

# Preliminary Assessment/Site Inspection Work Plan for PAOC EE, Former Vieques Naval Training Range, Vieques, Puerto Rico

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## Executive Summary

This technical memorandum presents the technical approach for conducting a Preliminary Assessment/ Site Inspection (PA/SI) of Potential Area of Concern (PAOC) EE on Punta Conejo, at the former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico (**Figures 1 and 2**). The objectives of the PA/SI for PAOC EE are to: (1) perform general housekeeping of debris and non-munitions and explosives of concern (MEC) items; (2) conduct digital geophysical mapping (DGM) to delineate the extent of the subsurface metallic anomalies on PAOC EE; (3) determine if any of the subsurface metallic anomalies are MEC; and (4) if MEC is identified, provide recommendations to further characterize the nature and extent of MEC and munitions constituents (MC).

To achieve the objectives listed above, vegetation will be cleared (with the exception of large cactuses to the extent possible) in accordance with determinations made in consultation with the United States Fish and Wildlife Service (USFWS) and based on historical vegetation/habitat information and observations made during an inter-agency site visit. Following vegetation clearance, a visual survey across PAOC EE will be conducted for the removal of any debris identified on the surface to facilitate the DGM survey. A DGM survey will then be conducted over the area described in **Figure 2**. The excavation of the geophysical anomalies will be conducted in accordance with the procedures identified in *Work Plan for Munitions and Explosives of Concern Subsurface Interim Removal Action Beaches and Select Roadways* (CH2M HILL 2008). In the event that MEC is identified, the Navy and regulatory agencies will reconvene to determine the path forward. If all anomalies are removed and no MEC is found, a no action decision document will be prepared for the site.

## Resumen Ejecutivo

Este memorando técnico presenta el acercamiento técnico para llevar a cabo una Inspección Preliminar/Inspección del Sitio (PA/SI por sus siglas en inglés) del Área de Preocupación Potencial (PAOC, por sus siglas en inglés) EE en Punta Conejo, que se encuentra en el Antiguo Campo de Adiestramiento Naval de Vieques (VNTR, por sus siglas en inglés), Vieques, Puerto Rico (**Figuras 1 y 2**). Los objetivos de este PA/SI para PAOC EE son: (1) llevar a cabo una limpieza general de escombros y artículos no relacionados a municiones y explosivos de preocupación (MEC, por sus siglas en inglés); (2) elaborar mapas geofísicos digitales (DGM, por sus siglas en inglés) para delinear la extensión de las anomalías metálicas bajo la superficie de PAOC EE; (3) determinar si alguna de las anomalías metálicas bajo la superficie son MEC; y (4) si se identifica algún MEC, proveer recomendaciones para caracterizar más aún la naturaleza y extensión de MEC y componentes de municiones (MC, por sus siglas en inglés).

Para lograr los objetivos antes mencionados, se removerá la vegetación (con excepción de los cactus grandes hasta donde sea posible) de acuerdo con las determinaciones hechas en consulta con el Servicio y Pesca de Vida Silvestre de los Estados Unidos (USFWS, por sus siglas en inglés) y en base a información histórica de la vegetación/hábitat y observaciones hechas durante una visita de las agencias al sitio. Luego de la remoción de la vegetación, se llevará a cabo una inspección visual a través de todo el PAOC EE para remover cualquier escombros identificado en la superficie para así facilitar el estudio DGM. Luego se llevará a cabo un estudio DGM sobre el área descrita en la Figura 2. La excavación de las anomalías geofísicas se llevarán a cabo de acuerdo con los procedimientos identificados en el *Work Plan for Munitions and Explosives of Concern Subsurface Interim Removal Action Beaches and Select Roadways* (CH2M HILL 2008). En el evento de que se identifiquen MECs, la Marina y las agencias reguladoras se reunirán para determinar el próximo paso a seguir. Si todas las anomalías son removidas y no se encuentra MEC, se preparará un documento de ninguna acción para este sitio.

## Introduction

This technical memorandum presents the technical approach for conducting a Preliminary Assessment/ Site Inspection (PA/SI) of Potential Area of Concern (PAOC) EE on Punta Conejo, at the former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico (**Figures 1 and 2**). In 2002, interviews conducted as part of the Environmental Baseline Survey (EBS) for the VNTR indicated PAOC EE was the former storage site of munitions in earthen berms (NAVFACENGCOM, 2003). During the Expanded Range Assessment/Site Inspection (ERA/SI) (CH2M HILL, 2009a), walking transects through the PAOC EE site documented matting and small arms blank ammunition on the eastern portion of the site (**Figures 3 and 4**), but no sign of munitions stored in earthen berms, or any munitions and explosives of concern (MEC) at the surface. As part of the ERA/SI, it was documented that PAOC EE and the surrounding Playas de Punta Conejo beaches were located outside the explosive safety fan, where Marine artillery operations were conducted (**Figure 5**). PAOC EE is also located at the western boundary of the NOAA "Danger Zone," where naval operations occurred over the waters of eastern Vieques. The only documented military activities west of PAOC EE were associated with amphibious landings during Marine training. Thus, the probability of individual fired munitions items on PAOC EE is very low.

Digital geophysical mapping (DGM) conducted on the Playa de Punta Conejo beaches, as part of the *Preliminary Assessment/Site Inspection for Playa la Plata and Secret Beaches, Former Vieques Naval Training Range, Vieques, Puerto Rico* (CH2M HILL, 2010), found 73 subsurface metallic anomalies. All the anomalies were excavated and determined to be scrap metal and not munitions related (**Figure 6**).

The objectives of the PA/SI for PAOC EE are to: (1) perform general housekeeping of debris and non-MEC items; (2) conduct DGM to delineate the extent of the subsurface metallic anomalies on PAOC EE; (3) determine if any of the subsurface metallic anomalies are MEC; and (4) if MEC is identified, provide recommendations to further characterize the nature and extent of MEC and munitions constituents (MC). If all anomalies are recovered and no MEC is identified, a no action decision document will be prepared for PAOC EE.

## Field Procedures

### Boundary Survey and Site Layout

The land area to be assessed (**Figure 2**) is defined as the area inside the vegetation line along the beaches, since the beach area has already been assessed. During the initial reconnaissance of the work area, the survey team will locate and mark the site boundaries with stakes and establish ground controls. The spatial coordinates collected during the establishment of the survey monuments, operating area boundary, and individual grids will be used to develop a project base map. The final product of this operation is the generation of a spatially-referenced site drawing that accurately depicts the operating area boundaries and grid boundaries. The operating area will be divided into grids measuring 30 m × 30 m.

### Vegetation Clearance

On July 30, 2010, Mike Barandiaran/US Fish and Wildlife Service (USFWS) Acting Refuge Manager, accompanied by Madeline Rivera/Navy, conducted a site visit to observe

vegetation growing in PAOC EE. Mr. Barandiaran concluded it consisted primarily of invasive species (acacia and mesquite). USFWS concluded that no biological assessment of PAOC EE is necessary prior to clearing, and announced and discussed this at the August 25, 2010 RAB meeting in Vieques, Puerto Rico. Therefore, clear cutting of vegetation is planned to allow for and maximize the efficiency of the DGM. If large cacti are observed, they will be preserved to the extent practical that still permits satisfying the project objectives. Documentation of USFWS concurrence on this clearance method at PAOC EE will be included with the draft-final and final versions of this work plan. All site preparation activities will be monitored by UXO Qualified personnel described in this section. During the initial reconnaissance, the survey team will examine the site to determine the amount of vegetative material that must be removed) to accomplish the scope of work and inspect the site for MEC (unlikely) and non-munitions related debris/munitions debris (MD) on the surface of the site. The team will also map out the areas in which bedrock outcrops that will undergo visual inspection, but not DGM. Photographs will be taken of the overall site vegetation, debris found on the surface, and any other notable features. The survey team's observations, documentation, mapping of outcropping bedrock, and analysis of the density of the vegetation will be used to determine the amount and method of vegetation removal.

It is estimated that vegetation removal will be required for most of the area identified for DGM. Roadways and beach areas that have already been surveyed will not require additional DGM. It is assumed that vegetation removal will be conducted mechanically using a bobcat with a hydro-axe attachment or similar piece of machinery (although alternate methods may be employed to achieve the same result). This method will require an Explosive Safety Submission Determination (ESSD). Unless it is necessary, cutting trees larger than 3 inches in diameter will be avoided (unless they are invasive species and their removal enhances the DGM). Trees will be felled into an area that has already been surface swept for MEC. The vegetation will typically be cut to a height of approximately 6 inches above ground surface to eliminate interference with anomaly detection or survey activities, and to keep the cutting activities away from the ground surface and possible MEC. All cut vegetation will be accumulated onsite and left at the site to provide mulching for future vegetation. As the first step, the UXO Technicians will inspect all areas of the grid ahead of the vegetation removal crews with the aid of handheld magnetometers. The UXO Technicians will mark any hazards by encircling the hazard with flagging tape. The vegetation removal will be supervised by a UXO Technician III and a UXO Technician II.

### Surface Clearance

Following vegetation clearance, a visual survey across the entire PAOC EE will be conducted for the removal of any debris identified on the surface to facilitate the DGM survey. This includes the small arms blank ammunition in the eastern portion of the site. Additionally, the matting found on the surface will be removed from the site as part of general housekeeping and disposed of as trash. The surface clearance of metal debris will be conducted in accordance with the procedures identified in the *Work Plan for Munitions and Explosives of Concern Subsurface Interim Removal Action Beaches and Select Roadways* (CH2M HILL, 2008).

### Digital Geophysical Mapping (DGM) Operations

The DGM survey of PAOC EE will be conducted using an EM61-MK2 time domain electromagnetic metal detector in an area extending inward from the beach vegetation line

that marks the boundary of the beach DGM survey already conducted (**Figure 2**). Areas containing outcropping bedrock will be excluded from the DGM survey because any debris will be at the surface in those areas and will be observed during the visual site inspection. The geophysical operations will be conducted in accordance with Appendix B of the *Expanded Range Assessment/Phase II Site Inspection Work Plan, Former Vieques Naval Training Range, Vieques, Puerto Rico* (CH2M HILL, 2006a). FWS and the Navy may identify locations where isolated stands of vegetation may be left in place to preserve the ecological habitat. Should any of these locations impede the operation of the DGM, a hand held geophysical instrument, electromagnetic instrument or metal detector will be utilized to delineate the extent of subsurface anomalies.

### Excavation of Subsurface Anomalies

The excavation of the geophysical anomalies will be conducted in accordance with the procedures identified in *Work Plan for Munitions and Explosives of Concern Subsurface Interim Removal Action Beaches and Select Roadways* (CH2M HILL 2008). Positions and information on any sources of anomalies not removed from the subsurface will be recorded, and the reasons for not removing them will be documented in accordance with the *Non-Time Critical Removal Action Work Plan, Surface Munitions and Explosives of Concern at Munitions Response Area-Surface Impact Area Munitions Response Sites 1-7, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico* (CH2M HILL, 2009b). Reasons for not removing the source of an anomaly include not finding the source (e.g., magnetic spot in the bedrock), an object is below the water table and the hole will not remain open to continue excavation, etc. If encountered, these will be recorded in the field logbook and included in the PA/SI Report.

The following documents provide additional explosives management procedures to be conducted during the Preliminary Assessment/ Site Inspection: *Explosives Safety Submission/ Site Approval Request, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico (Revision 3)* (CH2M HILL, 2006b) and *Explosives Operations Site Approval, Former Vieques Naval Training Range, Vieques Island, Puerto Rico* (CH2M HILL, 2004).

### Quality Control

QC will be conducted according to Section 10 and Appendix B of the *Work Plan for Munitions and Explosives of Concern Subsurface Interim Removal Action Beaches and Select Roadways* (CH2M HILL, 2008).

### Data Evaluation/ Reporting

Following the completion of the Preliminary Assessment/ Site Inspection, an After Action Report will be developed. The report will provide the data collected throughout the assessment and include:

- Map(s) of areas worked, locations of geophysical anomalies, and locations of any scrap metal/MEC items identified
- Descriptions of field procedures conducted
- Field investigation data in tabular format including: unique ID Number, Item Class, Item Category, Item Type, Item Description, Quantity, Depth, Weight, Anomaly location ground elevation, description of the site conditions for any breached MEC identified,

identification of any visual signs of environmental contamination, Demo Required?,  
Comment, Item Found Date, Action Taken

- An appendix of geophysical mapping data and dig sheets
- Photographs of any MEC or MD items identified that could potentially be a source of explosives contamination

In the event that MEC is identified, the Navy and regulatory agencies will reconvene to determine the path forward. If all anomalies are removed and no MEC is found, a no action decision document will be prepared for the site.

## References

- CH2M HILL. 2004. *Explosives Operations Site Approval, Former Vieques Naval Training Range, Vieques, Puerto Rico*. October.
- CH2M HILL. 2006a. *Expanded Range Assessment and Phase II Site Inspection Work Plan, Former Vieques Naval Training Range, Vieques, Puerto Rico*. November.
- CH2M HILL. 2006b. *Explosives Safety Submission/Site Approval Request, Former Vieques Naval Training Range, Rev. 3, Vieques, Puerto Rico*. December.
- CH2M HILL. 2008. *Final Work Plan for Munitions and Explosives of Concern, Subsurface Interim Removal Action Beaches and Select Roadways, Former Vieques Naval Training Range (VNTR) and Former Naval Ammunition Support Detachment (NASD), Solid Waste Management Unit 4, Vieques, Puerto Rico*. October.
- CH2M HILL. 2009a. *Draft Expanded Range Assessment/Site Inspection Report, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico*. October.
- CH2M HILL. 2009b. *Non-Time Critical Removal Action Work Plan, Surface Munitions and Explosives of Concern at Munitions Response Area-Surface Impact Area Munitions Response Sites 1-7, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico*. January.
- CH2M HILL. 2010. *Preliminary Assessment/Site Inspection for Playa la Plata and Secret Beaches, Former Vieques Naval Training Range, Vieques, Puerto Rico*. March.
- Naval Facilities Engineering Command, Atlantic Division. 2003. *Environmental Baseline Survey, Vieques Naval Training Range, Vieques Island, Puerto Rico*. April.



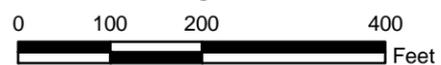
**FIGURE 1**  
 Regional Location Map  
 PAOC EE PA/SI Work Plan  
 Vieques, Puerto Rico



**Legend**

-  PAOC EE
-  A portion of the beaches investigated as part of the PA/SI for Playa la Plata and Secret Beaches
-  Digital Geophysical Mapping (DGM) area, excluding areas of outcropping bedrock and previously investigated beaches

Playas De Punta Conejo	Beach Name
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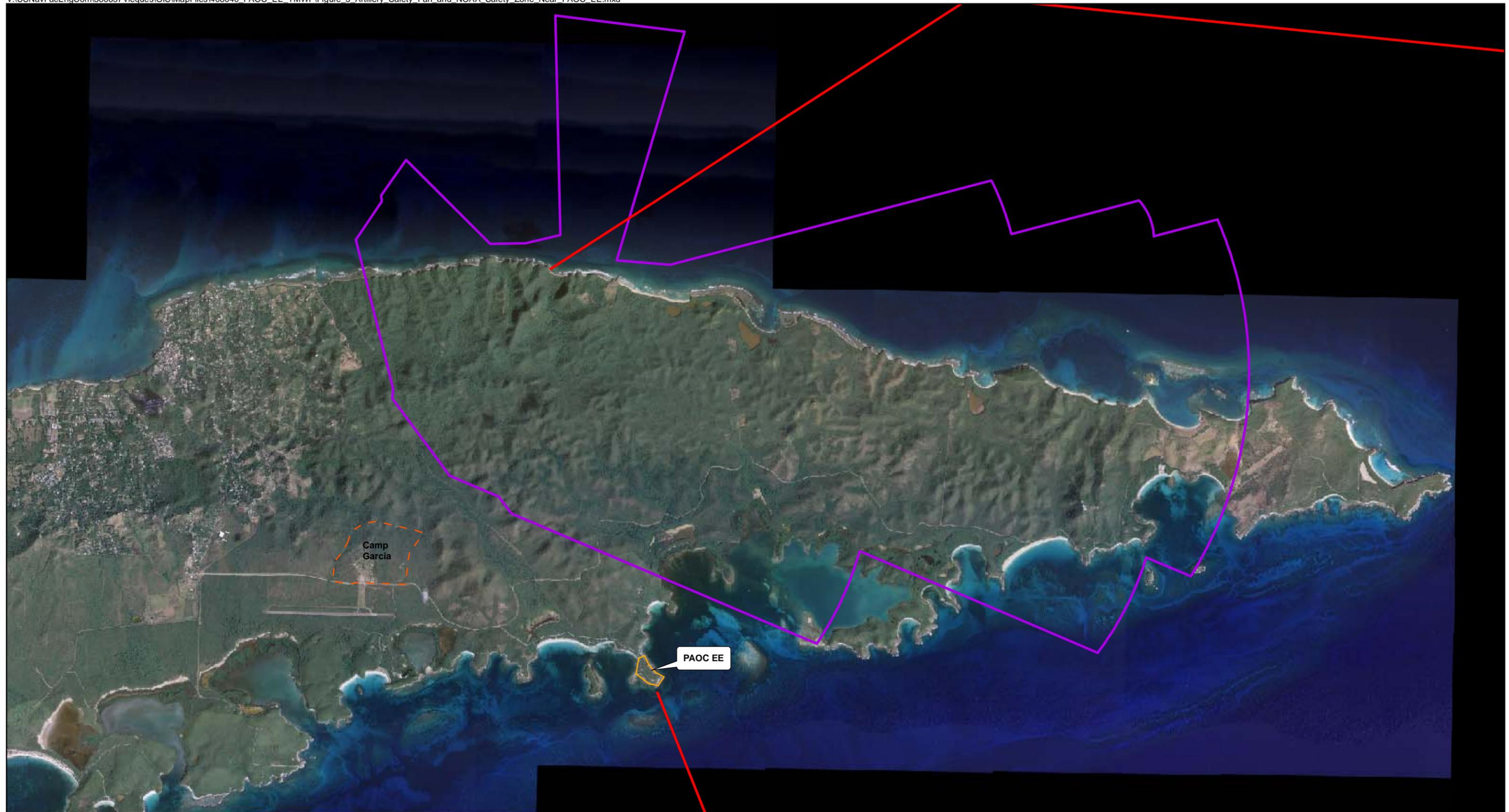
**Figure 2**  
PAOC EE  
PAOC EE PA/SI Work Plan  
Vieques, Puerto Rico



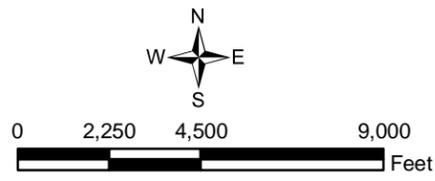
**FIGURE 3**  
Small Arms Blank Ammunition on  
the Eastern Portion of PAOC EE  
*PAOC EE PA/SI Work Plan*  
*Vieques, Puerto Rico*



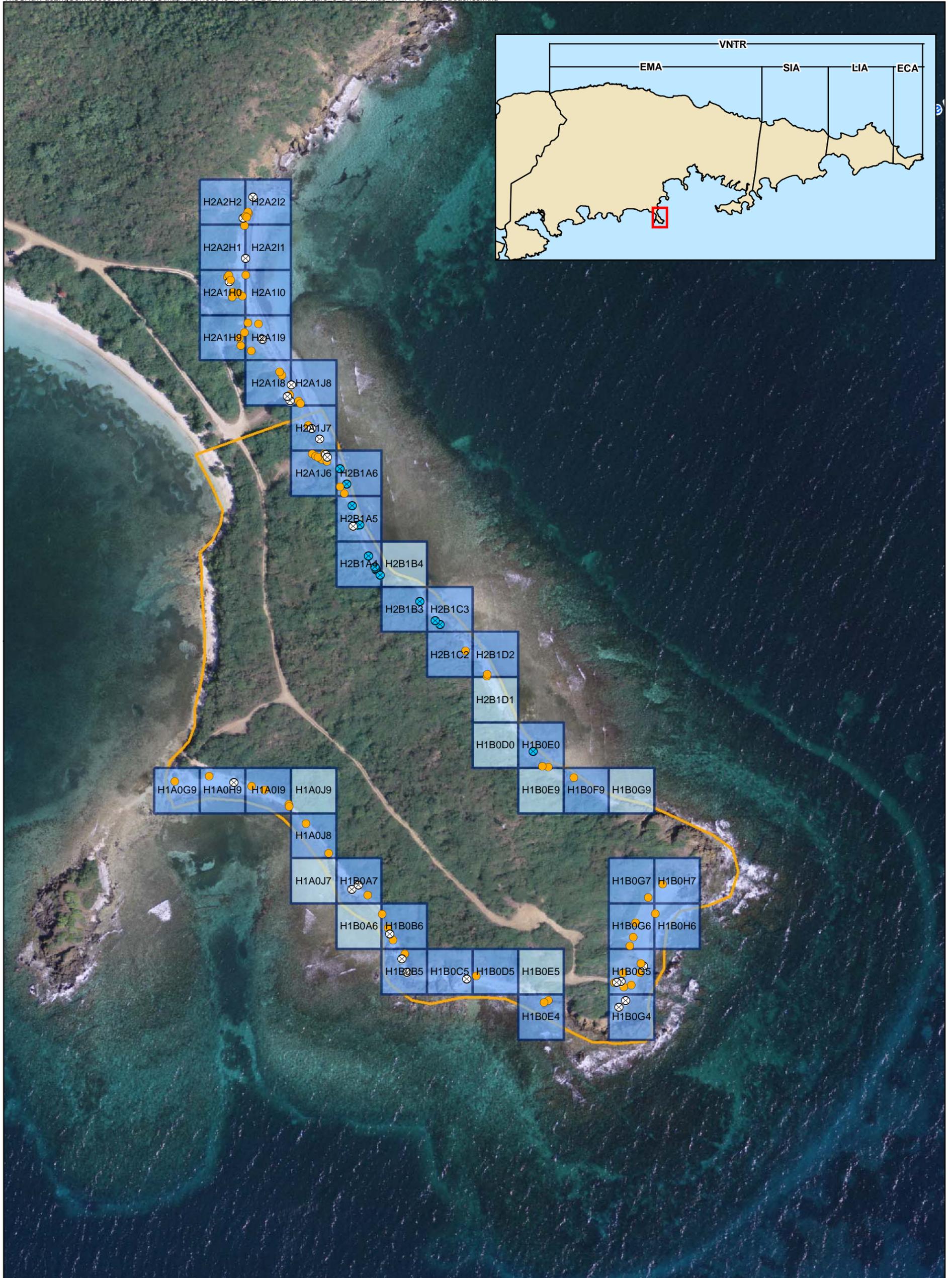
**FIGURE 4**  
Matting on the Eastern Portion of PAOC EE  
*PAOC EE PA/SI Work Plan*  
*Vieques, Puerto Rico*



- Legend**
- NOAA Safety Zone
  - PAOC EE
  - Artillery Safety Fan
  - Camp Garcia

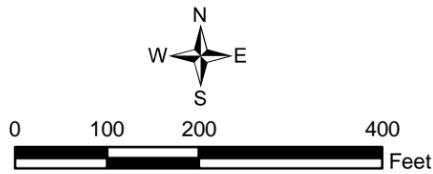


**Figure 5**  
Artillery Safety Fan and NOAA Safety Zone near PAOC EE  
PAOC EE PA/SI Work Plan  
Vieques, Puerto Rico



**Legend**

-  Below Water
-  No Find
-  Non Munitions Related Scrap Metal
-  Complete (on beach area)
-  DGM Complete (on beach area, zero anomalies found)
-  PAOC EE



**Figure 6**  
 Digital Geophysical Mapping (DGM) finds on PAOC EE beaches  
 PAOC EE PA/SI Work Plan  
 Vieques, Puerto Rico