampling grids, SiteStats/GridStats then predicted the density of OE that would likely be present in each sector.

Twenty-seven OE items (consisting of both inert OE and live UXO) from a variety of ordnance was detected and removed from grids in all four sectors of East Elliott; however, most survey grids had no OE. The majority of identifiable OE was from 37mm and 75mm projectiles. The maximum depth at which any OE was found at East Elliott was 18 inches; most OE was found on the surface. Four UXO items, all 75mm high explosive projectiles, were found during the investigation; one each in Sectors 1 and

Figure 2. Division of East Elliott into Four Sectors

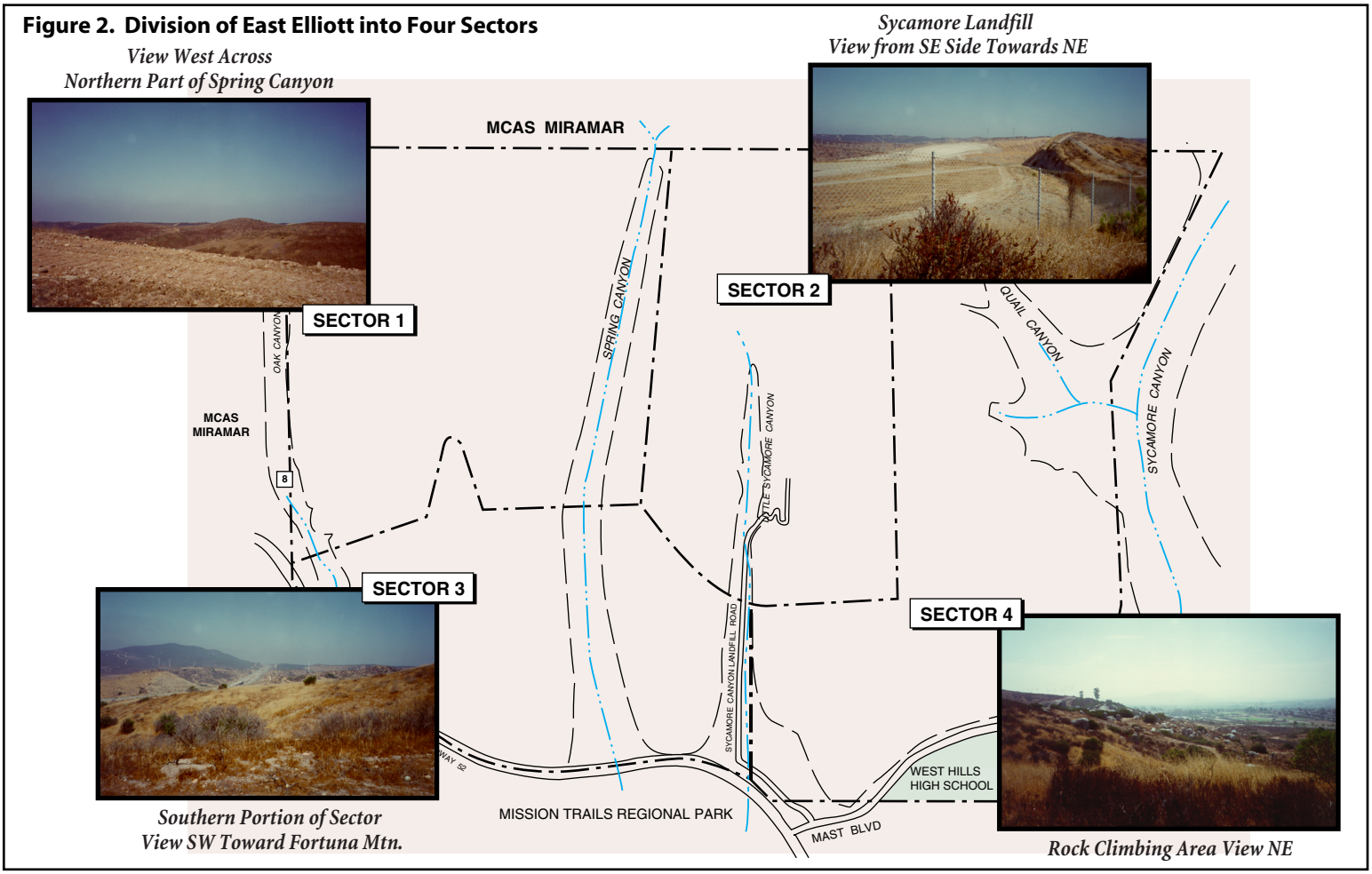
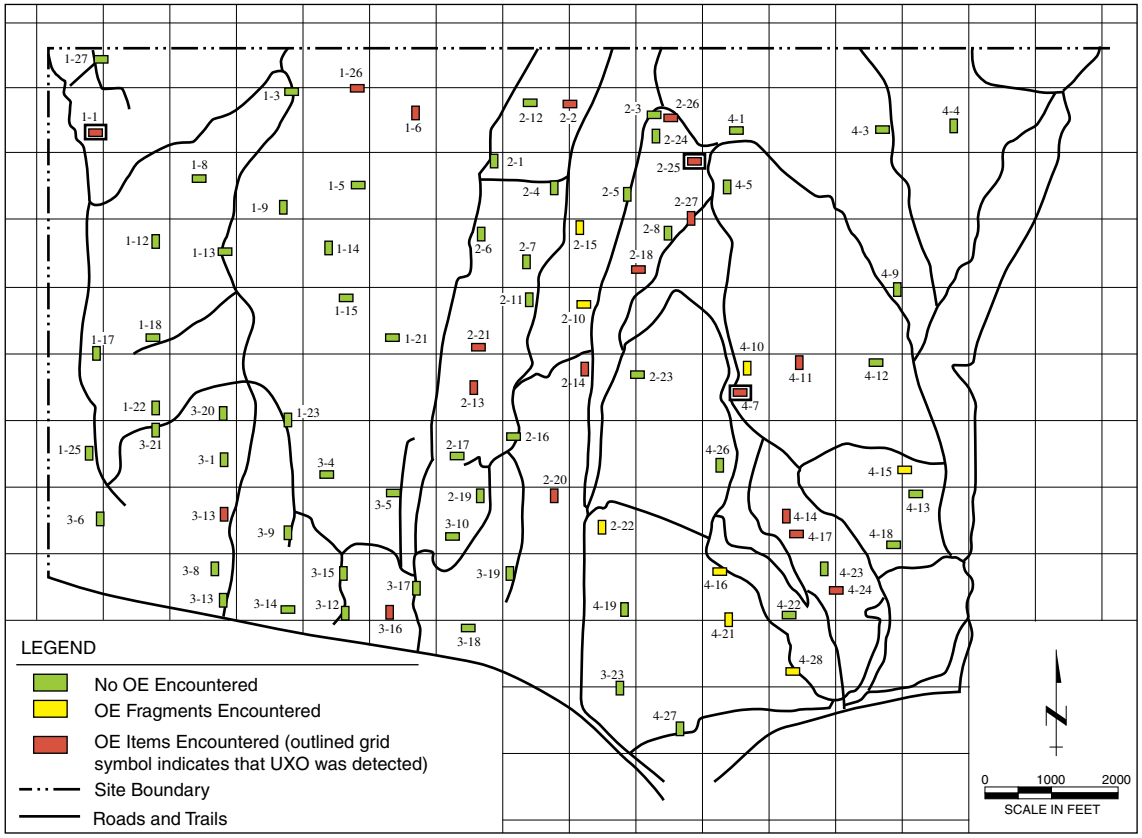


Figure 3. Results of 1996 OE Investigation



Reference:
Modified from "Ordnance & Explosive (OE) Sampling/Draft Removal Report, Camp Elliott (East Elliott) California", Prepared by CMS Environmental, Inc., Dated March 7, 1997.

4 and two in Sector 2. No UXO was found in Sector 3. All live UXO and suspect fuses were detonated at the site.

The largest concentration of OE (both UXO and inert OE scrap) was in Sector 4, which is the area of East Elliott that is the closest and most accessible to populated areas and schools. A large amount of OE was found in Sector 2 along the ridge between Sycamore Canyon and Little Sycamore Canyon. A total of 758 pounds of harmless OE and OE scrap was detected and removed during the investigation and was disposed of at Sycamore Landfill recycling center.

Using data from the 1996 OE investigation, a deterministic risk assessment was conducted for East Elliott using the Ordnance and Explosives Cost-Effectiveness Risk Tool (OECert). OECert provides a means of determining the estimated number of exposures to UXO at a site given different levels of removal action, or even no action, for various uses of the land. Land uses evaluated include both current and future recreational, current and future landfill construction, and future residential construction. Based on the risk assessment and the 1996 sampling data, baseline UXO risks were determined to be present in Sectors 1, 2, and 4. The highest risks were found to be associated with Sector 4, due to the predicted OE density and the number of people using the area for recreational activities. No exposures were predicted for Sector 3 because no UXO was found in this area; however, due to limitations inherent in OE sampling, it was not assumed that there is an absence of risk in Sector 3. Removal action alternatives were evaluated for each of the four sectors in East Elliott to reduce risks to human health and the environment from potential exposure to UXO based on current and future land uses. OECert also provided an estimate of the expected annual exposures to UXO and associated risk reduction for each of the removal actions considered. The risk assessment results were included in the EE/CA.

The Ordnance and Explosives Sampling Draft Removal Report recommended the following actions for each sector:

- **Sector 1:** Additional survey work should be conducted in the northwest corner of the sector where a UXO item was discovered.
- **Sector 2:** A surface sweep should be performed on an area that is slated for incorporation into the Sycamore Landfill. In addition, a 30-acre subsurface sweep of the south- and east-facing slopes of this parcel should be conducted. These slopes were judged the most likely areas to have been impacted by ordnance fire from the southeast corner of the base.
- **Sector 3:** No additional work was recommended for this sector because only inert OE and OE scrap were recovered; no UXO was found.
- **Sector 4:** A 350-acre area southeast of the Sycamore Landfill should be surface swept and the south- and east-facing slopes, if not the entire area, should also be subsurface swept. This action was recommended because of the relatively high frequency of detected OE that was found in close proximity to populated areas and schools.

Recommendations for removal actions presented in the OE Sampling Draft Removal Report were used in the development of the recommendations presented in the EE/CA. Removal actions in areas of Sectors 2 and 4 were conducted in 1998 through 1999, and will be discussed in Community Update 3.

If You Encounter Ordnance at East Elliott …

UXO items capable of causing injury or death have been discovered at East Elliott. UXO removal actions conducted by USACE have reduced, but may not have completely eliminated, the presence of UXO at East Elliott. If you encounter ordnance (munitions) or buried metal objects at East Elliott, do not attempt to touch, disturb, or move them. Call the San Diego Emergency Services at 911.

37mm and 75mm Shells Found at East Elliott

Information Repositories

To gain a more thorough understanding of the history of East Elliott and the activities associated with the proposed OE removal activities, the public is encouraged to review relevant documents maintained in the information repositories for East Elliott at the following locations:

San Diego City Library, Tierrasanta Branch
4978 La Cuenta Drive
San Diego, CA 92101
(619) 573-1384

San Diego County Library, Santee Branch
9225 Carlton Hills Blvd.
Santee, CA 92071
(619) 448-1863

For More Information

For more informantion on USACE's removal actions at East Elliott, please contact:

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