

# **DRAFT ENVIRONMENTAL ASSESSMENT FOR THE CONSTRUCTION AND OPERATION OF A NEW MARINE FACILITY AT CEIBA, PUERTO RICO**

**U.S. Customs and Border Protection  
Air and Marine Facilities Program  
Management Office**



**U.S. Customs and  
Border Protection**



**March 2014**

## **FINDING OF NO SIGNIFICANT IMPACT**

### **U.S. Customs and Border Protection Environmental Assessment for the Construction and Operation of a New Marine Facility at Ceiba, Puerto Rico**

**PROJECT HISTORY:** U.S. Customs and Border Protection (CBP) is one of the largest and most complex components of the Department of Homeland Security (DHS), with a priority mission of securing the borders of the United States. CBP Office of Air and Marine (OAM) patrols the nation's land and sea borders to protect the American people and critical infrastructure through the coordinated use of integrated air and marine forces.

Presently, the CBP OAM Fajardo Marine Unit operates from an administrative office situated in a leased space in Fajardo, Puerto Rico. CBP proposes to construct a new marine facility at a parcel of land (designated as Parcel 46) located within the former Naval Station Roosevelt Roads (NSRR) in Ceiba, Puerto Rico and currently referred to as Naval Activity Puerto Rico (NAPR) for the CBP Office of Air and Marine (OAM). Parcel 46 is improved with two lighted boat piers and a boat ramp built and owned by CBP for its operation within the NAPR. In 2011, CBP acquired Parcel 46 from the Navy under the Base Realignment and Closure (BRAC) property disposal process in order to keep land access to its boat piers and ramp to perform their patrol duties within the NAPR and presently continue using the area for this purpose. Property land-use restrictions associated to environmental conditions of the site include non-residential use, no groundwater use, no disturbance of groundwater flow (including dewatering), and no installation of wells or the removal of existing wells.

CBP has prepared an Environmental Assessment (EA), which is incorporated herein by reference, to analyze the potential impacts of the Proposed Action to the human and natural environments in accordance with the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality (CEQ) regulations, the Department of Homeland Security (DHS) Management Directive (MD) 023-01 - Environmental Planning Program, the



Environmental Public Policy Act of Puerto Rico (Act No. 416), the Puerto Rico Environmental Quality Board (EQB) Regulation for Evaluation and Processing of Environmental Documents, and the Puerto Rico Joint Regulation for Construction and Land Use Permits.

**PROJECT LOCATION:** The Project will be located at Parcel 46 located within Naval Activity Puerto Rico (NAPR) in the Municipality of Ceiba, Puerto Rico. Parcel 46 consists of a 1.94 acre mostly vacant lot which borders the Ensenada Honda waterfront as is accessed from Forrestral Drive. At present, a security fence delimits portions of Parcel 46, including impacted areas of the property. The new marine facility will be located within this area of approximate 1.4 acres (Project site).

**PURPOSE AND NEED:** The purpose of the Project is to provide a new marine facility in compliance with CBP current security requirements and design standards to support the critical needs of the CBP mission through the CBP Marine Unit operating in Ceiba, Puerto Rico. The Project is needed to provide the CBP OAM with an updated facility in compliance with current design criteria and sustainability practices, and in close proximity to boat piers and boat launch areas to allow for an integrated and effective operation to meet its priority mission of protecting the borders and critical infrastructure of the U.S.

**ALTERNATIVES:** The alternatives selected for discussion in the EA are the No Action Alternative and the Proposed Action Alternative.

**No Action Alternative** - The No Action Alternative provides a baseline against which potential impacts of the Proposed Action and other alternatives can be evaluated and represents the environmental existing conditions if the Proposed Action is not implemented. Under the No Action Alternative, a new marine facility will not be constructed and the CBP Marine Unit will continue its operation from its existing facilities. The No Action Alternative does not satisfy the stated purpose and need.

**Proposed Action Alternative** - The proposed action consists of the construction of a new marine facility for the CBP OAM Marine Unit within Parcel 46. The CBP OAM Fajardo Marine Unit and its boats will be permanently relocated to new facilities. The

new marine facility will consist of a marine support administrative building, boat maintenance/storage hangar with hurricane tie downs, exterior parking with approximately 15 parking spaces, outdoor lighting, and a permanent security fence, as well as physical security equipment and infrastructure. All utilities shall be provided from existing service mains located along Forrestal Drive. Existing utilities in the project area will be removed or relocated as needed to meet the design of the newly proposed facility.

Building and structural options for construction of the main administrative facility as part of the Proposed Action may include:

- 1 A single-story building provided with a two feet elevation over the flood level supported over semi-rigid mat foundations, continuous foundations, grid or spread footings.
- 2 A two-story building, for which two structural foundations options may be considered:
  - a. A two-story structure to be built over a surcharged final grade.
  - b. A two-story structure building supported on structural piles (driven deep foundations).

The Proposed Action will comply with the property's land-use restrictions. In addition, the Proposed Action will be planned and designed in such a manner to minimize soil disturbance or excessive excavations given the environmental conditions at the site. Portions of Parcel 46 are located in flood hazard areas (Zone VE and Zone AE) and placing of fill will be required to elevate the proposed administrative building location above the regulatory flood level.

The new facility will be designed in compliance with the current CBP OAM Facility Design Standard and the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings. The new facility is also intended to comply with the Leadership in Energy and Environmental Design (LEED) Gold Certification requirements.

The construction of the facility is estimated at a cost of approximately \$2.1 million and the duration of the construction phase is estimated to last approximately 12 months.

**ENVIRONMENTAL CONSEQUENCES:** The Proposed Action would be developed in a 1.4 acres site located in previously impacted and intensively developed area within a former naval station. The proposed land uses are compatible with historical and current land uses in the area. The construction of the Proposed Action will not cause significant adverse impacts to existing geological conditions at the site, when considering the reduce footprint of the Project and previous impacts by deposits of artificial fill and earthwork activities. Short-term direct impacts to made land soils due to soil disturbances associated with grading and construction activities of the Proposed Action are anticipated to be negligible. The Proposed Action could potentially generate direct negligible non-adverse impacts to the contaminated soil and groundwater beneath the site.

Implementation of the Proposed Action would potentially result in short-term minor direct impacts from noise and air pollutants emissions associated to the construction activities. These emissions will be minor and would not adversely affect the area. Potential minor indirect impacts to natural systems adjacent to the Project site, including surface waters of Ensenada Honda, could occur due to erosion and sedimentation from the construction site. Given the temporary nature of the potential environmental disturbances, and the implementation of Best Management Practices (BMPs), the construction and operation of the Proposed Action would not result in adverse impacts on surface waters and groundwater in the area. The Proposed Action would have no impacts to jurisdictional wetlands areas and U.S. Waters. No direct impacts to federally or locally designated threatened or endangered species or their habitats are anticipated. Wildlife species in adjacent areas may be temporarily displaced during construction activities due to noise disturbances and increased human activity.

The archaeological potential for finding either pre-colonial or colonial historic properties within Parcel 46 is low thus no significant impacts from the implementation of the Proposed Action would occur. The Proposed Action consist of a low profile undertaking with minimal visual

impacts on the surrounding landscape, and as such it does not have the potential to adversely affect the character of above ground potential historic properties located in its surrounding area.

The existing infrastructure in the area has the capacity to service the Proposed Action. The roadways network and road access are also adequate to service the Project.

Approximately 0.8 acres (60% of the Project site) are located within floodable zone thus potential effects to floodplain and risk of flood loss could occur. The existing floodplain would be altered to accommodate the new facility above regulatory flood levels. Given the location of the proposed site (waterfront) and the nature of floods in the area, the construction of the Proposed Action would have no effect on the flood levels outside the Project site.

Implementation of the Proposed Action would not result in disproportionately high and/or adverse human or environmental effects on children, minorities or low-income populations. The construction of the Proposed Action is expected to have a positive economic impact to the regional and local economy due to temporary employment and increase in sales from construction related services, materials and supplies.

The Proposed Action would result in long-term beneficial impacts from operating a facility that incorporates sustainable practices, reducing operating costs through energy efficient, water use reductions, and reducing impacts to the environment.

Approximately 40% of the NAPR are dedicated to conservation (natural protected areas), while urban soils or developable areas comprise approximately 58.6% of the lands and 1.45% are federal property. The Proposed Action will occupy an area of 1.4 acres, which comprises a minimal footprint (0.028%) in comparison with the area planned for development and reuse within the limits of the NAPR. Based on the evaluation of the potential environmental impacts from the Proposed Action, impacts from past actions and historical uses, and expected impacts from future actions associated to the redevelopment of the NAPR area, the Proposed Action effects to cumulative impacts in the area would be negligible.

**MITIGATION AND BEST MANAGEMENT PRACTICES:** Mitigation measures would not be required to reduce impacts to below significance thresholds or compensation by replacing or providing substitute resources or environments as a result of implementing the Proposed Action. The EA describes the BMPs and protection measures that would be implemented to reduce or eliminate potential adverse impacts to the human and natural environments during construction and operation of the Proposed Action. Some of the BMPs that will be implemented during the construction and operation phases of the new marine facility are listed below:

- Development and implementation of a Sediment and Erosion Control Plan (SECP), and a Stormwater Pollution Prevention Plan (SWPPP) to manage stormwater runoff during construction activities. An effective combination of soil erosion and sediment controls will be in place prior to earth moving activities to prevent sediment from leaving the site and/or entering a storm water drainage or receiving water such as Ensenada Honda.
- Installation of a permanent stormwater control system to manage post-construction site runoff.
- A spill prevention and response plan that describes planning, prevention, and control measures to minimize impacts resulting from a spill of any hazardous materials would be implemented.
- Good housekeeping practices and preventive maintenance during operation of the facility.
- The final design and supporting engineering studies of the Proposed Action would give special consideration to location of the different components of the Project and required flood protection measures in compliance with applicable regulations.
- Implement manatee protection measures such as posting signs which will warn that manatees use the area (“Manatee Area”) and limiting boat speed (“No Wake Zone”).
- Proper and routine maintenance of all construction equipment and vehicles to ensure emissions are within design standards.
- Fugitive dust control measures including applying water before/during earthwork and onto unpaved traffic areas and construction equipment/vehicle speed limits.



- Waste stream of contaminated media will be handled through institutional controls, which will consist of physical barriers to restrict access to the site, such as fencing and the installation of appropriate “no trespassing” signs to warn of potential hazards on site.
- Hazardous materials and waste would be managed using applicable storage, transfer, and disposal regulations.
- Safety buffer zones would be designated around the entire construction site to ensure public health and safety.

**FINDINGS:** Based upon the analyses of the EA and the BMPs to be incorporated as part of the Proposed Action, it has been concluded that the Proposed Action will not result in any significant adverse effects to the environment, and therefore preparation of an Environmental Impact Statement (EIS) is not required.

**Project Proponent:**

\_\_\_\_\_  
Signature  
Ralph M. Martinez  
Chief of Project Management  
Construction Branch  
Air and Marine Facilities  
U.S. Customs and Border Protection

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature  
Karl Calvo  
Executive Director for Facilities Management and  
Engineering  
U.S. Customs and Border Protection

\_\_\_\_\_  
Date

**DRAFT**

**U.S. CUSTOMS AND BORDER PROTECTION**

**ENVIRONMENTAL ASSESSMENT**

**FOR THE CONSTRUCTION AND OPERATION OF A**

**NEW MARINE FACILITY AT CEIBA, PUERTO RICO**

**March 2014**

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Lead Agency:	Department of Homeland Security U.S. Customs and Border Protection
Points of Contact:	Ralph M. Martinez Chief of Project Management Construction Branch U.S. Customs and Border Protection 6650 Telecom Drive, Suite 100 Indianapolis, Indiana 46278 (317) 614-4846, Ralph.M.Martinez@cbp.dhs.gov
Proposed Action Title:	New Marine Facility at Ceiba Puerto Rico
Purpose and Need:	The purpose of the Project is to provide a new marine facility in compliance with CBP current security requirements and design standards to support the CBP Marine Unit operating in Ceiba, Puerto Rico. The Project is needed to provide CBP with an updated facility in compliance with current design criteria and sustainability practices, and in close proximity to boat piers and boat launch areas to allow for an integrated and effective operation to meet its priority mission of protecting the borders and critical infrastructure of the U.S.
Estimated Construction Cost:	\$2.1 millions
Jobs:	Approximately 24 direct jobs during the construction phase
Document Identification:	Draft Environmental Assessment (EA)

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**Draft Environmental Assessment [March 2014]**

***U.S. Customs Border and Protection New Marine Facility at Ceiba, Puerto Rico***

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**Project Description:** The Proposed Action consists of the construction of a new marine facility for the CBP OAM Marine Unit within Parcel 46 located at Naval Activity Puerto Rico (NAPR) in the Municipality of Ceiba, Puerto Rico. The new marine facility will consist of a marine support administrative building, boat maintenance/storage hangar with hurricane tie downs, exterior parking with approximately 15 parking spaces, outdoor lighting, and a permanent security fence, as well as physical security equipment and infrastructure.

**List of Preparers:** This Environmental Assessment was prepared by SALO Engineering, PSC under the direction of CBP and General Services Administration (GSA). A list of technical personnel responsible for preparing the document is included in Chapter 8.

This document will be distributed to the following agencies, entities or individuals:

- Office of Permits Management (OGPe)
- U.S. Fish and Wildlife Service
- Institute of Puerto Rican Culture
- Puerto Rico State Historic Preservation Office
- Local Redevelopment Authority for Roosevelt Roads
- Municipality of Ceiba

# EXECUTIVE SUMMARY

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## INTRODUCTION

U.S. Customs and Border Protection (CBP) is one of the largest and most complex components of the Department of Homeland Security (DHS), with a priority mission of securing the borders of the United States. CBP Office of Air and Marine (OAM) patrols the nation's land and sea borders to protect the American people and critical infrastructure through the coordinated use of integrated air and marine forces.

Presently, the CBP OAM Fajardo Marine Unit operates from an administrative office situated in a leased space in Fajardo, Puerto Rico. CBP proposes to construct a new marine facility at a parcel of land (designated as Parcel 46) located within the former Naval Station Roosevelt Roads (NSRR) in Ceiba, Puerto Rico and currently referred to as Naval Activity Puerto Rico (NAPR) for the CBP Office of Air and Marine (OAM). Parcel 46 is improved with two lighted boat piers and a boat ramp built and owned by CBP for its operation within the NAPR. In 2011, CBP acquired Parcel 46 from the Navy under the Base Realignment and Closure (BRAC) property disposal process in order to keep land access to its boat piers and ramp to perform their patrol duties within the NAPR and presently continue using the area for this purpose.

CBP has prepared this Environmental Assessment (EA) to analyze the potential impacts of the Proposed Action to the human and natural environments. The EA was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality (CEQ) regulations, the Department of Homeland Security (DHS) Management Directive (MD) 023-01 - Environmental Planning Program, the Environmental Public Policy Act of Puerto Rico (Act No. 416), the Puerto Rico Environmental Quality Board (EQB) Regulation for Evaluation and Processing of Environmental Documents, and the Puerto Rico Joint Regulation for Construction and Land Use Permits.

## **PURPOSE AND NEED**

The purpose of the Project is to provide a new marine facility in compliance with CBP current security requirements and design standards to support the critical needs of the CBP mission through the CBP Marine Unit operating in Ceiba, Puerto Rico.

The Project is needed to provide the CBP OAM with an updated facility in compliance with current design criteria and sustainability practices, and in close proximity to boat piers and boat launch areas to allow for an integrated and effective operation to meet its priority mission of protecting the borders and critical infrastructure of the U.S.

## **DESCRIPTION OF ALTERNATIVES**

The alternatives selected for discussion in the EA are the No Action Alternative and the Proposed Action Alternative.

**No Action Alternative** - The No Action Alternative provides a baseline against which potential impacts of the Proposed Action and other alternatives can be evaluated and represents the environmental existing conditions if the Proposed Action is not implemented. Under the No Action Alternative, a new marine facility will not be constructed and the CBP Marine Unit will continue its operation from its existing facilities. The No Action Alternative does not satisfy the stated purpose and need.

**Proposed Action Alternative** - The proposed action consists of the construction of a new marine facility for the CBP OAM Marine Unit within Parcel 46. The CBP OAM Fajardo Marine Unit and its boats will be permanently relocated to new facilities. The new marine facility will consist of a marine support administrative building, boat maintenance/storage hangar with hurricane tie downs, exterior parking with approximately 15 parking spaces, outdoor lighting, and a permanent security fence, as well as physical security equipment and infrastructure. All utilities shall be provided from existing service mains located along Forrestal Drive. Existing utilities in the project area will be removed or relocated as needed to meet the design of the newly proposed facility.



Building and structural options for construction of the main administrative facility as part of the Proposed Action may include:

- 1 A single-story building provided with a two feet elevation over the flood level supported over semi-rigid mat foundations, continuous foundations, grid or spread footings.
- 2 A two-story building, for which two structural foundations options may be considered:
  - a. A two-story structure to be built over a surcharged final grade.
  - b. A two-story structure building supported on structural piles (driven deep foundations).

The Proposed Action will comply with the property's land-use restrictions including non-residential use, no groundwater use, no disturbance of groundwater flow (including dewatering), and no installation of wells or the removal of existing wells. In addition, the Proposed Action will be planned and designed in such a manner to minimize soil disturbance or excessive excavations given the environmental conditions at the site. Portions of Parcel 46 are located in flood hazard areas (Zone VE and Zone AE) and placing of fill will be required to elevate the proposed administrative building location above the regulatory flood level.

The new facility will be designed in compliance with the current CBP OAM Facility Design Standard and the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings. The new facility is also intended to comply with the Leadership in Energy and Environmental Design (LEED) Gold Certification requirements.

The construction of the facility is estimated at a cost of approximately \$2.1 million and the duration of the construction phase is estimated to last approximately 12 months.

## **AFFECTED ENVIRONMENT AND CONSEQUENCES**

The EA evaluates the potential direct, indirect and cumulative impacts of the Proposed Action to the human and natural environments.

**Land Uses** - The Proposed Action would be developed in a 1.4 acres site located in previously impacted and intensively developed area within a former naval station. The proposed land uses are compatible with historical and current land uses in the area.

**Geology and Soils** - The construction of the Proposed Action will not cause significant adverse impacts to existing geological conditions at the site, when considering the reduce footprint of the Project and previous impacts by deposits of artificial fill and earthwork activities. Short-term direct impacts to made land soils due to soil disturbances associated with grading and construction activities of the Proposed Action are anticipated to be negligible.

**Water Resources** - The nearest surface water body to Parcel 46 is Ensenada Honda, which borders the southern boundary of the property and is the only water body in a radius of 400 meters from the property. Potential indirect and temporary impacts to Ensenada Honda during construction would be associated with an increased in soil erosion and sedimentation, introduction of contaminants to surface waters from construction site and changes in surface runoff patterns. The Proposed Action is not expected to affect the designated uses of Ensenada Honda and its compliance with applicable water quality standards.

**Floodplains** - Approximately 0.8 acres (60% of the Project site) are located within floodable zone (zones AE and VE) thus potential effects to floodplain and risk of flood loss could occur. The existing floodplain would be altered to accommodate the new facility above regulatory flood levels. Given the location of the proposed site (waterfront) and the nature of floods in the area, the construction of the Proposed Action would have no effect on the flood levels outside the Project site.

**Ecological and Biological Resources** - The Proposed Action will be developed in an area of 1.4 acres previously disturbed and currently covered by herbaceous (grass) species. Property areas outside the designated construction area will remain in their current natural state. No direct impacts to federally or locally designated threatened or endangered species or their habitats are anticipated as result of the Proposed Action. The Proposed Action alternative would have no impacts to jurisdictional wetlands areas and U.S. Waters. Potential indirect impacts to natural systems adjacent to the Project site as result of the Proposed Action would include short-term indirect impacts due to erosion and sedimentation from the construction site. According to the findings of the Biological Resources Survey performed and the habitat categorization dispositions set forth by the New Wildlife Act of Puerto Rico (Law No. 241) and its regulations,

Parcel 46 natural habitat is classified as Natural Habitat with High Potential to Become Essential Habitat of High Ecological Value or Ecological Value (Category 5).

**Cultural, Historical, and Archaeological Resources** - The cultural, historical and archaeological resources within the Project area were assessed through a Phase IA study. The archaeological potential for finding either pre-colonial or colonial historic properties within Parcel 46 is low thus no significant impacts from the implementation of the Proposed Action would occur. The Proposed Action consist of a low profile undertaking with minimal visual impacts on the surrounding landscape, and as such it does not have the potential to adversely affect the character of above ground potential historic properties located in its surrounding area.

**Air Quality** – The area is classified as “attainment” for air quality standards. Implementation of the Proposed Action would potentially result in temporary and minor air pollutants emissions from construction-related activities and future operations. These emissions will be minor and are not expected to adversely affect the air quality of the area nor its designation as an attainment area.

**Noise** - Noise levels would temporary increase in the Project area and its vicinity as result of the use of heavy equipment and machinery during construction of the Proposed Action. Although regulatory noise limits could be exceeded during construction activities, noise emissions would be temporary and intermittently produced. Noise emissions from the construction of the Proposed Action would have minor effects on the area.

**Utilities and Infrastructure** - The existing infrastructure in the area has the capacity to service the Proposed Action. The roadways network and road access are also adequate to service the Project.

**Hazardous Materials** - A Phase II ESA performed at Parcel 46 confirmed the presence of petroleum products in groundwater and in soils at depths ranging from 8 to 14 feet below the ground surface associated with two Solid Waste Management Units (SWMUs) located to the north and hydrologically up gradient to Parcel 46. These sites are currently undergoing a remediation scheme based on monitored natural attenuation and a containment/collection

program. Although the construction of the Proposed Action at Parcel 46 includes disturbance to soil and groundwater beneath the site, only a limited amount of soil cuttings and groundwater removal will result during the Project's structural foundation development (if driven pile system option is selected). This action could potentially generate direct negligible non-adverse impacts to the contaminated soil and groundwater beneath the site. Waste stream of either media will be handled through implementing institutional controls as BMPs. Hazardous materials and waste produced by the placement of utilities, security fencing and other improvements would be managed using applicable storage, transfer, and disposal regulations.

**Socioeconomic** - The construction of the facility is estimated at a cost of approximately \$2.1 million and approximately 24 direct jobs would be generated during the construction phase. The construction of the Proposed Action is expected to have a positive economic impact to the regional and local economy due to temporary employment and increase in sales from construction related services, materials and supplies.

**Environmental Justice** - The Proposed Action would not result in disproportionately high and/or adverse human or environmental effects on children, minorities or low-income populations.

**Sustainability and Greening** - The Proposed Action would result in long-term beneficial impacts from operating a facility that incorporates sustainable practices, reducing operating costs through energy efficient and water use reductions and reducing impacts to the environment.

**Cumulative Impacts** - Based on the evaluation of the potential environmental impacts from the Proposed Action, impacts from past actions and historical uses, and expected impacts from future actions associated to the redevelopment of the NAPR area, it is determined that the Proposed Action effects to cumulative impacts in the area would be negligible.

## **MITIGATION AND BEST MANAGEMENT PRACTICES**

Mitigation measures would not be required to reduce impacts to below significance thresholds or compensation by replacing or providing substitute resources or environments as a result of implementing the Proposed Action. The EA describes the BMPs and protection measures that

would be implemented to reduce or eliminate potential adverse impacts to the human and natural environments during construction and operation of the Proposed Action. Some of the BMPs that will be implemented during the construction and operation phases of the new marine facility are listed below:

- Development and implementation of a Sediment and Erosion Control Plan (SECP), and a Stormwater Pollution Prevention Plan (SWPPP) to manage stormwater runoff during construction activities. An effective combination of soil erosion and sediment controls will be in place prior to earth moving activities to prevent sediment from leaving the site and/or entering a storm water drainage or receiving water such as Ensenada Honda.
- Installation of a permanent stormwater control system to manage post-construction site runoff.
- A spill prevention and response plan that describes planning, prevention, and control measures to minimize impacts resulting from a spill of any hazardous materials would be implemented.
- Good housekeeping practices and preventive maintenance during operation of the facility.
- The final design and supporting engineering studies of the Proposed Action would give special consideration to location of the different components of the Project and required flood protection measures in compliance with applicable regulations.
- Implement manatee protection measures such as posting signs which will warn that manatees use the area (“Manatee Area”) and limiting boat speed (“No Wake Zone”).
- Proper and routine maintenance of all construction equipment and vehicles to ensure emissions are within design standards.
- Fugitive dust control measures including applying water before/during earthwork and onto unpaved traffic areas and construction equipment/vehicle speed limits.
- Waste stream of contaminated media will be handled through institutional controls, which will consist of physical barriers to restrict access to the site, such as fencing and the installation of appropriate “no trespassing” signs to warn of potential hazards on site.



- Hazardous materials and waste would be managed using applicable storage, transfer, and disposal regulations.
- Safety buffer zones would be designated around the entire construction site to ensure public health and safety.

## **FINDINGS AND CONCLUSIONS**

Based upon the analyses of the EA and the BMPs to be incorporated as part of the Proposed Action, it has been concluded that the Proposed Action will not result in any significant adverse effects to the environment, and therefore preparation of an Environmental Impact Statement (EIS) is not required.

# RESUMEN EJECUTIVO

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## INTRODUCCIÓN

La Aduana y Protección Fronteriza de los Estados Unidos (CBP, por sus siglas en inglés) es uno de los componentes más grandes y complejos del Departamento de Seguridad Nacional (DHS, por sus siglas en inglés), cuya misión prioritaria es asegurar las fronteras de los Estados Unidos. La Oficina de Aire y Marina (OAM) de CBP patrulla las fronteras terrestres y marítimas de la nación para proteger a los ciudadanos y la infraestructura crítica a través del uso coordinado de sus fuerzas aéreas y marítimas.

Al presente, la Unidad Marítima de Fajardo adscrita a la OAM opera desde unas oficinas administrativas ubicadas en un área rentada en Fajardo, Puerto Rico. CBP propone la construcción y operación de una nueva instalación para su Unidad Marítima en una parcela de terreno (designada como Parcela 46) que ubica en la antigua Estación Naval de Roosevelt Road en Ceiba, Puerto Rico y actualmente denominada como Actividad Naval Puerto Rico (NAPR). En la Parcela 46 ubican dos muelles iluminados y una rampa de botes construidos por CBP para sus operaciones dentro de NAPR. En el 2011, CBP adquirió la Parcela 46 como parte del proceso de Reasignación y Cierre de Bases (BRAC) realizado por el Navy con el objetivo de mantener el acceso por tierra a sus muelles y rampa para realizar sus funciones de patrullaje dentro de NAPR. Actualmente continúan utilizando el área para estos propósitos.

CBP ha preparado esta Evaluación Ambiental (EA) para analizar los impactos potenciales de la Acción Propuesta al ambiente natural y humano. La EA ha sido preparada de acuerdo con las disposiciones de la Ley Nacional de Política Ambiental (NEPA) del 1969, las regulaciones del Consejo de Calidad Ambiental (CEQ), la Directiva Gerencial (MD) 023-01 del Programa de Planificación Ambiental del Departamento de Seguridad Nacional (DHS), la Ley de Política Publica Ambiental de Puerto Rico (Ley Núm. 416), el Reglamento de Evaluación y Tramite de Documentos Ambientales de la Junta de Calidad Ambiental (JCA) de Puerto Rico y el Reglamento Conjunto de Permisos para Obras de Construcción y Usos de Terrenos de Puerto Rico.

## **PROPÓSITO Y NECESIDAD**

El propósito del Proyecto es proveer una nueva instalación para la Unidad Marítima en cumplimiento con los requisitos de seguridad y estándares de diseño de CBP en apoyo a las necesidades críticas de la misión de CBP para su operación en el área de Ceiba, Puerto Rico.

El Proyecto es necesario para proveer a la Unidad Marítima adscrita a la OAM de CBP de unas instalaciones adecuada en cumplimiento con los criterios vigentes de diseño y prácticas de sostenibilidad, además cercana al área de los muelles y rampa de botes existentes para permitir una operación integrada y efectiva para cumplir con su misión prioritaria de protección de fronteras e infraestructura crítica de los EE.UU.

## **DESCRIPCIÓN DE ALTERNATIVAS**

Las alternativas seleccionadas para discusión en la EA son la Alternativa de No Acción y la Alternativa de la Acción Propuesta.

**Alternativa de No Acción** - La Alternativa de No Acción proporciona una base sobre la cual los potenciales impactos de la Acción Propuesta y otras alternativas pueden ser evaluados y representa las condiciones ambientales existentes, si no se implementa la Acción Propuesta. Bajo la Alternativa de No Acción, una nueva instalación marítima no sería construida y la Unidad Marítima de CBP continuaría su operación desde sus instalaciones existentes. La Alternativa de No Acción no satisface el propósito y necesidad del Proyecto según establecidas.

**Alternativa de la Acción Propuesta** – La Acción Propuesta consiste en la construcción de una nueva instalación en la Parcela 46 para la Unidad Marítima adscrita a la OAM de CBP. La Unidad Marítima de Fajardo y sus barcos serian reubicados permanentemente a las nuevas instalaciones. La nueva instalación marina constará de un edificio administrativo de apoyo marítimo, un hangar de mantenimiento de embarcaciones/almacenamiento con amarres anti-huracán, estacionamiento de vehículos de aproximadamente 15 espacios, iluminación exterior, una verja de seguridad permanente y equipo de seguridad física e infraestructura. Todos los servicios de utilidades se proveerán de la red de servicios existentes ubicadas a lo largo de la carretera de acceso Forrestal Drive. Las utilidades existentes en el área del Proyecto serán

removidas o reubicadas según sea necesario para cumplir con el diseño de la nueva instalación propuesta.

Las opciones de tipo de edificio y cimentación estructural para la construcción del edificio administrativo principal propuesto como parte de la Acción Propuesta pudieran incluir las siguientes:

1. Un edificio de un (1) nivel que estará provisto con una elevación final de dos (2) pies sobre el nivel de inundación base y estará sostenido sobre cimentación artificial tipo losas de cimentación semi-rígidas, cimientos continuos o enrejillado.
2. Un edificio de dos (2) niveles, para el cual se pueden considerar dos (2) opciones de cimentación:
  - a. Una estructura de dos (2) niveles a ser construida sobre el nivel final de sobrecarga.
  - b. Una estructura de dos (2) niveles apoyada sobre pilotes estructurales (cimentaciones profundas hincadas a percusión).

La Acción Propuesta cumplirá con las restricciones de uso de la propiedad que incluyen: uso no residencial, no utilización de las aguas subterráneas, no interferir con el flujo de agua subterránea (incluyendo extracción de agua) y no instalar nuevos pozos de monitoreo o remover los existentes. Adicionalmente, la Acción Propuesta será planificada y diseñada de manera que se minimicen las perturbaciones al suelo o excavaciones excesivas considerando las condiciones ambientales del área. Parte de la Parcela 46 ubica en áreas de riesgo de inundaciones (Zona VE y Zona AE) por lo que se requiere el depósito de relleno para elevar el edificio administrativo propuesto por encima del nivel base de inundación.

Las nuevas instalaciones serán diseñadas en cumplimiento con los Estándares de Diseño para Facilidades de la Oficina de Aire y Marina de CBP y los Principios Rectores para el Liderazgo Federal en Alto Rendimiento y Edificios Sostenibles. La nueva instalación también pretende cumplir con los requisitos de Certificación Oro de Liderazgo en Diseño Ambiental y Energético (LEED, por sus siglas en inglés).

La construcción de las nuevas instalaciones se estima a un costo de \$2.1 millones y la fase de construcción tendrá una duración estimada de aproximadamente 12 meses.

## **AMBIENTE EXISTENTE Y CONSECUENCIAS**

La EA evalúa los impactos potenciales directos, indirectos y acumulativos de la Acción Propuesta sobre el ambiente natural y humano.

**Usos de Terrenos** – La Acción Propuesta será desarrollada en un predio de 1.4 acres localizado en un área previamente impactada e intensamente desarrollada dentro de una antigua base militar. Los usos de terrenos propuestos son compatibles con los usos históricos y actuales en el área.

**Geología y Suelos** – La construcción de la Acción Propuesta no causará impactos adversos significativos a las condiciones geológicas existentes en el predio cuando se toma en consideración la limitada huella del Proyecto y los impactos pasados causados por el depósito de relleno artificial y actividades de movimiento de tierra en el lugar. Los impactos directos a corto plazo a los suelos de relleno (“made land”) debido a las perturbaciones del suelo asociadas con las actividades de nivelación y de construcción como para parte de la Acción Propuesta se anticipa serán mínimos y no significativos.

**Recursos de Agua** – El cuerpo de agua superficial más cercano a la Parcela 46 y único cuerpo de agua presente en un radio de 400 metros de la propiedad es Ensenada Honda, el cual bordea la propiedad por su límite sur. Existe el potencial de impactos indirectos y temporeros a Ensenada Honda durante la construcción. Estos impactos estarán principalmente asociados al aumento en la erosión y sedimentación de los suelos, introducción de contaminantes a las aguas superficiales y cambios en los patrones de escorrentías. No se espera que la Acción Propuesta afecte el uso designado de Ensenada Honda y su cumplimiento con los estándares de calidad de agua aplicables.

**Áreas Inundables** – Aproximadamente 0.8 acres (60% del predio) están ubicados en áreas con riesgos de inundación (zonas AE y VE) por lo que pudieran haber efectos sobre las áreas inundables y riesgo de pérdidas por inundación. La planicie de inundación existente sería



alterada para acomodar el desarrollo propuesto sobre los niveles regulatorios de inundación. Dada la localización del predio (propiedad frente al mar) y la naturaleza de las inundaciones en el área, la construcción de la Acción Propuesta no tendrá efectos en los niveles de inundación fuera del predio.

**Recursos Ecológicos y Biológicos** – La Acción Propuesta será desarrollada en un área de 1.4 acres previamente perturbada y actualmente cubierta con especies herbáceas (grama). Las demás áreas de la propiedad fuera del área designada de construcción permanecerán en su estado natural. No se anticipan impactos directos a especies designadas a nivel local o federal como amenazadas o en peligro de extinción o a sus hábitats como resultado de la Acción Propuesta. La Alternativa de la Acción Propuesta no tendrá impactos a áreas jurisdiccionales de humedales o aguas de los EE.UU. Los impactos indirectos potenciales a los sistemas naturales adyacentes al área del Proyecto como resultado de la Acción Propuesta pudieran incluir impactos indirectos a corto plazo debido a la erosión y sedimentación del área de construcción. De acuerdo a los hallazgos del Estudio de Recursos Biológicos realizado y las disposiciones de la Nueva Ley de Vida Silvestre de Puerto Rico (Ley Núm. 241) y su reglamento, el hábitat natural de la Parcela 46 se clasifica como Hábitat Natural con Alto Potencial de Convertirse en Hábitat de Alto valor Ecológico o de Valor Ecológico (Categoría 5).

**Recursos Culturales, Históricos y Arqueológicos** – Los recursos culturales, históricos y arqueológicos en el área del Proyecto fueron evaluados mediante un Estudio Fase IA. El potencial arqueológico de encontrar propiedades históricas, ya sean pre-coloniales o coloniales, dentro de la Parcela 46 es bajo por lo que la implementación de la Acción Propuesta no tendría impactos significativos. La Acción Propuesta consiste de una edificación de bajo perfil con impactos visuales mínimos al paisaje circundante, y como tal, no tiene el potencial de afectar adversamente el carácter de potenciales estructuras históricas localizadas en sus alrededores.

**Calidad de Aire** – El área está clasificada como “área de logro” para los estándares de calidad de aire. La implementación de la Acción Propuesta tiene el potencial de causar de emisiones menores y temporeras de contaminantes de aire debido a las actividades relacionadas a la

construcción y operación futura. Estas emisiones serán menores y no se esperan afecten adversamente la calidad del aire en el área ni su designación como área de logro.

**Ruido** – Los niveles de ruido pudieran aumentar de forma temporera en el área del Proyecto y su vecindad como resultado de la utilización de equipo pesado y maquinaria durante la construcción de la Acción Propuesta. Aunque los límites regulatorios de ruido pudieran excederse durante las actividades de construcción, las emisiones de ruido serán de carácter temporero y producidas de forma intermitente. Las emisiones de ruido asociadas a la construcción de la Acción Propuesta tendrán un efecto menor en el área.

**Infraestructura y Utilidades** – La infraestructura existente en el área cuenta con la capacidad para servir la Acción Propuesta. La red vial y carreteras de acceso son también adecuadas para servir al Proyecto.

**Materiales Peligrosos** – Una Evaluación Ambiental de Sitio Fase II realizada en la Parcela 46 confirmó la presencia de productos derivados del petróleo en las aguas subterráneas y en los suelos a profundidades que van de 8 a 14 metros bajo la superficie del terreno asociados con dos Unidades de Manejo de Desperdicios Sólidos (SWMU) ubicadas al norte e hidrológicamente gradiente arriba de la Parcela 46. Estos SWMU se encuentran actualmente en un plan de remediación basado en atenuación natural monitoreada y un programa de contención/colección. Aunque la construcción de la Acción Propuesta en la Parcela 46 incluirá perturbaciones al suelo y al agua subterránea, sólo una cantidad limitada de cortes del suelo y la eliminación de las aguas subterráneas tendrán lugar durante la instalación de los pilotes estructurales (si se selecciona esta opción). Dicha acción tiene el potencial de generar efectos directos no adversos e insignificantes al suelo contaminado y al agua subterránea. Los residuos de cualquiera de estos medios serán manejados a través de la implementación de controles institucionales y mejores prácticas de manejo. Los desperdicios y materiales peligrosos producidos por la instalación de utilidades, verjas de seguridad, y otras mejoras serán manejados de acuerdo a las regulaciones aplicables para el almacenamiento, traslado y disposición de dichos materiales.

**Socioeconómico** – La construcción de la nueva instalación se estima tendrá un costo aproximado de \$2.1 millones y generará aproximadamente 24 empleos directos durante la fase de

construcción. Se espera que la construcción de la Acción Propuesta tenga un impacto económico positivo para la economía regional y local debido a la creación de empleos temporeros y al aumento en las ventas de servicios, materiales y suministros relacionados a la construcción.

**Justicia Ambiental** – La Acción Propuesta no resultará en efectos humanos o ambientales adversos o desproporcionalmente elevados sobre niños, grupos minoritarios o poblaciones de bajos recursos.

**Sostenibilidad** - La Acción Propuesta tendrá como resultado impactos beneficiosos a largo plazo como consecuencia de la operación de una instalación que incorporará prácticas sostenibles, reduciendo los costos de operación a través de la eficiencia energética, la reducción del uso del agua y la reducción de los impactos en el medio ambiente.

**Impactos Acumulativos** – De acuerdo a la evaluación de los impactos ambientales potenciales de la Acción Propuesta, los impactos de las acciones pasadas y usos históricos, y los impactos esperados de las acciones futuras asociadas al redesarrollo del área de NAPR, se determina que los efectos de Acción Propuesta sobre los impactos acumulativos en el área son insignificantes.

## **MITIGACIÓN Y MEJORES PRÁCTICAS DE MANEJO**

No se requieren medidas de mitigación para reducir los impactos por debajo de los umbrales de significancia o compensación mediante el reemplazo o la provisión de recursos sustitutos o entornos como consecuencia de la implementación de la Acción Propuesta. La EA describe las mejores prácticas de manejo (BMPs, por sus siglas en inglés) y medidas de protección que serán implementadas para reducir o eliminar los impactos potenciales adversos al ambiente natural y humano durante la construcción y operación de la Acción Propuesta. Algunos de los BMPs que se implementarán durante las fases de construcción y operación de las nuevas instalaciones se enumeran a continuación:

- Desarrollo e implementación de un Plan de Control de Erosión y Sedimentación (CES) y un Plan de Prevención de Contaminación de Aguas Pluviales (SWPPP, por sus siglas en inglés) para manejar las escorrentías pluviales durante las actividades de construcción. Previo a las actividades de movimiento de tierra se implantará una combinación efectiva

de controles de erosión y sedimentación para evitar que los sedimentos sean arrastrados fuera del lugar de construcción y/o ganen acceso a los drenajes de escorrentía pluvial o a cuerpos de agua superficiales como Ensenada Honda.

- Instalación de un sistema de control de aguas pluviales permanente para manejar las escorrentías del lugar posterior a la construcción.
- Desarrollo e implementación de un plan de prevención y respuesta a derrames que incluirá medidas de planificación, prevención y control para minimizar los impactos resultantes de derrames de cualquier sustancia peligrosa.
- Buenas prácticas ambientales y de mantenimiento preventivo durante la operación de la instalación.
- El diseño final de la Acción Propuesta y los estudios de ingeniería en apoyo al diseño le darán especial atención a la ubicación de los diferentes componentes del Proyecto y las medidas de protección contra inundaciones requeridas en cumplimiento con las regulaciones aplicables.
- Se implementarán medidas de protección para los manatíes como colocar rótulos que adviertan que los manatíes usan la zona ("Manatee Area") y límites de velocidad de las embarcaciones ("No Wake Zone").
- Mantenimiento adecuado y rutinario de todos los equipos de construcción y vehículos para asegurar sus emisiones estén dentro de los estándares de diseño.
- Medidas de control de polvo fugitivo, incluyendo la aplicación de agua antes/durante el movimiento de tierra y en áreas no pavimentadas de tránsito, y establecimiento de límites de velocidad a equipos y vehículos de construcción.
- Los residuos de agua o suelos contaminados serán manejados a través de la implementación de controles institucionales, que consistirán de barreras físicas para restringir el acceso al sitio, como verjas y la instalación de señalización adecuada ("prohibido el paso") para advertir de peligros potenciales en el lugar.
- Los desperdicios y materiales peligrosos serán manejados de acuerdo a las regulaciones aplicables para el almacenamiento, traslado y disposición de dichos materiales.

- Zonas de amortiguamiento (buffer) de seguridad serán establecidas alrededor de la obra de construcción para garantizar la salud y seguridad pública.

## **HALLAZGOS Y CONCLUSIONES**

Conforme a los análisis de la EA y las mejores prácticas de manejo a ser implementadas como parte de la Acción Propuesta, se concluye que la Acción Propuesta no resultará en efectos adversos significativos al medio ambiente, y por lo tanto la preparación de una Declaración de Impacto Ambiental (DIA) no es requerida.

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## **APPENDICES**

### **Appendix A: Correspondence**

### **Appendix B: Biological Resources Survey Report**

# 1. INTRODUCTION

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The U.S. Customs and Border Protection (CBP) proposes to construct a new marine facility at a parcel of land (designated as Parcel 46) located within the former Naval Station Roosevelt Roads (NSRR) in Ceiba, Puerto Rico and currently referred to as Naval Activity Puerto Rico (NAPR) for the CBP Office of Air and Marine (OAM). Parcel 46 consists of a 1.94 acre mostly vacant lot which borders the Ensenada Honda waterfront (**Figure 1 - Location Map**). It is improved with two lighted boat piers and a boat ramp built and owned by CBP for its operation within the NAPR. Parcel 46 was recently acquired by CBP from the U.S. Navy (Navy) under the Base Realignment and Closure (BRAC) property disposal process. The Proposed Action will allow CBP to consolidate its operation in one location. The new marine facility will meet CBP current design standards and security requirements, and will provide additional space to meet mission demands.

CBP has prepared this Environmental Assessment (EA) to analyze the potential impacts of the Proposed Action to the human and natural environments. The EA was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality (CEQ) regulations, the Department of Homeland Security (DHS) Management Directive (MD) 023-01 - Environmental Planning Program, the Environmental Public Policy Act of Puerto Rico (Act No. 416), the Puerto Rico Environmental Quality Board (EQB) Regulation for Evaluation and Processing of Environmental Documents, and the Puerto Rico Joint Regulation for Construction and Land Use Permits.

## 1.1. BACKGROUND

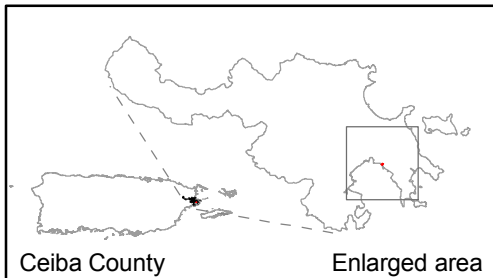
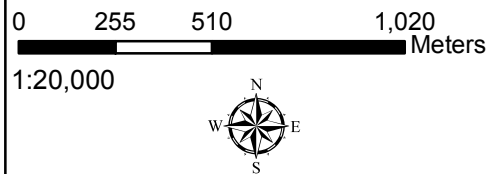
CBP is one of the largest and most complex components of the Department of Homeland Security (DHS), with a priority mission of securing the borders of the United States. CBP OAM patrols the nation's land and sea borders to protect the American people and critical infrastructure through the coordinated use of integrated air and marine forces to detect, interdict, and prevent acts of terrorism and the unlawful movement of people, illegal drugs and contraband toward or across the borders of the U.S.

Figure 1: Location Map

**Environmental Assessment for CBP  
New Marine Facility, Ceiba, PR**



SALO Engineering, PSC

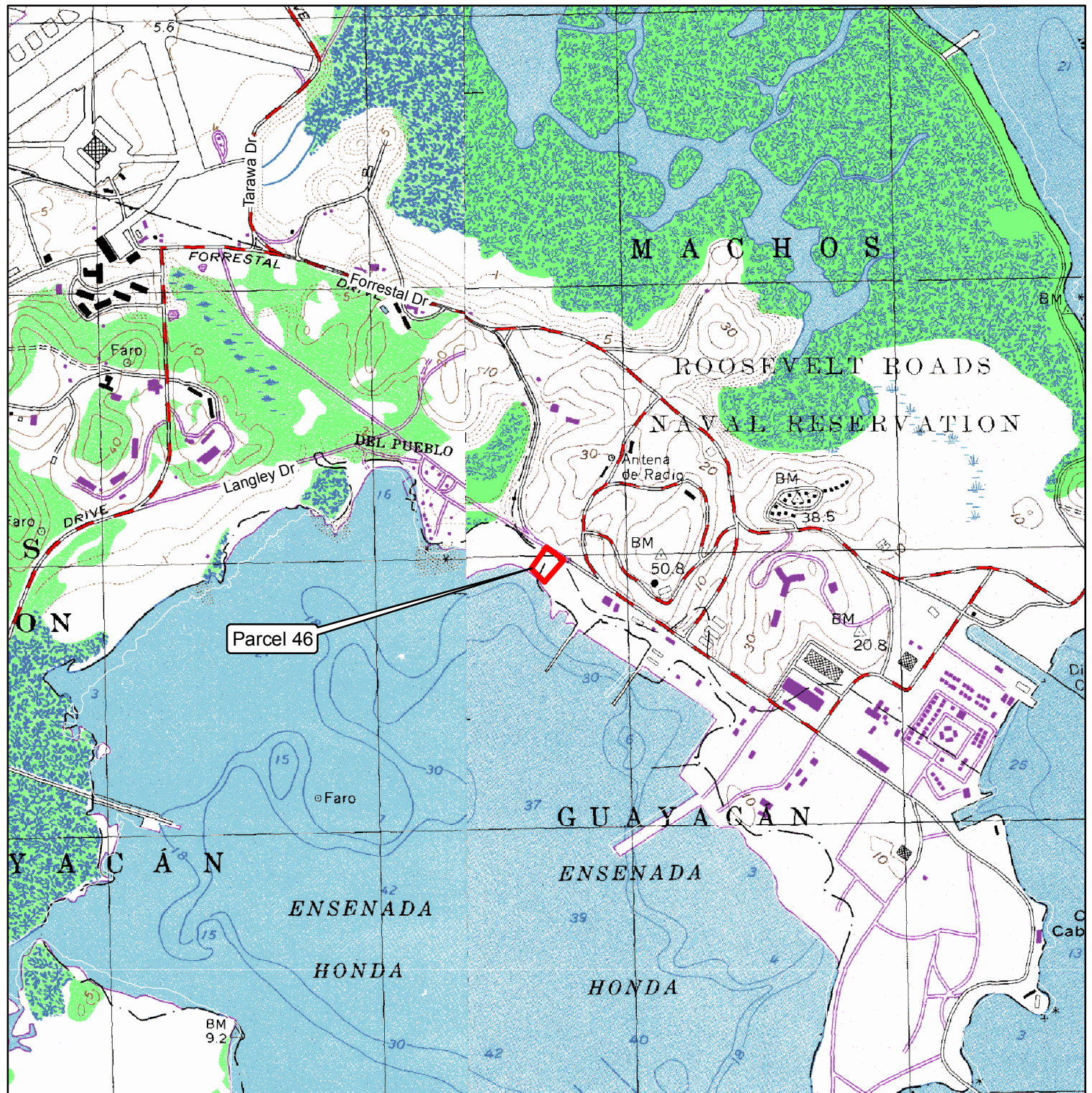


**Legend**

Parcel 46 - Property Boundary

**Sources**

U.S. Geological Survey [USGS]. 1967. Topographic Digital Raster Graphic of 7.5 x 7.5 min Naguabo quadrangle photorevised in 1982.  
U.S. Geological Survey [USGS]. 1957. Topographic Digital Raster Graphic of 7.5 x 7.5 min Punta Puerca quadrangle.  
Existing Topography and As-Built prepared by Surveyor Luis Lopez, November 2011





Presently, the CBP OAM Fajardo Marine Unit operates from an administrative office situated in a leased space at Sunbay Marina located in Barrio Sardinera-Parcela Beltrán in Fajardo, Puerto Rico. As previously mentioned, as part of its operation within the NAPR, CBP owned two lighted boat piers and a boat ramp located in the southern portion of Parcel 46. In 2011, CBP acquired Parcel 46 from the Navy under the BRAC property disposal process in order to keep land access to its boat piers and ramp to perform their patrol duties.

A Phase I Environmental Site Assessment (ESA) pursuant to requirements and limitations of the American Society for Testing and Materials (ASTM) Standard Practice E1527-05 was conducted at Parcel 46. The Phase I ESA reported the presence of minor concentrations of petroleum contamination in the site groundwater due to a jet fuel (JP-5) spill that had occurred within the area on October 19, 1999 (P&S, 2010). On 2011, a Phase II ESA (ASTM Standard Practice 1903-11) conducted at Parcel 46 confirmed the presence of petroleum products in groundwater and in soils at depths ranging from 8 to 14 feet below the ground surface.

Two Solid Waste Management Units (SWMUs) are located to the north and hydrologically up-gradient to Parcel 46: SWMU 7/8 “Tow Way Fuel Farm” and SWMU 74 “Fuel Pipelines and Hydrant Pits”. SWMU 7/8 “Tow Way Fuel Farm” consists of 9 bombproof underground storage tanks used for the storage of marine, diesel, jet, and bunker fuels. Whereas, SWMU 74 consists of specific portions of JP-5 and diesel marine fuel pipelines, and aircraft hydrant refueling pits. Petroleum groundwater contamination plumes are associated with these sites. The SWMUs are being managed under the Resource Conservation and Recovery Act’s (RCRA) Corrective Action Program by the U.S. Environmental Protection Agency (Region 2) and the Puerto Rico Environmental Quality Board (EQB). These sites are currently undergoing a remediation scheme based on monitored natural attenuation and a containment/collection program. The Navy will still be responsible for the continued investigation and cleanup of these sites. CBP is responsible for adhering to the following land use restrictions at Parcel 46:

- Non-residential use only;
- No groundwater use;
- No disturbance to groundwater flow, including dewatering; and

- No installation of wells or the removal/damage of existing wells on the parcel.

A Feasibility Study (FS) was conducted to examine the feasibility of constructing a facility on Parcel 46 in supporting the critical needs of the CBP mission through the CBP Marine Unit operating in Ceiba, Puerto Rico (SALO, 2012). Taking into consideration the existing environmental and land-use restrictions of the parcel as well as the Leadership in Energy and Environmental Design (LEED) Gold Certification goal, four general alternatives were presented in the initial phase of the FS, from which two alternatives (site layouts) were selected and conceptual designs were provided in the final FS. The conceptual designs were developed based on current program requirements for the CBP Marine Unit, site specific considerations, local codes and standards, and the CBP OAM Facility Design Standard. The conceptual alternatives considered in the FS comply with all land-use restrictions and were conceptualized to minimize soil disturbance or excessive excavations given the environmental conditions at the site.

## **1.2. PURPOSE AND NEED**

The purpose of the Project is to provide a new marine facility in compliance with CBP current security requirements and design standards to support the critical needs of the CBP mission through the CBP Marine Unit operating in Ceiba, Puerto Rico. The new facility shall meet the current CBP OAM Facility Design Standard (CBP, 2010) for all air and marine facilities and the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings in accordance with Executive Order (EO) 13423. The CBP OAM Facility Design Standard was issued in 2010 to respond to operational requirements and to establish architectural and engineering criteria for all OAM facilities.

The Project is needed to provide the CBP OAM with an updated facility in compliance with current design criteria and sustainability practices, and in close proximity to boat piers and boat launch areas to allow for an integrated and effective operation to meet its priority mission of protecting the borders and critical infrastructure of the U.S.

### 1.3. PUBLIC INVOLVEMENT

CEQ regulations and DHS policy require public involvement in the environmental impact evaluation process leading to the preparation of an EA. Public participation processes include the following:

- The draft EA and FONSI will be made available for public review for 30 days.
- A Notice of Availability (NOA) of the draft EA and Finding of No Significant Impact (FONSI) will be published in a local newspaper of general circulation for at least two days. The NOA will be published in both the Spanish and English languages.
- The draft EA and FONSI will be available through internet at CBP's public website for a period of at least 30 calendar days. A hardcopy will also be available at the public library of Ceiba for public review.

Coordination and consultation with federal and state agencies occurred at the initial preparation stages of this EA (copies of correspondence are provided in **Appendix A**). Formal and informal coordination was conducted and is on-going with the following agencies:

- Local Redevelopment Authority (LRA) for Roosevelt Roads
- Municipality of Ceiba
- U.S. Navy
- U.S. Fish and Wildlife Service (USFWS)
- Institute of Puerto Rican Culture (ICP)
- State Historic Preservation Office (SHPO)
- Department of Natural and Environmental Resources (DNER)

## 2. PROPOSED ACTION AND ALTERNATIVES

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The alternatives selected for discussion in the EA are the No Action Alternative and the Proposed Action Alternative. No other site alternatives were considered as Parcel 46 is owned by CBP, strategically located, and situated in a secure area.

### 2.1. NO ACTION ALTERNATIVE

The No Action Alternative provides a baseline against which potential impacts of the Proposed Action and other alternatives can be evaluated and represents the environmental existing conditions if the Proposed Action is not implemented. Under the No Action Alternative, a new marine facility will not be constructed and the CBP Marine Unit will continue its operation from its existing facilities. If the No Action Alternative is chosen, CBP's requirement for an updated facility in compliance with current design standards, including security requirements and sustainable practices, and in close proximity to boat piers and boat launch areas to allow for an integrated and effective operation will not be met. Under this alternative, CBP's goal to increase operational effectiveness to meet its priority mission of protecting the borders and critical infrastructure of the U.S. will not be attained.

### 2.2. PROPOSED ACTION ALTERNATIVE

The Proposed Action consists of the construction of a new marine facility for the CBP OAM Marine Unit within Parcel 46 (also referred as "the property") located at Naval Activity Puerto Rico (NAPR) in the Municipality of Ceiba, Puerto Rico. Parcel 46 is located on 1.94 acres of land bordering the Ensenada Honda waterfront, a naturally protected harbor (**Figure 1 - Location Map**). The CBP OAM Fajardo Marine Unit and its boats will be permanently relocated to the new facility. By relocating the marine unit to Parcel 46, the CBP will have direct access to its boat piers and ramp located within the property thus reducing response time and operating costs.

The limits of Parcel 46 are: Forrestal Drive and a Tow Way Fuel Farm to the north; Ensenada Honda to the south; a lot property of the Federal Government to the east, where the Watercraft



Maintenance Support Center of the PR Army National Guard is located; and a Government of Puerto Rico lot with mangrove wetlands to the west. Lambert Coordinates (State Plane NAD 83 Meters): X: 285837.09, Y: 244360.24.

Parcel 46 and its surroundings have been impacted by deposits of artificial fill and the construction of electric, sanitary and water utilities. It is improved with two lighted boat piers and a boat ramp built and owned by CBP for its operation within the NAPR. The boat piers are supplied with potable water as well as wastewater connections to the sanitary sewer system. The site is currently used by CBP for storage of boats and trailers, and for land access to the boat piers and ramp to perform their patrol duties. The dominant vegetation within the property consists of herbaceous species that are frequently mowed as part of the maintenance activities associated with current uses. At present, a temporary security fence delimits portions of Parcel 46, including already impacted areas of the property (**Figure 2 – Aerial Photo**). The new marine facility will be located within this area of approximately 1.4 acres (referred hereon as Project site). The temporary fence will be replaced with a permanent fence, which will be connected to a motorized gate and physical security system. Project construction activities will not extend beyond the fenced area. Property areas outside the fence perimeter will remain in their current natural state.

The new marine facility will consist of a marine support administrative building, boat maintenance/storage hangar with hurricane tie downs, and exterior parking with approximately 15 parking spaces, outdoor lighting, and a permanent security fence. The Project will also have physical security equipment and infrastructure, including but not limited to, Closed-Circuit Television (CCTV), Intrusion Detection Systems, Perimeter Security Fencing, and a Secure Motorized Entry Gate, as required by CBP Internal Affairs (IA) Security Management Division (SMD). The following maritime vessels would be operated from the new marine facility: three (3) 39' Interceptors, one (1) 42' U/C vessel, two (2) 36'U/C vessels, and one (1) small 19' vessel.

The facility will be accessed from Forrestal Drive. All utilities shall be provided from existing service mains located along Forrestal Drive. Existing utilities in the Project area will be removed

or relocated as needed to meet the design of the newly proposed facility. Additionally, the facility will be equipped with an emergency power generator.

The Proposed Action will be in compliance with the property's land-use restrictions including non-residential use, no groundwater use, no disturbance of groundwater flow (including dewatering), and no installation of wells or the removal of existing wells. In addition, the Proposed Action will be planned and designed in such a manner to minimize soil disturbance or excessive excavations given the environmental conditions at the site. Portions of Parcel 46 are located in flood hazard areas (Zone VE and Zone AE) and placing of fill will be required to elevate the proposed administrative building location above the regulatory flood level. The amount of fill required to increase site elevation above the regulatory flood level could range from approximately 1,100 to 1,525 cubic meters in order to raise the existing grade elevation by 1.0 to 2.0 meters, depending on the building options and construction method selected.

During the initial Project planning phase a Feasibility Study (FS) was performed and various conceptual site layout options for the development of the facility were considered, including single-story and two-story building options. As part of the FS, a preliminary geotechnical study was conducted which found that a typical shallow spread foundation was unsuitable to support a two-story structure due to sub-soil conditions at the site. The study provides recommendations on various structural foundation options for constructing the new administrative building that can be considered during the final design phase of the facility in a future stage. Building and structural options for construction of the main administrative facility as part of the Proposed Action may include:

1. A single-story building provided with a two feet (ft.) elevation over the flood level supported over semi-rigid mat foundations, continuous foundations, and grid or spread footings.
2. A two-story building, for which two structural foundations options may be considered:
  - a. A two-story structure to be built over a surcharged final grade due to the poor sub-soil conditions found at the site. Pre-construction activities for this option will require ground improvements consisting of the placement of a 12 ft. surcharge

over final grade elevation. The top of the surcharge will need to extend a minimum of 3 ft. beyond the proposed building footprint. Surcharge settlement duration is estimated to be 12 months.

- b. A two-story structure building supported on structural piles (driven deep foundations), such as 12 inch diameter or square section precast concrete piles. Pile lengths could vary from 30 to 40 ft. beneath ground surface. This structural option will generate very limited spoils.

The conceptual site layout options developed as part of the FS are shown in figures 3 and 4. **Figure 3** shows the single-story building option and **Figure 4** shows the two-story building option.

The new facility will be designed in compliance with the current CBP OAM Facility Design Standard. The proposed new facility is also intended to comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings and LEED Gold Certification requirements. The construction of the facility is estimated at a cost of approximately \$2.1 million and its construction phase is estimated to last approximately 12 months.

Figure 2: Aerial photo

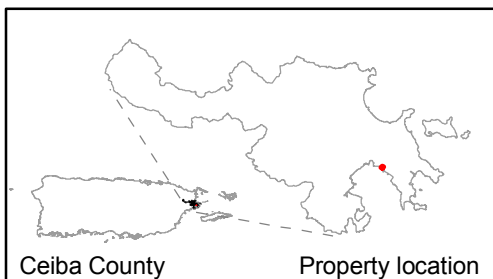
**Environmental Assessment for CBP  
New Marine Facility, Ceiba, PR**



SALO Engineering, PSC

0 10 20 40  
Meters




1:1,000



Ceiba County

Property location

**Legend**

-  Project limit (1.4 acres)
-  Parcel 46 (1.9 acres)
-  Roads

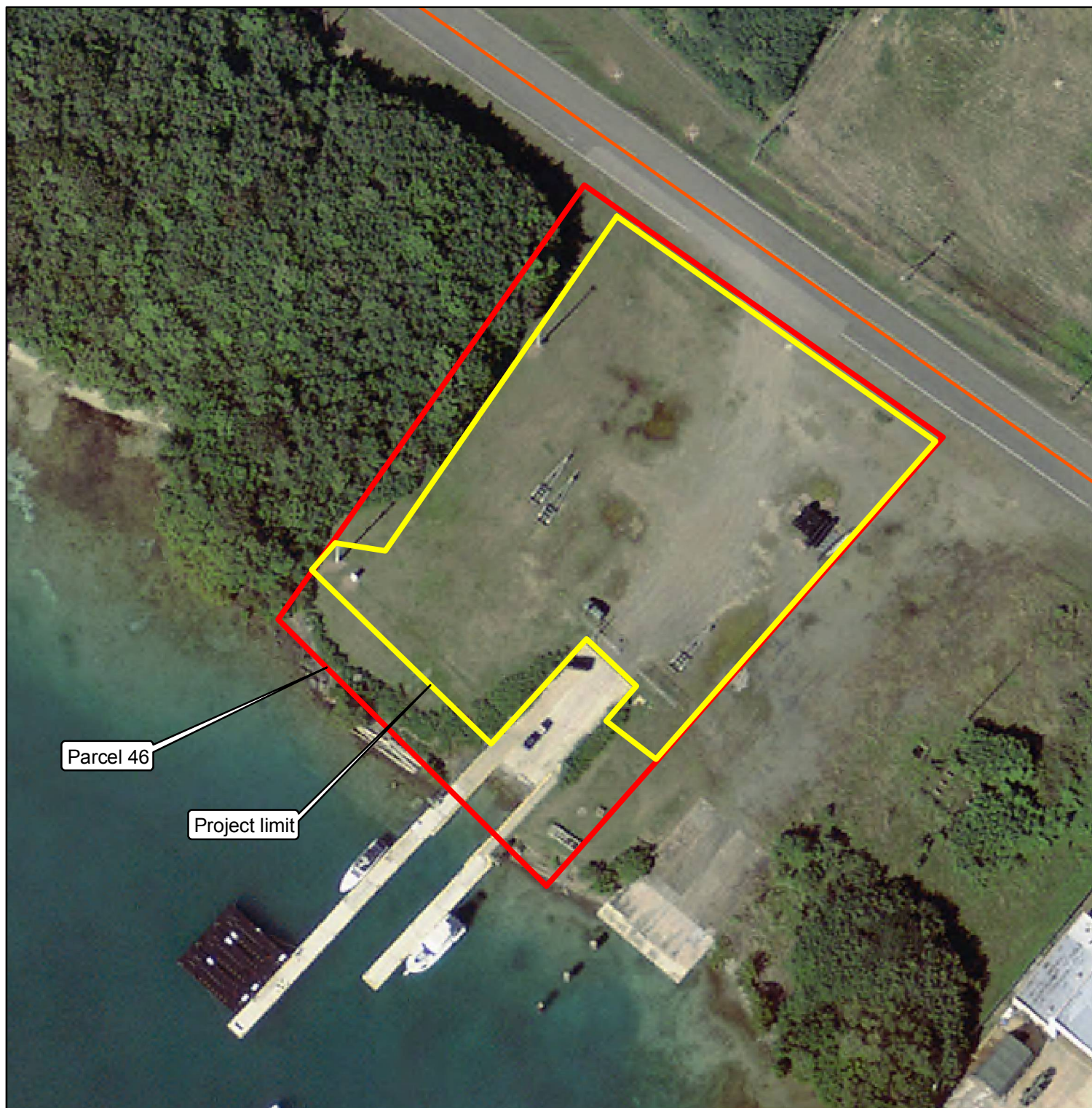
**Sources**

Aerial images from Puerto Rico Planning Board  
2009-2010.

Existing Topography and As-Built prepared by  
Surveyor Luis Lopez, November 2011

Project limit digitized from Google Earth (Version 7.1.1.  
1888) [Software]. Mountain View, CA: Google Inc.  
(2013), and edited in ArcGIS 9.3 by ESRI

Roads from US Census Bureau 2013 Tiger lines.









### **2.3. SUMMARY**

Table 1 summarizes the impacts of the Proposed Action and the No Action Alternative on the resources evaluated in the EA.

**TABLE 1. IMPACT COMPARISON MATRIX**

<b>Affected Environment</b>	<b>No Action Alternative</b>	<b>Proposed Action Alternative</b>
<b>Land Use</b>	Land uses at Parcel 46 will remain the same.	The Proposed Action will be located in a developed area formerly used to support Navy operations. The proposed land uses are compatible with historical and current land uses in the area, and with the proposed land uses in its surroundings, thus no impacts to current or proposed land uses would be expected.
<b>Geology</b>	The geologic setting at Parcel 46 would remain undisturbed.	The construction of the Proposed Action will not cause significant adverse impacts to existing geological conditions at Parcel 46, when considering the small area of the site, reduce footprint of the Project and past actions such as the deposit of artificial fill material and the installation of utilities and existing boat ramp.
<b>Soils</b>	No direct impacts on soils would occur.	Short-term direct impacts to made land soils due to soil disturbances associated with grading and construction activities of the Proposed Action are anticipated to be negligible. There would be no long-term adverse impacts to these soils due to their artificially deposited nature and previous impacts.
<b>Water Resources</b>	No direct or indirect impacts to surface waters or groundwater associated to construction activities would occur. Potential impacts to Ensenada Honda from current uses of Parcel 46 will remain the same, those impacts includes, transport of sediments due to erosion of exposed soils and potential introduction of contaminants from accidental oil/fuel spills from boats and vehicles.	The Proposed Action would not result in direct impacts to surface waters or groundwater. Surface waters of Ensenada Honda may experience temporary indirect impacts during construction and operation of the Proposed Action. Given the limited size of the proposed Project site, the temporary nature of the potential environmental disturbances, and the implementation of BMPs, the construction and operation of the Proposed Action would not result in adverse impacts on surface waters and groundwater in the area.



Affected Environment	No Action Alternative	Proposed Action Alternative
<b>Floodplains</b>	No additional direct impacts to floodplains or increase risk of flood loss would occur. Since portions of Parcel 46 are located within flood zone, CBP's limited operations at Parcel 46 would continue to be subject to flood hazards.	Approximately 0.8 acres (60% of the Project site) are located within floodable zone thus potential effects to floodplain and risk of flood loss could occur. The existing floodplain would be altered to accommodate the new facility above regulatory flood levels. Given the location of the proposed site (waterfront) and the nature of floods in the area, the construction of the Proposed Action would have no effect on the flood levels outside the Project site.
<b>Ecological and Biological Resources</b>	No impacts to vegetation and wildlife communities will occur. Ongoing impacts would be similar to those resulting from current operations.	<p>No direct impacts to federally or locally designated threatened or endangered species or their habitats are anticipated as result of the Proposed Action. Increased boat traffic as part of the operation of the New Marine Facility in the NAPR could increase the potential for marine mammal and sea turtles collisions in Ensenada Honda. Vessel speed limits through established no-wake zones will be enforced by CBP to avoid such impacts.</p> <p>The Proposed Action alternative would have no impacts to jurisdictional wetlands areas and U.S. Waters. Potential minor indirect impacts to natural systems adjacent to the Project site as result of the Proposed Action could occur due to erosion and sedimentation from the construction site. Implementation of erosion and sedimentation controls during construction activities would avoid or minimize potential indirect impacts from sediments and contaminated runoff to these areas. Wildlife species in adjacent areas may be temporarily displaced during construction activities due to noise disturbances and increased human activity. However, once construction is completed, wildlife distribution in the vicinity of proposed</p>

Affected Environment	No Action Alternative	Proposed Action Alternative
		Project area will be similar to pre-construction conditions.
<b>Cultural, Historical, and Archaeological Resources</b>	No potential historic property will be affected.	The archaeological potential for finding either pre-colonial or colonial historic properties within Parcel 46 is low thus no significant impacts from the implementation of the Proposed Action would occur. The Proposed Action consist of a low profile undertaking with minimal visual impacts on the surrounding landscape, and as such it does not have the potential to adversely affect the character of above ground potential historic properties located in its surrounding area.
<b>Air Quality</b>	Indirect and direct impacts on air quality associated with construction activities would not result. Ongoing impacts associated to minor emissions from the use of vehicles and boats would be similar to those resulting from current operations.	<p>Temporary and minor air pollutants emissions of fugitive dust and combustible emissions from construction equipment and vehicles would occur as result of the construction of the Proposed Action. During operation of the new marine facility, minor emissions would be associated to the use of employee vehicles, the operation of boats for patrol duties, and the occasional operation of a backup electrical generator during emergencies. These emissions will be minor and would not adversely affect the air quality of the area or its designation as an attainment area. Zero CFC-based refrigerants would be used for the cooling and refrigeration systems in the new facility.</p> <p>Implementation of BMPs to control and minimize air emissions would include proper and routine maintenance of all construction equipment and vehicles to ensure emissions are within design standards, fugitive dust control measures including applying water before/during earthwork and onto unpaved traffic areas and construction equipment/vehicle speed limits.</p>

<b>Affected Environment</b>	<b>No Action Alternative</b>	<b>Proposed Action Alternative</b>
<b>Noise</b>	Impacts associated to noise emissions from construction activities and operation of the new marine facility would not occur. Noise levels would be similar to current conditions since the type and intensity of CBP operations, and associated noise emissions from the use of vehicles and boats, would continue in the area.	Noise levels would temporary increase in the Project area and its vicinity as result of the use of heavy equipment and machinery during construction of the Proposed Action. Although regulatory noise limits could be exceeded during construction activities, noise emissions would be temporary and intermittently produced and would have minor effects on the area. Noise emissions during operation of the facility would be similar to current conditions and would not affect background noise levels in the area.
<b>Utilities and Infrastructure</b>	There would be no impacts to local utilities because no additional power and water demands associated with a new facility would occur.	Potable water, sanitary sewer, and electrical power service connections would be required for operation of the new marine facility. The existing infrastructure in the area has the capacity to service the Proposed Action.
<b>Roadways and Traffic</b>	Increase in traffic from construction activities and operation of the new marine facility would not occur. Roadways and traffic conditions will continue to be influenced by current uses in the NAPR and subsequently by the redevelopment of the area.	Construction-related activities would cause an increase in local traffic. Traffic increases would be temporary and are not expected to cause an adverse impact on existing road conditions and traffic of the area. Similarly, a slight increase in traffic is expected in the area from employee's vehicles during operation of the proposed facility. The roadways network and road access are adequate to service the Project area thus no adverse impacts from the Proposed Action are expected.
<b>Hazardous Materials</b>	Under the No Action Alternative, no new hazardous materials or wastes would be generated.	There could be negligible impacts due to increased amounts of hazardous materials during construction related activities. Negligible amounts of contaminated media may be produced during installation of the deep pile foundation system (if chosen) and the installation of underground utilities.

<b>Affected Environment</b>	<b>No Action Alternative</b>	<b>Proposed Action Alternative</b>
		Hazardous materials such as used oil, oil, oil filters, gas filters and refrigerants might be generated from routine maintenance activities on site. Hazardous materials and waste would be managed using applicable storage, transfer, and disposal regulations. .
<b>Aesthetic and Visual Resources</b>	Effects to aesthetic and visual resources would remain unchanged for the No Action Alternative.	The Proposed Action consists of a low profile undertaking with minimal visual impacts on the surrounding landscape, which is predominantly naval base type development. The Proposed Action would have a long term, minor effect on the viewshed and aesthetic qualities of the Project area. The construction of the new marine facility would be consistent with the use of the area.
<b>Socioeconomics</b>	No impacts would be expected on socioeconomics within the region.	The construction of the facility is estimated at a cost of approximately \$2.1 million and would generate approximately 24 direct jobs during the construction phase. The construction of the Proposed Action is expected to have a positive economic impact to the regional and local economy due to temporary employment and increase in sales from construction related services, materials and supplies.
<b>Environmental Justice and Protection of Child</b>	Under the No Action Alternative, no impacts to minority and low income populations would occur.	Implementation of the Proposed Action would not result in disproportionately high and/or adverse human or environmental effects on children, minorities or low-income populations. The Proposed Action is expected to have a positive impact to local economy due to creation of jobs and increase in sales during the construction period.

<b>Affected Environment</b>	<b>No Action Alternative</b>	<b>Proposed Action Alternative</b>
<b>Sustainability and Greening</b>	The use of sustainability and green design measures would not be implemented.	The Proposed Action would result in long-term beneficial impacts from operating a facility that incorporates sustainable practices, reducing operating costs through energy efficient, water use reductions, and reducing impacts to the environment.
<b>Climate Change</b>	No direct impacts would occur. Ongoing impacts would be similar to those resulting from current operations.	Negligible impacts on Green House Gases emissions and climate change from the construction and operation of the proposed Project
<b>Human Health and Safety</b>	Under the No Action Alternative, impacts, either beneficial or adverse, on human health and safety due to construction activities would not occur. Health and safety risks associated with current operations at the site would continue.	Construction activities would involve the use of heavy machinery and associated risks. No major adverse impacts would occur as a result of the Proposed Action Alternative. The proposed action would comply with all applicable safety regulations.
<b>Cumulative Impacts</b>	No cumulative impacts would occur.	The Proposed Action will occupy an area of 1.4 acres, which comprises a minimal footprint (0.028%) in comparison with the area planned for development and reuse within the limits of the NAPR. The Proposed Action effects to cumulative impacts in the area would be negligible.

### **3. AFFECTED ENVIRONMENT AND CONSEQUENCES**

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#### **3.1. LAND USE**

##### *3.1.1. AFFECTED ENVIRONMENT*

Parcel 46 is located within the former Naval Station Roosevelt Roads (NSRR). NSRR was used by the U.S. Navy beginning in the early 1940s to support its activities in the Atlantic Ocean and Caribbean Sea. Parcel 46 consists of a mostly vacant waterfront lot improved with two lighted boat piers and a boat ramp. Historical land uses within this area and its surroundings include intensively developed lands for industrial and water-related uses to support the U.S. Navy operation.

In 2004, the NSRR closed its operations as a Naval Station and was re-designated as Naval Activity Puerto Rico (NAPR). Following the closure of the military operations, the U.S. Navy began transferring approximately 8,435 acres of excess federal lands at NAPR to the Government of Puerto Rico and approximately 230 acres to other federal agencies under the provisions of the BRAC property disposal process (Navy, 2007). In 2011, the Navy transferred Parcel 46 to the DHS, U.S. Customs and Border Protection. Land use restrictions at Parcel 46 include:

- Non-residential use only;
- No groundwater use;
- No disturbance to groundwater flow, including dewatering; and
- No installation of wells or the removal/damage of existing wells on the parcel.

The Government of Puerto Rico created a Local Redevelopment Authority (LRA) to promote the reuse and redevelopment of the lands within NAPR. The LRA, in conjunction with the Puerto Rico Planning Board (PRPB), has developed a Reuse Plan and a Master Plan for the Lands of Former Naval Station Roosevelt Roads (also referred to as Land Use Plan) which was approved by the Governor of Puerto Rico on October 2011. The Land Use Plan for NAPR adopted the land use classification and zoning parameters of the Joint Regulation for Construction Permits

and Land Uses (2010) enforced by the PRPB and the Office of Permits Management (OGPe, by its Spanish acronym). U.S. Government properties (Federal properties) within NAPR are excluded from the Land Use Plan dispositions and development parameters under said Joint Regulation. **Figure 5** shows the zoning map for the proposed Project area and immediate vicinity. As previously mentioned, Parcel 46 is located within U.S. Government lands (US GOV) as well as the adjoining property located to the east. Lands in the vicinity of the Project area are classified as CT-I for commercial-tourist uses (intermediate); main uses in this zoning district may include: waterfront promenade with entertainment, retail, restaurants, recreational marina and cruise ship terminal, tourist services, and other related uses (LRA, 2011).

### *3.1.2. ENVIRONMENTAL CONSEQUENCES*

#### *3.1.2.1. No Action Alternative*

Land uses at Parcel 46 will remain the same, and CBP will continue using the property as a boat storage area and using its piers and boat ramp for patrol duties within the area.

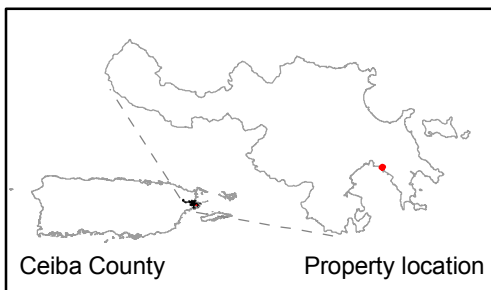
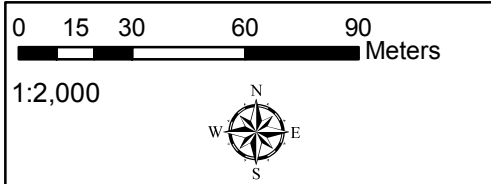
#### *3.1.2.2. Proposed Action*

The Proposed Action will be developed in Federal property hence not within the jurisdiction of the PRPB for land uses or zoning purposes. However, the proposed land uses are compatible with historical and current land uses in the area, and with the proposed land uses in its surroundings, thus no impacts to current or proposed land uses would be expected if the Proposed Action was undertaken.



The Proposed Action will comply with the property land-use restrictions including non-residential use, no groundwater use, and no disturbance of groundwater flow (including dewatering), no installation of wells or the removal of existing wells.

Figure 5: Zoning Map




**Environmental Assessment for CBP  
New Marine Facility, Ceiba, PR**



**Legend**

-  Project limit (1.4 acres)
-  Parcel 46 (1.9 acres)

**Zoning**

-  CT-I Commercial Tourism Intermediate
-  I-P Heavy Industrial
-  US Gov US Government Property

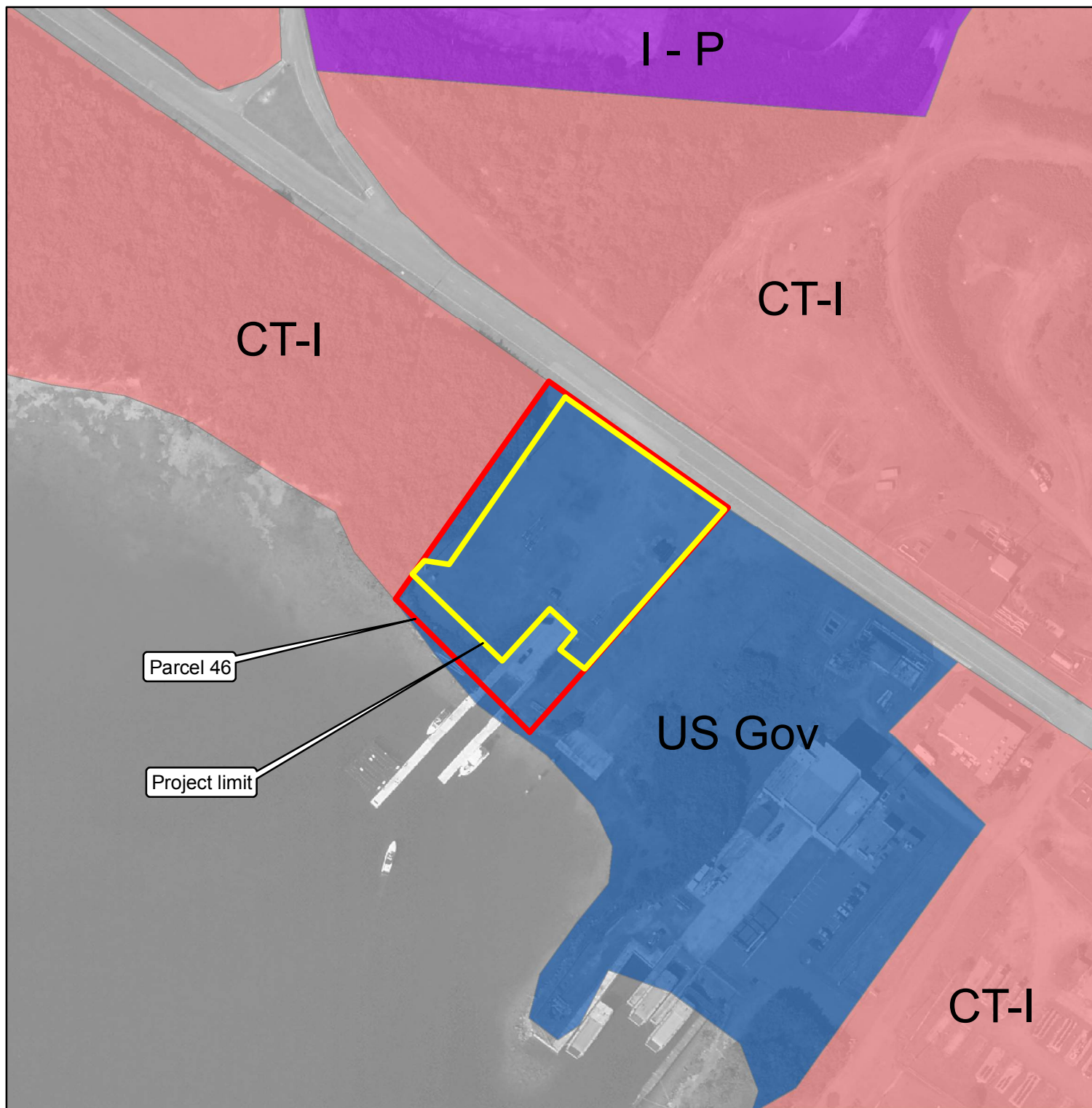
**Sources**

Aerial images from Puerto Rico Planning Board  
2009-2010 (Descargado de <http://www.gis.pr.gov>).

Existing Topography and As-Built prepared by  
Surveyor Luis Lopez, November 2011

Project limit digitized from Google Earth (Version 7.1.1.  
1888) [Software]. Mountain View, CA: Google Inc.  
(2013), and edited in ArcGIS 9.3 by ESRI

Zoning based on "Mapa Delimitación y Calificación Plan  
Maestro para el Redesarrollo de los Terrenos de la  
Antigua Base Naval Roosevelt (ABNRR) en los  
Municipios de Ceiba y Naguabo (October 7, 2011)





## 3.2. GEOLOGY AND SOILS

### 3.2.1. AFFECTED ENVIRONMENT

According to a subsurface investigation conducted by Jaca & Sierra in 2011, subsoil conditions at the site consist of three geologic strata with three sequences of deposition. An upper layer of artificial fill was encountered from existing ground surface and spanned from varied from 6-9 feet in thickness. The artificial fill layer was underlain by soft, clayey marine sediment deposits that extended from 25 feet to 35 feet in depth and were followed by the deepest weathered bedrock layer to an undetermined depth. A brief description of the strata encountered during the subsoil exploration follows:

- Artificial fill deposits-(Af)- classified as light brown to grayish brown, medium to stiff clayey silt with some sand and friable rock fragments or gravelly clay extending between 6 to 9 feet below existing grade elevation.
- Marine sediment deposits-brown to grayish brown, soft to medium clayey silt to silty clay with some sand and rock fragments. Beneath this layer, a greenish gray to grayish brown, soft to medium sandy clay of medium plasticity that extended from 9 to 24 feet was encountered.
- Weathered Bedrock – (WxBx)-described as a greenish gray, very stiff to hard, fractured, weathered bedrock sampled as clayey silt with trace sand, intermixed with decomposed rock fragments to a maximum depth of boring of 36.5 feet.

These findings are consistent with the geology shown on the geologic maps of the Naguabo and Punta Puerca Quadrangles from the United States Geological Survey (USGS), which indicate that artificial fill deposits cover the surface of Parcel 46. A volcanic sequence of intrusive, extrusive and volcanic rocks and intrusive bodies from the Dagua Formation (Kd) ranging in from Cretaceous Period to as young as the Eocene Epoch appear northerly of the proposed Site at Parcel 46.

The Dagua Formation (Kd) – dates back to the lower Cretaceous and consists of interbedded volcanic breccia, lava and subordinate volcanic sandstone and crystal tuff. The volcanic breccia is medium gray, massive, and is composed of clasts of dark gray, irregularly shaped, sub-angular

to sub-rounded granule to cobble size grains, porphyritic andesite lava in a medium gray plagioclase and clinopyroxene tuff matrix. The breccia units are commonly cut by porphyritic lava dikes. Breccia beds are usually exposed only in artificial excavation and float on natural slopes consists largely of lava clasts. Lavas tend to be medium-dark gray andesites with a pilotaxitic texture and andesine and clinopyroxene phenocrysts that are locally amygdaloidal. Dark to medium gray volcanic sandstones and tuffs are usually laminated. The thickness of the Kd formation is estimated to be between 1,000 to 1,500 meters. **See Figure 6 – Geologic Map.**

The Natural Resources Conservation Service (NRCS) Soil Survey Geographic database (SSURGO) was used to evaluate the types of soil on the site. Two soil types are mapped on the site (**Figure 7 - Soils Map**): Descalabrado Clay Loam and Made Land.

- Descalabrado Clay Loam (DeE2) - described as having a 20% to 40% slopes and as eroded soil.
- Made land (Md) – described as areas where the soil profile has been covered or destroyed by earth moving operations.

Figure 6: Geology Map

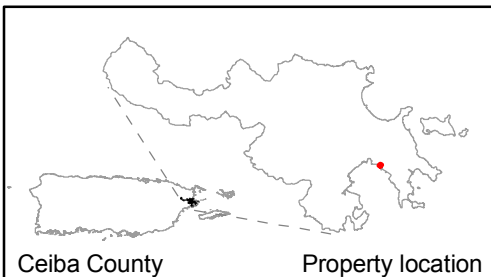
**Environmental Assessment for CBP  
New Marine Facility, Ceiba, PR**



SALO Engineering, PSC

0 15 30 60 90  
Meters

1:2,000



Ceiba County

Property location

**Legend**

Project limit (1.4 acres)

Parcel 46 (1.9 acres) - Property boundary

**Geology**

Kd Dagua Formation

Qs Swamp deposits

af Artificial fill

**Sources**

Aerial images from Puerto Rico Planning Board  
2009-2010.

Existing Topography and As-Built prepared by  
Surveyor Luis Lopez, November 2011

Geology dataset downloaded from the US Geological  
Survey Mineral Resources On-Line Spatial Data: Bawiec,  
W.J., ed., 1999, Geology, geochemistry, geophysics,  
mineral occurrences and mineral resource assessment  
for the Commonwealth of Puerto Rico: U.S. Geological  
Survey Open-File Report 98-038, available online only.

Project limit digitized from Google Earth (Version 7.1.1.  
1888) [Software]. Mountain View, CA: Google Inc.  
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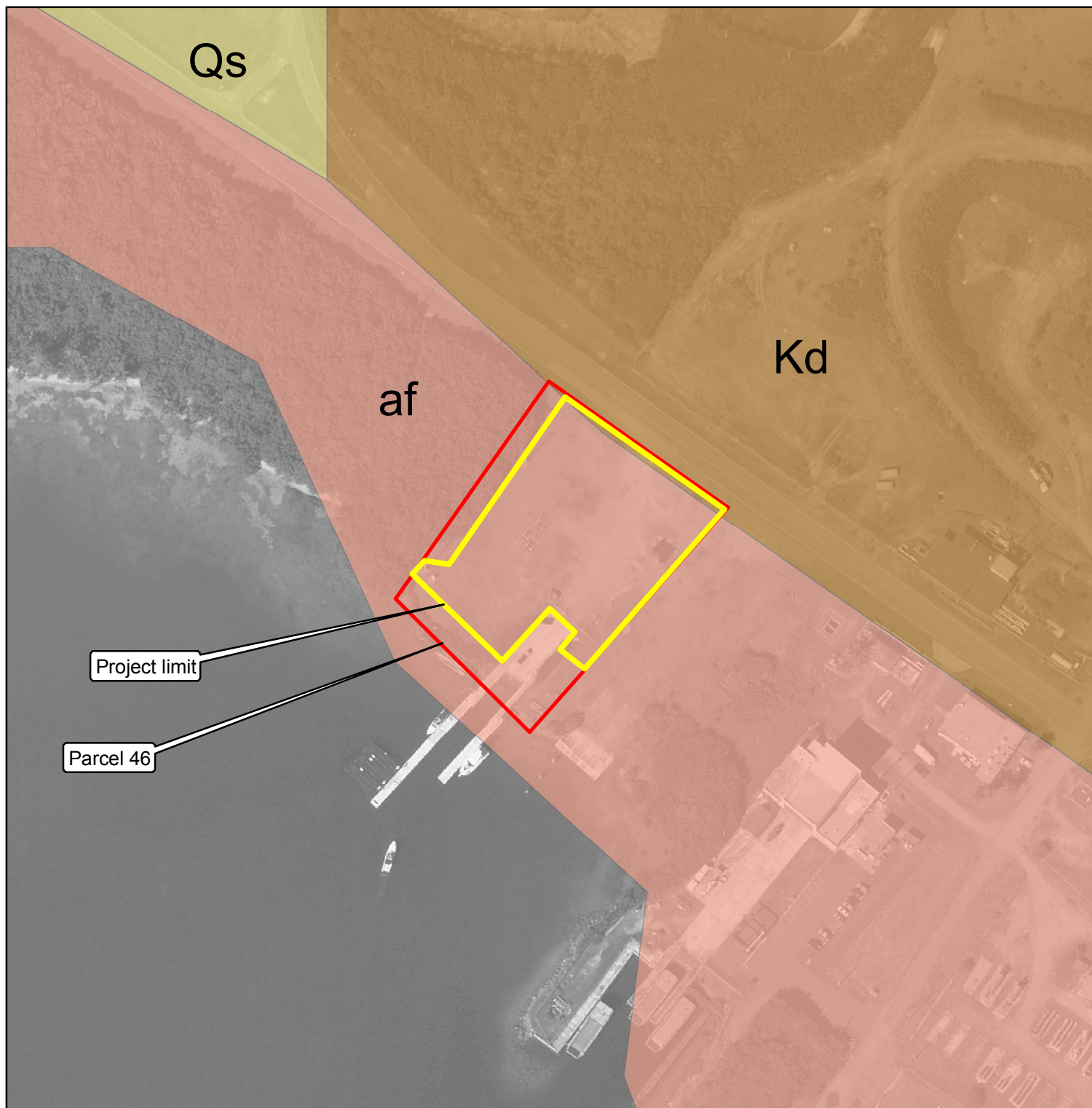


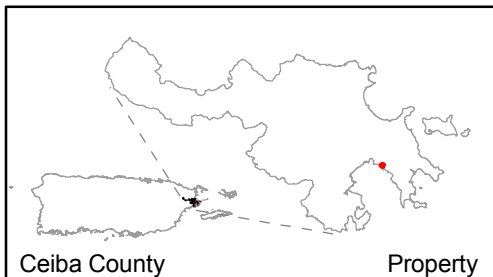
Figure 7: Soils Map

**Environmental Assessment for CBP  
New Marine Facility, Ceiba, PR**





0 15 30 60 90 Meters

1:2,000





**Legend**

 Project limit (1.4 acres)

 Parcel 46 (1.9 acres)

**Soils**

 DeE2 - Descalabrado Clay Loam, 20% to 40% slope, eroded

 Md - Made land: Consists of areas where the soil profile has been covered or destroyed by earth moving operations

**Sources**

Aerial images from Puerto Rico Planning Board 2009-2010.

Existing Topography and As-Built prepared by Surveyor Luis Lopez, November 2011

Project limit digitized from Google Earth (Version 7.1.1.1888) [Software]. Mountain View, CA: Google Inc. (2013), and edited in ArcGIS 9.3 by ESRI

Soils: USDA-NRCS Soil Survey Geographic (SSURGO) developed by USDA/NRCS - National Geospatial Center of Excellence



### 3.2.2. ENVIRONMENTAL CONSEQUENCES

Significance of potential geology and soil impacts is based on the degree of geology and soil sensitivity in areas affected by the Proposed Action. Geology and soil impacts could be considered significant if they:

- Cause direct impacts to geology and soils due to a proposed action's large scale footprint; and
- Occur permanently.

#### 3.2.2.1. No Action Alternative

Under the no action alternative, the geologic setting at Parcel 46 would remain undisturbed as existing conditions.

#### 3.2.2.2. Proposed Action

The construction of the Proposed Action will not cause significant adverse impacts to existing geological conditions at Parcel 46, when considering the small area of the site, reduce footprint of the Project and previous impacts by deposits of artificial fill and earthwork activities. In addition, given the existing inadequacy of soil bearing capacity at shallow depths found at the site, additional deposits of up to 12 feet of surcharge material as artificial fill over existing grade or a deep pile foundation system may be required to develop the administrative building and additional proposed accessory components of the Project.

The selected type of foundation for the design of the Project may be either shallow or deep. Either type will cause little effect on the existing geology, since the shallow footing alternative will be founded in structural fill that will meet all ASTM requirements, as well as a geotechnical design. Therefore, there is little potential of significant adverse direct impacts by this alternative since it will not impact or alter the naturally occurring geologic formations that underlay the site. If a deep pile foundation is used, driven piles will be utilized to achieve desired final pile depths to minimize generation of soil cuttings or spoils. Therefore, foreseen direct impacts to geologic conditions at the site would be negligible, given the reduced diameter and maximum pile length of 40 feet, isolated and localized nature of this type of foundation. Most likely, the geology to be directly impacted by the piles would be the weathered bedrock layer that was detected during

geotechnical investigations at the site. Even if piles were driven into unweathered competent bedrock, depth of penetration would be minimal, when comparing it to the 1,000 to 1,500 meters in thickness and large coverage of the in-place undisturbed bedrock (Kd formation) mapped in the area.

Soil types within the Project site are classified as made land by the NRCS. Short-term direct impacts to made land soils are anticipated to be negligible because of the Proposed Action. These short-term impacts could occur due to soil disturbance associated with grading and construction of the proposed Project. There would be no long-term adverse impacts to these soils due to their artificially deposited nature and since they were already compacted by previous grading activities, natural settlement over time, and vehicular traffic. To reduce impacts of soil disturbance and compaction a Sediment and Erosion Control Plan (SECP) would be implemented and the appropriate Best Management Practices (BMPs) concerning sediment control would be effectively applied.

### **3.3. WATER RESOURCES**

#### ***3.3.1. AFFECTED ENVIRONMENT***

##### ***3.3.1.1. Surface Waters***

Superficial water bodies, such as rivers or creeks, are not located within the proposed Project area. The nearest surface water body to Parcel 46 is Ensenada Honda, which borders the southern boundary of the property and is the only water body in a radius of 400 meters from the property. Water runoff and minor drainages from areas with higher elevations, including the subject property, drain to the Ensenada Honda water body.

The Puerto Rico Environmental Quality Board (EQB) through the Puerto Rico Water Quality Standards Regulation (EQB, 2010) designate the uses for which the quality of the water bodies of Puerto Rico shall be maintained and protected and establish the water quality standards required to sustain the designated uses. Based on the PR Water Quality Standards Regulation



(EQB, 2010), Ensenada Honda is classified as Class SB. Class SB waters are coastal and estuarine waters intended for use in primary and secondary contact recreation, and for propagation and preservation of desirable species, including threatened or endangered species (EQB, 2010). Rule 1303 of the PR Water Quality Standards Regulation lists the standards promulgated for the protection of the uses assigned to coastal, surface, estuarine, wetlands and ground waters of the Commonwealth of Puerto Rico.

#### *3.3.1.2. Groundwater*

The principal aquifer in the NAPR area is an alluvial aquifer, consisting of beds of clay, sand, and gravel, and rock fragments to a depth of 98 feet or less (Gomez et. al (1980) cited in Navy 2007). Volcaniclastic, igneous, and sedimentary aquifers of Cretaceous and Tertiary age also are present in the area. Compared to the alluvial aquifers, these are of minor importance and yield because water is stored and transmitted in fractures in the rock (USGS (2002) cited in Navy 2007).

The available groundwater in NAPR area is generally acceptable for most industrial and commercial uses but not for potable uses due to saline intrusion. No potable water wells are present within a 400 meter perimeter from the proposed Project area.

Groundwater at NAPR is designated SG (Rule 1302.3(A) of Puerto Rico Water Quality Standards Regulation 2010). Class SG water usage is defined in the regulation as groundwaters intended for use as a source of drinking water supply and agricultural uses including irrigation. Also, included under this class are those groundwaters that flow into coastal, surface, and estuarine waters and wetlands.

### *3.3.2. ENVIRONMENTAL CONSEQUENCES*

#### *3.3.2.1. No Action Alternative*

No direct or indirect impacts to surface waters or groundwater associated to construction activities are expected under the No Action Alternative. Under the No Action Alternative, CBP will continue using the property as a boat storage area and using its piers and boat ramp for their

patrol duties within the area. Potential impacts to Ensenada Honda from current uses of Parcel 46 will remain the same as currently, those impacts include, transport of sediments due to erosion of exposed soils and potential introduction of contaminants from accidental oil/fuel spills from boats and vehicles.

#### 3.3.2.2. Proposed Action

The Proposed Action would not result in direct impacts to surface waters or groundwater. Surface waters of Ensenada Honda may experience temporary indirect impacts during construction of the Proposed Action. Clearing, grading and earthwork activities in the Project site could affect the water quality of adjacent surface waters, such as Ensenada Honda. Potential impacts to Ensenada Honda during construction would be associated with an increased in soil erosion and sedimentation, introduction of contaminants to surface waters from construction site and changes in surface runoff patterns. Potential impacts on surface water would be minimized using BMPs, and through the development and implementation of Soil Erosion and Sedimentation Control Plan and a Stormwater Pollution Prevention Plan (SWPPP) to minimize pollutants in stormwater runoff. Section 438 of the Energy Independence and Security Act (EISA) of 2007 would be adhered to as reasonably possible such that pre-and post-development hydrology would remain equal.

Impacts on surface waters also potentially could occur during the operation of the new marine facility and would be mostly associated to potential introduction of contaminants from boat washing activities, accidental oil/fuel spills and use of pesticides and herbicides via stormwater runoff. The application of effective BMPs measures during the operation of the new facility for proper management of chemicals and spill prevention controls in order to minimize pollutants discharge in waters. Additionally, permanent stormwater control structures will be in-place to manage site runoff prior to discharge into Ensenada Honda.

The Proposed Action is not expected to affect the designated uses of Ensenada Honda and its compliance with applicable water quality standards. Given the limited size of the proposed Project site, the temporary nature of the potential environmental disturbances, and the



implementation of the abovementioned measures, the construction and operation of the Proposed Action would not result in adverse impacts on surface waters and groundwater in the area.

### **3.4. FLOODPLAINS**

#### *3.4.1. AFFECTED ENVIRONMENT*

Executive Order (EO) 11988, Floodplain Management (May 24, 1977), directs all Federal agencies to reduce the risk of flood loss, minimize the impact of floods on human safety, health, and welfare, and restore and preserve the natural and beneficial values served by floodplains. EO 11988 requires that agencies evaluate the potential effects of actions within a floodplain and to avoid floodplains unless the agency determines there is no practicable alternative. Where the only practicable alternative is to construct in a floodplain, a planning process is followed to ensure compliance with EO 11988. The floodplain compliance process includes the following steps:

1. Determine if a proposed action is in the base floodplain;
2. Provide for public review;
3. Identify and evaluate practicable alternatives, if any;
4. Identify impacts of the proposed action;
5. Minimize threats to life and property and to natural and beneficial floodplain values;
6. Reevaluate alternatives;
7. Present the findings and a public explanation; and
8. Implement the action.

The NEPA process shall incorporate the floodplain management process through analysis and public coordination. Additionally, floodplains are managed at the local level with the assistance and oversight of the Federal Emergency Management Agency (FEMA). Therefore, any action within these areas would require appropriate coordination and evaluation of the potential effects.

The Puerto Rico Planning Board (PRPB) is the agency responsible for identifying areas susceptible to flooding in Puerto Rico. The PRPB Special Flood Hazard Areas Regulation

(Planning Regulation No. 13) categorizes flood hazard areas, taking into consideration the Flood Insurance Rate Maps (FIRM) prepared by FEMA, and regulates construction in such areas, including the enforcement of security measures.

Based on the Flood Insurance Rate Map for the Project area (Map Number 72000C1305J (2009)), portions of Parcel 46 are located in flood hazard areas subject to inundation by the 1% annual chance flood or the 100-year flood (zones AE and VE). Zone AE base flood elevation have been determined at 3.7 meters above mean sea level (msl). The areas closer to the coast have been classified as Zone VE, which are coastal flood zones with velocity hazard due to wave action during storm events. Zone VE base flood elevations have been determined at 4.0 meters above msl. The northern portion of the Property is located in Zone X, these are areas with low chance of flooding (areas determined to be outside the 0.2% annual chance floodplain.).

Approximately 40% of the proposed Project site is located in Zone X, while 60% of the proposed Project site is located in floodplain (zones AE and VE), approximately half of which is subject to additional hazards due to wave action during storm events. Figure 8 shows the flood zones for the area.

Approximately 48.7% of the NAPR area is classified as floodplain, including most of the coastal lands. Additionally, most of the coastline at NAPR is subject to storm surges, this represents approximately 7.9% (700 acres) of the NAPR total area. **Figure 9** shows floodable zones in NAPR (LRA, 2010).

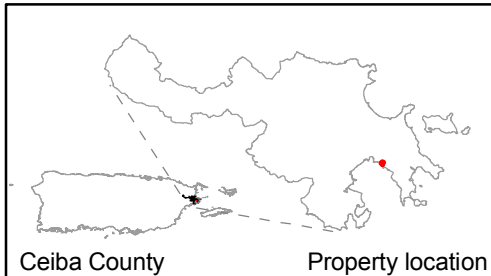


**Figure 8: FEMA Flood Zones**  
**Environmental Assessment for CBP**  
**New Marine Facility, Ceiba, PR**



0 15 30 60 90  
Meters

1:2,000



### Legend

Property limit (1.4 acres)

Parcel 46 (1.9 acres)

### FEMA Flood Zones

AE - Area subject to inundation by the 1% annual chance flood (100-year flood)

VE - Coastal flood zone with velocity hazard (wave action). Area subject to inundation by the 1% annual chance flood (100-year flood).

X - Areas determined to be outside the 0.2% annual chance floodplain.

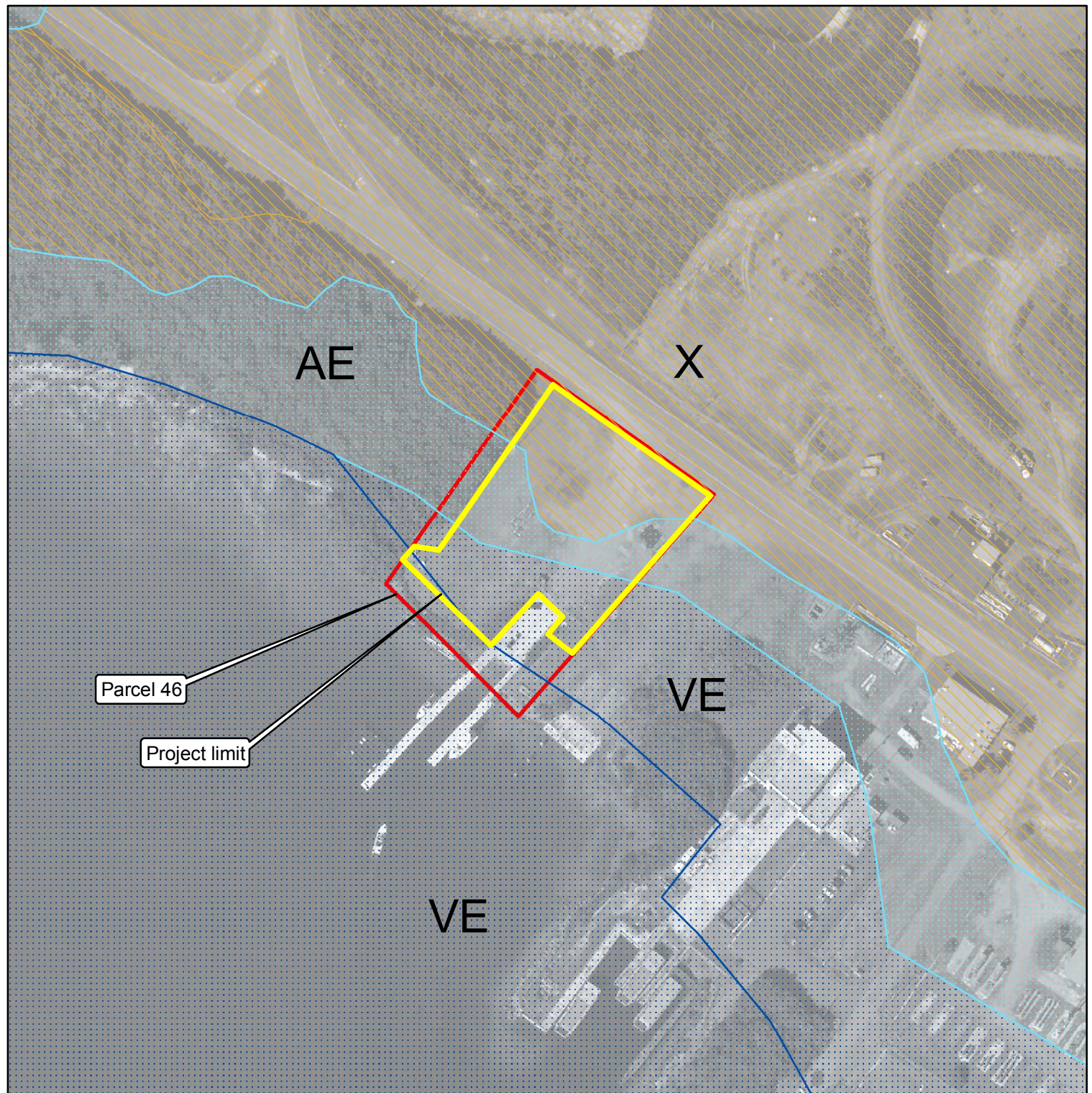
### Sources

Aerial images from Puerto Rico Planning Board 2009-2010 (<http://www.gis.pr.gov>)

Existing Topography and As-Built prepared by Surveyor Luis Lopez, November 2011

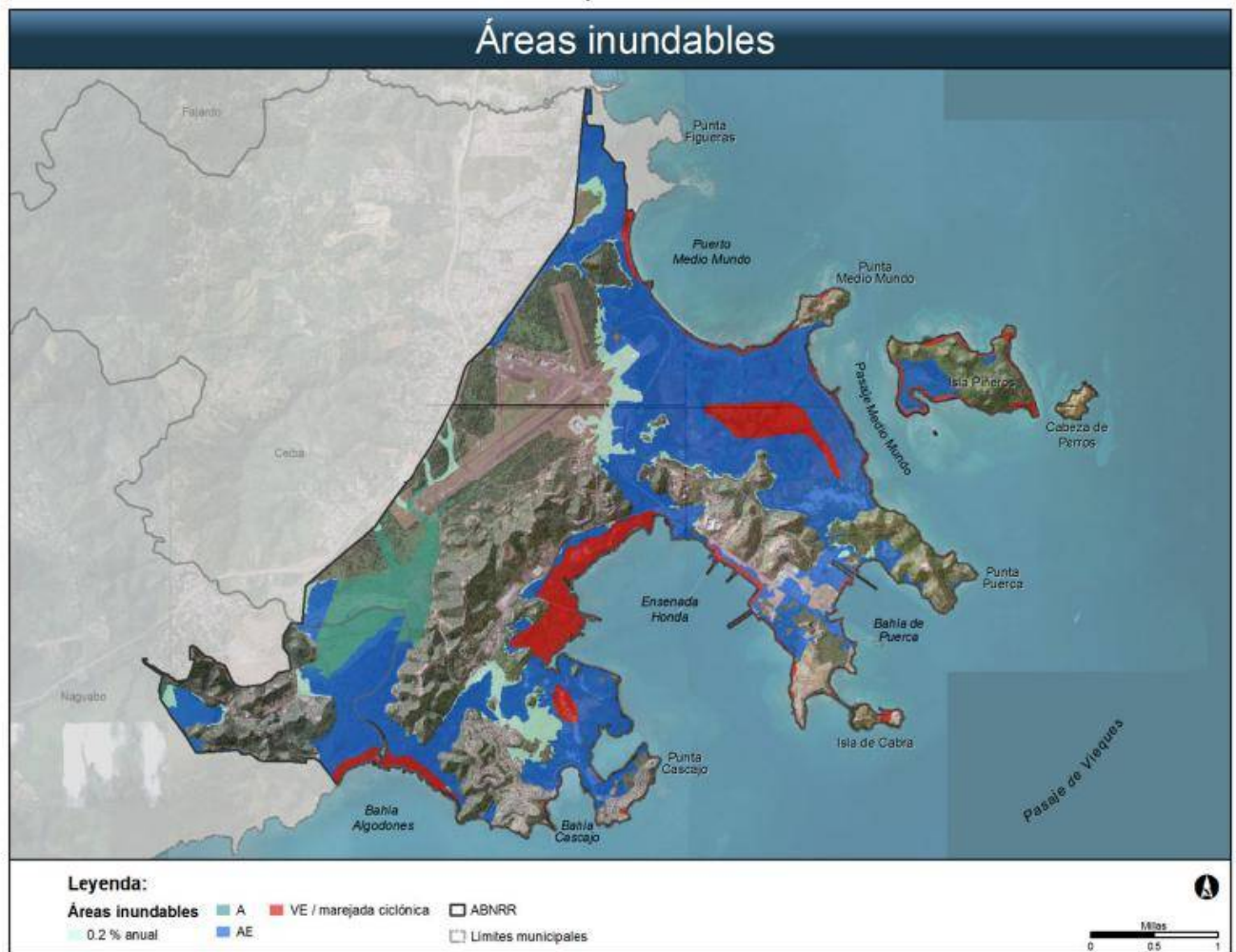
Flood zones from FEMA Digital Flood Insurance Rate Map (DFIRM) Database (<http://www.fema.gov/msc>) Map Number 72000C1305J (November 18, 2009)

Project limit digitized from Google Earth (Version 7.1.1.1888) [Software]. Mountain View, CA: Google Inc. (2013), and edited in ArcGIS 9.3 by ESRI





**FIGURE 9 – FLOODABLE ZONES AT NAPR (LRA, 2010)**



Source: LRA 2010. Master Plan for the Lands of Former Naval Station Roosevelt Roads (Illustration No. 17, pg. 62).

### *3.4.2. ENVIRONMENTAL CONSEQUENCES*

#### *3.4.2.1. No Action Alternative*

The No Action Alternative would not result in additional direct impacts to floodplains or increase the risk of flood loss, as no new construction would occur. CBP will continue using the area as boats storage area and using its piers and boat ramp for their patrol duties within the area. Under the No Action Alternative, CBP's limited operations at Parcel 46 would continue to be subject to flood hazards.

#### *3.4.2.2. Proposed Action*

The area where the Proposed Action will be developed is located within floodable zone (approximately 0.8 acres) thus potential effects to floodplain and risk of flood loss could occur. The Proposed Action consist of the construction of a new marine facility for the CBP OAM Marine Unit which operations requires direct access to boat piers and boat launching areas (ramps) in coastal waters. Location of this type of facility is restricted to coastal areas, most of which are prone to flood hazards. As previously mentioned, most of the coastline and coastal lands in NAPR are located within flood prone areas thus limiting practicable alternatives to locating the Proposed Action outside of coastal floodplains. Furthermore, Parcel 46 is located in a previously impacted area, is the only property owned by DHS CBP in the NAPR with direct access to boat piers and ramp, is strategically located, and situated in a secure area. Based on this, there are no other practicable alternatives for locating the Proposed Action.

The existing floodplain would be altered to accommodate the new facility above regulatory flood levels. Potential impacts to floodplain from the construction of the Proposed Action would result from earth moving activities such as clearing, grading and permanent deposits of fill to elevate the ground level of the proposed administrative building location above the regulatory flood level. The amount of fill required to increase site elevation above the regulatory flood level could range from approximately 1,100 to 1,525 cubic meters in order to raise the existing grade elevation by 1.0 to 2.0 meters, depending on the building options and construction method selected.

The construction of the Proposed Action would cause an increase in surface water runoff and temporary sedimentation in the area if no control measures were implemented. Permanent stormwater control measures to manage post-construction site runoff shall be designed and installed to avoid any effects on neighboring properties.

The Proposed Action will not affect areas outside the Project site. The estimated volume of fill materials and the area it would occupy is insignificant when compared to Ensenada Honda storage volume. The volume occupied by fill will be in the order of  $10^{-3}$  cubic meters while the bay still water elevation increase with 1 % annual chance of flood occurrence has a volume in the order of  $10^{-7}$ .

The Proposed Action would be designed and constructed to reduce the risks of flooding, minimize threats to life and property, and minimize adverse impacts on the floodplain. Some of the protection measures that will be implemented as part of the Proposed Action include:

- The proposed administrative building final floor elevation will be at least 0.3 meters (1.0 ft.) above the established base flood elevation. The potential for sea level rise caused by the effect of global warming will be considered in the Project final design for determining the main building first floor elevation.
- If part of the building is in the zone VE it shall be entirely open in the ground floor.
- Implementation of Soil Erosion and Sedimentation Control Plan and a Stormwater Pollution Prevention Plan (SWPPP) to manage stormwater runoff during construction activities.
- Permanent stormwater control system would be installed to manage post-construction site runoff. The stormwater system will include oil and sediment separators.
- Construction methods and practices must minimize flood-related damages.
- Construction staging areas will be located in non-floodable areas.
- The final design and supporting engineering studies of the Proposed Action would give special consideration to location of the different components of the Project and required flood protection measures in compliance with PRPB Regulation No. 13.

- The sanitary sewer will be designed to prevent floodwater discharges into the sanitary system.
- Solid waste disposal systems will be located in places where floodwaters may not affect them.

Compliance with public notification and public involvement as required by the flood management compliance process (EO 11988) would be accomplished and documented by following the NEPA process. The PRPB and the public would have the opportunity to comment on the Proposed Action and its potential impacts.

### 3.5. ECOLOGICAL AND BIOLOGICAL RESOURCES

#### 3.5.1. AFFECTED ENVIRONMENT

##### 3.5.1.1. *Natural Systems*

Natural systems and ecological characteristics of the proposed Project area and its vicinity were assessed by consulting relevant records from recognized sources, such as: the Office of Natural Heritage of the Department of Natural and Environmental Resources (DNER), the Environmental Sensitivity (ESI) Maps (NOAA, 2000), and the National Wetland Inventory (NWI) of the U.S. Fish and Wildlife Service (USFWS). Maps and other sources of information available for the study area were also reviewed. In addition, a Biological Resources Survey (**Appendix B**) was conducted at the proposed Project area to characterize biological communities, including wetlands.

Natural systems found within Parcel 46 property limits include a fringe of a coastal forest along the northwestern side of the property, and approximately 0.013 acres of wetlands and 0.29 acres of U.S. Waters bordering the south and southwest limits. Other hydrological features, such as rivers or creeks are not present within Parcel 46. **Figure 10** shows the natural systems located within 400 meters of the proposed Project area. Natural systems identified within a 400 meter perimeter from the proposed Project area include:

- Coastal waters of Ensenada Honda (Caribbean Sea) bordering the south limit of the property,
- Sea grass beds within Ensenada Honda (to the south and southwest from the Project area), and
- Wetlands areas, consisting of coastal and mangrove forest (E2SS3P) adjacent to the west and southwest property boundary and at approximately 50 meters to the east, and another wetland area classified as estuarine wetland (E2FO3P) at approximately 230 meters to the northwest of the proposed Project area.



Figure 10: Natural Systems

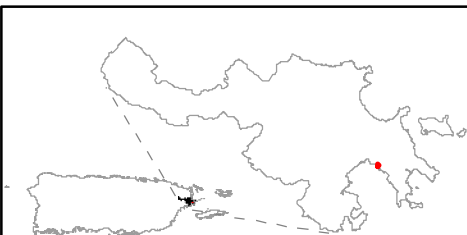
**Environmental Assessment for CBP  
New Marine Facility, Ceiba, PR**



SALO Engineering, PSC

0 0.05 0.1 0.2 0.3  
Km

1:6,000



Ceiba County

Property location

**Legend**

Project limit (1.4 acres)

Parcel 46 (1.9 acres)

400m Perimeter

Wetlands

Natural Protected Areas

**Sources**

U. S. Fish and Wildlife Service. 2010. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

Aerial images from Puerto Rico Planning Board 2009-2010.

Existing Topography and As-Built prepared by Surveyor Luis Lopez, November 2011

Project limit digitized from Google Earth (Version 7.1.1. 1888) [Software]. Mountain View, CA: Google Inc. (2013), and edited in ArcGIS 9.3 by ESRI



The NAPR area includes extensive mangroves ecosystems with one of the largest stands of relatively pristine mangrove habitat in the Caribbean Basin. The NAPR mangroves complex and coastal waters are classified as a primary Critical Wildlife Area (CWA) by the DNER. The designated primary CWA closest to the project area is located approximately 900 meters to the north of Parcel 46.

The closest natural reserve to the Project area is the Ceiba State Forest managed by the DNER. The area is important as marine and terrestrial habitats for wildlife species. The Ceiba State Forest is located in the east coast between the municipalities of Fajardo and Ceiba. The area is divided into three segments: the Fajardo segment, the Naguabo segment, and the Los Machos Mangroves, Punta Figuera and Los Corchos area segment, which includes areas within former Roosevelt Roads Naval Station transferred to the Commonwealth of Puerto Rico (DNER, 2005). The Ceiba State Forest Naguabo Segment is located at approximately 6.5 kilometers to the southwest of Parcel 46, while Los Machos segment is located at approximately 1.7 kilometers northeast of Parcel 46.

#### 3.5.1.2. *Flora and Fauna*

A Biological Resource Survey of the project area was conducted during October-November, 2013. This study was carried out according to the procedures recommended by the DNER and the USFWS. Due to the relatively small size, the area was surveyed in its entirety. A complete list of species observed is included in the Biological Resource Survey Report in **Appendix B**.

The life zone on which the proposed Project is located is known as the Subtropical Dry Forest (Ewel and Whitmore, 1973). This life zone is the driest of the six life zones found in Puerto Rico. The Subtropical Dry Forest covers the southwest area of Puerto Rico, part of Vieques Island and the islands of Culebra, Mona and Desecheo. Annual rainfall within this life zone varies from 600mm to 1100mm. Vegetation on this life zone tends to cover the soil surface completely and its almost completely composed of deciduous species. Trees are rarely over 15 meters high and their crowns tend to be wider and less dense. Due to the dry conditions, plants have less moisture and their wood is stronger and long lasting. In Puerto Rico, this life zone supports more bird species than the others.



A coastal forest is located along the northwestern boundary of Parcel 46 (a small fringe sits within Parcel 46 limits) and is adjacent to a mangrove area outside of Parcel 46. There is a very well defined ecotone between both natural systems. The species found in the forested area shows a natural succession toward a more mature secondary forest; nevertheless, the dominant species in this area is representative of recently disturbed sites. Due to the small size of the study area, as well as the fact that it is mostly dominated by herbaceous species, the biodiversity of the site is relatively low. Although the majority of the dominant species are native, most of the species found, particularly those found within the fenced area where the Project is being proposed, are typical of disturbed sites.

The dominant vegetation within the fenced area consists of herbaceous species that are frequently mowed. The most common herbaceous species within this area are the *Euphorbia thymifolia*, the Railroad-track grass (*Dichantium annulatum*), the “Junquito” (*Fimbristylis dichotoma*), the Mexican blue grass (*Chloris barbata*), and the *Abilgaardia ovata*.

The most common species found within the coastal forest located along the northwestern side of the study area are the Pigeon berry (*Bourreria succulenta*) and the Brisselet (*Erythroxylum brevipes*), the Ink berry (*Randia aculeata*), the Black mampoo (*Guapira fragans*), and the Wild tamarind (*Leucaena leucocephala*). The mangrove area is dominated by the Portiatree (*Thespesia populnea*), and the Red mangrove (*Rhizophora mangle*).

The total amount of plant species within the study site was 51, divided into 27 families. Of the flora species observed, 61% are herbaceous. Native species accounts for 82% of the flora species observed, while 18% are introduced species. No flora species designated as threatened or endangered was found.

The dominant animal species are the Northern mockingbird (*Mimus polyglottos*), and the White-winged dove (*Zenaida asiatica*). Total animal species were 24, divided into 16 families. Among these, there are three endemic species, one critical element and two migratory birds. These are:

- Birds:
  - Puerto Rican woodpecker (*Melanerpes portoricensis*, endemic).
  - White-crowned pigeon (*Columba leucocephala*, DNER critical element).
  - Belted kingfisher (*Ceryle alcyon*, migratory).
  - Prairie warbler (*Dendroica discolor*, migratory).
- Amphibians:
  - “Coquí churí” (*Eleutherodactylus antillensis*, endemic).
  - “Coquí común” (*Eleutherodactylus coqui*, endemic).

The only species designated as “critical element” by the DNER was the White-crowned pigeon (*Columba leucocephala*), which was observed flying over Parcel 46. The White-crowned pigeon is a locally common breeding resident. This species is mostly found in the northern and eastern coastal plains, moist forests and mangroves forests. The DNER has designated this species as a “critical element” given that its population has declined and is now threatened due to habitat loss, severe over-hunting, harvesting of nestlings for food and introduced predators. This species is fairly common within the mangrove and coastal forests in the NAPR.

Only two migratory birds were observed during fieldwork. These were the Belted kingfisher (*Ceryle alcyon*) and the Prairie warbler (*Dendroica discolor*). The Belted kingfisher is a fairly common non-breeding visitor (Raffaele, 1998) from September to May. It excavates the nest in the soil. The Prairie warbler is also a common non-breeding visitor from late August to April. It makes a cup of plant material bound with spider webs. No nests from these species were observed.

According to the NOAA ESI maps, Parcel 46 is located within the designated Critical Habitat (CH) for the Yellow-shouldered blackbird (*Agelaius xanthomus*).

#### 3.5.1.3. *Threatened and Endangered Species*

No federally or locally designated threatened or endangered species were observed during the biological survey at Parcel 46. **Table 2** includes listed threatened or endangered species documented to occur in the NAPR area and the Municipality of Ceiba.

The forested area of Parcel 46 may hold suitable habitat characteristics for the Yellow-shouldered blackbird, the Puerto Rican Boa, and the Virgin Islands Tree Boa. Although the “Cobana negra” may be found in forested areas associated to mangrove forests, this species was not observed during this study.

Even though Parcel 46 is adjacent to the Caribbean Sea, its sea side is very steep, narrow and mostly composed of rocky material (cobbles and boulders) with only a few trees; therefore, it does not have a sandy or small sized particle beach containing suitable nesting habitat for the listed species of sea turtles or the Least tern, the Piping plover, the Caribbean coot, the Roseate tern, and the Snowy plover. The Brown pelican may use the trees in the forested area of Parcel 46 as resting or roosting area. The West Indian whistling-duck may also use the forested area. However, these species were not observed during fieldwork. Suitable habitat for the Antillean manatee exists in Ensenada Honda adjacent to Parcel 46.

**TABLE 2. LISTED THREATENED OR ENDANGERED SPECIES ON NAPR AND MUNICIPALITY OF CEIBA**

Common Name	Scientific Name	Federal Status	DNER Status	Habitat Requirements
<b>Mammals</b>				
Antillean manatee	<i>Trichechus manatus manatus</i>	E	E	Marine, estuarine, and freshwater habitats. Calm coastal waters with seagrass beds
<b>Reptiles</b>				
Puerto Rican Boa	<i>Epicrates inornatus</i>	E	E	Forested volcanic and limestone hills
Virgin Islands Tree Boa	<i>Epicrates monensis granti</i>	E	E	Dry coastal forest, mangrove forests
Hawksbill sea turtle	<i>Eretmochelys imbricate</i>	E, CH	E	Marine areas
Green sea turtle	<i>Chelonia mydas</i>	T, CH	T	Marine areas
Leatherback sea turtle	<i>Dermochelys coriacea</i>	E	E	Marine areas
Loggerhead sea turtle	<i>Caretta caretta</i>	T	T	Marine areas
<b>Birds</b>				
Yellow-shouldered blackbird	<i>Agelaius xanthomus</i>	E, CH	E	Mangrove forests, coastal tickets
Brown pelican	<i>Pelecanus occidentalis</i>	E	E	Bays, beaches, ocean areas, inland rivers, freshwater lagoons
Peregrine falcon	<i>Falco peregrinus</i>	-	E	Nests on rocky cliffs
Least tern	<i>Sterna antillarum</i>	-	V	Sandy beaches, harbors, lagoons
Piping plover	<i>Charadrius melodus</i>	T	T	Sandy beaches, harbors, lagoons
Least grebe	<i>Tachybaptus dominicus</i>	-	T	Freshwater lakes, streams, ponds and lagoons
West Indian whistling-duck	<i>Dendrocygna arborea</i>	-	T	Fresh and saltwater bodies, marshes, coastal forests
Caribbean coot	<i>Fulica caribaea</i>	-	T	Fresh and saltwater bodies, marshes
Roseate tern	<i>Sterna dougallii</i>	T	E	Inshore areas and bays
Snowy plover	<i>Charadrius alexandrinus</i>	-	T	Sandy beaches and bays
<b>Plants</b>				
“Cobana negra”	<i>Stahlia monosperma</i>	T	T	Ensenada Honda, playas, Coastal plains associated with mangroves and immediately landward side of mangroves

Key: E: endangered; T: threatened; V: vulnerable; CH: designated critical habitat

#### 3.5.1.4. Jurisdictional Wetlands and U.S. Waters

The NWI maps shows a portion of a wetland classified as estuarine, intertidal, scrub/shrub, broad-leaved, evergreen, irregularly flooded (E2SS3P) within Parcel 46 (**Appendix B: Figure 6**). However, the Jurisdictional Wetlands and U.S. Water Determination Study performed as part of the Biological Resources Survey at Parcel 46 concluded that this area is not wetland.

The Jurisdictional Wetlands and U.S. Water Determination Study found approximately 52.71 m<sup>2</sup> or 0.013 acres of wetlands, and 119.35 m<sup>2</sup> or 0.29 acres of U.S. Waters located within Parcel 46 near its southwestern limit (adjacent to Caribbean Sea) (**Appendix B: Figure 10**). The small delineated wetland area can be classified as estuarine, intertidal, forested, broad-leaved evergreen, irregularly flooded (E2FO3P). This system represents a small section of a fringe mangrove that continues toward the northwest outside Parcel 46. The U.S. Waters found represents the intertidal zone of Ensenada Honda (Caribbean Sea) that lies within a small portion of Parcel 46 property limits.

#### 3.5.1.5. Habitat Categorization

According to the findings of the Biological Resources Survey performed and the habitat categorization dispositions set forth by the New Wildlife Act of Puerto Rico (Law No. 241) and its regulations, Parcel 46 natural habitat is classified as Natural Habitat with High Potential to Become Essential Habitat of High Ecological Value or Ecological Value (Category 5). This recommendation is based on the following:

- The area of Parcel 46 was originally submerged, being part of Ensenada Honda Bay. In the 1940s, the area of Parcel 46 was artificially filled and “gained to sea” as part of the construction activities of the Naval Station Roosevelt Roads.
- Parcel 46 has been used historically as staging and storage area for trucks, equipment, and boats. The site have been improved with a security booth, a temporary security fence, two (2) lighted boat piers and a boat launch at the south, currently owned and operated by CBP. The boat piers are supplied with potable water as well as wastewater connections to the sanitary sewer system.

- Within Parcel 46 there are no natural habitats considered of high ecological value. The area is dominated by herbaceous species that are frequently mowed.
- The biological characterization index is equal to three (3). There is only one type of natural community represented by the herbaceous area. There are no other significant natural communities or communities that contribute significantly to other ecological functions within the property.
  - Although the proposed Project site is located within the designated Critical Habitat (CH) for the Yellow-shouldered blackbird, the existing conditions and current uses of the site are not consistent with the species habitat requirements or likely use of this site as its habitat. It is important to note that NAPR total area was designated as critical habitat. Because of this, an additional unit associated to the presence of this critical element in the zone was not added to the biological categorization calculation.
- The habitat connectivity is equal to four (4). Sixty-nine percent (69%) of the area within the 500 meters buffer zone consist of natural areas; while the 31% consist of impacted areas.
- The proximity to other natural communities within a 100 meters buffer perimeter is equal to three (3). The Caribbean Sea and two coastal forests are located within this buffer.

### *3.5.2. ENVIRONMENTAL CONSEQUENCES*

#### *3.5.2.1. No Action Alternative*

Under the no action alternative, no direct or indirect impacts to vegetation and wildlife communities associated to new construction will occur. The type and intensity of operations at Parcel 46 will remain the same and ongoing impacts would be similar to those resulting from current operations.



#### 3.5.2.2. Proposed Action

The Proposed Action will be developed in an area of 1.4 acres previously disturbed and currently covered by herbaceous (grass) species. Property areas outside the designated construction area will remain in their current natural state. Potential indirect impacts to natural systems adjacent to the Project site as result of the Proposed Action would include short-term indirect impacts due to erosion and sedimentation from the construction site. Implementation of a SECP and appropriate BMPs concerning sediment control would avoid and minimize potential impacts from sediments and contaminated runoff entering adjacent natural systems. Wildlife species present in adjacent areas may be temporarily displaced during construction activities due to noise disturbances and increased human activity. However, once construction is completed, wildlife distribution in the vicinity of proposed Project area will be similar to pre-construction conditions.

No direct impacts to federally or locally designated threatened or endangered species or their habitats are anticipated as result of the Proposed Action. Increased boat traffic as part of the operation of the New Marine Facility in the NAPR could increase the potential for marine mammal and sea turtles collisions in Ensenada Honda. Vessel speed limits through established no-wake zones will be enforced by CBP to avoid such impacts.

The Proposed Action alternative would have no impacts to jurisdictional wetlands areas and U.S. Waters identified within Parcel 46. As previously described, implementation of erosion and sedimentation controls during construction activities would avoid or minimize potential indirect impacts from sediments and contaminated runoff to these areas. Any impacts to wetlands and U.S. Waters would require a Section 404 permit from the USACE.

Based on the site conditions (previously impacted areas) and the habitat categorization analysis, mitigation is not recommended for the proposed Project under the New Wildlife Act of Puerto Rico (Law No. 241). A Certification for Categorization of Habitat application will be filed to DNER for a final determination in compliance with the New Wildlife Act of Puerto Rico (Law No. 241).

### 3.6. CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

#### 3.6.1. AFFECTED ENVIRONMENT

The cultural, historical and archaeological resources within the Project area were assessed through a Phase IA study. The overall objective of the assessment was to determine the presence or absence of historical properties in the Project's area. The Phase IA research strategy consisted of an archival research and inspection of sensitivity, and involved two main aspects: an investigation of all existing documentary sources and a visual inspection of the surface of the study area in order to establish its archaeological potential.

Inventories of archaeological sites and archaeological surveys deposited on the archives of the Council for the Protection of the Terrestrial Archaeological Heritage of Puerto Rico and the State Historic Preservation Office (SHPO) were consulted as part of the Phase IA assessment. Thirty-six (36) archaeological sites have been recorded in the former Roosevelt Roads Naval Station area: 24 are pre-colonial, five are Spanish colonial, six are multicomponent, - containing both pre-Columbian and Spanish colonial remains- and one is modern. None of these sites is located within Parcel 46 or in its immediate proximity. Three sites are located within a 1 km radius: RR-GMI-1 consists of a small pre-Columbian camp site dating from the Elenan Ostionoid period (AD 900-1200); Site CE-32 is a precolumbian habitation locus dating from the Saladoid and Ostionoid periods (AD 600-1200); and Site CE-33 consists of a hilltop habitation site dating from the Chican Ostionoid period (AD1200-1500). The Project will not affect any of these sites directly or indirectly.

The examination of historic maps and aerial photographs evidenced that what is now Parcel 46 was under water until some point between 1936 and 1951 when it was filled to create usable area of made land. The parcel was vacant, until two piers and a ramp, and electrical infrastructure were constructed between 1994 and 2004. The only structures that have existed in Parcel 46 are the modern piers and ramp, still present and in use today.

The historical data suggests that a port was located somewhere in the study zone during the 19th and early 20th centuries. The available cartography does not allow establishing accurately the location of the port, and the data does not state if a pier or other associated facilities were

constructed. In the event that the port was in fact located exactly in the Project area, any built facilities would have been located north of Langley Drive, with exception of a pier or dock. In that case, associated features, like piles, were possibly built within what is now Parcel 46, and if so, remains of piles could still exist under the fill layers and within the marine or original sediments. Besides being hypothetical, and somewhat of a stretch of the historical information, it is unlikely that potential remains associated to this resource would retain significant research potential and integrity after the fill activities of the 1940s.

In 1985, a probability model for archaeological resources was developed as part of the Cultural Resources Management Plan for the former Roosevelt Roads Naval Station. The area of Parcel 46 was classified as having “no probability” of cultural resources based on the presence of landfill or disturbed land. The Phase IA assessment supports the conclusion of the Probability Models because the area was previously under water, and was reclaimed by depositing up to 2.7 meters of fill.

The Phase IA Study also considers the potential effect of the undertaking to potential historic properties (specifically structures and buildings) located in Parcel 46 surrounding area. The visual setting in the immediate vicinity of the Project consists of a largely industrial developed waterfront area at Ensenada Harbor. Neighboring Parcel 46 is infrastructure related to maritime transportation and operation activities. Approximately 70% of the surrounding areas are developed for industrial land uses. Various institutional and commercial uses also are present, but to a much lesser extent. To the west, a vacant lot dominates the landscape of the Project site; to the north mountainous landscape scattered with naval base type development; to the south Ensenada Honda Bay; and a 366 m long fixed fuel pier to the east dominates the waterfront. An associated fuel tank farm is located north of the Project site. Other water-related facilities in the area include a 72-slip small-boat marina, three additional piers (denominated 1, 2 and 3), port operations buildings, various hauling facilities, and extensive bulk heading. Adjacent to Parcel 46 are three buildings and pier facilities belonging to the Watercraft Maintenance Support Center of the Puerto Rico Army National Guard.

Most of these structures were built between 17 and 48 years ago (LRA, 2012). Two of the piers were built in the 1940's: Piers 1 and 2. Pier 1, located about 270 m southeast of Parcel 46, is a 137 m long and 12 m wide pier, supported by concrete piles and continuous bent camps. Pier 2 is located 490 m southeast of Parcel 46. It consists of a concrete deck on concrete pile structure measuring 182 m long by 12 m wide. None of the above-mentioned properties were determined eligible to the National Register of Historic Places (NRHP) in the architectural resources inventories and evaluations conducted in the area (Goodwin & Associates, 1999; LawGibb Group, 2001).

The Phase IA Study concluded that (1) there are no historic properties located within the Project's area; (2) there is no concrete evidence indicating that a permanent structure or building was ever constructed at Parcel 46, beside the existing docks and platform, and (3) the archaeological potential for finding either pre-Columbian or colonial historic properties is extremely low.

### *3.6.2. ENVIRONMENTAL CONSEQUENCES*

Significance of potential impacts on cultural, historical and archaeological resources is based on the sensitivity of the area to the presence of historic properties and the Project's development activities to affect them adversely. To be considered a "historic property" a cultural, historical or archaeological resource must be determined eligible to the National Register of Historic Places. In other words, it must have three essential attributes: sufficient age (50 years or more), integrity and significance. An effect on a historic property is considered adverse if it alters its integrity or any of the attributes that make it significant.

#### *3.6.2.1. No Action Alternative*

Under the No Action Alternative, no potential historic property will be affected as existing conditions and CBP operations at Parcel 46 will remain as it is.

#### 3.6.2.2. *Proposed Action*

The Proposed Action would not affect the archaeological sites identified within the NAPR since none of these sites are within Parcel 46 or its immediate vicinity. The archaeological potential for finding either pre-colonial or colonial historic properties within Parcel 46 is low thus no significant impacts from the implementation of the Proposed Action would occur. In the rare occurrence that archaeological resources were to be found below surface of Parcel 46, building and structural options for construction of the Proposed Action would have a low or near zero potential to impact them.

The Proposed Action consist of a low profile undertaking with minimal visual impacts on the surrounding landscape, and as such it does not have the potential to adversely affect the character of above ground potential historic properties located in its surrounding area.

### 3.7. AIR QUALITY

#### 3.7.1. *AFFECTED ENVIRONMENT*

The occurrence and concentration of air pollutants in Puerto Rico is influenced by its geographical location, topography, and weather, among other factors. Air quality in Puerto Rico is mainly affected by anthropogenic sources such as industrial activities, energy production, traffic, fires, and earth crust extraction processes. Also, air quality is affected by pollutants from natural sources such as Saharan dust and volcanic ash (Mayol Bracero, 2006).

The Clean Air Act (CAA) is the main federal statute governing the control of air pollution. At a local level, air quality is regulated by the Puerto Rico Environmental Public Policy Act and the Regulation for the Control of Atmospheric Pollution of the Environmental Quality Board (EQB). Pursuant to the CAA, the Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants, including: particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>), ozone (O<sub>3</sub>), carbon monoxide (CO), sulfur oxides (SO<sub>x</sub>), nitrogen dioxide (NO<sub>2</sub>) and lead (Pb). The NAAQS have been established to protect the public health and

welfare. The primary NAAQS are intended to protect public health, while the secondary NAAQS are intended to protect the environment. The NAAQS are included in **Table 3**.

Air quality is determined within regional boundaries and by pollutant concentrations. Areas are classified as “attainment” or “non-attainment” for each criteria pollutant according to their compliance with the NAAQS. Currently in Puerto Rico, there is only one non-attainment area for the parameter of lead and consists of a small area delimited by a 400 meters perimeter from the location of a facility known as the Battery Recycling Company located in the Municipality of Arecibo in the North Region of Puerto Rico. All other areas in Puerto Rico are classified as “attainment” for air quality standards.

The EQB monitors some of the criteria pollutants through a network of 20 air-sampling stations throughout Puerto Rico. There are no air quality monitoring stations in the Municipality of Ceiba. The closest air quality station to the Project area is located at approximately 24 km to the southwest in the Municipality of Humacao (Station ID 72-069-0001). This station monitors particulate matter (PM<sub>2.5</sub>). The PM<sub>2.5</sub> annual arithmetic mean at this station for the years 2011 to 2013 ranged from 3.0 to 5.3 µg/m<sup>3</sup> (24 hour period) (data retrieved December 1, 2013 from <http://www.epa.gov/airquality/airdata/index.html>).

The General Conformity Rule, established under Section 176 of the CAA, is intended to ensure that the actions taken by federal agencies in non-attainment and maintenance areas do not interfere with the attainment and maintenance of regional air quality goals to meet NAAQS. Under the General Conformity Rule, federal agencies shall evaluate the nature of a proposed action and associated air pollutant emissions to ensure the proposed action conform to the air quality plans established in the applicable state or tribal implementation plan. If the emissions exceed established limits, known as *de minimis* thresholds, the proponent is required to implement appropriate mitigation measures. Based on the attainment status in the proposed Project area, a general air conformity analysis is not required for this Project.

**TABLE 3. NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)**

Pollutant [final rule cite]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide [76 FR 54294, Aug 31, 2011]		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead [73 FR 66964, Nov 12, 2008]		primary and secondary	Rolling 3 month average	0.15 µg/m <sup>3</sup> <sup>(1)</sup>	Not to be exceeded
Nitrogen Dioxide [75 FR 6474, Feb 9, 2010] [61 FR 52852, Oct 8, 1996]		primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		primary and secondary	Annual	53 ppb <sup>(2)</sup>	Annual Mean
Ozone [73 FR 16436, Mar 27, 2008]		primary and secondary	8-hour	0.075 ppm <sup>(3)</sup>	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution Dec 14, 2012	PM <sub>2.5</sub>	primary	Annual	12 µg/m <sup>3</sup>	annual mean, averaged over 3 years
		secondary	Annual	15 µg/m <sup>3</sup>	annual mean, averaged over 3 years
		primary and secondary	24-hour	35 µg/m <sup>3</sup>	98th percentile, averaged over 3 years
	PM <sub>10</sub>	primary and secondary	24-hour	150 µg/m <sup>3</sup>	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide [75 FR 35520, Jun 22, 2010] [38 FR 25678, Sept 14, 1973]		primary	1-hour	75 ppb <sup>(4)</sup>	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Source: <http://www.epa.gov/air/criteria.html> as of October 2011

(1) Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m<sup>3</sup> as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

(2) The official level of the annual NO<sub>2</sub> standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

(3) Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard (“anti-backsliding”). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.

(4) Final rule signed June 2, 2010. The 1971 annual and 24-hour SO<sub>2</sub> standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

### 3.7.2. ENVIRONMENTAL CONSEQUENCES

#### 3.7.2.1. No Action Alternative

Under the No Action Alternative, indirect and direct impacts on air quality associated with construction activities would not result. In addition, the type and intensity of operations, and associated minor emissions from the use of vehicles and boats, would be similar to those resulting from current operations.

#### 3.7.2.2. Proposed Action

Temporary and minor air pollutants emissions of fugitive dust and combustible emissions from construction equipment and vehicles would occur as result of the construction of the Proposed Action. During operation of the new marine facility, minor emissions would be associated to the use of employee vehicles, the operation of boats for patrol duties, and the occasional operation of a backup electrical generator during emergencies. These emissions will be minor and are not expected to adversely affect the air quality of the area nor its designation as an attainment area.

Implementation of BMPs to control and minimize air emissions would include proper and routine maintenance of all construction equipment and vehicles to ensure emissions are within design standards, fugitive dust control measures including applying water before/during earthwork and onto unpaved traffic areas and construction equipment/vehicle speed limits.

## 3.8. NOISE

### 3.8.1. AFFECTED ENVIRONMENT

The EQB, through the Regulation for the Control of Noise Pollution (EQB, 2011), establishes standards and requirements for the control, reduction or elimination of noise that could affect public health and welfare. The regulation defines noise as an unwanted sound that can affect humans psychologically or physiologically or that exceed the established regulatory limits. It further states that emission sources shall comply with regulatory limits as measured beyond its property limits in receptors zones as defined by the regulation. **Table 4** includes the noise



regulatory limits for each receptor zone and type of emission source as defined by EQB regulation.

Sound is usually represented on a logarithmic scale with a unit called the decibel (dB), and various weighted dB scales (A, B, C) are used to approximate how people perceive different types of sounds (FTA, 2006). The A-weighted decibel (dBA) is a measurement of sound pressure adjusted to conform to the frequency response of the human ear. One of the noise metrics that considers durations as well as sound power level is the  $L_{10}$ , which represents the sound level in dB(A) units that is exceeded 10% of the time over a specific period.

**TABLE 4. NOISE LEVELS LIMITS ( $L_{10}$ , dB(A))**

Emission Source	Receptors Zones							
	Zone I (Residential)		Zone II (commercial)		Zone III (Industrial)		Zone IV (Quiet Zone)	
	D	N	D	N	D	N	D	N
<b>Zone I (Residential)</b>	60	50	65	55	70	60	55	50
<b>Zone II (Commercial)</b>	65	50	70	60	75	65	55	50
<b>Zone III (Industrial)</b>	65	50	70	65	75	75	55	50
<b>Zone IV (Quiet Zone)</b>	65	50	70	65	75	75	55	50

Notes: D = Diurnal period from 7:00 am to 10:00 pm N = Nocturnal period from 10:01 pm to 6:59 am  
Source: EQB Regulation for the Control of Noise Pollution (EQB, 2011)

Presently, the NAPR is mostly vacant and current uses are limited to the operation of the airport, some commercial and industrial uses, operation of local and federal agencies facilities, and general maintenance activities of the area. Based on observations made during a field visit conducted at the Project site on November 2013, current noise levels at Parcel 46 are mostly influenced by vehicular traffic in the area, CBP limited operations at the site, and the operation of an adjacent facility identified as Watercraft Maintenance Support Center of the PR Army National Guard.

The closest residential area to the proposed Project site is a housing complex, currently unoccupied, located in Langley Drive at approximately 1.25 km to the west. Occupied

residential areas are outside the limits of the NAPR and are located more than 3.5 km away from the Project site (Parcelas Aguas Claras). The closest quiet zone to the Project area is the former Naval Hospital, currently not in operation. The Hospital is located at approximately 800 meters to the east of the proposed Project site. The Elementary School of Parcelas Aguas Claras is the closest school (Quiet zone) and is located at approximately 4.1 km to the west of Parcel 46.

### 3.8.2. ENVIRONMENTAL CONSEQUENCES

#### 3.8.2.1. No Action Alternative

Under the No Action Alternative, impacts associated to noise emissions from construction activities and operation of the new marine facility would not result. Noise levels would be similar to current conditions since the type and intensity of CBP operations, and associated noise emissions from the use of vehicles and boats, would continue in the area.

#### 3.8.2.2. Proposed Action

**Construction** - Noise levels would temporary increase in the Project area and its vicinity as result of the use of heavy equipment and machinery during construction of the Proposed Action. Several factors may influence the noise levels during construction activities, including the number and type of equipment used, equipment location, and duration of use. **Table 5** presents typical noise emission levels for common construction equipment that may be used at the site during the proposed construction activities. Typical construction equipment could produce noise emissions up to 91 dBA. If the structural piles (driven deep foundations) building option if chosen, noise emissions levels during pile installation could increase up to 94 dBA.

The Project area (emission source) is classified as Zone III (Industrial) and the immediately adjacent receptors can be classified as Zone II (Commercial) and Zone III (Industrial). The applicable noise regulatory limit per EQB's regulation is 75 dBA (diurnal). The noise level at those immediately adjacent receptors would be anticipated to reach up to 67 dB(A) at the closest receptor located east (400 m) from the proposed Project site and 80 dB(A) at the closest receptor located west (80 m) from the proposed Project site.

**TABLE 5. NOISE EMISSION LEVELS FOR CONSTRUCTION EQUIPMENT**

<b>Equipment</b>	<b>L<sub>max</sub> @ 50 feet dB(A)</b>
Backhoe	80
Concrete Mixer Truck	85
Concrete Pump Truck	82
Dump Truck	84
Grader	85
Roller	85
Soil Mix Drill Rig	80
Paver	85
Impact Pile Driver	95
Vibratory Pile Driver	95

Source: FHWA Highway Construction Noise Handbook (2006)

The closest sensitive noise receptors (currently unoccupied) are a residential complex and a Hospital located at approximately 1.25 km (3,785 feet) and 800 meters (2,422 feet), respectively from the proposed Project site. Noise levels associated to the construction activities at those receptors would be anticipated to reach 57 dB(A) and 60 dB(A), respectively. Occupied residential areas and schools are outside the limits of the NAPR and are located more than 3.5 km away from the Project site, therefore would not be influenced by noise emissions from construction activities at the site.

It should be noted that the predicted noise levels are conservative and represent the worst-case scenario in terms of noise emission. Expected noise levels during construction of the Proposed Action would be lower during most of the time.

Although regulatory noise limits could be exceeded during construction activities, noise emissions would be temporary and intermittently produced. Furthermore, given the current uses of adjacent receptors and the redevelopment plans for the NAPR area, noise emissions from the construction of the Proposed Action would have minor effects on the area.

**Operation** - During operation of the New Marine Facility, noise emissions would result from the use of vehicles and boats, and the occasional operation of equipment such as backup electrical generator. Noise emissions during operation of the facility would be similar to current conditions and would not affect background noise levels in the area.

### **3.9. UTILITIES AND INFRASTRUCTURE**

#### *3.9.1. AFFECTED ENVIRONMENT*

As previously mentioned, after ceased of military operations in NSRR in 2004, the Government of Puerto Rico created the Local Redevelopment Authority to coordinate and promote the redevelopment of the area. In 2011, the PR Planning Board adopted the Roosevelt Roads Land Use Plan for new developments. Also, as part of the redevelopment planning efforts, an Infrastructure Master Plan was developed in 2012 to assess the existing infrastructure conditions and the improvements required to accommodate the proposed redevelopment of the NAPR area. The description of the utilities and infrastructure serving the proposed project area are based on information contained in the Land Use Plan (LRA, 2011) and the Infrastructure Master Plan (LRA, 2012) for the NAPR area.

##### *3.9.1.1. Water System*

The water system of the NAPR consist of a raw water intake located in Rio Blanco in Naguabo, a raw water reservoir, a water treatment facility (capacity of 4.4 MGD) and a water distribution system, including 64 miles of pipeline, five storage tanks, and seven pumping stations. This system is operating in fair conditions. At present, Parcel 46 connects to the NAPR water system through a 12 inches pipeline that runs along Forrestal Drive. Future plans contemplated the shutdown of the water treatment facility of NAPR and connection to the Fajardo Water Treatment Plant operated by the Puerto Rico Aqueduct and Sewer Authority (PRASA).

##### *3.9.1.2. Wastewater System*

The NAPR sanitary sewer system consists of three treatment plants (Bundy, Capehart and Forrestal) and their collection systems. Forrestal Plant serves the proposed Project area. A 15 inches sanitary pipeline runs along Forrestal Drive and connects to the treatment plant located to the east of Parcel 46. Future plans contemplated the shutdown of the wastewater treatment facilities of NAPR and connection to PRASA Fajardo Wastewater Treatment Plant.

#### *3.9.1.3. Electrical Distribution Systems*

Two main 38 kV lines supply electrical power to the NAPR system from the Puerto Rico Electric Power Authority (PREPA) 115 kV Electrical Main Substation at the Dagua Sector in Naguabo. The NAPR electric distribution system consists of a network of 38, 13.2 and 4.16 kV aerial lines, substations and transformers. The complete system is operating in fair condition, but not all components such as poles, aerial lines and substations comply with current PREPA regulations. The NAPR power distribution system will be transferred to PREPA and improvements to the systems will be made to standardize and upgrade equipment in accordance with applicable codes.

### *3.9.2. ENVIRONMENTAL CONSEQUENCES*

#### *3.9.2.1. No Action Alternative*

Under the No Action Alternative, there would be no impacts to local utilities because no additional power and water demands associated with a new facility would occur.

#### *3.9.2.2. Proposed Action*

Potable water, sanitary sewer, and electrical power service connections would be required for operation of the new marine facility. The Proposed Action would have a potable water demand and sanitary discharge estimated in approximately 1,100 gallons per day (gpd), and an electricity power demand of 150 KVA.

The Proposed Action will meet the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings, and as such will be designed and operated in a sustainable manner with focus in energy efficiency and water conservation.

The existing infrastructure in the area has the capacity to service the Proposed Action. Coordination with LRA and local infrastructure agencies will be required during the final design and construction stages for connection point locations and compliance with local codes and specifications.

### **3.10. ROADWAYS AND TRAFFIC**

#### *3.10.1. AFFECTED ENVIRONMENT*

The NAPR area connects with the Municipality of Ceiba and the eastern area of Puerto Rico, mainly through state roads PR-3 and PR-52. Currently there are two main entrances to the NAPR area, Gate 1 at the north portion (Tarawa Road) and Gate 3 (Bennington Road) at the southwest portion. The NAPR area is composed of a network of approximately 177 kilometers of main and secondary roads, avenues and local streets. Main roads within NAPR are Forrestal Drive, Tarawa Drive, FDR Drive, Langley Drive, Boxer Drive and Bennington Drive. Improvements to the existing road network are contemplated as part of the redevelopment efforts for the area. Access to the proposed Project area is from Forrestal Drive.

#### *3.10.2. ENVIRONMENTAL CONSEQUENCES*

##### *3.10.2.1. No Action Alternative*

Under the No Action Alternative, increase in traffic from construction activities and operation of the new marine facility would not occur. Roadways and traffic conditions will continue to be influenced by current uses in the NAPR and subsequently by the redevelopment of the area.

##### *3.10.2.2. Proposed Action*

Construction-related activities would cause an increase in local traffic from construction equipment, trucks and construction personnel vehicles. Traffic increases would be temporary and are not expected to cause an adverse impact on existing road conditions and traffic of the area. Similarly, a slight increase in traffic is expected in the area from employee's vehicles during operation of the proposed facility. The roadways network and road access are adequate to service the Project area thus no adverse impacts from the Proposed Action are expected.

### **3.11. HAZARDOUS MATERIALS**

#### ***3.11.1. AFFECTED ENVIRONMENT***

Specific environmental statutes and regulations govern hazardous material and hazardous waste management activities at federal operations. For the purpose of this analysis, the terms hazardous waste, hazardous materials, and toxic substances include those substances defined as hazardous by the Comprehensive Environmental, Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA), the Spill Prevention, Control, and Countermeasures Rule, Department of Transportation Hazardous Materials 181 Regulation, and the TSCA. In general, they include substances that, because of their quantity, concentration, or physical, chemical, or toxic characteristics, may present moderate danger to public health or welfare or the environment when released into the environment.

Parcel 46 is located within a former military base. The Navy is managing hazardous wastes, hazardous materials and substances in the NAPR and is remediating any contamination resulting from past operations in accordance with applicable regulations. This section discusses potential environmental contamination at the proposed Project location that could be sources of release to the environment.

A Phase I Environmental Site Assessment (ESA) pursuant to the requirements and limitations of the ASTM Standard Practice E1527-05 was conducted at Parcel 46. The Phase I ESA reported the presence of minor concentrations of petroleum contamination in the site groundwater due to a jet fuel (JP-5) spill that had occurred within the area on October 19, 1999 (P&S, 2010).

Two Solid Waste Management Units (SWMUs) are located to the north and hydrologically up gradient to Parcel 46: SWMU 7/8 “Tow Way Fuel Farm” and SWMU 74 “Fuel Pipelines and Hydrant Pits”. SWMU 7/8 “Tow Way Fuel Farm” consists of 9 bomb proof underground storage tanks used for the storage of marine, diesel, jet, and bunker fuels. SWMU 74 consists of Jet Propellant (JP)-5 (jet fuel) and DFM (Diesel Fuel Marine) pipelines and aircraft hydrant refueling lines and pits. SWMU 74 is included in the Revised Final Phase I corrective measures implementation plan submitted July 2010. Corrective measures implementation is expected by July 2015. Petroleum contamination plumes detected in the groundwater beneath the property

are associated with these sites. The SWMUs are being managed under the RCRA Corrective Action Program by the U.S. Environmental Protection Agency (Region 2) and the Puerto Rico Environmental Quality Board (EQB). These sites are currently undergoing a remediation scheme based on monitored natural attenuation and a containment/collection program.

A Phase II ESA (ASTM Standard Practice 1903-11) performed at Parcel 46 included sampling of soil and groundwater media. Laboratory results confirmed the presence of petroleum products in groundwater and in soils at depths ranging from 8 to 14 feet below the ground surface (AG Environmental PSC, 2011).

The Phase II ESA concluded that most likely the source of the contaminants at the Property originated from SWMU 7/8. Affected media at the property include underlying soils and groundwater. Soil impacts in the area appear to be aggravated towards the east of the Property and were in the order of >20,000 µg/kg of Total Petroleum Hydrocarbons (TPH) in the Gasoline Range Organics (GRO) range. Vertically, these impacts appear to be located on average between the saturated fringe (8'-10') and the 12'-14' horizon. Groundwater impacts at the site appear to be in the order of 700-800 µg/L of TPH in the GRO range also.

Six (6) monitoring wells (UGW15, UGW20R, 7MW06, CHMW01, CHMW02 and CHMW12) have been installed on the site in order to monitor and validate contaminant concentrations in the area. The Navy will still be responsible for the continued investigation and cleanup of these sites. CBP is responsible for adhering to the following land use restrictions at Parcel 46:

- Non-residential use only;
- No groundwater use;
- No disturbance to groundwater flow, including dewatering; and
- No installation of wells or the removal/damage of existing wells on the parcel.



### *3.11.2. ENVIRONMENTAL CONSEQUENCES*

#### *3.11.2.1. No Action Alternative*

Under the No Action Alternative, no new hazardous materials or wastes would be generated.

#### *3.11.2.2. Proposed Action*

The Project does not include the installation of fuel underground or surface storage tank as part of its operation. However, minor amounts of hazardous materials such as rags, cleaning solvents and a limited amount of petroleum products will need to be stored. In addition, the Project's operational phase will generate hazardous materials during maintenance activities that may include used oil, oil filters, gas filters, and refrigerant. There could be negligible short-term direct impacts due to increased amounts of hazardous materials being onsite during construction. These could be, but are not limited to, diesel fuel, gasoline, paint, adhesives, and solvents. The impact would be an increased spill potential. Hazardous materials associated with construction equipment would be used in accordance with federal, state, and local regulations. Any spills from construction activities would be immediately contained and disposed of properly.

Reasonable containment and control of solid waste generated from and hazardous substances used in construction activities would be employed. All spills or releases of hazardous materials, pollutants, or contaminants would be handled in accordance with measures outlined in a spill prevention and response Plan.

Although the construction of the Proposed Action at Parcel 46 includes disturbance to soil and groundwater beneath the site, only a limited amount of soil cuttings and groundwater removal will result during the Project's structural foundation development (if driven pile system option is selected). This action could potentially generate direct negligible non-adverse impacts to the contaminated soil and groundwater beneath the site. Nonetheless, waste stream of either media will be handled through implementing institutional controls as BMPs described below.

- Institutional controls will consist of physical barriers that restrict access to the site, such as fencing and the installation of appropriate signs to warn of potential hazards on site.

- Environmental safety and health considerations will be in place to handle and temporarily store resulting soil or groundwater scheduled for disposal.
- Construction activities could potentially produce waste in the form of hydrocarbon contaminated soil cuttings and groundwater. Should this occur, institutional/engineering controls would be put into effect immediately to reduce exposure pathways.
- This waste may be considered regulated non-hazardous waste by PR Non-Hazardous Waste Regulation.
- Special environmental safety and health considerations will be put into place to handle and store resulting soil or groundwater scheduled for disposal. The waste will be temporarily stored in appropriate Department of Transportation approved 55-gallon drums while waiting for transportation to an authorized facility such as a landfill facility. A negative Toxicity Characteristic Leaching Procedure (TCLP) test will be required by the receiving facility before accepting the generated waste. Handling and transportation of waste material should be performed by an approved authorized contractor.
- Land use restrictions require that the Navy/USEPA be notified prior to any removal of groundwater.

### **3.12. AESTHETIC AND VISUAL RESOURCES**

#### **3.12.1. *AFFECTED ENVIRONMENT***

Viewshed is defined as the natural environment that is visible from one or more viewing points. Aesthetic resources consist of the natural and man-made landscape features that appear indigenous to the area and give a particular environment its visual characteristics.

A vacant lot to the west dominates the landscape in the viewshed of the Project site and mountainous landscape to the north scattered with naval base type development. The visual setting in the immediate vicinity consists of a largely industrial developed waterfront area at Ensenada Harbor. A 2,600-foot long fixed fuel pier to the east dominates the waterfront. An associated fuel tank farm is located north of the Project site. Other water-related facilities in the area include a 72-slip small-boat marina, a 1,200-foot long cargo pier, port operations buildings, various hauling facilities, and extensive bulk heading. Approximately 70% of the surrounding areas are developed for industrial land uses. Various institutional and commercial uses also are present, but to a much lesser extent.

#### **3.12.2. *ENVIRONMENTAL CONSEQUENCES***

##### **3.12.2.1. No Action Alternative**

Under the No Action Alternative, effects to aesthetic and visual resources would remain unchanged.

##### **3.12.2.2. Proposed Action**

Actions that cause the permanent loss of the characteristics that make an area visually unique or sensitive would be considered to cause a major adverse impact. The construction of the new marine facility would be consistent with the use of the area. No major impacts on visual resources would occur from implementing the Proposed Action, due in part to the site being previously disturbed, adjacent to predominantly naval base type development. The design of the Project ensures preserving the character of the landscape. Therefore, the Proposed Action would have a long term, minor adverse effect on the viewshed and aesthetic qualities of the Project area.

### 3.13. SOCIOECONOMIC

#### 3.13.1. *AFFECTED ENVIRONMENT*

This section describes relevant social and economic characteristic of the Municipality of Ceiba and Puerto Rico. The Municipality of Ceiba is part of the Eastern Region of Puerto Rico. The Region has an area of 1,263.31 km<sup>2</sup>, approximately 14.2% of the total area of Puerto Rico. The Municipality of Ceiba is delimited in the north by the Municipality of Fajardo, in the southwest with Naguabo and in the east, the Caribbean Sea. Its territory is 75.2 km<sup>2</sup>. **Table 6** summarizes the socioeconomic characteristic of Ceiba and Puerto Rico.

##### 3.13.1.1. Population

During the last decade, the Municipality of Ceiba experienced a significant population decline (24% reduction), mostly associated with the closure of the NSRR and the effect of migration patterns that have caused a decline in the population throughout Puerto Rico. In 2010, the Municipality of Ceiba population was 13,631. According to the 2010 U.S. Census, 99% of the population is of Hispanic or Latino origin, 70% reports being Caucasian and 16% African American. As shown in **Table 6**, the percent of persons age 25 or above with a high school degree or higher is 71% for the Municipality of Ceiba and 69% for Puerto Rico.

##### 3.13.1.2. Employment, Income and Poverty Levels

The total estimated labor force in the Municipality of Ceiba in 2011 was 5,316, of which 4,639 were employed. As of January 2013, data from the Department of Labor and Human Resources reported that the unemployment rate of Ceiba (17%) was higher than the rate of Puerto Rico of 14.8%.

The mean household income (2011) for the Municipality of Ceiba was \$25,669 and for Puerto Rico was \$29,872. Per capita income is \$9,787 for Ceiba and \$10,568 for Puerto Rico. According to the Puerto Rico Community Survey Data, poverty levels in Ceiba (41%) are lower in comparison with the levels observed in Puerto Rico (45%).

Data on housing units shows a higher percent of vacant units in Ceiba (33%) than the rates observed in Puerto Rico (16%).

**TABLE 6. SOCIOECONOMIC PROFILE: CEIBA AND PUERTO RICO**

<b>Variables</b>	<b>Ceiba</b>	<b>Puerto Rico</b>
<b>Population</b>		
Population (2010)	13,631	3,725,789
Population (2000)	18,016	3,808,610
Percent change	-24%	-2%
<b>Ethnicity</b>		
Hispanic or Latino	13,461	3,688,455
Non Hispanic or Latino	170	37,334
<b>Race</b>		
White	9,623	2,825,100
African American	2,248	461,498
American Indian and Alaska Native	96	19,839
Others	1,664	419,352
<b>Educational Attainment</b>		
High school graduate or higher (percent)	71%	69%
<b>Employment Status</b>		
(Population over 16 years)		
In Labor Force	5,316	1,375,100
Employed	4,639	1,137,041
Unemployed	677	238,059
Not in Labor Force	5,742	1,559,511
<b>Income (2011)</b>		
Mean Household Income (dollars)	25,669	29,872
Per capita Income (dollars)	9,787	10,658
Population below poverty level (past 12 months) (percent)	41%	45%
<b>Housing</b>		
Total Housing Units	7,755	1,636,946
Occupied (percent)	67%	84%
Vacant (percent)	33%	16%

Source: U.S. Census, 2000, 2010, and the Puerto Rico Community Survey (2007-2011).

### 3.13.2. ENVIRONMENTAL CONSEQUENCES

#### 3.13.2.1. No Action Alternative

No impacts would be expected on socioeconomics within the region under the No Action Alternative.

#### 3.13.2.2. Proposed Action

The construction of the Proposed Action is expected to have a positive economic impact to the regional and local economy due to temporary employment and increase in sales from construction related services, materials and supplies. The construction of the facility is estimated at a cost of approximately \$2.1 million and the duration of the construction phase is estimated to last approximately 12 months. It is estimated that approximately 24 direct jobs would be generated during the construction phase. Employment generated by construction activities would result in additional indirect wages paid and indirect expenditures.

## 3.14. ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN

This section includes an environmental justice analysis in compliance with the following Executive Orders (EO):

- **Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations (February 1994).** EO 12898 requires that each federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its program, policies, and activities on minority and low-income populations.
- **Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks (April 1997).** EO 13045 requires each Federal agency to identify and assess environmental health risks and safety risks that may disproportionately affect children and “ensure that its policies, programs, activities, and standards address

disproportionate risks to children that result from environmental health risks or safety risks.

### *3.14.1. AFFECTED ENVIRONMENT*

The environmental justice analysis process requires the identification of minority and low income populations that might be disproportionately affected by implementation of the Proposed Action in comparison with the general population. Previously in **Section 3.13**, the socioeconomic characteristics of the Municipality of Ceiba (where the Project is being proposed) were described and compared to conditions in Puerto Rico. It is worth mentioning that in the case of Puerto Rico, all Puerto Ricans are considered a minority group, therefore it is not necessary to assess differences by racial or ethnic factors due to the homogeneity of the population in this aspect.

The Municipality of Ceiba appears to have some disadvantages in socioeconomic terms in comparison with the general population of Puerto Rico. Some of the variables that reflect some economic disadvantages are high unemployment levels, low household and per capita income, and high rates of vacant housing units. However, poverty and education levels in Ceiba are better than the levels reported for Puerto Rico. During the last decade, the Municipality of Ceiba experienced a significant population decline (24% reduction) as well as economic challenges following the closure of the military base.

### *3.14.2. ENVIRONMENTAL CONSEQUENCES*

#### *3.14.2.1. No Action Alternative*

Land uses at Parcel 46 will remain the same and CBP will continue using the property as boats storage area and using its piers and boat ramp for their patrol duties within the area.

#### *3.14.2.2. Proposed Action*

Implementation of the Proposed Action would not result in significant adverse environmental impacts that could affect local populations or the environment. The Proposed Action will be located in previously developed lands of industrial use and at considerable distance from communities and schools areas. A security fence would prevent children and others from accessing the property. Therefore, the Proposed Action would not result in disproportionately high and/or adverse human or environmental effects on children, minorities or low-income populations. Furthermore, the construction of the Proposed Action is expected to have a positive impact to local economy due to creation of jobs and increase in sales (direct and indirect) during the construction period.

### **3.15. SUSTAINABILITY AND GREENING**

#### *3.15.1. AFFECTED ENVIRONMENT*

CBP is committed to apply sustainable development concepts to the planning, design, and construction of major alteration of facilities and infrastructure projects, as well as maintaining and operating its facilities in a sustainable manner. In 2006, the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (MOU) was signed by numerous federal agencies, including DHS. Consistent with and in addition to Federal policy, statutes, executive orders and supplemental agency policies and guidance, the Parties to this MOU collaboratively seek to establish and follow a common set of sustainable Guiding Principles for integrated design, energy performance, water conservation, indoor environmental quality, and materials aimed at helping Federal agencies and organizations (<http://www.wbdg.org/references/mou.php>):

- Reduce the total ownership cost of facilities
- Improve energy efficiency and water conservation
- Provide safe, healthy, and productive built environments
- Promote sustainable environmental stewardship



Furthermore, Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management (January 24, 2007), proposes that federal agencies conduct their environmental, transportation, and energy-related activities in an environmentally, economically, and fiscally sound and sustainable manner. EO 13423 requires all Federal agencies to ensure new construction and major renovation comply with the sustainable Guiding Principles developed under the MOU, among other sustainable practices.

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System of the U.S. Green Building Council (USGBC) is the DHS preferred self-assessment tool to help apply the principles of sustainable development. LEED is designed for rating new and existing buildings and awards points based on the number of credits earned. The LEED rating system credits are organized into six categories: sustainable sites; water efficiency; energy and atmosphere; materials and resources; indoor environmental quality; and innovation and design. The LEED credits in these six categories encompass the intent of all five areas of the Sustainable Building Guiding Principles and additionally, consider factors that impact the land and surrounding environment upon which the facility is sited (CBP, 2010).

The new facility will be designed to comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings and LEED Gold Certification requirements. Some of the project features that would be considered during the final design stage and construction include:

- Implementation of an Erosion and Sedimentation Control Plan for all construction activities.
- Stormwater system with stormceptors to remove suspended solids from runoff prior to discharge to the sea.
- Maximize open space.
- Light-colored roofing materials or vegetation will be used on the main administrative building roof area and 50% of the hardscape will be either permeable pavement or light-colored to reduce the heat island effect. .
- Interior and exterior lighting systems will be design to reduce light pollution.

- Water use reduction through the use of water efficient fixtures, a rainwater collection system for water reuse, planting of native and adaptive species with reduced irrigation needs, among others.
- Energy efficient design, including installation of a photovoltaic system to provide at least 15% of the facility's energy.
- Recycling storage area.
- Indoor air quality considerations, including the use of low emitting materials.
- Zero CFC-based refrigerants in HVAC&R systems.

### 3.15.2. *ENVIRONMENTAL CONSEQUENCES*

#### 3.15.2.1. No Action Alternative

Under the No Action Alternative, the use of sustainability and green design measures would not be implemented.

#### 3.15.2.2. Proposed Action

The Proposed Action will be design and constructed in compliance with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings and LEED Certification requirements. The Proposed Action would result in long-term beneficial impacts from operating a facility that incorporates sustainable practices, reducing operating costs through energy efficient and water use reductions and reducing impacts to the environment.

### **3.16. CLIMATE CHANGE**

#### *3.16.1. AFFECTED ENVIRONMENT*

Global climate change refers to a change in the average weather on the earth. Greenhouse Gases (GHG) are gases that trap heat in the atmosphere. They include water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), fluorinated gases including chlorofluorocarbons (CFC) and hydro chlorofluorocarbons (HFC), and halons, as well as ground-level O<sub>3</sub> (California Energy Commission, 2007). The major GHG-producing sectors in society include transportation, utilities (e.g., coal and gas power plants), industry/manufacturing, agriculture, and residential.

The Obama Administration has been working to strengthen America's climate resilience. The President established an Interagency Climate Change Adaptation Task Force and (Federal Leadership in Environmental, Energy, and Economic Performance), and the Interagency Climate Change Adaptation Task Force led by the Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA).

Executive Order 13514-Federal Leadership in Environmental, Energy, and Economic Performance, signed on October 5, 2009, directs Federal agencies to reduce GHG emissions and address climate change in NEPA analysis. It expands upon the energy reduction and environmental performance requirements of E.O. 13423, Strengthening Federal Environmental, Energy, and Transportation Management. It identifies numerous energy goals in several areas, including greenhouse gases management, management of sustainable buildings and communities, and fleet and transportation management. Federal Agency Planning for Climate Change Related Risk. -Consistent with Executive Order 13514, agencies have developed Agency Adaptation Plans.

In February 2013, federal agencies released Climate Change Adaptation Plans for the first time, outlining strategies to protect their operations, missions, and programs from the effects of climate change. The DHS, for example, is evaluating the challenges of changing conditions in the Arctic and along the Nation's borders. In addition, the Administration has continued,

through the U.S. Global Change Research Program, to support science and monitoring to expand our understanding of climate change and its impacts.

Executive Order 13652 of September 30, 2013 mandates modernizing Federal Programs to Support Climate Resilient Investment and to support the efforts of regions, States, local communities, and tribes, all agencies, consistent with their missions and in coordination with the Council on Climate Preparedness and Resilience. <http://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change>.

To that effect, the Puerto Rico Coastal Zone Management Program from the DNER serves as Executive Secretariat of the Puerto Rico Climate Change Council (PRCCC). The PRCCC was convened in November 2010 to assess Puerto Rico's vulnerabilities and recommend strategies to respond to changes. Based on the results of PRCCC's working groups as well as the results of coastal hazards risk assessment workshops were conducted with thirty of the forty-four coastal municipalities, the PRCCC concluded that Puerto Rico's climate is changing and coastal communities of Puerto Rico, critical infrastructure, wildlife and ecosystems are all vulnerable to various impacts associated with changes in global, regional, and island weather and oceanographic conditions. Some of PRCCC relevant conclusions follow:

**Temperature** - Over the 20th century, average annual air temperatures in the Caribbean islands have increased by more than 0.6°C or 1.0°F. In Puerto Rico, station analyses show significant increases in annual and monthly average temperatures and a rise of 0.012 °C/yr. to 0.014 °C/yr. (0.022 to 0.025 °F/yr.) was observed from 1900 to present.

**Sea Level** - Because of the already observed sea level rise as well as weak shoreline management practices, coastal erosion is causing a retreat of the coastline of up to one meter per year (1.0 m/yr.) in some sectors of Puerto Rico.

If the observed Puerto Rico sea level rise trend continues linearly, with no acceleration in rate, by 2100 the sea level around Puerto Rico will have risen by at least 0.4 meters. Based on this information and future projections for sea level rise the PRCCC recommends planning for a rise of 0.5-1.0 meters by 2100 (PRCCC, 2013).

### 3.16.2. ENVIRONMENTAL CONSEQUENCES

#### 3.16.2.1. No Action Alternative

Under the No Action Alternative, the Project would not be developed, so no direct impacts would occur. Nevertheless, with this alternative CBP OAM personnel would still need to travel from its current facility location in Fajardo to Parcel 46 to fulfill patrol duties, which would have long-term adverse effects on the environment from the use of vehicles that will emit greenhouse gases leaving a carbon footprint.

#### 3.16.2.2. Proposed Action

The Proposed Action will require the use of heavy equipment during its construction. The construction equipment used will generate a short-term negligible amount of emissions of greenhouse gases into the atmosphere since the equipment to be used will have efficient emission control equipment. Furthermore, these point sources will operate only during the daytime hours and in an intermittent manner. In addition, the Proposed Action will be designed and constructed in compliance with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings and LEED Certification requirements thus incorporating sustainable practices to reduce impacts to the environment.

Based on the expressed measures above, the proposed marine unit will cause negligible long-term impacts on GHG and climate change considering the impacts from the construction and operation of the proposed Project.

The potential for sea level rise caused by the effect of global warming will be considered in the Project final design for determining the main building first floor elevation.

### **3.17. HUMAN HEALTH AND SAFETY**

#### **3.17.1. AFFECTED ENVIRONMENT**

Generally, human health effects can occur from accidents and exposure to contaminants and environmental conditions. For the purpose of NEPA, an accident can be viewed as an unplanned event or sequence of events that results in undesirable consequences. Accidents can be caused by equipment malfunction, human error, or natural phenomena (Eccleston, 2012).

The Project is located in previously improved land that has underlying soil and groundwater contamination issues by petroleum hydrocarbons and is undergoing a remediation scheme based by monitored natural attenuation. Immediate surrounding areas are vacant land and waterfront/industrial land. Community areas are located outside the limits of the NAPR at considerable distance from the proposed Project site (3.5 km).

#### **3.17.2. ENVIRONMENTAL CONSEQUENCES**

##### **3.17.2.1. No Action Alternative**

Under the No Action Alternative, impacts, either beneficial or adverse, on human health and safety due to construction activities would not occur. Health and safety risks associated with current operations at the site would continue.

##### **3.17.2.2. Proposed Action Alternative**

The construction of the proposed marine unit has the potential to create human health hazards. Safety buffer zones would be designated around the entire construction site to ensure public health and safety. Additionally, vapor intrusion barriers will be put in-place to prevent human exposure to Volatile Organic Compounds (VOCs) that could potentially migrate from contaminated media to ground surface as a protective measure to human health. Through BMPs developed for general construction practices and because of the waterfront/industrial setting of the Project area with no residences located nowhere near the Project's footprint, negligible impacts would be expected. Construction would occur during daylight hours.

In compliance with Occupational, Safety and Health Administration (OSHA) regulations, there would be a Right-to-Know station located in a high-visibility area, where chemical data are accessible by construction and CBP personnel. As mentioned previously, a spill response plan would also be implemented that describes planning, prevention, and control measures to minimize impacts resulting from a spill of any hazardous materials. Furthermore, an on-site emergency plan would be prepared to protect the public health, safety, and environment on and off the proposed site in the case of a dangerous natural phenomenon or industrial accident relating to or affecting the project. The construction contractor shall prepare the plan and be responsible for implementing the plan with its operations team and emergency response support team. The plan would describe the emergency response procedures to be implemented during various situations that might affect the surrounding environment and construction personnel during construction as well as CBP personnel during the operation phase of the Project. . The emergency plan should cover a number of events that may occur at or near the project site by natural causes, equipment failure, or by human error. Such as personnel injury, construction emergencies, project evacuation, fire or explosion and extreme weather conditions.

The project contractors and operations personnel would receive regular emergency response and safety training to assure that effective and safe action would be taken to reduce and limit impact during an emergency at the Project site.

In addition, earth movement activities during the construction phase of the Project would be carefully planned to include very limited disturbance to soils and groundwater. Nevertheless, construction activity impacts to this media will require institutional/engineering controls to reduce exposure. The waste generated will be handled as regulated non-hazardous waste and will require additional environmental safety and health considerations for handling/storing/disposing. In addition, the design of the proposed Project includes hardscape to cover all exterior areas subject to vehicular and foot traffic like the main access road, parking area and surrounding areas of the proposed building, except for landscaping areas. Hardscape will encapsulate contaminated media and minimize vertical migration to the ground surface.

Considering previously stated measures, there is little potential for CBP OAM Marine Unit personnel or private contractors to be at risk from a human health and safety aspect in this setting.

CBP's Occupational Safety and Health Program will be implemented, as applicable, to the operations of the new marine facility to protect the safety and health of its workers.



## 4. CUMULATIVE IMPACTS

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A cumulative impact is defined as the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7).

Components of a cumulative impact analysis include definition of a specific area in which effects of the proposed project would occur, expected impacts from the Proposed Action, other past, proposed, and reasonably foreseeable future actions that have impacted or could be expected to impact the same area, and expected impacts from these other actions.

The Proposed Action would be located within a former U.S. Navy military base in the Municipality of Ceiba that ceased operations in 2004. For the purpose of this assessment, the area considered for cumulative impact analysis encompasses this area currently known as Naval Activity of Puerto Rico (NAPR). As previously discussed in this EA, a Land Use Plan (Reuse Plan) to guide future developments in the area has been prepared and approved by the local Government. Although the Land Use Plan is conceptual and focuses on proposed land uses not on specific projects, it serves as a guide (or basis) for proposed and reasonably foreseeable future actions in this area for the purpose of evaluating cumulative impacts in the area.

Cumulative impacts analysis associated with the disposal and reuse of NAPR lands were evaluated by the Department of the Navy in compliance with NEPA requirements. In 2007, the Navy prepared the Environmental Assessment for the Disposal of Naval Activity of Puerto Rico (NAPR) to evaluate the potential environmental impacts associated with the disposal and reuse of NAPR lands based on the local Government 2004 Reuse Plan (Navy, 2007). In 2010, an addendum to the original 2004 Reuse Plan was prepared by the Local Redevelopment Authority and adopted by the Government of Puerto Rico. Consequently, in 2011, the Department of the Navy prepared a Supplemental Environmental Assessment (SEA) to supplement the 2007 EA and evaluate the environmental consequences of the proposed reuse in accordance with the

revised and approved Reuse Plan (Navy, 2011). Land transfers to the Department of Homeland Security, including Parcel 46, were included in the cumulative impact analysis performed by the Navy and determined that no significant cumulative impacts would be expected from the DHS uses of the transferred parcels (Navy, 2007).

Approximately 40% of the NAPR lands are dedicated to conservation (natural protected areas), while urban soils or developable areas comprise approximately 58.6% of the lands and 1.45% are federal property. The Proposed Action will occupy an area of 1.4 acres, which comprises a minimal footprint (0.028%) in comparison with the area planned for development and reuse within the limits of the NAPR. Based on the evaluation of the potential environmental impacts from the Proposed Action, impacts from past actions and historical uses, and expected impacts from future actions associated to the redevelopment of the NAPR area, it is determined that the Proposed Action effects to cumulative impacts in the area would be negligible.

**Table 7** summarizes the results of the cumulative impact analysis performed by the Navy for the disposal and reuse of NAPR lands and includes a description of the potential effects of the Proposed Action.

**TABLE 7. SUMMARY OF CUMULATIVE IMPACT ANALYSIS FOR THE DISPOSAL AND REUSE OF NAPR LANDS**

<b>Resource</b>	<b>Cumulative Impact Analysis Disposal and Reuse of NAPR<sup>1</sup></b>	<b>Proposed Action Potential Effects</b>
<b>Land Use</b>	Implementation of the Reuse Plan would result in additional land use impacts as areas are developed more intensively. Significant land use inconsistencies are not anticipated because the PRPB and other Commonwealth and federal agencies would continue to be responsible for reviewing individual development projects to ensure are consistent with the applicable zoning regulations.	The proposed land uses are compatible with historical and current land uses in the area, and with the proposed land uses in its surrounding, thus no impacts to current or proposed land uses would be expected if the Proposed Action were undertaken.
<b>Transportation</b>	Potential adverse impacts from the redevelopment at full build-out would include relatively minor increases to the regional population and urban development, and increased traffic volumes associated with each development. With the implementation of mitigation measures, any adverse impacts are expected to be minimal and negligible. Additional upgrades to the transportation system would be necessary as the development plan progresses.	Traffic increases will be minimal and are not expected to cause an adverse impact on existing road conditions and traffic of the area. The roadways network and road access are adequate to service the Project area thus no adverse impacts from the Proposed Action are expected.
<b>Vegetation</b>	Redevelopment would result in additional loss or alteration of vegetation in terrestrial communities throughout the property. Implementing BMPs during construction and complying with all Puerto Rico Commonwealth permitting regulations could minimize any potential impacts. Therefore, the resultant loss in vegetation would not be expected to have a significant adverse impact on natural resources. The Reuse Plan included the permanent protection of more than 3,000 acres of vegetative communities, including more than 2,100 acres of mangroves, through establishment of conservation areas. Protection of such an extensive area of natural vegetation in perpetuity is a beneficial impact of the Proposed Action.	The Proposed Action will be developed in area of 1.4 acres previously disturbed and currently covered by herbaceous (grass) species. Property areas outside the designated construction area, including a forested patch, will remain in their current natural state.
<b>Air</b>	The reuse of NAPR, as proposed in the Reuse Plan, would entail a more intensive use of commercial and light industrial facilities than the current land uses and infrastructure at NAPR. Each proposed development would be required to adhere to the Commonwealth's permit and development review process. Proposed construction projects at NAPR, as part of the reuse activities, are not expected to generate air pollutant emissions at levels that would impact the air quality within the disposed land areas. The cumulative effect of these actions is	Minor air pollutants emissions would occur as result of the construction and operation of the Proposed Action. These emissions are not expected to adversely affect the air quality of the area nor its designation as an attainment area.

<b>Resource</b>	<b>Cumulative Impact Analysis Disposal and Reuse of NAPR<sup>1</sup></b>	<b>Proposed Action Potential Effects</b>
	not expected to affect adversely the region's designation as an attainment area.	
<b>Noise</b>	The Proposed Action would not directly or indirectly generate sufficient noise to have a cumulative effect on the overall noise environment of the NAPR property or nearby areas. Because of the geographic expanse (8,442 acres) and varying topography of NAPR, the proposed reuse projects at NAPR are not expected to generate sufficient noise to be noticeable outside the disposed land areas.	Noise levels would temporary increase in the Project area and its vicinity as result of the use of heavy equipment and machinery during construction of the Proposed Action. Although regulatory noise limits could be exceeded during construction activities, noise emissions would be temporary and intermittently thus causing minor effects on the area. Noise emissions during operation of the facility would be similar to current conditions and would not affect background noise levels in the area.
<b>Terrestrial and Marine Environments and Threatened and Endangered Species</b>	<p>Implementation of the Reuse Plan would not have a significant impact on the terrestrial environment and on those threatened and endangered species that occur at NAPR. Approximately 3,340 acres of land will be designated as conservation areas. PRPB will require specific conservation measures to be undertaken by future landowners/developers to assure protection of threatened and endangered species and their habitat.</p> <p>Implementation of the Reuse Plan could have the potential for an adverse cumulative impact on the marine environment, seagrasses, sea turtles, and the West Indian manatee if proper conservation measures are not undertaken. If future owners/developers develop and follow mitigation measures for reuse activities, the proposed reuse would not be expected to result in significant adverse cumulative impacts on marine resources.</p>	The Proposed Action alternative would be developed in previously impacted areas, and would have no impacts on sensitive natural systems or on threatened or endangered species.
<b>Socioeconomics</b>	Any cumulative, long-term socioeconomic impacts associated with the implementation of the Reuse Plan would be considered positive and beneficial. New economic activity within the region is projected to stimulate the economy, including increased employment and income for the local population, and increased tax revenues for the Commonwealth and municipalities that comprise the region.	The construction of the Proposed Action is expected to have a positive economic impact to the regional and local economy due to temporary employment and increase in sales from construction related services, materials and supplies.

<b>Resource</b>	<b>Cumulative Impact Analysis Disposal and Reuse of NAPR<sup>1</sup></b>	<b>Proposed Action Potential Effects</b>
<b>Environmental Contamination</b>	The Proposed Action would have a beneficial effect on environmental contamination through the cleanup of existing contamination. The cleanup of environmental contamination would have indirect, short-term land use impacts. These impacts can be minimized with best management practices to control erosion, sedimentation, and noise related to cleanup and by appropriate restoration upon completion of cleanups.	The Proposed Action would not cause impair of environmental conditions of the area nor affect ongoing clean-up activities. The Proposed Action will comply with the property land-use restrictions.
<b>Cultural Resources</b>	Potential adverse cumulative impacts on cultural and historic resources are not expected to be significant. Potentially eligible sites that remain outside of existing conservation zones would be exposed to the threat of natural or manmade disturbances (including looting), adversely affecting the integrity or research potential of the sites. A MOA was developed to include the archaeological sites, required investigations and applicable mitigation measures. Compliance with the stipulations and protection measures included in the MOA will ensure protection of historic and archaeological resources at NAPR.	The construction of the Proposed Action does not represent a significant impact on potential historic properties within the project's area; and the potential of the project's area for the existence of unknown historic properties is extremely low.

<sup>1</sup> Sources: Department of the Navy (April, 2007). *Environmental Assessment for the Disposal of Naval Activity Puerto Rico (formerly Naval Station Roosevelt Roads)*.

Department of the Navy (September, 2011). *Supplemental Environmental Assessment for the Disposal of Naval Activity Puerto Rico (formerly Naval Station Roosevelt Roads)*.

## 5. MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

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No significant adverse impacts resulting from the implementation of the Proposed Action have been identified through the analysis in this EA. Mitigation measures would not be required to reduce impacts to below significance thresholds or compensation by replacing or providing substitute resources or environments as a result of implementing the Proposed Action. This chapter describes the measures that would be implemented to reduce or eliminate potential adverse impacts to the human and natural environments during construction and operation of the Proposed Action. Many of these measures have been incorporated as standard operating procedures by CBP on past projects. BMPs and protection measures are presented for each resource category potentially affected.

### 5.1. SOILS

Development and implementation of a Sediment and Erosion Control Plan (SECP) with the following measures:

- An effective combination of soil erosion and sediment controls will be in placed prior to earth moving activities to prevent sediment from leaving the site and/or entering a storm water drainage or receiving water such as Ensenada Honda.
- Establishment of a single stabilized entry/exit point to the site.
- During earth moving activities, disturbed soil areas will be stabilized with covers or binders. By using these controls, the exposed soils will be less likely to erode from the effects of wind or rain. Imported fill and stockpiled fill/soil are considered exposed soils and will be stabilized also with covers or binders to minimize sediment generation and transport from precipitation events.
- Installation of silt fences to form a temporary linear barrier to capture sediment by ponding and filtering storm water runoff to allow sediment to settle out of the runoff water.

- Storm gutters and other storm drainage improvements would be installed in conjunction with construction of the new facility.
- In addition, catch basins, diversion ditches, and pipe conveyances may be necessary to handle any additional storm water runoff. Design elements such as grass swales and landscaped features designed to help minimize runoff and soil erosion could be used.
- Implementing an inspection and maintenance program. Inspections before and after rain events, every 24 hours during extended rain events, and weekly throughout the rainy season. When necessary corrective measures will follow inspections as part of implementing the maintenance program, such as:
  - Removing sediment trapped in sediment fences, catch drains or other areas.
  - Repairing any erosion of drainage channels; and
  - Repairing damage to sediment fences
- If necessary, a sediment trap (basin) will be developed to trap sediments temporarily.
- Re-seeding and re-establishment of vegetation on bare soil as soon as possible following construction.
- To offset potential impacts from soil compaction, highly compacted areas left after construction would be scarified and aerated.

## **5.2. WATER RESOURCES**

Potential impacts on surface water would be minimized through the use of BMPs, and through development and implementation of Soil Erosion and Sedimentation Control Plan as described in the previous section. In addition, a Stormwater Pollution Prevention Plan (SWPPP) and the following BMPs will be implemented to minimize pollutants in stormwater runoff:

- All work will cease during heavy rains and would not resume until conditions are suitable for the movement of equipment and material.
- Good housekeeping - keeping areas clean, conducting inspections regularly.
- Preventive maintenance - using drip pans under automobile and boat motors, changing automotive fluids only in designated areas. No refueling or storage will take place within 100 feet of drainages or receiving waters.

- Spill prevention, control, and countermeasures - keeping accurate inventory of potential polluting materials, protecting materials from storm water, and making spill kits available.
- Permanent stormwater control structures would be installed to manage site runoff prior to discharge into Ensenada Honda.

### **5.3. FLOODPLAINS**

The Proposed Action would be designed and constructed to reduce the risks of flooding, minimize threats to life and property, and minimize adverse impacts on the floodplain. Protection and mitigation measures to be implemented as part of the Proposed Action include:

- The proposed administrative building finish floor level will be elevated at least 0.3 meters (1.0 ft) above the base flood elevation.
- Implementation of Soil Erosion and Sedimentation Control Plan and a Stormwater Pollution Prevention Plan (SWPPP) to manage stormwater runoff during construction activities.
- Permanent stormwater control system would be installed to manage post-construction site runoff.
- Construction methods and practices must minimize flood-related damages.
- Construction staging areas will be located in non-floodable areas.
- The final design and supporting engineering studies of the Proposed Action would give special consideration to location of the different components of the Project and required flood protection measures in compliance with PRPB Regulation No. 13.
- The sanitary sewer will be designed to prevent flood water discharges into the sanitary system.
- Solid waste disposal systems will be located in places where flood waters may not affect them.



#### **5.4. ECOLOGICAL AND BIOLOGICAL RESOURCES**

Implementation of a SECP and appropriate BMPs concerning sediment control and stormwater runoff, as described in the previous sections, would avoid and minimize potential impacts from sediments and contaminated runoff entering adjacent natural systems.

Implement manatee protection measures such as posting signs which will warn that manatees use the area (“Manatee Area”) and limiting boat speed (“No Wake Zone”).

No dredging, placing of fill or any other material, or equipment shall be placed on jurisdictional areas (Wetlands or Waters of the U.S.).

#### **5.5. AIR QUALITY**

Implementation of BMPs to control and minimize air emissions would include proper and routine maintenance of all construction equipment and vehicles to ensure emissions are within design standards, fugitive dust control measures including applying water before/during earthwork and onto unpaved traffic areas, retention of vegetative cover on the site to the extent practical, reestablishment of new vegetative cover in disturbed areas and construction equipment/vehicle speed limits.

#### **5.6. NOISE**

Noise levels would temporary increase in the Project area and its vicinity as result of the use of heavy equipment and machinery during construction of the Proposed Action. Construction equipment will be equipped with properly working mufflers and operating in good condition. Construction activities would be limited to the diurnal period, to the extent practicable. Applicable Occupational Safety and Health Administration regulations and requirements related to noise exposure will be followed by the contractor.

## **5.7. HAZARDOUS MATERIALS AND CONSTRUCTION-RELATED WASTE**

The following BMPs would be implemented for management of construction-related waste and hazardous waste to prevent its introduction into storm water:

- Waste stream of contaminated media will be handled through institutional controls, which will consist of physical barriers to restrict access to the site, such as fencing and the installation of appropriate “no trespassing” signs to warn of potential hazards on site.
- Hazardous materials and waste would be managed using applicable storage, transfer, and disposal regulations.
- Environmental safety and health considerations will be put into place to handle and temporarily store resulting soil or groundwater scheduled for disposal.
- Waste generated by the construction of the Project may be considered a regulated non-hazardous waste by PR Non-Hazardous Waste Regulation. The waste will be stored temporarily in appropriate Department of Transportation approved 55-gallon drums while waiting for transportation to an authorized facility such as a landfill facility.
- Land use restrictions require that the NAVY/USEPA be notified prior to any removal of groundwater.
- Handling and transportation of waste material will be performed by an approved authorized contractor.

## **5.8. HUMAN HEALTH AND SAFETY**

The construction of the proposed marine unit has the potential to create human health hazards. The following measures would be implemented to minimize human health and safety hazards:

- Safety buffer zones would be designated around the entire construction site to ensure public health and safety.
- Compliance with Occupational, Safety and Health Administration (OSHA) regulations.
- A spill response plan that describes planning, prevention, and control measures to minimize impacts resulting from a spill of any hazardous materials would be implemented.

- Vapor intrusion barriers will be put in-place to prevent human exposure to Volatile Organic Compounds (VOCs) that could potentially migrate from contaminated media.
- An on-site emergency plan would be prepared to protect the public health, safety, and environment on and off the proposed site in the case of a dangerous natural phenomenon or industrial accident relating to or affecting the project.

The project contractors and operations personnel would receive regular emergency response and safety training to assure that effective and safe action would be taken to reduce and limit impact during an emergency at the Project site.

## 6. REFERENCES

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## 7. ACRONYMS AND ABBREVIATIONS

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ASTM	American Society for Testing and Materials
BMPs	Best Management Practices
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CBP	U.S. Customs and Border Protection
CCTV	Closed-circuit television
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental, Response, Compensation, and Liability Act
CFC	chlorofluorocarbons
CH <sub>4</sub>	Methane
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
CWA	Critical Wildlife Area
dB	decibel
dBA	A-weighted decibel
DHS	Department of Homeland Security
DNER	Department of Natural and Environmental Resources
EA	Environmental Assessment
EISA	Energy Independence and Security Act
EPA	U.S. Environmental Protection Agency

ESA	Environmental Site Assessment
ESI	Environmental Sensitivity Index
FONSI	Finding of No Significant Impact
FS	Feasibility Study
ft	feet
GHG	Greenhouse Gases
gpd	gallons per day
GRO	Gasoline Range Organics
HFC	hydrochlorofluorocarbons
ICP	Institute of Puerto Rican Culture
km	Kilometers
kV	Kilovolts
LEED	Leadership in Energy and Environmental Design
LRA	Local Redevelopment Authority
msl	mean sea level
m	meters
N <sub>2</sub> O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAPR	Naval Activity Puerto Rico
Navy	U.S. Navy
NEPA	National Environmental Policy Act
NO <sub>2</sub>	Nitrogen dioxide
NOA	Notice of Availability



NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
NSRR	Naval Station Roosevelt Roads
NWI	National Wetland Inventory
O <sub>3</sub>	Ozone
OAM	Office of Air and Marine
OGPe	Office of Permits Management
OSHA	Occupational, Safety and Health Administration
OSTP	Office of Science and Technology Policy
Pb	Lead
PM <sub>10</sub>	Particulate matter 10 microns
PM <sub>2.5</sub>	Particulate matter 2.5 microns
PRASA	Puerto Rico Aqueduct and Sewer Authority
PRCCC	Puerto Rico Climate Change Council
PREPA	Puerto Rico Electric Power Authority
PRPB	Puerto Rico Planning Board
RCRA	Resource Conservation and Recovery Act
RCRA	Resource Conservation and Recovery Act
SECP	Sediment and Erosion Control Plan
SHPO	State Historic Preservation Office
SO <sub>x</sub>	Sulfur oxides
SSURGO	Soil Survey Geographic Database
SWMUs	Solid Waste Management Units

SWPPP	Stormwater Pollution Prevention Plan
TPH	Total Petroleum Hydrocarbons
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGBC	U.S. Green Building Council
$\mu\text{g}/\text{m}^3$	Micrograms per cubic meter

## 8. LIST OF PREPARERS

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This Environmental Assessment was prepared by SALO Engineering, PSC under the direction of CBP and GSA. The following people were primarily responsible for preparing the document:

Name	Agency/ Organization	Discipline/ Expertise	Experience	Role in Preparing EA
Ken Marion	Customs and Border Protection	Environmental Specialist	25 years of experience	EA review
Félix M. López	SALO Engineering, PSC	Civil Engineering	13 years Civil Engineering	Project Management
Brenda Guzmán	SALO Engineering, PSC	Environmental Management	16 years EA/EIS studies and environmental services	EA coordination and preparation
Maria Coronado	SALO Engineering, PSC	Professional Geologist Geology/Environ mental Documents	Over 20 years in environmental consulting, geologic and soil investigations	EA preparation (Geology and Soils, Hazardous Waste, Climate Change, Aesthetic and Visual Resources, Human Health and Safety) EA review
Mariano Solorzano	SALO Engineering, PSC	GIS/graphics	5 years GIS/environmental sciences	EA figures and GIS layers
Jorge Coll	SALO Engineering, PSC	Biology/Wildlife/ Wetlands	Over 20 years ecology and wetlands studies	Biological Survey Support Ecology and Wildlife EA analysis
Sharon Melendez-Ortiz	SALO Engineering, PSC	Archaeology and Cultural Resources	19 years in archeology	Phase 1A Cultural Resources Study EA Preparation (Cultural Resources)

## **APPENDIX A: *CORRESPONDENCE***

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**DEC 30 2003**



**U.S. Customs and  
Border Protection**

Mr. Thuane B. Fielding  
BRAC Closure Manager  
BRAC Program Management Office East  
4130 Faber Place Drive  
Suite 202  
North Charleston, SC 29405

**Reference: Proposed Construction and Operation of a New Marine Facility for the  
U.S. Customs and Border Protection Office of Air and Marine, Ceiba, Puerto  
Rico**

Dear Mr. Fielding:

U.S. Customs and Border Protection (CBP) proposes to construct a new marine facility at a parcel of land (designated as Parcel 46) located within the former Naval Station Roosevelt Roads in Ceiba, Puerto Rico and currently referred to as Naval Activity Puerto Rico (NAPR) for the CBP Office of Air and Marine (OAM). Parcel 46 is located on the south side of Forrestal Drive and consists of a 1.94 acre mostly vacant lot that borders the Ensenada Honda waterfront (see Location Map, Figure 1). It is improved with two lighted boat piers and a boat ramp built and owned by CBP for its operations within the NAPR. This parcel was recently acquired by CBP from the U.S. Navy (USN) under the Base Realignment and Closure property disposal process. The purpose of the project is to provide the CBP OAM with an updated facility in compliance with current design criteria, security requirements and sustainability practices, and in close proximity to boat piers and boat launch areas to allow for an integrated and effective operation to meet its priority mission of protecting the borders of the U.S.

The new marine facility will consist of a marine support administrative building, boat maintenance/storage hangar with hurricane tie downs, exterior vehicular parking spaces, and outdoor lighting, as well as physical security equipment and infrastructure. A conceptual drawing of the facility is provided as Figure 2. The new facility will be designed in compliance with the current CBP OAM Facility Design Standard and Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings, and is also intended to comply with the Leadership in Energy and Environmental Design Gold Certification requirements. The proposed action will be in compliance with the property land-use restrictions including non-residential use, no groundwater use, no disturbance to groundwater flow (including dewatering), and no installation of wells or the removal of existing wells. These land-use restrictions are associated to the presence of petroleum products in groundwater and in soils at depths ranging from 8 to 14 feet below the ground surface due to migration of contaminants from the USN Solid Waste Management Units located north and up-gradient to Parcel 46, across Forrestal Drive.

Mr. Thuane B. Fielding  
Page 2

In accordance with the National Environmental Policy Act, CBP has initiated the preparation of an Environmental Assessment (EA) to analyze the potential impacts of the proposed action to the human and natural environments. As part of these efforts, we are initiating correspondence with Federal and local government agencies, as appropriate, requesting input regarding the proposed action. CBP respectfully requests that you provide us with any concerns or issues that you believe should be addressed in this EA as well as any requirements that the proposed project would have to comply with for its development.

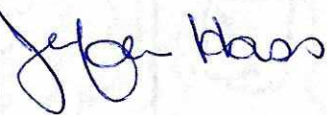
Your prompt attention to this request would be greatly appreciated. For additional information or to request a copy of the EA, please contact Mr. Ken Marion via email at [kenneth.r.marion@cbp.dhs.gov](mailto:kenneth.r.marion@cbp.dhs.gov) or by telephone at (202) 344-3087.

CBP's mailing address is:

U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, Suite 1525, MS 1226  
Washington, DC 20229

We look forward to hearing from you.

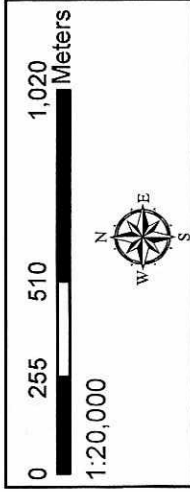
Sincerely,

A handwritten signature in blue ink, appearing to read "Jennifer DeHart Hass".

Jennifer DeHart Hass  
Director  
Environmental and Energy Division

Enclosures (2)





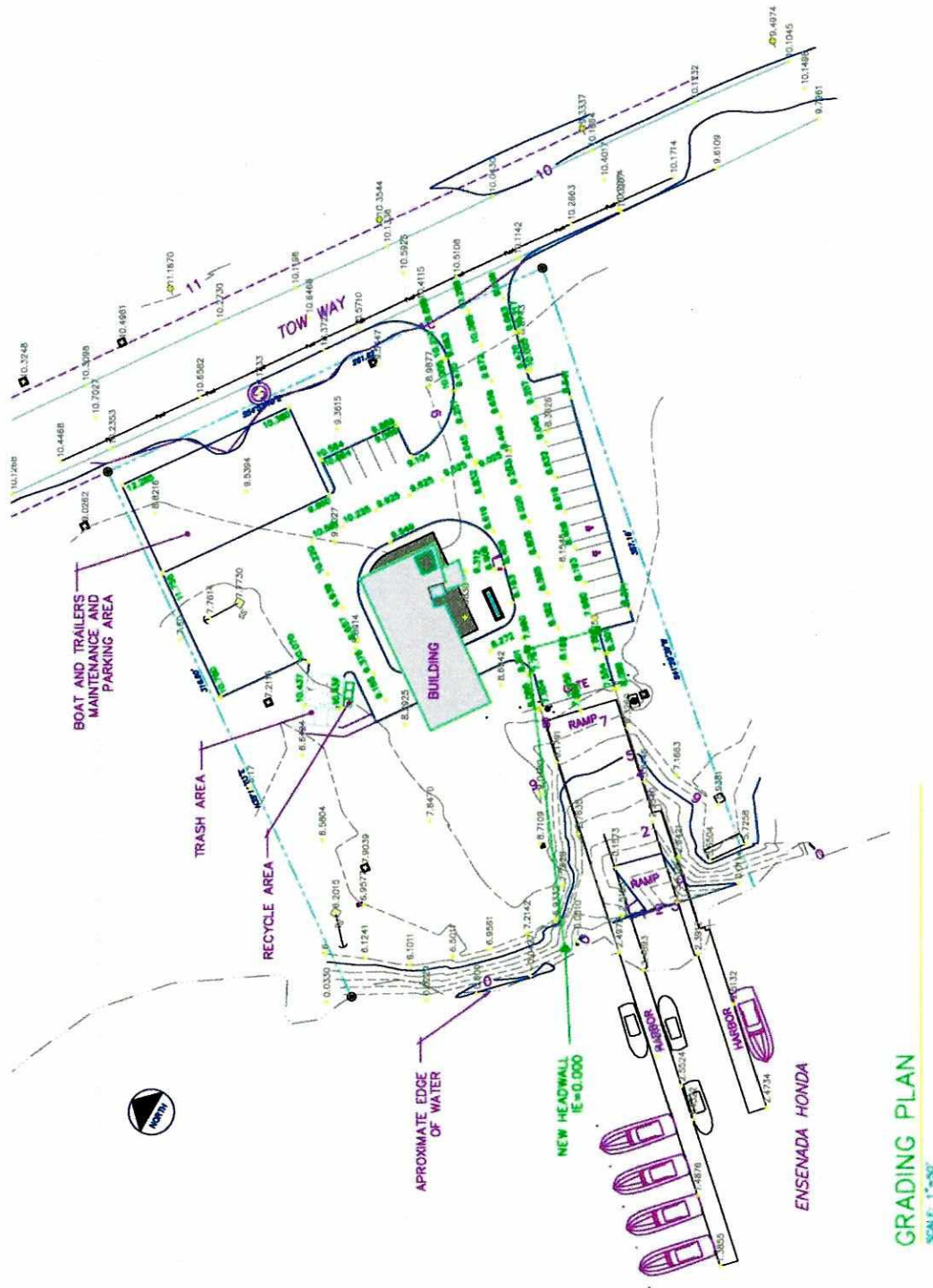
**Sources**

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Existing Topography and As-Built prepared by Surveyor Luis Lopez, November 2011





**Figure 2: Conceptual Site Layout**  
 New Marine Facility, Ceiba, Puerto Rico  
 United States Customs and Border Protection Office of Air and Marine



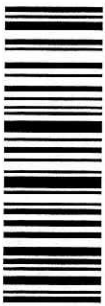
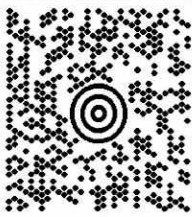
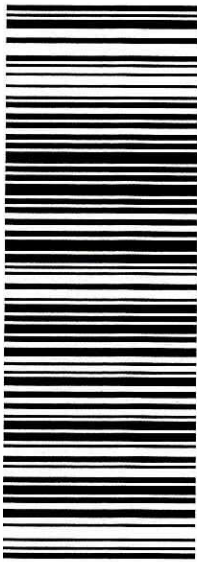

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**U.S. Customs and  
Border Protection**

The Honorable Angelo Cruz Ramos  
Mayor  
Municipality of Ceiba  
P.O. Box 224  
Ceiba, PR 00735-0224

Reference: Proposed Construction and Operation of a New Marine Facility for the U.S.  
Customs and Border Protection Office of Air and Marine, Ceiba, Puerto Rico

Dear Mayor Cruz Ramos:

U.S. Customs and Border Protection (CBP) proposes to construct a new marine facility at a parcel of land (designated as Parcel 46) located within the former Naval Station Roosevelt Roads in Ceiba, Puerto Rico and currently referred to as Naval Activity Puerto Rico (NAPR) for the CBP Office of Air and Marine (OAM). Parcel 46 is located on the south side of Forrestal Drive and consists of a 1.94 acre mostly vacant lot that borders the Ensenada Honda waterfront (see Location Map, Figure 1). It is improved with two lighted boat piers and a boat ramp built and owned by CBP for its operations within the NAPR. This parcel was recently acquired by CBP from the U.S. Navy (USN) under the Base Realignment and Closure property disposal process. The purpose of the project is to provide the CBP OAM with an updated facility in compliance with current design criteria, security requirements and sustainability practices, and in close proximity to boat piers and boat launch areas to allow for an integrated and effective operation to meet its priority mission of protecting the borders of the U.S.

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The Honorable Angelo Cruz Ramos  
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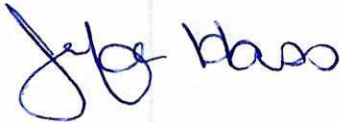
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Sincerely,

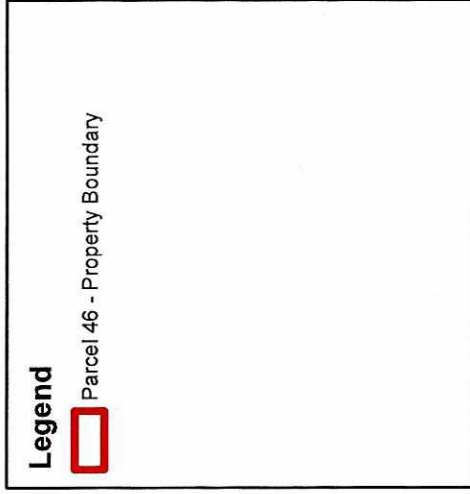
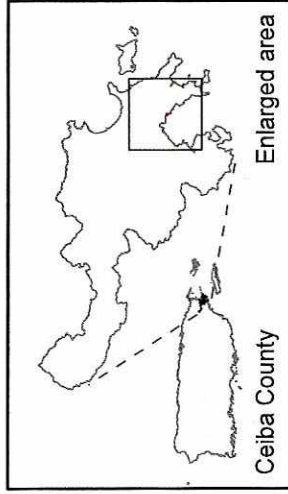
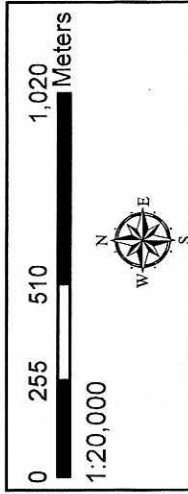
A handwritten signature in blue ink, appearing to read "J DeHart Hass", is written over the typed name.

Jennifer DeHart Hass  
Director  
Environmental and Energy Division

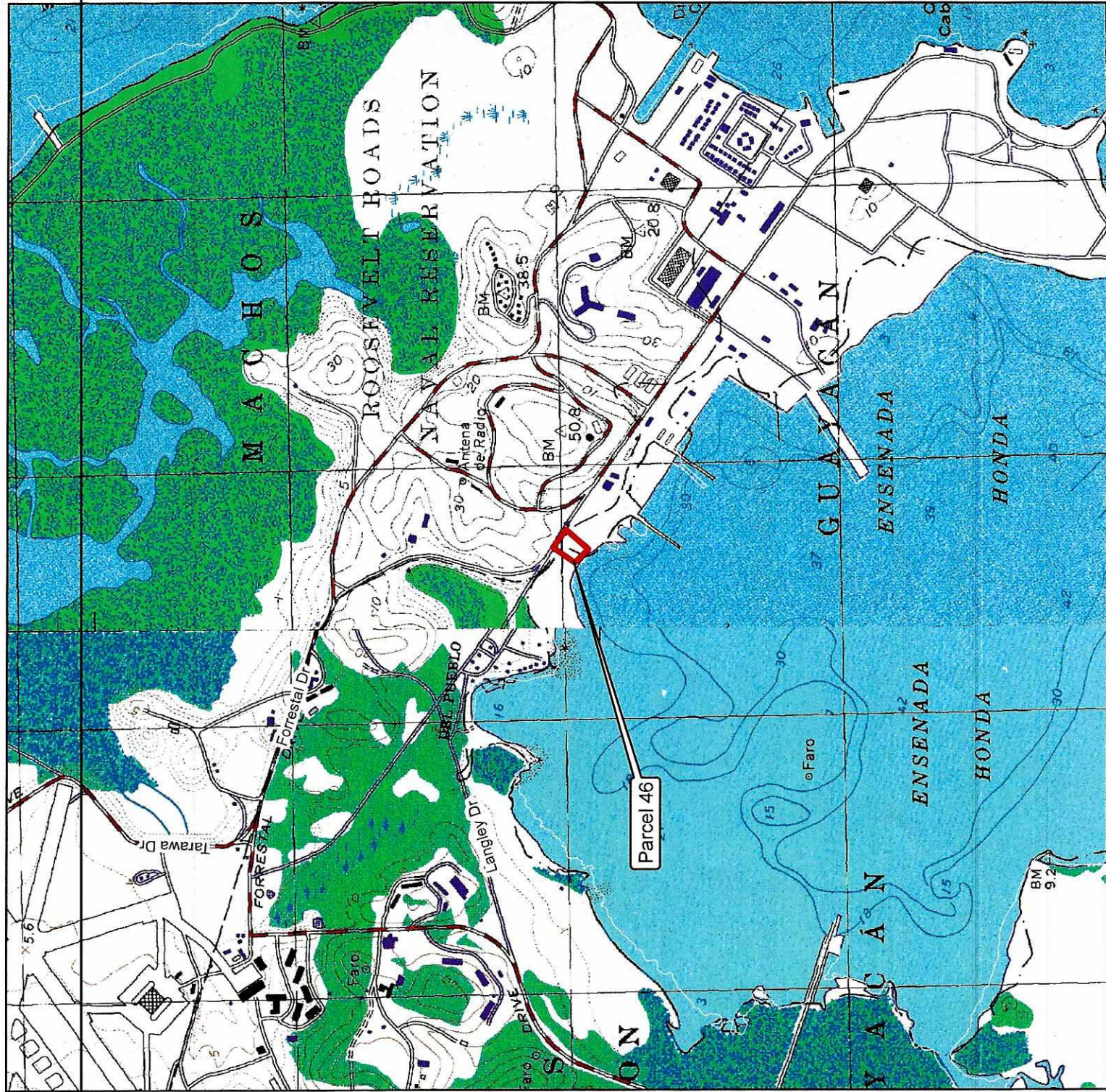
Enclosures (2)



**Figure 1: Location Map**  
**Environmental Assessment for CBP**  
**New Marine Facility, Ceiba, PR**



**Sources**  
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 U.S. Geological Survey [USGS], 1957. Topographic Digital Raster Graphic of 7.5 x 7.5 min Punta Puerca quadrangle.  
 Existing Topography and As-Built prepared by Surveyor Luis Lopez, November 2011







DEC 20 2012

The Honorable Angelo Cruz Ramos  
Mayor  
Municipality of Ceiba  
P.O. BOX 224  
Ceiba. PR 00735-0224

7012 1010 0002 5546 2361



**U.S. Customs and  
Border Protection**

Ms. Malu Blázquez-Arsuaga  
Executive Director  
Roosevelt Roads Local Redevelopment Authority  
400 Calle Calaf  
PMB #456  
San Juan, P.R. 00918-1314

**Reference: Proposed Construction and Operation of a New Marine Facility for the U.S.  
Customs and Border Protection Office of Air and Marine, Ceiba, Puerto Rico**

Dear Ms. Blázquez-Arsuaga:

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The new marine facility will consist of a marine support administrative building, boat maintenance/storage hangar with hurricane tie downs, exterior vehicular parking spaces, and outdoor lighting, as well as physical security equipment and infrastructure. A conceptual drawing of the facility is provided as Figure 2. The new facility will be designed in compliance with the current CBP OAM Facility Design Standard and Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings, and is also intended to comply with the Leadership in Energy and Environmental Design Gold Certification requirements. The proposed action will be in compliance with the property land-use restrictions including non-residential use, no groundwater use, no disturbance to groundwater flow (including dewatering), and no installation of wells or the removal of existing wells. These land-use restrictions are associated to the presence of petroleum products in groundwater and in soils at depths ranging from 8 to 14 feet below the ground surface due to migration of contaminants from the USN Solid Waste Management Units located north and up-gradient to Parcel 46, across Forrestal Drive.



In accordance with the National Environmental Policy Act (NEPA), CBP has initiated the preparation of an Environmental Assessment (EA) to analyze the potential impacts of the proposed action to the human and natural environments. As part of these efforts, we are initiating correspondence with Federal and local government agencies, as appropriate, requesting input regarding the proposed action. CBP respectfully requests that you provide us with any concerns or issues that you believe should be addressed in this EA as well as any requirements that the proposed project would have to comply with for its development.

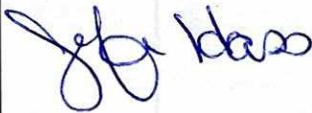
Your prompt attention to this request would be greatly appreciated. For additional information or to request a copy of the EA, please contact Mr. Ken Marion via email at [kenneth.r.marion@cbp.dhs.gov](mailto:kenneth.r.marion@cbp.dhs.gov) or by telephone at (202) 344-3087.

CBP's mailing address is:

U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, Suite 1525, MS1226  
Washington, DC 20229

We look forward to hearing from you.

Sincerely,

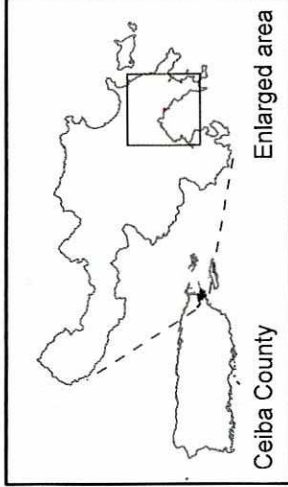
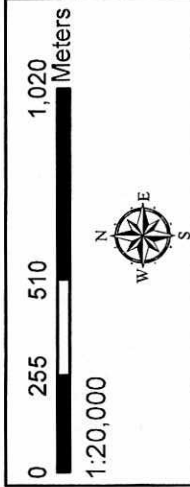
A handwritten signature in blue ink, appearing to read "J. DeHart Hass", is written over the signature line.

Jennifer DeHart Hass  
Director  
Environmental and Energy Division

Enclosures (2)



**Figure 1: Location Map**  
**Environmental Assessment for CBP**  
**New Marine Facility, Ceiba, PR**

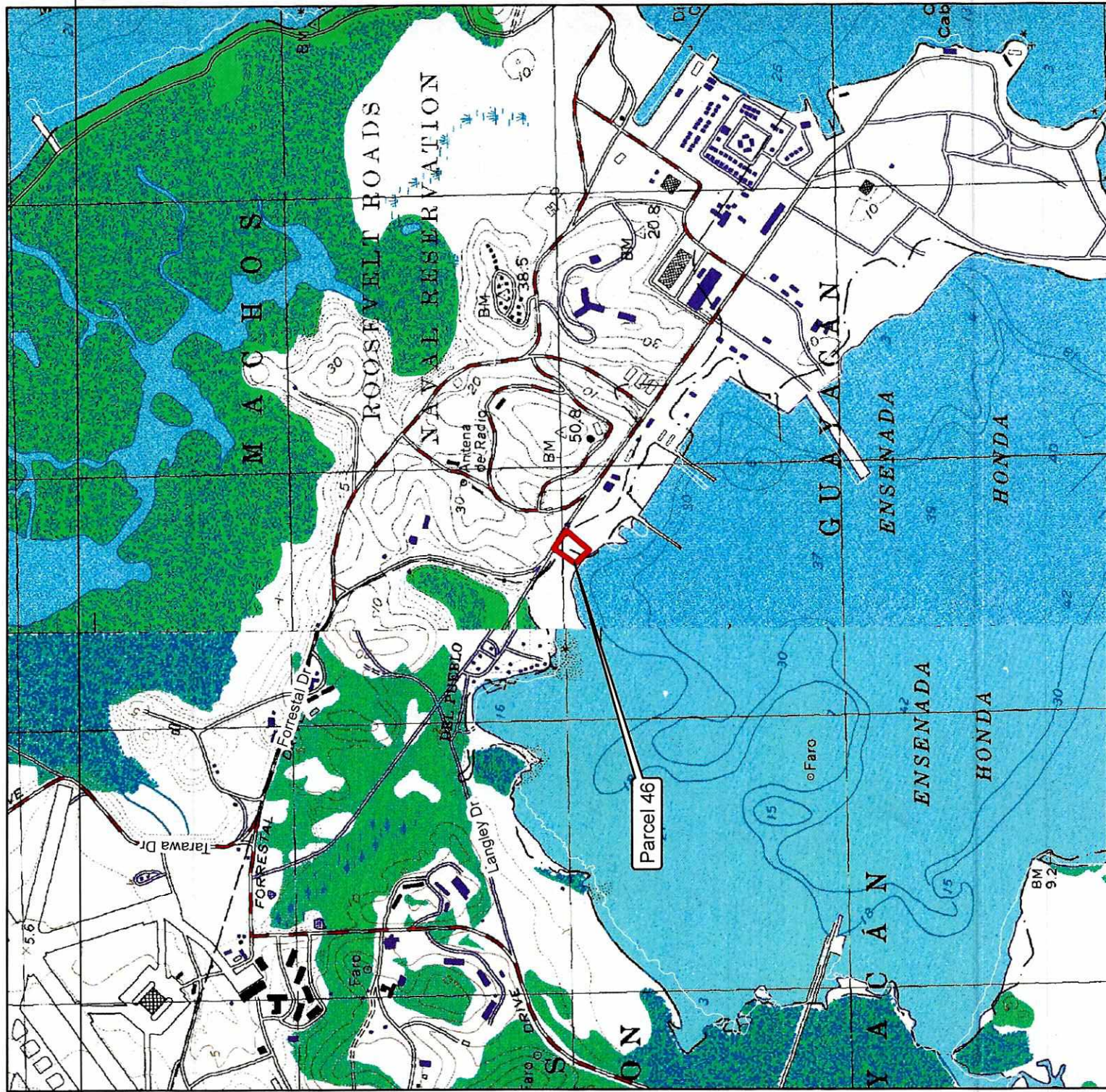


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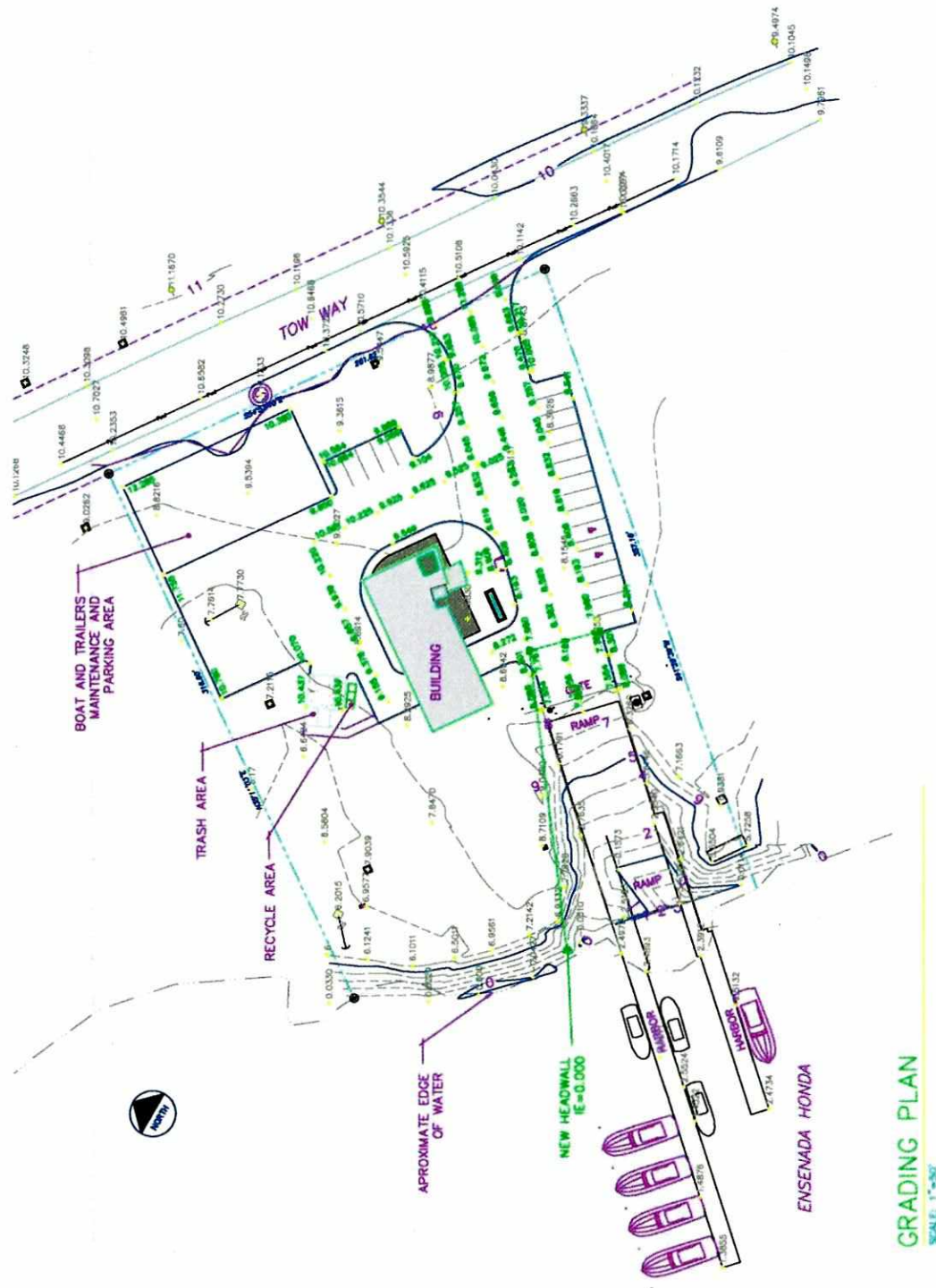
U.S. Geological Survey [USGS]. 1967. Topographic Digital Raster Graphic of 7.5 x 7.5 min Naguabo quadrangle photorevised in 1982.

U.S. Geological Survey [USGS]. 1957. Topographic Digital Raster Graphic of 7.5 x 7.5 min Punta Puerca quadrangle.

Existing Topography and As-Built prepared by Surveyor Luis Lopez, November 2011







**Figure 2: Conceptual Site Layout**  
 New Marine Facility, Ceiba, Puerto Rico  
 United States Customs and Border Protection Office of Air and Marine



SALO Engineering, PSC

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**U.S. Customs and  
Border Protection**

**FEB 26 2014**

Mr. Edwin E. Muñiz  
Field Supervisor  
U.S. Fish and Wildlife Service  
Caribbean Ecological Service, Boquerón Field Office  
Carr 301, KM 5.1, Bo Corozo  
Boquerón, Puerto Rico 00622-0510

Reference: Compliance with Section 7 of the Endangered Species Act for the Proposed Construction and Operation of a New Marine Facility for the U.S. Customs and Border Protection Office of Air and Marine, Ceiba, Puerto Rico

Dear Mr. Muñiz:

Pursuant to Section 7 of the Endangered Species Act (ESA), as amended (16 U.S.C.1531-1543), the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667d), and U.S. Department of Homeland Security Management Directive 023-01, Environmental Planning Program (MD 023-01, previously numbered 5100.1), U.S. Customs and Border Protection (CBP) is analyzing the potential environmental impacts associated with the construction of a new marine facility.

CBP Office of Air and Marine (OAM) proposes to construct a new marine facility at a parcel of land (designated as Parcel 46) located within the Naval Activity Puerto Rico (NAPR) in Ceiba, Puerto Rico. Parcel 46 is located in the south side of Forrestal Drive and consists of a 1.94 acres mostly vacant lot which borders the Ensenada Honda waterfront. It is improved with two lighted boat piers and a boat ramp built and owned by CBP for its operations within the NAPR. This parcel was recently acquired by CBP from the U.S. Navy under the Base Realignment and Closure property disposal process. Parcel 46 was constructed ("made land") before 1950, and has been under continuous use. The new facility will be constructed within an existing fenced area of 1.4 acres located inside Parcel 46 (see Figures 1, 2 and 3 of the enclosed biological resources survey).

The new marine facility will consist of a marine support administrative building, boat maintenance/storage hangar with hurricane tie downs, exterior vehicular parking spaces, and outdoor lighting, as well as physical security equipment and infrastructure. The purpose of the project is to provide CBP OAM with an updated facility in compliance with current design criteria, security requirements and sustainability practices, and in close proximity to boat piers and boat launch areas to allow for an integrated and effective operation to meet its priority mission of protecting the borders of the U.S.

A Biological Resources Survey of Parcel 46 was conducted for the proposed project on October 28 and November 16, 2013. No Federally listed threatened or endangered species were identified at the site during the Biological Resources Survey for this project. The project site is located within the designated Critical Habitat (CH) for the Yellow-shouldered blackbird (*Agelaius xanthomus*), and it is also adjacent to the designated CH for the Hawksbill turtle (*Eretmochelys imbricata*) and the Green turtle (*Chelonia mydas*).

CBP determined that Parcel 46 does not have suitable habitat to support these species. Although, the forested fringe of Parcel 46 (the northwestern side, outside the proposed construction area) may hold suitable habitat characteristics for the *A. xanthomus*, the *E. inornatus* and the *E. monensis granti*. This area also shows suitable habitat for the "Cobana negra" (*Stahlia monosperma*); however, the species was not found during the survey.

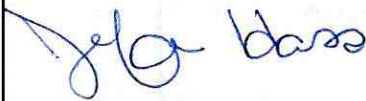
In accordance with Section 7 of the ESA, as amended (16 U.S.C.1531-1543) in regards to rare, threatened, and endangered species we are requesting your agency's concurrence with the determination by CBP that the proposed project may affect, but is not likely to adversely affect federally listed species or their designated CH. This determination is supported by the enclosed report entitled *Final Biological Resources Survey Parcel 46 at Naval Activity Puerto Rico, Guayacán Ward, Ceiba, Puerto Rico*, dated January 17, 2014.

Your prompt attention to this request would be greatly appreciated. Written correspondence may be submitted by mail to the following address:

Ms. Jennifer DeHart Hass  
Director  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1525  
Washington, DC 20229

We look forward to continuing the Section 7 consultation process with you. If you require additional information or have any questions or concerns, please feel free to contact Mr. Ken Marion via email at [kenneth.r.marion@cbp.dhs.gov](mailto:kenneth.r.marion@cbp.dhs.gov) or by telephone (202) 344-3087.

Sincerely,



Ms. Jennifer DeHart Hass  
Director  
Environmental and Energy Division

Enclosure



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<b>SHIP TO:</b> MR. EDWIN E. MUNIZ 202-344-3811 U.S. FISH & WILDLIFE SERVICE CARR 301, KM 5.1, BO COROZO FIELD OFFICE CARIBBEAN ECOLOGICAL SVC., BOQUERON BOQUERON 00622-0510 PUERTO RICO			
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**U.S. Customs and  
Border Protection**

**FEB 26 2014**

Mr. Mayte Gómez  
Centro Gubernamental Roberto Sanchez Vilella (Minillas)  
Torre Norte, Piso P (Promenada)  
Avenida De Diego, Santurce  
San Juan, Puerto Rico 00940-1119

Reference: Application and Supporting Documentation for a Consistency Determination  
Associated with the Proposed Construction and Operation of a New Marine Facility by the U.S.  
Customs and Border Protection at Parcel 46, Naval Activity Puerto Rico, Ceiba

Dear Mr. Gómez:

In accordance with Puerto Rico's coastal zone management program you will find enclosed application form JP-833 for a consistency determination and a separate detailed description of the proposed action to construct and operate a new marine facility at Parcel 46, Naval Activity Puerto Rico.

Written correspondence may be submitted by mail to the following address:

Ms. Jennifer DeHart Hass  
Director  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1525  
Washington, DC 20229

If you require additional information or have any questions or concerns, please feel free to contact Mr. Ken Marion via email at [kenneth.r.marion@cbp.dhs.gov](mailto:kenneth.r.marion@cbp.dhs.gov) or by telephone (202) 344-3087.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. DeHart Hass".

Ms. Jennifer DeHart Hass  
Director  
Environmental and Energy Division

Enclosures



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Application for Certification of Consistency with the  
Puerto Rico Coastal Management Program

Application for Certification of Consistency with the  
Puerto Rico Coastal Management Program

1. Name of the project:

2. Location of the project (municipality, street, lot, etc.):

3. Description of the project (purpose, scope, etc.):

4. Name of the applicant:

5. Address of the applicant (municipality, street, lot, etc.):

6. Name of the project manager:

7. Signature of the project manager:

8. Date of submission:

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2. Location of the project (municipality, street, lot, etc.):

3. Description of the project (purpose, scope, etc.):

4. Name of the applicant:

5. Address of the applicant (municipality, street, lot, etc.):

6. Name of the project manager:

7. Signature of the project manager:

8. Date of submission:

9. Name of the project manager:

10. Signature of the project manager:

11. Date of submission:

12. Name of the project manager:

13. Signature of the project manager:

14. Date of submission:

15. Name of the project manager:

16. Signature of the project manager:

17. Date of submission:

18. Name of the project manager:

19. Signature of the project manager:

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23. Date of submission:

24. Name of the project manager:

25. Signature of the project manager:

26. Date of submission:

27. Name of the project manager:

28. Signature of the project manager:

29. Date of submission:

30. Name of the project manager:



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## CERTIFICATION

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The figure is a schematic representation of the experimental design, divided into two main sections: **Training** and **Test**. Each section contains a **Block** and a **Trial** diagram.

**Training Section:**

- Block:** A sequence of 10 trials. Each trial consists of a 10-second interval (represented by a box with '10s') followed by a 10-second interval (represented by a box with '10s').
- Trial:** A sequence of 10 trials. Each trial consists of a 10-second interval (represented by a box with '10s') followed by a 10-second interval (represented by a box with '10s').

**Test Section:**

- Block:** A sequence of 10 trials. Each trial consists of a 10-second interval (represented by a box with '10s') followed by a 10-second interval (represented by a box with '10s').
- Trial:** A sequence of 10 trials. Each trial consists of a 10-second interval (represented by a box with '10s') followed by a 10-second interval (represented by a box with '10s').



**U.S. Customs and  
Border Protection**

**FEB 26 2014**

Ms. Diana López Sotomayor  
State Historic Preservation Officer  
Cuartel de Ballajá 3er Piso  
Calle Norzagaray Esquina Morovis  
Viejo San Juan, Puerto Rico 00901

Reference: New Marine Facility for the U.S. Customs and Border Protection Office of Air and Marine, Ceiba, Puerto Rico

Dear Ms. López Sotomayor:

U.S. Customs and Border Protection (CBP) plans to construct a new marine facility at a parcel of land (designated as Parcel 46) in Ceiba, Puerto Rico. Pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations at 36 CFR Part 800 "Protection of Historic Properties." This letter is being transmitted to initiate consultation and to provide CBP's assessment of effects pursuant to this undertaking.

Parcel 46 is located on the south side of Forrestal Drive and consists of a 1.94 acre mostly vacant lot which borders the Ensenada Honda waterfront. It is currently improved with two lighted boat piers and a boat ramp built and owned by CBP for its operations within the Naval Activity Puerto Rico (NAPR). The parcel was recently acquired by CBP from the U.S. Navy under the Base Realignment and Closure property disposal process.

The area of potential effects for this undertaking for direct effects corresponds to the limits of Parcel 46. The area of potential effects for visual effects encompasses an area of 1 km to the south and southeast and 100 m to the north and west of Parcel 46.

The new marine facility will consist of a marine support administrative building, boat maintenance/storage hangar with hurricane tie downs, exterior vehicular parking spaces, and outdoor lighting, as well as physical security equipment and infrastructure. Various conceptual site layout options for the development of the facility are being considered, including single-story and two-story building options.

As part of CBP's environmentalist compliance process, a Phase IA Cultural Resources Assessment (enclosed) was conducted by archaeologist Sharon Meléndez-Ortiz. The assessment

determined that the area of Parcel 46 was originally submerged and as such concluded that the archaeological potential for finding either pre-colonial or colonial historic properties within Parcel 46 is low. The report also concluded that in the rare occurrence that archaeological resources were to be found below surface, the proposed project alternatives have a low or near zero potential to affect them. Therefore, pursuant to Section 800.4(d)(1), CBP has determined that there will be no historic properties affected by the proposed undertaking.

Written correspondence may be submitted by mail to the following address:

Ms. Jennifer DeHart Hass  
Director  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1525  
Washington, DC 20229

We look forward to continuing the Section 106 consultation process with you. If you require additional information or have any questions or concerns, please feel free to contact Mr. Ken Marion via email at [kenneth.r.marion@cbp.dhs.gov](mailto:kenneth.r.marion@cbp.dhs.gov) or by telephone (202) 344-3087.

Sincerely,



Jennifer DeHart Hass  
Director  
Environmental and Energy Division

Enclosure



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## **APPENDIX B: *BIOLOGICAL RESOURCES SURVEY REPORT***

---



# Final Biological Resources Survey Parcel 46 at Naval Activity Puerto Rico, Guayacán Ward, Ceiba, Puerto Rico



**Presented to:**



**U.S. Customs and  
Border Protection**

Air & Marine Facilities Program  
Management Office

**January 17, 2014**

**SALO ENGINEERING, PSC**  
CALLE 38 S.O. #1712, LAS LOMAS  
SAN JUAN, PR 00921  
TEL.: 787-302-0718

E-MAIL: FLOPEZ@SALOENGINEERING.COM



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## Introduction

The U.S. Customs and Border Protection (CBP) proposes to construct a new marine facility at a parcel of land (designated as Parcel 46) located within the former Naval Station Roosevelt Roads in Ceiba, Puerto Rico, and currently referred as Naval Activity Puerto Rico (NAPR) for the CBP Office of Air and Marine (OAM). Parcel 46 consists of a 1.94 acres mostly vacant lot, which borders the Ensenada Honda waterfront (see **Figures 1, 2 and 3, Appendix A**).

This document constitutes the Biological Resources Survey (the study) for the proposed Project. The purpose of this study is to:

- Identify the general species of flora and fauna within the study area (within Parcel 46),
- Identify any threatened or endangered species and their suitable habitat,
- Determine if the proposed action would have an effect on any threatened or endangered species and their suitable habitat pursuant to Section 7 of the Endangered Species Act (ESA).
- Identify migratory birds and their nests, and
- Determine the presence of wetlands (as defined by 33 CFR Part 328) in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Caribbean Islands Region (Version 2.0, May 2011).

This study was carried out according to the procedures recommended by the Department of Natural and Environmental Resources (DNER) and the United States Fish and Wildlife Service (USFWS), using the sampling methods that conformed to the characteristics and conditions of the study area. Steps taken before the fieldwork included a consultation to the Inventory of Critical Species of the Office of Natural Heritage of the DNER, the Environmental Sensitivity Index (ESI) of the National Oceanic and Atmospheric

Administration (NOAA), NOAA's National Marine Fisheries Service Critical Habitat Maps, and the Caribbean Endangered Species Map of the USFWS.

Most of the proposed Project site is being used to store boats and boat trailers, including a security guard post near the gate that provides access to two boat piers and a boat launch ramp to the southwest of Parcel 46. This area is enclosed within a chain link and barbed wire fence. The remnant area of the property is outside the fenced area. It surrounds the fenced area to the northwest and the southwest. The area to the northwest includes a buffer (herbaceous, mowed) between a coastal forest and the fenced area. The area is lighted. This study included the whole property (the whole Parcel 46).

The dominant vegetation within the fenced and buffer areas consists of herbaceous species that are frequently mowed. The most common herbaceous species within this area are the *Euphorbia thymifolia*, the Railroad-track grass (*Dichantium annulatum*), the "Junquito" (*Fimbristilis dichotoma*), the Mexican blue grass (*Chloris barbata*), and the *Abilgaardia ovata*.

The coastal forest along the northwestern side of the study area includes a coastal forest and a mangrove forest (although the mangrove forest is outside Parcel 46). The most common species within the coastal forest are the Pigeon berry (*Bourreria succulenta*) and the Brisselet (*Erythroxylum brevipes*), the Ink berry (*Randia aculeata*), the Black mampoo (*Guapira fragans*), and the Wild tamarind (*Leucaena leucocephala*). The mangrove area is dominated by the Portiatree (*Thespesia populnea*), and the Red mangrove (*Rhizophora mangle*). The total amount of plant species within the study site was 51, divided in 27 families. No flora species designated as threatened or endangered was found.

On the other hand, the dominant animal species are the Northern mockingbird (*Mimus polyglottos*), and the White-winged dove (*Zenaida asiatica*). Total animal species were 24, divided in 16 families. Among these, there are three endemic species. No fauna species designated as threatened or endangered locally or federally was found. The only

species designated as “critical element” by the DNER was the White-crowned pigeon (*Patagioenas leucocephala*), which was observed flying over Parcel 46. This species is fairly common within the mangrove and coastal forests in Roosevelt Roads. A general flora and fauna inventory is found in **Appendix B**.

According to the Environmental Sensitivity Index (ESI) maps of the National Oceanic and Atmospheric Administration (NOAA), Parcel 46 is located within the designated Critical Habitat (CH) for the Yellow-shouldered blackbird (*Agelaius xanthomus*). The closest segment of the Ceiba State Forest, which is managed by the DNER, is located approximately 1.7 kilometers to the northeast of Parcel 46.

The Caribbean Endangered Species Map, of the United States Fish & Wildlife Service (USF&WS, 2007), includes 16 threatened or endangered species for the Municipality of Ceiba. This source includes three CH, together with the one designated for the Yellow-shouldered blackbird (more information in the **Results and Discussion** section below). However, none of these 16 species were observed during field work.

The National Wetland Inventory (NWI) shows a portion of a wetland classified as estuarine, intertidal, scrub/shrub, broad-leaved, evergreen, irregularly flooded (E2SS3P) that covers an area within Parcel 46. However, the Jurisdictional Wetlands and U.S. Water Determination Study performed as part of this Biological Resources Survey concluded that the area included within Parcel 46 under the NWI is not wetland. The NWI carries a resolution error of several meters. It is clearly noted that in this case, the boundaries between the different features of the NWI are offset for more than 20 meters toward the southwest. The NWI recognizes as upland the two piers to the southeast (just north of the very long pier), which were also constructed before 1950. The only wetlands/U.S. Waters that were found within Parcel 46 are bordering it to the south and southwest.

This document contains the following sections:

- Description of the Study area,
- Methodology of the Study,
- Results and Discussion,
- Conclusions and Recommendations, and
- Appendices

The field work to obtain the data for this study was performed by biologist and wetland specialist Jorge L. Coll Rivera during October 28 and November 16, 2013.

## Description of the Study Area

The site proposed for the Project (designated as Parcel 46) is located within the former Naval Station Roosevelt Roads in Ceiba, Puerto Rico, and currently referred as Naval Activity Puerto Rico (NAPR) for the CBP Office of Air and Marine (OAM). Parcel 46 consists of a 1.94 acres mostly vacant lot, which borders the Ensenada Honda waterfront (see **Figures 1, 2 and 3, Appendix A**). The site is bordered on the north by a paved road, on the east by a small scrub/shrub area, on the south by the Ensenada Honda (Caribbean Sea), and on the west by a coastal forest.

The life zone on which the proposed Project is located is known as the Subtropical Dry Forest (Ewel and Whitmore, 1973). This life zone is the driest of the six life zones found in Puerto Rico. The Subtropical Dry Forest covers the southwest area of Puerto Rico, part of Vieques Island and the islands of Culebra, Mona and Desecheo. Annual rainfall within this life zone varies from 600mm to 1100mm. Vegetation on this life zone tends to cover the soil surface completely and its almost completely composed of deciduous species. Trees are rarely over 15 meters high and their crowns tend to be wider and less dense. Due to the dry conditions, plants have less moisture and their wood is stronger and long-lasting. In Puerto Rico, this life zone supports more bird species than the others.

## Climatology

According to the Monthly Station Normals of Temperature, Precipitation, and Heating and Cooling Degree Days, 1981 – 2010, prepared by the National Oceanic and Atmospheric Administration (NOAA), the average annual rainfall in the region is approximately 52.34 inches (1,308.5 mm). The maximum average temperature is 86.5F (30.3C). The minimum average temperature is 75.0F (23.9C). These data were obtained from the Roosevelt Roads station with geographical coordinates 18° 15' N, 65° 38' W.

## Hydrology

There are no hydrological features on Parcel 46. However, the Caribbean Sea is adjacent to its southern limit. **Figure 4 (Appendix A)** shows the hydrology map of the area.

Portions of Parcel 46 are located in flood hazard areas (Zone VE and Zone AE) and large amounts of fill will be required for construction of the proposed action.

### **Topography**

**Figure 1 (Appendix A)** shows the study site located over the topographic quadrangle of Punta Puerca, prepared by the United States Geological Service. From this figure it is observed that the topography of Parcel 46 varies from 1 to 10 meters above sea level. This was validated by a recent topographic study of the study site.

### **Soil Classifications**

According to the Soil Survey of the Humacao Area of Puerto Rico, of the Soil Conservation Service (Boccheciamp, 1978), the Project site has two distinct soils. These are the Made land (Md) and the Descalabrado clay loam (DeE2). **Figure 5 (Appendix A)** shows the soils on Parcel 46.

The Made land (Md) consists of areas where the soil has been covered or destroyed by earthmoving operations. The areas generally have been graded for engineering purposes. In some areas the hazards that affect engineering purposes have been overcome, and the land type is used as sites for dwelling and light industries.

The Descalabrado clay loam (DeE2) soil, 20 to 40% slopes, eroded, is found on the mountains side slopes and ridge tops in the semiarid volcanic uplands. They formed in moderately fine textured residuum derived from volcanic rocks. It consists of well-drained soils, with moderate permeability and moderate available water capacity.

This soil is limited to pasture grazing and wildlife food and cover. It has been in pasture and brush for many years. Steep slopes, shallowness to bedrock, rapid runoff, and the hazard for erosion are limitations.



## **Wetlands**

The National Wetlands Inventory (NWI, **Figure 6, Appendix A**) includes one type of wetland within Parcel 46, which is classified as estuarine, intertidal, scrub/shrub, broad-leaved, evergreen, irregularly flooded (E2SS3P). During the field work for this study, a small section of Parcel 46 was found to contain wetlands (more information in the **Results and Discussion** section below).

The NWI was performed in the 1970's by the United States Fish & Wildlife Service (USF&WS) and in association with other agencies. The NWI was restricted mostly to flatlands or areas relatively close to the coast.

## **Methodology**

### **BIOLOGICAL RESOURCES SURVEY**

This section describes the methodology used for this study, which was performed according to the procedures recommended by the DNER and the USFWS. Due to the small size of the property, the site was covered in its entirety.

Following is a description of the methodology and procedures used.

#### **Reconnaissance Visit**

A reconnaissance field visit of Parcel 46 was performed to conduct a general survey of the location, the area it covers and study limitations; characteristics and other natural features. This visit was very important for the design of the fieldwork plan.

#### **Consultation of Maps from the Office of the Program of Natural Heritage of the Department of Natural and Environmental Resources**

After the preliminary survey of the Project area, a visit to the Office of the Program of Natural Heritage of the DNER was done in order to do a formal consultation of the maps which hold the records of the species that are critical, threatened or endangered within the Project area. This consultation is a necessary and important tool because personnel from the DRNA provide additional information about the records of these species and they suggest additional efforts that have been performed; and consultations with other scientists who are working with protected species which might exist within the study area. The information from the Office for the Program of Natural Heritage was validated on the field by the personnel working on the study.

#### **Consultation of the Environmental Sensitivity Index (ESI) Maps of the National Oceanic and Atmospheric Administration (NOAA, 2000)**

The ESI is a study by the NOAA together with other organizations and agencies, among which are the USFWS and the DNER. This study shows the records of observations of

species that are critical, threatened or endangered around the whole coast and basins of rivers and major creeks in Puerto Rico.

### **Consultation of the Caribbean Endangered Species Map of the United States Fish & Wildlife Service (USF&WS, 2011)**

This map includes at a federal level the species that are threatened or endangered, and the critical habitats for these species designated by municipality.

### **Consultation of the National Marine Fisheries Service Critical Habitat Maps (NOAA, 2013)**

This map shows the submerged critical habitats for federally listed species.

### **Field Work**

The fieldwork for this study was done during October 28 and November 16, 2013. Due to the relatively small size, the area was surveyed in its entirety. Species were documented according to the habitat where they were observed.

For the identification of birds, a morning and an evening census were done using the point count method, with which the bird species observed and heard were recorded according to Wunderle's suggestion (1994). This method is very effective in documenting the presence of bird species.

For the identification of amphibians and reptiles, the method described by Rivero (1998) was used, searching in humid areas, trees, under tree trunks and fallen branches, rocks, tree bifurcations, dead vegetation, garbage, scrap metal, etc. In order to support the identification of amphibious species, a digital sound recorder was used. The sounds recorded were transferred to a computer, where they were compared with the sounds recorded in the Compact Disk included in the reference book Amphibians and Reptiles of Puerto Rico (Rivero, 1998).

## **Data Analysis**

The identification of plant species was carried out on the field, except for those cases in which these could not be immediately identified. In these cases, these species were identified using specimens collected in the field or with the help of photographic documentation. The references for the identification of the species are found in the **References** section of this document.

## **JURISDICTIONAL WETLANDS AND U. S. WATERS DETERMINATION**

The methodology employed during this study followed the Routine Determination with an onsite inspection method, as described in the *1987 Corps of Engineers Wetland Delineation Manual* (the Manual) for areas equal to or less than 5 acres in size, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Caribbean Islands Region (version 2.0) (the Caribbean supplement).

In areas where differences between the Manual and the Caribbean supplement occurred, the Caribbean supplement took precedence. There were areas that determination was difficult, due to past or recent land use, or other reasons. In those cases, determination was based on the best information available, interpreted in light of professional experience and knowledge of the ecology of wetlands in the area, as stated in the Caribbean supplement.

This JD was performed in three phases. **Phase 1** of the study was a screening level analysis to identify those areas within the site that show wetland characteristics. The screening analysis was performed using a Geographical Information System (GIS). This analysis included aerial imagery from different years, soils map, National Wetland Inventory map, hydrographic map, and topographic map. The data gathered from this phase provided specific and important information on the location of possible wetland areas. It also helped in providing a better understanding of the wetland condition and location in order to develop a fieldwork plan.

**Phase II** of the study included the delineation field visits to map the jurisdictional wetlands on the site. Each delineation visit consisted on the sampling, collection, and description of the site's hydrology, soils, and dominant vegetation around representative sampling locations on established transects.

The following tasks were carried out during Phase II:

- Visual inspection of the site and identification of landscape features;
- Identification of plant communities;
- Selection of a representative area within each plant community to dig a soil pit;
- Identification of dominant plant species from the various strata;
- Characterization of the soil properties and colors in the soil pit;
- Measure of depth where hydric soil indicators (if any) appear;
- Description of the hydrology around and within the soil pit;
- Photographic documentation of the site, soil pits or vegetation;
- Geographic Positioning System (GPS) documentation of sampling points; and
- Wetland delineation and documentation of wetland limits.

For the determination of the wetland indicator status of plant species, the 2012 National List of Plants that Occur in Wetlands: Caribbean (region C) was used as reference.

To determine soil colors (hue, value and chroma), as well as for estimating proportions of redoxiphormic features the Munsell Soil Color Charts (2000) was used as reference.

**Phase III** of the study comprised the final analysis of the data gathered during Phases I and II and the writing of this report.

## Results and Discussion

### BIOLOGICAL RESOURCES SURVEY

As mentioned in the **Introduction** section above, most of the proposed Project site is being used to store boats and boat trailers, including a security guard post near the gate that provides access to two boat piers to the southwest of Parcel 46. This area is enclosed within a chain link and barbed wire fence. The remnant area of the property is outside the fenced area. It surrounds the fenced area to the northwest and the southwest. The area to the northwest includes a buffer (herbaceous, mowed) between a coastal forest and the fenced area. This study included the whole property (the whole Parcel 46). It is very important to mention that the proposed project will be constructed within the existing fenced area. Therefore, no impacts are expected to occur in the forested area and the marine environment.

#### General Species of Flora and Fauna

The dominant vegetation within the fenced and buffer areas consists of herbaceous species that are frequently mowed. The most common herbaceous species within this area are the *Euphorbia thymifolia*, the Railroad-track grass (*Dichantium annulatum*), the “Junquito” (*Fimbristilis dichotoma*), the Mexican blue grass (*Chloris barbata*), and the *Abilgaardia ovata*.

The coastal forest along the northwestern side of the study area includes a coastal forest and a mangrove forest. The most common species within the coastal forest are the Pigeon berry (*Bourreria succulenta*) and the Brisselet (*Erythroxylum brevipes*), the Ink berry (*Randia aculeata*), the Black mampoo (*Guapira fragans*), and the Wild tamarind (*Leucaena leucocephala*). The mangrove area is dominated by the Portiatree (*Thespesia populnea*), and the Red mangrove (*Rhizophora mangle*). The total amount of plant species within the study site was 51, divided in 27 families.

Of the flora species observed, 61% are herbaceous. Tree species represent 39% of the species, yet all of them with the exception of the Wild tamarind were found in the forested area. Very small plantlets of this species were also found within the fenced, herbaceous area. Native species accounts for 82% of the flora species observed, while 18% are introduced species.

On the other hand, the dominant animal species are the Northern mockingbird (*Mimus polyglottos*), and the White-winged dove (*Zenaida asiatica*). Total animal species were 24, divided in 16 families. Among these, there are three endemic species, one critical element and two migratory birds. These are:

❖ Birds:

- Puerto Rican woodpecker (*Melanerpes portoricensis*, endemic).
- White-crowned pigeon (*Patagioenas leucocephala*, critical element as per DNER).
- Belted kingfisher (*Ceryle alcyon*, migratory).
- Prairie warbler (*Dendroica discolor*, migratory).

❖ Amphibians:

- “Coquí churí” (*Eleutherodactylus antillensis*, endemic).
- “Coquí común” (*Eleutherodactylus coqui*, endemic).

The only species designated as “critical element” by the DNER was the White-crowned pigeon (*Patagioenas leucocephala*), which was observed flying over Parcel 46. The White-crowned pigeon is a locally common breeding resident. It is also found in the Bahamas, Cuba, Jamaica, Antigua, Hispaniola, San Andrés, Providencia, and the Virgin Islands. In Puerto Rico, it is common in the north, the east, and also in Vieques, Culebra and Isla de Mona. This species is mostly found in the northern and eastern coastal plains, moist forests and mangroves forests. The DNER has designated this species as a “critical element” given that its population has declined and is now threatened due to habitat loss, severe over-hunting, harvesting of nestlings for food and introduced predators. The DNER designates a species as a “critical element” where these conditions occur and sightings decrease. A category of “Deficiency of Data” has been assigned in the case of



the White-crowned pigeon, given that there is not enough information to estimate its current population. This species is fairly common within the mangrove and coastal forests in the NAPR. A general flora and fauna inventory is found in **Appendix B**.

### Threatened or Endangered Species and their Suitable Habitat

No flora or fauna species designated federally or DNER (Commonwealth of Puerto Rico) as threatened or endangered was found within Parcel 46 during this study.

**Table 1** includes the federally listed and DNER listed threatened or endangered species on NAPR and the Municipality of Ceiba. The sources of information are the Natural Heritage of the Department of Natural and Environmental Resources (DNER), The Environmental Sensitivity Index (ESI, **Figures 7 and 8, Appendix A**), the Caribbean Endangered Species Table of the United States Fish & Wildlife Service (USFWS, **Appendix C**), and NOAA's National Marine Fisheries Service (NMFS) Critical Habitat Maps.

Table 1. Federally listed and DNER listed threatened or endangered species on NAPR (modified from Department of the Navy, 2007)

Common Name	Scientific Name	Source of Information	Federal Status	DNER Status	Habitat Requirements
<b>Mammals</b>					
Antillean manatee	<i>Trichechus manatus manatus</i>	DNER, USFWS	E	E	Marine, estuarine, and freshwater habitats. Calm coastal waters with seagrass beds
<b>Reptiles</b>					
Puerto Rican Boa	<i>Epicrates inornatus</i>	DNER, USFWS	E	E	Forested volcanic and limestone hills
Virgin Islands Tree Boa	<i>Epicrates monensis granti</i>	DNER, USFWS	E	E	Dry coastal forest, mangrove forests
Hawksbill sea turtle	<i>Eretmochelys imbricate</i>	DNER, ESI, USFWS	E, CH	E	Marine areas
Green sea turtle	<i>Chelonia mydas</i>	DNER, ESI, USFWS	T, CH	T	Marine areas
Leatherback sea turtle	<i>Dermochelys coriacea</i>	DNER, ESI, USFWS	E	E	Marine areas
Loggerhead sea turtle	<i>Caretta caretta</i>	DNER, USFWS	T	T	Marine areas

Common Name	Scientific Name	Source of Information	Federal Status	DNER Status	Habitat Requirements
<b>Birds</b>					
Yellow-shouldered blackbird	<i>Agelaius xanthomus</i>	DNER, ESI, USFWS	E, CH	E	Mangrove forests, coastal tickets
Brown pelican	<i>Pelecanus occidentalis</i>	DNER, USFWS	E	E	Bays, beaches, ocean areas, inland rivers, freshwater lagoons
Peregrine falcon	<i>Falco peregrinus</i>	DNER	-	E	Nests on rocky cliffs
Least tern	<i>Sterna antillarum</i>	DNER	-	V	Sandy beaches, harbors, lagoons
Piping plover	<i>Charadrius melodus</i>	DNER, USFWS	T	T	Sandy beaches, harbors, lagoons, no nesting
Least grebe	<i>Tachybaptus dominicus</i>	DNER	-	T	Freshwater lakes, streams, ponds and lagoons
West Indian whistling-duck	<i>Dendrocygna arborea</i>	DNER	-	T	Fresh and saltwater bodies, marshes, coastal forests
Caribbean coot	<i>Fulica caribaea</i>	DNER	-	T	Fresh and saltwater bodies, marshes
Roseate tern	<i>Sterna dougallii</i>	DNER	T	E	Inshore areas and bays
Snowy plover	<i>Charadrius alexandrinus</i>	DNER	-	T	Sandy beaches and bays
<b>Plants</b>					
“Cobana negra”	<i>Stahlia monosperma</i>	DNER, ESI, USFWS	T	T	Ensenada Honda, playas, Coastal plains associated with mangroves and immediately landward side of mangroves
<b>Invertebrates</b>					
Elkhorn coral	<i>Acropora palmata</i>	DNER, NMFS	T	T	Mean Low Water to 30 meter
Staghorn coral	<i>Acropora cervicornis</i>	DNER, NMFS	T	T	Mean Low Water to 30 meter

Key: E: endangered; T: threatened; V: vulnerable; CH: designated critical habitat

As shown in **Table 1**, the forested area of Parcel 46 may hold suitable habitat characteristics for the Yellow-shouldered blackbird, the Puerto Rican Boa, and the Virgin Islands Tree Boa. Although the “Cobana negra” may be found in forested areas associated to mangrove forests, this species was not identified during this study.

Even though Parcel 46 is adjacent to the Caribbean Sea, its sea side is very steep, narrow and mostly composed of rocky material (cobbles and boulders) with only a few trees (see **Photographic Documentation, Appendix D**); therefore, it does not have a sandy or small sized particle beach containing suitable nesting habitat for the Leatherback sea turtle, Loggerhead sea turtle, the Green sea turtle, the Hawksbill sea turtle, the Least tern, the Piping plover, the Caribbean coot, the Roseate tern, and the Snowy plover. The sea side of the forested area is outside Parcel 46.

The Benthic Habitats of Puerto Rico and the U.S. Virgin Islands Maps (NOAA, 2001) includes the submerged area adjacent to Parcel 46 as “seagrass/continuous”, which are part of the sea turtles and the Antillean manatee habitat. However, these areas are not likely to be affected by the proposed Project since no construction activity will take place on submerged areas. Construction measures to avoid indirect impacts to these habitats, as well as measures to avoid affecting any sea turtle nesting area are included in the **Conclusions and Recommendations** section below.

NOAA’s National Marine Fisheries Service Critical Habitat Maps (2013) includes all areas around Puerto Rico with suitable substrates within the mean low water (MLW) and a depth of 30 meters as critical habitat for the threatened species Elkhorn coral (*Acropora palmata*) and the Staghorn coral (*Acropora cervicornis*). However, the submerged area around Parcel 46 is mostly colonized by seagrasses, according to the Benthic Habitats of Puerto Rico and the U.S. Virgin Islands Maps (NOAA, 2001). Nevertheless, the proposed Project does not include any component or activity within or adjacent to the designated critical habitat or the sea. As stated above, the **Conclusions and Recommendations** section below include measures to avoid indirect impacts to these areas.

The Brown pelican may use the trees in the forested area of Parcel 46 as resting or roosting area. The West Indian whistling-duck may also use the forested area. However, these species were not observed during field work. Suitable habitat for the Antillean manatee exists adjacent but outside Parcel 46.

None of these 17 species were observed during field work.

Following is a brief description of the four endangered or threatened species that Parcel 46 may provide suitable habitat for them.

Yellow-shouldered blackbird (*Agelaius xanthomus*)

The Yellow-shouldered blackbird (family Emberizidae) is a medium-sized bird (19 – 22 cm or 7.5 – 8.5”), which is entirely glossy black with yellow shoulder patches. It is an endemic species to Puerto Rico. Nesting (May to September) occurs in mangroves along the coast and on small offshore islands. Other nesting habitat includes large Oxhorn bucida trees (*Bucida buseras*) in dry lowland pastures, Coconut palm trees (*Cocos nucifera*), and Royal palms (*Roystonea borinquena*).

The species occurs regularly from the south-southeast (Municipality of Salinas) to the southwestern coast, and on Mona Island. It forages in trees and in the ground on insects, seeds and nectar. Moths and crickets are a major food. It often probes among epiphytes and crevices in twigs. Its habitat consists of mangrove forests and arid scrublands.

The Yellow-shouldered blackbird population has been critically impacted mostly due to parasitism by the Shiny cowbird (*Molothrus bonariensis*), but also as a result of habitat loss. Other threats to the species include rats and the Pearly-eyed thrasher (*Margarops fuscatus*).

In 1976 the entire NAPR area was designated as CH for the species. According to Geo-Marine, Inc. (September 2005 in Department of the Navy 2007) the Yellow-shouldered blackbird population at NAPR declined by 97% from 1976 to 1982. It was believed that the species was absent after Hurricane Hugo in 1989. However, several incidental sightings from 1993 to 1999 and four bird nests found in the summer 1999 prompted the Navy to conduct detailed surveys for the species between 2000 and 2004. These surveys revealed an increase in the Yellow-shouldered blackbird observations from 1995 through 2000 and a decline from 2000 through 2004. The number of documented nesting pairs

fell from five in 2000 to one unconfirmed nest in 2004. No observations of the species were recorded during post breeding surveys at NAPR, but incidental observations have been recorded.

Puerto Rican Boa (*Epicrates inornatus*)

The Puerto Rican Boa (family Boidae) is endemic to Puerto Rico. Its genus (*Epicrates*) is found in South América, Central América and the Greater Antilles. This species can grow up to 7 feet in length (Rivero, 1998). Its color varies from tan to very dark brown and possesses from 70 to 80 cross-bars or spots which are outlined in very dark brown and in some cases may be confluent with one another. Young individuals may be of reddish color. The ventral scales are slate or dark brown with a pale posterior edge. Reproduction takes place at the beginning of the rainy season and gestation may last between 152 and 193 days.

The Puerto Rican Boa may be found on the ground or in trees. Adults and sub-adults feeds on birds, rats, mice, bats, lizards. Individual juveniles may feed on insects and other invertebrates. The species is distributed throughout Puerto Rico, but is more abundant in the forested volcanic and limestone hills (Rivero, 1998). However, it can also be found in urban or suburban habitats.

Geo-Marine, Inc. (September 2005, in Department of the Navy 2007) reported Puerto Rican Boa sightings prior to 1999 and an additional four occurrences were reported between 2001 and 2003 within the NAPR. Tolson (in Department of the Navy 2007) conducted habitat assessment and nighttime surveys in NAPR in 2004. However, no individuals were found, but only a shed skin was found in an abandoned building, where two sightings of the species have been reported. According to Tolson (2004) the species apparently occur in low densities at NAPR. No critical habitat has been designated for this species.

Virgin Islands Tree Boa (*Epicrates monensis granti*)

The Virgin Islands Tree Boa (family Boidae) is found in some of the Virgin Islands, in Culebra, in some of the cays and islets to the east of Puerto Rico and in the area of Río Mar Resort in the northeast (Rivero, 1998). The species is found in subtropical dry forests and mangrove forests.

Its color is light plumbeous brown with darker brown blotches partially edged with black (U.S. Fish and Wildlife Service, 1986). The dorsal blotches (between 61 and 73) are angulated and frequently reach the ventral scales. The dorsal surface has a general blue-purple iridescence. The ventral surface is grayish-brown speckled with darker spots. It can grow up to 3.5 feet.

The bulk of the diet seems to consist of the Common anole (*Anolis cristatellus*) and the greatest concentration of this species capture sites have been where populations of the Common anole are most dense (U.S. Fish and Wildlife Service, 1986).

Tolson (2004, in Department of the Navy 2007) found the best habitat for the species at NAPR in the Punta Puerca and Medio Mundo coastlines. However, no Virgin Islands Tree Boa was found during the field surveys conducted by Tolson (2004). No critical habitat has been designated for this species.

“Cobana negra” (*Stahlia monosperma*)

The “Cobana negra” (family Fabaceae-Caesalpinioideae) is a medium-sized evergreen tree that reaches 25 to 50 feet in height, and 1 to 1.5 feet in diameter (U.S. Fish and Wildlife Service, 1995). It is easily identified by (1) pinnately compound leaves with 6 to 12 opposite, lance-shaped to ovate leaflets on red stalks and with scattered black raised dots on lower surface; (2) clusters of pale yellow flowers about one-half of an inch across de five petals; (3) odd, elliptic, thick and fleshy, red pots 2 inches or less in length; and (4), yellow-green and slightly pendulous foliage. Flowers are produced between March

and May, depending on rainfall. A thin, red, fleshy fruit is produced during late June and mid-July. Fruits mature in summer and fall.

Wild “Cobana negra” grows in brackish, seasonally flooded wetlands in association with mangrove communities. It is associated with Oxhorn buida (*Bucida buceras*), Black mangrove (*Avicennia germinans*), White mangrove (*Laguncularia racemosa*), and Buttonwood mangrove (*Conocarpus erectus*). Individuals are also found in pastureland adjacent to mangrove forests (U.S. Fish and Wildlife Service, 1995).

In 1989 a “Cobana negra” tree was identified in a mangrove stand in Ensenada Honda by Vicente *et al* (in Department of the Army, 2007). In 2004, Geo-Marine, Inc. (in Department of the Army, 2007) conducted a survey and found one individual in a coastal scrub forest. No other individuals have been reported since then. No individuals of this species were found during this survey.

### **Ecological Associations and Biodiversity**

The study site contains a forested area, which is located adjacent to a mangrove area (which is outside Parcel 46). There is a very well defined ecotone between both natural systems. The species found in the forested area shows a natural succession toward a more mature secondary forest; nevertheless, the Wild tamarind (*Leucaena leucocephala*) is one of the dominant species, showing that it was disturbed recently. Due to the small size of the study area, as well as the fact that it is mostly dominated by herbaceous species (the fenced area) the number of species or the biodiversity (the flora well as faunal species) is relatively low.

### **Migratory Birds and Their Nests**

Only two migratory birds were observed during field work. These were the Belted kingfisher (*Ceryle alcyon*) and the Prairie warbler (*Dendroica discolor*). The Belted kingfisher is a fairly common non-breeding visitor (Raffaele, 1998) from September to May. It excavates the nest in the soil. The Prairie warbler is also a common non-breeding



visitor from late August to April. It makes a cup of plant material bound with spider webs. No nests from these species were observed.

## **JURISDICTIONAL WETLANDS AND U. S. WATERS DETERMINATION**

Approximately 52.71 m<sup>2</sup> or 0.013 acres of wetlands, and 119.35 m<sup>2</sup> or 0.29 acres of U.S. Waters were found within the study limit. **Figure 10 (Appendix A)** shows the Jurisdictional Wetlands and U.S. Waters Determination Map for Parcel 46. The delineated wetlands are estuarine mangroves associated to the Caribbean Sea. They are located in a small area near the southwestern limit (adjacent to the Caribbean Sea) of Parcel 46.

The study site was constructed before 1950, by depositing artificial fill material along the shore. The artificial fill consists of unconsolidated sands and gravels of variable and mixed size, subordinated clays and silts, and locally includes river terrace deposits (see **Figure 11, Appendix A**). Since then, it has been maintained and used for naval/military purposes. Therefore, there are no jurisdictional areas where the Project is going to be constructed (fenced area), but only near the southwestern limit of Parcel 46. Although wetland plant species are found within the construction area, they are associated to depressions made by car tracks that accumulate rain water. As a result, hydrophytes grow on those areas. The most common wetland plant species within these depressions were species of the family Cyperaceae.

These depressions within the upland also showed wetland hydrology indicators, such as Algal Mat or Crust (B4), Sparsely Vegetated Concave Surface (B8), and FAC-Neutral Test (D5). However, no hydrological connectivity exists between these ponds and the Caribbean Sea.

No hydric soil indicators were observed at the required depth on these depressions. Low chroma colors were not present. It is important to consider that the study site was an area

that was “gained from the sea” by filling it before 1950. According to the Hydric Soil List of Puerto Rico, there are no hydric soils within the fenced area in Parcel 46.

Although hydrophytic vegetation and wetland hydrology indicators were present, there was no hydrological connectivity to another jurisdictional area or hydric soil indicators within the construction area. Those depressions are just made by car tracks that accumulate rain water and do not represent jurisdictional wetlands.

The small delineated wetland area at the southwestern limit can be classified as estuarine, intertidal, forested, broad-leaved evergreen, irregularly flooded (E2FO3P). This system represents a small section of a fringe mangrove that continues toward the northwest outside Parcel 46. The U.S. Waters found represents the Caribbean Sea that bathes a small area of Parcel 46.

Wetland plant species on these wetlands include Portiatree (*Thespesia populnea*), White mangrove (*Laguncularia racemosa*), and Red mangrove (*Rhizophora mangle*). Obligate (OBL) species accounted for 80% of total cover (White mangrove and Red mangrove). The remaining 20% is composed of facultative (FAC) species (Portiatree). Given that this area was partially inundated, and the fact that OBL species were certainly dominant, no soil boring was necessary to demonstrate that hydric soils are present. **Table 2** shows the wetland indicator of dominant plant species.

Table 2. Dominant plant species wetland indicator

Scientific Name	Common Name	Stratum	Indicator*
<i>Fimbristylis dichotoma</i>	“Junquito”	Herbaceous	FACW
<i>Fimbristylis cymosa</i>	N/A	Herbaceous	FACW
<i>Euphorbia thymifolia</i>	N/A	Herbaceous	UPL
<i>Dichantium annulatum</i>	Railroad-track grass	Herbaceous	FACU
<i>Abilgaardia ovata</i>	N/A	Herbaceous	FAC

Scientific Name	Common Name	Stratum	Indicator*
<i>Rhinchospora rugosa</i>	N/A	Herbaceous	FAC
<i>Thespesia populnea</i>	Portiatree	Tree	FAC
<i>Rhizophora mangle</i>	Red mangrove	Tree	OBL
<i>Laguncularia racemosa</i>	White mangrove	Tree	OBL

\*Indicator: OBL: obligate (>99% occurrence in wetlands); FACW: facultative wetland (67-99% occurrence in wetlands); FAC: facultative (34-66% occurrence in wetlands); FACU: facultative upland (1-33% occurrence in wetlands); UPL: upland (<1% occurrence in wetlands)

**Appendix E** includes the field data forms for the sampling points. **Table 3** includes the position coordinates (State Plane NAD 83) of each sampling point.

Table 3. Sampling points coordinates\*

Sampling Point ID number	Sampling Point Location (NAD83)	
	x	y
1	285841.837	244365.957
2	285815.273	244364.425
3	285836.728	244348.845
4	285857.417	244330.199
5	285777.983	244333.775

\*Referenced to State Plane NAD 83

The National Wetland Inventory (NWI) shows a portion of a wetland classified as estuarine, intertidal, scrub/shrub, broad-leaved, evergreen, irregularly flooded (E2SS3P) over a section of Parcel 46. However, the Jurisdictional Wetlands and U.S. Water Determination performed as part of this Biological Resources Survey concluded that the area is not wetland. The NWI carries a resolution error of several meters. It is clearly noted that in this case, the boundaries between the different features of the NWI are offset for more than 20 meters toward the southwest. The NWI recognizes as upland the two piers to the southeast (just north of the very long pier), which were also constructed before 1950 (**Figure 9, Appendix A**). The only wetlands/U.S. Waters were found bordering the south and southwest of Parcel 46.

Also, it is important to take into consideration that the NWI was performed in the 70's decade. Today, there are wetlands that were not included in the NWI. On the other hand, there are areas classified as wetlands under the NWI that are not wetlands in the present.

## Conclusions and Recommendations

It is very important to mention that the proposed project will be constructed within the existing fenced area, which contains an approximate area of 1.4 acres (Parcel 46 has a total area of 1.94 acres). Therefore, no effects are expected to occur in the forested area and the coastal/marine environment.

The proposed Project site shows evidence of modification at different moments of history for anthropogenic purposes. A retrospective analysis of satellite imagery shows that in 1950 Parcel 46 was already filled (“made land”). Since then, it has been maintained and the colonization and development of trees has been prevented in the majority of the parcel.

The proposed construction area (1.4 acres) is covered by herbaceous species which are frequently mowed. Although the majority of the dominant species are native, most of the species within the fenced area are typical of disturbed sites.

Although an intensification of activities are anticipated to occur during construction within the herbaceous area, it is not expected that the remnant of Parcel 46 (0.54 acres) will be negatively affected by these activities. As mentioned earlier in this study, there is an existing buffer zone between the fenced area and the forested/scrub section to the west. There will be no impact to the general flora and fauna within this area. Therefore, it is concluded that the Project **is not likely to adversely affect** federally and locally listed threatened or endangered species, or existing critical habitats.

The following recommendations are proposed to protect listed threatened or endangered species and existing critical habitats:

- ❖ That protection measures are established so that the forested area as well as the shore and submerged habitats adjacent to the west and southwest sides of the Project site are not affected. Some of these measures may include:
  - Noise barriers,

- Fugitive dust containment fences,
- Silt fences,
- Erosion/sedimentation control measures,
- Avoid any construction activity within the buffer area.
- ❖ Notify the USFWS and the DNER if any of the following species are seen within or next to the construction area:
  - The Yellow-shouldered blackbird,
  - The Puerto Rican Boa, or
  - The Virgin Islands Tree Boa.
- ❖ Implement all USFWS's and DNER's lighting standards/requirements to avoid affecting the sea turtles nesting habitat. These may include:
  - The use of exterior light fixtures on the seaward and shore-perpendicular sides of structures that are well shielded, full cut-off and directed downward.
  - The use of lamps that are:
    - Of Low Pressure Sodium (LPS) of 18 or 35 watts.
    - Red, orange or amber LED (true red, orange or amber diodes, not filters).
    - True red neon.
    - Other lighting sources that produce light of 560 nm or longer wavelength.
  - Interior lighting on the seaward and shore-perpendicular sides of structures shall be filtered through tinted glass or film with a visible light transmittance value of 45% or less
- ❖ Implement manatee protection measures to avoid impacts on them or affecting its habitat. It could include measures such as post signs that indicate that there are manatees in the area ("Manatee Area") and limiting boat speed ("No Wake Zone").
- ❖ Pesticide and herbicide applications must follow local/federal regulations.

In terms of the existing wetlands/U.S. Waters under the jurisdiction of the USACE, it has been determine that they are located outside the Project's construction area. They are

located within the south and southwest of Parcel 46 in association with the Caribbean Sea, which is their hydrology source.

Even though that hydrophytic vegetation and wetland hydrology indicators were found within the construction area, their development is due to ponding of rain water along car tracks or where vehicles/boat trailers park. No hydrological connectivity exists between these ponds (1 to 2 inches deep) and the Caribbean Sea. No hydric soil indicators were found. As stated before, Parcel 46 was filled or “made land” before 1950; therefore, these areas were impacted prior to implementation of Section 404 of the Clean Water Act of 1972.

As stated in the **Results and Discussion** section above, although the National Wetland Inventory (NWI) shows a portion of a wetland classified as estuarine, intertidal, scrub/shrub, broad-leaved, evergreen, irregularly flooded (E2SS3P) over a section of Parcel 46, the Jurisdictional Wetlands and U.S. Water Determination performed as part of this Biological Resources Survey concluded that the area is not wetland.

Nevertheless, we recommend the following measures:

- ❖ Prevent construction activities on jurisdictional areas.
- ❖ No dredge, fill, equipment, or any material shall be placed on jurisdictional areas.
- ❖ If the Project would have impacts on jurisdictional areas a permit process shall be commenced prior to affect those areas. If impacts on these jurisdictional areas cannot be avoided, mitigation as a consequence of impacting wetlands/U.S. Waters may be required by the USACE.

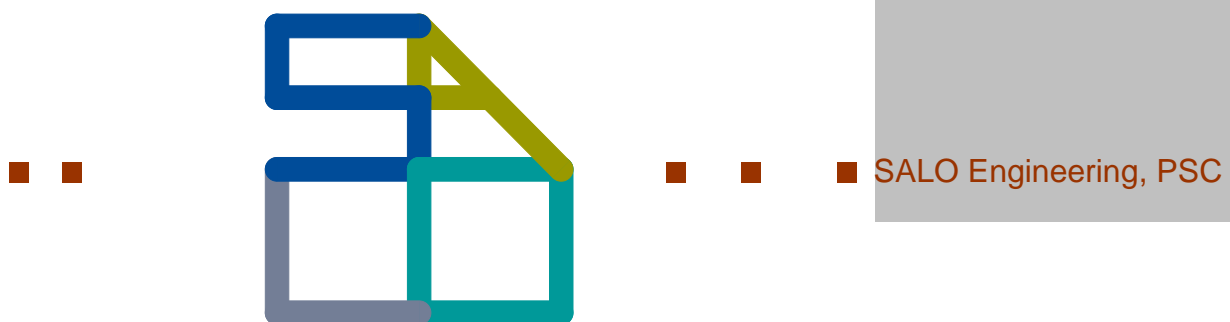


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# Final Biological Resources Survey Parcel 46 at Naval Activity Puerto Rico, Guayacán Ward, Ceiba, Puerto Rico



**Presented to:**



**U.S. Customs and  
Border Protection**

Air & Marine Facilities Program  
Management Office

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## Introduction

The U.S. Customs and Border Protection (CBP) proposes to construct a new marine facility at a parcel of land (designated as Parcel 46) located within the former Naval Station Roosevelt Roads in Ceiba, Puerto Rico, and currently referred as Naval Activity Puerto Rico (NAPR) for the CBP Office of Air and Marine (OAM). Parcel 46 consists of a 1.94 acres mostly vacant lot, which borders the Ensenada Honda waterfront (see **Figures 1, 2 and 3, Appendix A**).

This document constitutes the Biological Resources Survey (the study) for the proposed Project. The purpose of this study is to:

- Identify the general species of flora and fauna within the study area (within Parcel 46),
- Identify any threatened or endangered species and their suitable habitat,
- Determine if the proposed action would have an effect on any threatened or endangered species and their suitable habitat pursuant to Section 7 of the Endangered Species Act (ESA).
- Identify migratory birds and their nests, and
- Determine the presence of wetlands (as defined by 33 CFR Part 328) in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Caribbean Islands Region (Version 2.0, May 2011).

This study was carried out according to the procedures recommended by the Department of Natural and Environmental Resources (DNER) and the United States Fish and Wildlife Service (USFWS), using the sampling methods that conformed to the characteristics and conditions of the study area. Steps taken before the fieldwork included a consultation to the Inventory of Critical Species of the Office of Natural Heritage of the DNER, the Environmental Sensitivity Index (ESI) of the National Oceanic and Atmospheric



Administration (NOAA), NOAA's National Marine Fisheries Service Critical Habitat Maps, and the Caribbean Endangered Species Map of the USFWS.

Most of the proposed Project site is being used to store boats and boat trailers, including a security guard post near the gate that provides access to two boat piers and a boat launch ramp to the southwest of Parcel 46. This area is enclosed within a chain link and barbed wire fence. The remnant area of the property is outside the fenced area. It surrounds the fenced area to the northwest and the southwest. The area to the northwest includes a buffer (herbaceous, mowed) between a coastal forest and the fenced area. The area is lighted. This study included the whole property (the whole Parcel 46).

The dominant vegetation within the fenced and buffer areas consists of herbaceous species that are frequently mowed. The most common herbaceous species within this area are the *Euphorbia thymifolia*, the Railroad-track grass (*Dichantium annulatum*), the "Junquito" (*Fimbristilis dichotoma*), the Mexican blue grass (*Chloris barbata*), and the *Abilgaardia ovata*.

The coastal forest along the northwestern side of the study area includes a coastal forest and a mangrove forest (although the mangrove forest is outside Parcel 46). The most common species within the coastal forest are the Pigeon berry (*Bourreria succulenta*) and the Brisselet (*Erythroxylum brevipes*), the Ink berry (*Randia aculeata*), the Black mampoo (*Guapira fragans*), and the Wild tamarind (*Leucaena leucocephala*). The mangrove area is dominated by the Portiatree (*Thespesia populnea*), and the Red mangrove (*Rhizophora mangle*). The total amount of plant species within the study site was 51, divided in 27 families. No flora species designated as threatened or endangered was found.

On the other hand, the dominant animal species are the Northern mockingbird (*Mimus polyglottos*), and the White-winged dove (*Zenaida asiatica*). Total animal species were 24, divided in 16 families. Among these, there are three endemic species. No fauna species designated as threatened or endangered locally or federally was found. The only

species designated as “critical element” by the DNER was the White-crowned pigeon (*Patagioenas leucocephala*), which was observed flying over Parcel 46. This species is fairly common within the mangrove and coastal forests in Roosevelt Roads. A general flora and fauna inventory is found in **Appendix B**.

According to the Environmental Sensitivity Index (ESI) maps of the National Oceanic and Atmospheric Administration (NOAA), Parcel 46 is located within the designated Critical Habitat (CH) for the Yellow-shouldered blackbird (*Agelaius xanthomus*). The closest segment of the Ceiba State Forest, which is managed by the DNER, is located approximately 1.7 kilometers to the northeast of Parcel 46.

The Caribbean Endangered Species Map, of the United States Fish & Wildlife Service (USF&WS, 2007), includes 16 threatened or endangered species for the Municipality of Ceiba. This source includes three CH, together with the one designated for the Yellow-shouldered blackbird (more information in the **Results and Discussion** section below). However, none of these 16 species were observed during field work.

The National Wetland Inventory (NWI) shows a portion of a wetland classified as estuarine, intertidal, scrub/shrub, broad-leaved, evergreen, irregularly flooded (E2SS3P) that covers an area within Parcel 46. However, the Jurisdictional Wetlands and U.S. Water Determination Study performed as part of this Biological Resources Survey concluded that the area included within Parcel 46 under the NWI is not wetland. The NWI carries a resolution error of several meters. It is clearly noted that in this case, the boundaries between the different features of the NWI are offset for more than 20 meters toward the southwest. The NWI recognizes as upland the two piers to the southeast (just north of the very long pier), which were also constructed before 1950. The only wetlands/U.S. Waters that were found within Parcel 46 are bordering it to the south and southwest.

This document contains the following sections:

- Description of the Study area,
- Methodology of the Study,
- Results and Discussion,
- Conclusions and Recommendations, and
- Appendices

The field work to obtain the data for this study was performed by biologist and wetland specialist Jorge L. Coll Rivera during October 28 and November 16, 2013.

## Description of the Study Area

The site proposed for the Project (designated as Parcel 46) is located within the former Naval Station Roosevelt Roads in Ceiba, Puerto Rico, and currently referred as Naval Activity Puerto Rico (NAPR) for the CBP Office of Air and Marine (OAM). Parcel 46 consists of a 1.94 acres mostly vacant lot, which borders the Ensenada Honda waterfront (see **Figures 1, 2 and 3, Appendix A**). The site is bordered on the north by a paved road, on the east by a small scrub/shrub area, on the south by the Ensenada Honda (Caribbean Sea), and on the west by a coastal forest.

The life zone on which the proposed Project is located is known as the Subtropical Dry Forest (Ewel and Whitmore, 1973). This life zone is the driest of the six life zones found in Puerto Rico. The Subtropical Dry Forest covers the southwest area of Puerto Rico, part of Vieques Island and the islands of Culebra, Mona and Desecheo. Annual rainfall within this life zone varies from 600mm to 1100mm. Vegetation on this life zone tends to cover the soil surface completely and its almost completely composed of deciduous species. Trees are rarely over 15 meters high and their crowns tend to be wider and less dense. Due to the dry conditions, plants have less moisture and their wood is stronger and long-lasting. In Puerto Rico, this life zone supports more bird species than the others.

## Climatology

According to the Monthly Station Normals of Temperature, Precipitation, and Heating and Cooling Degree Days, 1981 – 2010, prepared by the National Oceanic and Atmospheric Administration (NOAA), the average annual rainfall in the region is approximately 52.34 inches (1,308.5 mm). The maximum average temperature is 86.5F (30.3C). The minimum average temperature is 75.0F (23.9C). These data were obtained from the Roosevelt Roads station with geographical coordinates 18° 15' N, 65° 38' W.

## Hydrology

There are no hydrological features on Parcel 46. However, the Caribbean Sea is adjacent to its southern limit. **Figure 4 (Appendix A)** shows the hydrology map of the area.

Portions of Parcel 46 are located in flood hazard areas (Zone VE and Zone AE) and large amounts of fill will be required for construction of the proposed action.

### **Topography**

**Figure 1 (Appendix A)** shows the study site located over the topographic quadrangle of Punta Puerca, prepared by the United States Geological Service. From this figure it is observed that the topography of Parcel 46 varies from 1 to 10 meters above sea level. This was validated by a recent topographic study of the study site.

### **Soil Classifications**

According to the Soil Survey of the Humacao Area of Puerto Rico, of the Soil Conservation Service (Boccheciamp, 1978), the Project site has two distinct soils. These are the Made land (Md) and the Descalabrado clay loam (DeE2). **Figure 5 (Appendix A)** shows the soils on Parcel 46.

The Made land (Md) consists of areas where the soil has been covered or destroyed by earthmoving operations. The areas generally have been graded for engineering purposes. In some areas the hazards that affect engineering purposes have been overcome, and the land type is used as sites for dwelling and light industries.

The Descalabrado clay loam (DeE2) soil, 20 to 40% slopes, eroded, is found on the mountains side slopes and ridge tops in the semiarid volcanic uplands. They formed in moderately fine textured residuum derived from volcanic rocks. It consists of well-drained soils, with moderate permeability and moderate available water capacity.

This soil is limited to pasture grazing and wildlife food and cover. It has been in pasture and brush for many years. Steep slopes, shallowness to bedrock, rapid runoff, and the hazard for erosion are limitations.

## **Wetlands**

The National Wetlands Inventory (NWI, **Figure 6, Appendix A**) includes one type of wetland within Parcel 46, which is classified as estuarine, intertidal, scrub/shrub, broad-leaved, evergreen, irregularly flooded (E2SS3P). During the field work for this study, a small section of Parcel 46 was found to contain wetlands (more information in the **Results and Discussion** section below).

The NWI was performed in the 1970's by the United States Fish & Wildlife Service (USF&WS) and in association with other agencies. The NWI was restricted mostly to flatlands or areas relatively close to the coast.

## **Methodology**

### **BIOLOGICAL RESOURCES SURVEY**

This section describes the methodology used for this study, which was performed according to the procedures recommended by the DNER and the USFWS. Due to the small size of the property, the site was covered in its entirety.

Following is a description of the methodology and procedures used.

#### **Reconnaissance Visit**

A reconnaissance field visit of Parcel 46 was performed to conduct a general survey of the location, the area it covers and study limitations; characteristics and other natural features. This visit was very important for the design of the fieldwork plan.

#### **Consultation of Maps from the Office of the Program of Natural Heritage of the Department of Natural and Environmental Resources**

After the preliminary survey of the Project area, a visit to the Office of the Program of Natural Heritage of the DNER was done in order to do a formal consultation of the maps which hold the records of the species that are critical, threatened or endangered within the Project area. This consultation is a necessary and important tool because personnel from the DRNA provide additional information about the records of these species and they suggest additional efforts that have been performed; and consultations with other scientists who are working with protected species which might exist within the study area. The information from the Office for the Program of Natural Heritage was validated on the field by the personnel working on the study.

#### **Consultation of the Environmental Sensitivity Index (ESI) Maps of the National Oceanic and Atmospheric Administration (NOAA, 2000)**

The ESI is a study by the NOAA together with other organizations and agencies, among which are the USFWS and the DNER. This study shows the records of observations of



species that are critical, threatened or endangered around the whole coast and basins of rivers and major creeks in Puerto Rico.

#### **Consultation of the Caribbean Endangered Species Map of the United States Fish & Wildlife Service (USF&WS, 2011)**

This map includes at a federal level the species that are threatened or endangered, and the critical habitats for these species designated by municipality.

#### **Consultation of the National Marine Fisheries Service Critical Habitat Maps (NOAA, 2013)**

This map shows the submerged critical habitats for federally listed species.

#### **Field Work**

The fieldwork for this study was done during October 28 and November 16, 2013. Due to the relatively small size, the area was surveyed in its entirety. Species were documented according to the habitat where they were observed.

For the identification of birds, a morning and an evening census were done using the point count method, with which the bird species observed and heard were recorded according to Wunderle's suggestion (1994). This method is very effective in documenting the presence of bird species.

For the identification of amphibians and reptiles, the method described by Rivero (1998) was used, searching in humid areas, trees, under tree trunks and fallen branches, rocks, tree bifurcations, dead vegetation, garbage, scrap metal, etc. In order to support the identification of amphibious species, a digital sound recorder was used. The sounds recorded were transferred to a computer, where they were compared with the sounds recorded in the Compact Disk included in the reference book Amphibians and Reptiles of Puerto Rico (Rivero, 1998).

## **Data Analysis**

The identification of plant species was carried out on the field, except for those cases in which these could not be immediately identified. In these cases, these species were identified using specimens collected in the field or with the help of photographic documentation. The references for the identification of the species are found in the **References** section of this document.

## **JURISDICTIONAL WETLANDS AND U. S. WATERS DETERMINATION**

The methodology employed during this study followed the Routine Determination with an onsite inspection method, as described in the *1987 Corps of Engineers Wetland Delineation Manual* (the Manual) for areas equal to or less than 5 acres in size, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Caribbean Islands Region (version 2.0) (the Caribbean supplement).

In areas where differences between the Manual and the Caribbean supplement occurred, the Caribbean supplement took precedence. There were areas that determination was difficult, due to past or recent land use, or other reasons. In those cases, determination was based on the best information available, interpreted in light of professional experience and knowledge of the ecology of wetlands in the area, as stated in the Caribbean supplement.

This JD was performed in three phases. **Phase 1** of the study was a screening level analysis to identify those areas within the site that show wetland characteristics. The screening analysis was performed using a Geographical Information System (GIS). This analysis included aerial imagery from different years, soils map, National Wetland Inventory map, hydrographic map, and topographic map. The data gathered from this phase provided specific and important information on the location of possible wetland areas. It also helped in providing a better understanding of the wetland condition and location in order to develop a fieldwork plan.

**Phase II** of the study included the delineation field visits to map the jurisdictional wetlands on the site. Each delineation visit consisted on the sampling, collection, and description of the site's hydrology, soils, and dominant vegetation around representative sampling locations on established transects.

The following tasks were carried out during Phase II:

- Visual inspection of the site and identification of landscape features;
- Identification of plant communities;
- Selection of a representative area within each plant community to dig a soil pit;
- Identification of dominant plant species from the various strata;
- Characterization of the soil properties and colors in the soil pit;
- Measure of depth where hydric soil indicators (if any) appear;
- Description of the hydrology around and within the soil pit;
- Photographic documentation of the site, soil pits or vegetation;
- Geographic Positioning System (GPS) documentation of sampling points; and
- Wetland delineation and documentation of wetland limits.

For the determination of the wetland indicator status of plant species, the 2012 National List of Plants that Occur in Wetlands: Caribbean (region C) was used as reference.

To determine soil colors (hue, value and chroma), as well as for estimating proportions of redoxiphormic features the Munsell Soil Color Charts (2000) was used as reference.

**Phase III** of the study comprised the final analysis of the data gathered during Phases I and II and the writing of this report.

## Results and Discussion

### BIOLOGICAL RESOURCES SURVEY

As mentioned in the **Introduction** section above, most of the proposed Project site is being used to store boats and boat trailers, including a security guard post near the gate that provides access to two boat piers to the southwest of Parcel 46. This area is enclosed within a chain link and barbed wire fence. The remnant area of the property is outside the fenced area. It surrounds the fenced area to the northwest and the southwest. The area to the northwest includes a buffer (herbaceous, mowed) between a coastal forest and the fenced area. This study included the whole property (the whole Parcel 46). It is very important to mention that the proposed project will be constructed within the existing fenced area. Therefore, no impacts are expected to occur in the forested area and the marine environment.

#### General Species of Flora and Fauna

The dominant vegetation within the fenced and buffer areas consists of herbaceous species that are frequently mowed. The most common herbaceous species within this area are the *Euphorbia thymifolia*, the Railroad-track grass (*Dichantium annulatum*), the “Junquito” (*Fimbristilis dichotoma*), the Mexican blue grass (*Chloris barbata*), and the *Abilgaardia ovata*.

The coastal forest along the northwestern side of the study area includes a coastal forest and a mangrove forest. The most common species within the coastal forest are the Pigeon berry (*Bourreria succulenta*) and the Brisselet (*Erythroxylum brevipes*), the Ink berry (*Randia aculeata*), the Black mampoo (*Guapira fragans*), and the Wild tamarind (*Leucaena leucocephala*). The mangrove area is dominated by the Portiatree (*Thespesia populnea*), and the Red mangrove (*Rhizophora mangle*). The total amount of plant species within the study site was 51, divided in 27 families.

Of the flora species observed, 61% are herbaceous. Tree species represent 39% of the species, yet all of them with the exception of the Wild tamarind were found in the forested area. Very small plantlets of this species were also found within the fenced, herbaceous area. Native species accounts for 82% of the flora species observed, while 18% are introduced species.

On the other hand, the dominant animal species are the Northern mockingbird (*Mimus polyglottos*), and the White-winged dove (*Zenaida asiatica*). Total animal species were 24, divided in 16 families. Among these, there are three endemic species, one critical element and two migratory birds. These are:

❖ Birds:

- Puerto Rican woodpecker (*Melanerpes portoricensis*, endemic).
- White-crowned pigeon (*Patagioenas leucocephala*, critical element as per DNER).
- Belted kingfisher (*Ceryle alcyon*, migratory).
- Prairie warbler (*Dendroica discolor*, migratory).

❖ Amphibians:

- “Coquí churí” (*Eleutherodactylus antillensis*, endemic).
- “Coquí común” (*Eleutherodactylus coqui*, endemic).

The only species designated as “critical element” by the DNER was the White-crowned pigeon (*Patagioenas leucocephala*), which was observed flying over Parcel 46. The White-crowned pigeon is a locally common breeding resident. It is also found in the Bahamas, Cuba, Jamaica, Antigua, Hispaniola, San Andrés, Providencia, and the Virgin Islands. In Puerto Rico, it is common in the north, the east, and also in Vieques, Culebra and Isla de Mona. This species is mostly found in the northern and eastern coastal plains, moist forests and mangroves forests. The DNER has designated this species as a “critical element” given that its population has declined and is now threatened due to habitat loss, severe over-hunting, harvesting of nestlings for food and introduced predators. The DNER designates a species as a “critical element” where these conditions occur and sightings decrease. A category of “Deficiency of Data” has been assigned in the case of

the White-crowned pigeon, given that there is not enough information to estimate its current population. This species is fairly common within the mangrove and coastal forests in the NAPR. A general flora and fauna inventory is found in **Appendix B**.

### Threatened or Endangered Species and their Suitable Habitat

No flora or fauna species designated federally or DNER (Commonwealth of Puerto Rico) as threatened or endangered was found within Parcel 46 during this study.

**Table 1** includes the federally listed and DNER listed threatened or endangered species on NAPR and the Municipality of Ceiba. The sources of information are the Natural Heritage of the Department of Natural and Environmental Resources (DNER), The Environmental Sensitivity Index (ESI, **Figures 7 and 8, Appendix A**), the Caribbean Endangered Species Table of the United States Fish & Wildlife Service (USFWS, **Appendix C**), and NOAA's National Marine Fisheries Service (NMFS) Critical Habitat Maps.

Table 1. Federally listed and DNER listed threatened or endangered species on NAPR (modified from Department of the Navy, 2007)

Common Name	Scientific Name	Source of Information	Federal Status	DNER Status	Habitat Requirements
<b>Mammals</b>					
Antillean manatee	<i>Trichechus manatus manatus</i>	DNER, USFWS	E	E	Marine, estuarine, and freshwater habitats. Calm coastal waters with seagrass beds
<b>Reptiles</b>					
Puerto Rican Boa	<i>Epicrates inornatus</i>	DNER, USFWS	E	E	Forested volcanic and limestone hills
Virgin Islands Tree Boa	<i>Epicrates monensis granti</i>	DNER, USFWS	E	E	Dry coastal forest, mangrove forests
Hawksbill sea turtle	<i>Eretmochelys imbricate</i>	DNER, ESI, USFWS	E, CH	E	Marine areas
Green sea turtle	<i>Chelonia mydas</i>	DNER, ESI, USFWS	T, CH	T	Marine areas
Leatherback sea turtle	<i>Dermochelys coriacea</i>	DNER, ESI, USFWS	E	E	Marine areas
Loggerhead sea turtle	<i>Caretta caretta</i>	DNER, USFWS	T	T	Marine areas

Common Name	Scientific Name	Source of Information	Federal Status	DNER Status	Habitat Requirements
<b>Birds</b>					
Yellow-shouldered blackbird	<i>Agelaius xanthomus</i>	DNER, ESI, USFWS	E, CH	E	Mangrove forests, coastal tickets
Brown pelican	<i>Pelecanus occidentalis</i>	DNER, USFWS	E	E	Bays, beaches, ocean areas, inland rivers, freshwater lagoons
Peregrine falcon	<i>Falco peregrinus</i>	DNER	-	E	Nests on rocky cliffs
Least tern	<i>Sterna antillarum</i>	DNER	-	V	Sandy beaches, harbors, lagoons
Piping plover	<i>Charadrius melodus</i>	DNER, USFWS	T	T	Sandy beaches, harbors, lagoons, no nesting
Least grebe	<i>Tachybaptus dominicus</i>	DNER	-	T	Freshwater lakes, streams, ponds and lagoons
West Indian whistling-duck	<i>Dendrocygna arborea</i>	DNER	-	T	Fresh and saltwater bodies, marshes, coastal forests
Caribbean coot	<i>Fulica caribaea</i>	DNER	-	T	Fresh and saltwater bodies, marshes
Roseate tern	<i>Sterna dougallii</i>	DNER	T	E	Inshore areas and bays
Snowy plover	<i>Charadrius alexandrinus</i>	DNER	-	T	Sandy beaches and bays
<b>Plants</b>					
“Cobana negra”	<i>Stahlia monosperma</i>	DNER, ESI, USFWS	T	T	Ensenada Honda, playas, Coastal plains associated with mangroves and immediately landward side of mangroves
<b>Invertebrates</b>					
Elkhorn coral	<i>Acropora palmata</i>	DNER, NMFS	T	T	Mean Low Water to 30 meter
Staghorn coral	<i>Acropora cervicornis</i>	DNER, NMFS	T	T	Mean Low Water to 30 meter

Key: E: endangered; T: threatened; V: vulnerable; CH: designated critical habitat

As shown in **Table 1**, the forested area of Parcel 46 may hold suitable habitat characteristics for the Yellow-shouldered blackbird, the Puerto Rican Boa, and the Virgin Islands Tree Boa. Although the “Cobana negra” may be found in forested areas associated to mangrove forests, this species was not identified during this study.

Even though Parcel 46 is adjacent to the Caribbean Sea, its sea side is very steep, narrow and mostly composed of rocky material (cobbles and boulders) with only a few trees (see **Photographic Documentation, Appendix D**); therefore, it does not have a sandy or small sized particle beach containing suitable nesting habitat for the Leatherback sea turtle, Loggerhead sea turtle, the Green sea turtle, the Hawksbill sea turtle, the Least tern, the Piping plover, the Caribbean coot, the Roseate tern, and the Snowy plover. The sea side of the forested area is outside Parcel 46.

The Benthic Habitats of Puerto Rico and the U.S. Virgin Islands Maps (NOAA, 2001) includes the submerged area adjacent to Parcel 46 as “seagrass/continuous”, which are part of the sea turtles and the Antillean manatee habitat. However, these areas are not likely to be affected by the proposed Project since no construction activity will take place on submerged areas. Construction measures to avoid indirect impacts to these habitats, as well as measures to avoid affecting any sea turtle nesting area are included in the **Conclusions and Recommendations** section below.

NOAA’s National Marine Fisheries Service Critical Habitat Maps (2013) includes all areas around Puerto Rico with suitable substrates within the mean low water (MLW) and a depth of 30 meters as critical habitat for the threatened species Elkhorn coral (*Acropora palmata*) and the Staghorn coral (*Acropora cervicornis*). However, the submerged area around Parcel 46 is mostly colonized by seagrasses, according to the Benthic Habitats of Puerto Rico and the U.S. Virgin Islands Maps (NOAA, 2001). Nevertheless, the proposed Project does not include any component or activity within or adjacent to the designated critical habitat or the sea. As stated above, the **Conclusions and Recommendations** section below include measures to avoid indirect impacts to these areas.

The Brown pelican may use the trees in the forested area of Parcel 46 as resting or roosting area. The West Indian whistling-duck may also use the forested area. However, these species were not observed during field work. Suitable habitat for the Antillean manatee exists adjacent but outside Parcel 46.



None of these 17 species were observed during field work.

Following is a brief description of the four endangered or threatened species that Parcel 46 may provide suitable habitat for them.

Yellow-shouldered blackbird (*Agelaius xanthomus*)

The Yellow-shouldered blackbird (family Emberizidae) is a medium-sized bird (19 – 22 cm or 7.5 – 8.5”), which is entirely glossy black with yellow shoulder patches. It is an endemic species to Puerto Rico. Nesting (May to September) occurs in mangroves along the coast and on small offshore islands. Other nesting habitat includes large Oxhorn bucida trees (*Bucida buseras*) in dry lowland pastures, Coconut palm trees (*Cocos nucifera*), and Royal palms (*Roystonea borinquena*).

The species occurs regularly from the south-southeast (Municipality of Salinas) to the southwestern coast, and on Mona Island. It forages in trees and in the ground on insects, seeds and nectar. Moths and crickets are a major food. It often probes among epiphytes and crevices in twigs. Its habitat consists of mangrove forests and arid scrublands.

The Yellow-shouldered blackbird population has been critically impacted mostly due to parasitism by the Shiny cowbird (*Molothrus bonariensis*), but also as a result of habitat loss. Other threats to the species include rats and the Pearly-eyed thrasher (*Margarops fuscatus*).

In 1976 the entire NAPR area was designated as CH for the species. According to Geo-Marine, Inc. (September 2005 in Department of the Navy 2007) the Yellow-shouldered blackbird population at NAPR declined by 97% from 1976 to 1982. It was believed that the species was absent after Hurricane Hugo in 1989. However, several incidental sightings from 1993 to 1999 and four bird nests found in the summer 1999 prompted the Navy to conduct detailed surveys for the species between 2000 and 2004. These surveys revealed an increase in the Yellow-shouldered blackbird observations from 1995 through 2000 and a decline from 2000 through 2004. The number of documented nesting pairs

fell from five in 2000 to one unconfirmed nest in 2004. No observations of the species were recorded during post breeding surveys at NAPR, but incidental observations have been recorded.

#### Puerto Rican Boa (*Epicrates inornatus*)

The Puerto Rican Boa (family Boidae) is endemic to Puerto Rico. Its genus (*Epicrates*) is found in South América, Central América and the Greater Antilles. This species can grow up to 7 feet in length (Rivero, 1998). Its color varies from tan to very dark brown and possesses from 70 to 80 cross-bars or spots which are outlined in very dark brown and in some cases may be confluent with one another. Young individuals may be of reddish color. The ventral scales are slate or dark brown with a pale posterior edge. Reproduction takes place at the beginning of the rainy season and gestation may last between 152 and 193 days.

The Puerto Rican Boa may be found on the ground or in trees. Adults and sub-adults feeds on birds, rats, mice, bats, lizards. Individual juveniles may feed on insects and other invertebrates. The species is distributed throughout Puerto Rico, but is more abundant in the forested volcanic and limestone hills (Rivero, 1998). However, it can also be found in urban or suburban habitats.

Geo-Marine, Inc. (September 2005, in Department of the Navy 2007) reported Puerto Rican Boa sightings prior to 1999 and an additional four occurrences were reported between 2001 and 2003 within the NAPR. Tolson (in Department of the Navy 2007) conducted habitat assessment and nighttime surveys in NAPR in 2004. However, no individuals were found, but only a shed skin was found in an abandoned building, where two sightings of the species have been reported. According to Tolson (2004) the species apparently occur in low densities at NAPR. No critical habitat has been designated for this species.

Virgin Islands Tree Boa (*Epicrates monensis granti*)

The Virgin Islands Tree Boa (family Boidae) is found in some of the Virgin Islands, in Culebra, in some of the cays and islets to the east of Puerto Rico and in the area of Río Mar Resort in the northeast (Rivero, 1998). The species is found in subtropical dry forests and mangrove forests.

Its color is light plumbeous brown with darker brown blotches partially edged with black (U.S. Fish and Wildlife Service, 1986). The dorsal blotches (between 61 and 73) are angulated and frequently reach the ventral scales. The dorsal surface has a general blue-purple iridescence. The ventral surface is grayish-brown speckled with darker spots. It can grow up to 3.5 feet.

The bulk of the diet seems to consist of the Common anole (*Anolis cristatellus*) and the greatest concentration of this species capture sites have been where populations of the Common anole are most dense (U.S. Fish and Wildlife Service, 1986).

Tolson (2004, in Department of the Navy 2007) found the best habitat for the species at NAPR in the Punta Puerca and Medio Mundo coastlines. However, no Virgin Islands Tree Boa was found during the field surveys conducted by Tolson (2004). No critical habitat has been designated for this species.

“Cobana negra” (*Stahlia monosperma*)

The “Cobana negra” (family Fabaceae-Caesalpinioideae) is a medium-sized evergreen tree that reaches 25 to 50 feet in height, and 1 to 1.5 feet in diameter (U.S. Fish and Wildlife Service, 1995). It is easily identified by (1) pinnately compound leaves with 6 to 12 opposite, lance-shaped to ovate leaflets on red stalks and with scattered black raised dots on lower surface; (2) clusters of pale yellow flowers about one-half of an inch across of five petals; (3) odd, elliptic, thick and fleshy, red pods 2 inches or less in length; and (4), yellow-green and slightly pendulous foliage. Flowers are produced between March

and May, depending on rainfall. A thin, red, fleshy fruit is produced during late June and mid-July. Fruits mature in summer and fall.

Wild “Cobana negra” grows in brackish, seasonally flooded wetlands in association with mangrove communities. It is associated with Oxhorn bucida (*Bucida buceras*), Black mangrove (*Avicennia germinans*), White mangrove (*Laguncularia racemosa*), and Buttonwood mangrove (*Conocarpus erectus*). Individuals are also found in pastureland adjacent to mangrove forests (U.S. Fish and Wildlife Service, 1995).

In 1989 a “Cobana negra” tree was identified in a mangrove stand in Ensenada Honda by Vicente *et al* (in Department of the Army, 2007). In 2004, Geo-Marine, Inc. (in Department of the Army, 2007) conducted a survey and found one individual in a coastal scrub forest. No other individuals have been reported since then. No individuals of this species were found during this survey.

### **Ecological Associations and Biodiversity**

The study site contains a forested area, which is located adjacent to a mangrove area (which is outside Parcel 46). There is a very well defined ecotone between both natural systems. The species found in the forested area shows a natural succession toward a more mature secondary forest; nevertheless, the Wild tamarind (*Leucaena leucocephala*) is one of the dominant species, showing that it was disturbed recently. Due to the small size of the study area, as well as the fact that it is mostly dominated by herbaceous species (the fenced area) the number of species or the biodiversity (the flora well as faunal species) is relatively low.

### **Migratory Birds and Their Nests**

Only two migratory birds were observed during field work. These were the Belted kingfisher (*Ceryle alcyon*) and the Prairie warbler (*Dendroica discolor*). The Belted kingfisher is a fairly common non-breeding visitor (Raffaele, 1998) from September to May. It excavates the nest in the soil. The Prairie warbler is also a common non-breeding

visitor from late August to April. It makes a cup of plant material bound with spider webs. No nests from these species were observed.

## **JURISDICTIONAL WETLANDS AND U. S. WATERS DETERMINATION**

Approximately 52.71 m<sup>2</sup> or 0.013 acres of wetlands, and 119.35 m<sup>2</sup> or 0.29 acres of U.S. Waters were found within the study limit. **Figure 10 (Appendix A)** shows the Jurisdictional Wetlands and U.S. Waters Determination Map for Parcel 46. The delineated wetlands are estuarine mangroves associated to the Caribbean Sea. They are located in a small area near the southwestern limit (adjacent to the Caribbean Sea) of Parcel 46.

The study site was constructed before 1950, by depositing artificial fill material along the shore. The artificial fill consists of unconsolidated sands and gravels of variable and mixed size, subordinated clays and silts, and locally includes river terrace deposits (see **Figure 11, Appendix A**). Since then, it has been maintained and used for naval/military purposes. Therefore, there are no jurisdictional areas where the Project is going to be constructed (fenced area), but only near the southwestern limit of Parcel 46. Although wetland plant species are found within the construction area, they are associated to depressions made by car tracks that accumulate rain water. As a result, hydrophytes grow on those areas. The most common wetland plant species within these depressions were species of the family Cyperaceae.

These depressions within the upland also showed wetland hydrology indicators, such as Algal Mat or Crust (B4), Sparsely Vegetated Concave Surface (B8), and FAC-Neutral Test (D5). However, no hydrological connectivity exists between these ponds and the Caribbean Sea.

No hydric soil indicators were observed at the required depth on these depressions. Low chroma colors were not present. It is important to consider that the study site was an area

that was “gained from the sea” by filling it before 1950. According to the Hydric Soil List of Puerto Rico, there are no hydric soils within the fenced area in Parcel 46.

Although hydrophytic vegetation and wetland hydrology indicators were present, there was no hydrological connectivity to another jurisdictional area or hydric soil indicators within the construction area. Those depressions are just made by car tracks that accumulate rain water and do not represent jurisdictional wetlands.

The small delineated wetland area at the southwestern limit can be classified as estuarine, intertidal, forested, broad-leaved evergreen, irregularly flooded (E2FO3P). This system represents a small section of a fringe mangrove that continues toward the northwest outside Parcel 46. The U.S. Waters found represents the Caribbean Sea that bathes a small area of Parcel 46.

Wetland plant species on these wetlands include Portiatree (*Thespesia populnea*), White mangrove (*Laguncularia racemosa*), and Red mangrove (*Rhizophora mangle*). Obligate (OBL) species accounted for 80% of total cover (White mangrove and Red mangrove). The remaining 20% is composed of facultative (FAC) species (Portiatree). Given that this area was partially inundated, and the fact that OBL species were certainly dominant, no soil boring was necessary to demonstrate that hydric soils are present. **Table 2** shows the wetland indicator of dominant plant species.

Table 2. Dominant plant species wetland indicator

Scientific Name	Common Name	Stratum	Indicator*
<i>Fimbristylis dichotoma</i>	“Junquito”	Herbaceous	FACW
<i>Fimbristylis cymosa</i>	N/A	Herbaceous	FACW
<i>Euphorbia thymifolia</i>	N/A	Herbaceous	UPL
<i>Dichantium annulatum</i>	Railroad-track grass	Herbaceous	FACU
<i>Abilgaardia ovata</i>	N/A	Herbaceous	FAC

Scientific Name	Common Name	Stratum	Indicator*
<i>Rhinchospora rugosa</i>	N/A	Herbaceous	FAC
<i>Thespesia populnea</i>	Portiatree	Tree	FAC
<i>Rhizophora mangle</i>	Red mangrove	Tree	OBL
<i>Laguncularia racemosa</i>	White mangrove	Tree	OBL

\*Indicator: OBL: obligate (>99% occurrence in wetlands); FACW: facultative wetland (67-99% occurrence in wetlands); FAC: facultative (34-66% occurrence in wetlands); FACU: facultative upland (1-33% occurrence in wetlands); UPL: upland (<1% occurrence in wetlands)

**Appendix E** includes the field data forms for the sampling points. **Table 3** includes the position coordinates (State Plane NAD 83) of each sampling point.

Table 3. Sampling points coordinates\*

Sampling Point ID number	Sampling Point Location (NAD83)	
	x	y
1	285841.837	244365.957
2	285815.273	244364.425
3	285836.728	244348.845
4	285857.417	244330.199
5	285777.983	244333.775

\*Referenced to State Plane NAD 83

The National Wetland Inventory (NWI) shows a portion of a wetland classified as estuarine, intertidal, scrub/shrub, broad-leaved, evergreen, irregularly flooded (E2SS3P) over a section of Parcel 46. However, the Jurisdictional Wetlands and U.S. Water Determination performed as part of this Biological Resources Survey concluded that the area is not wetland. The NWI carries a resolution error of several meters. It is clearly noted that in this case, the boundaries between the different features of the NWI are offset for more than 20 meters toward the southwest. The NWI recognizes as upland the two piers to the southeast (just north of the very long pier), which were also constructed before 1950 (**Figure 9, Appendix A**). The only wetlands/U.S. Waters were found bordering the south and southwest of Parcel 46.

Also, it is important to take into consideration that the NWI was performed in the 70's decade. Today, there are wetlands that were not included in the NWI. On the other hand, there are areas classified as wetlands under the NWI that are not wetlands in the present.



## Conclusions and Recommendations

It is very important to mention that the proposed project will be constructed within the existing fenced area, which contains an approximate area of 1.4 acres (Parcel 46 has a total area of 1.94 acres). Therefore, no effects are expected to occur in the forested area and the coastal/marine environment.

The proposed Project site shows evidence of modification at different moments of history for anthropogenic purposes. A retrospective analysis of satellite imagery shows that in 1950 Parcel 46 was already filled (“made land”). Since then, it has been maintained and the colonization and development of trees has been prevented in the majority of the parcel.

The proposed construction area (1.4 acres) is covered by herbaceous species which are frequently mowed. Although the majority of the dominant species are native, most of the species within the fenced area are typical of disturbed sites.

Although an intensification of activities are anticipated to occur during construction within the herbaceous area, it is not expected that the remnant of Parcel 46 (0.54 acres) will be negatively affected by these activities. As mentioned earlier in this study, there is an existing buffer zone between the fenced area and the forested/scrub section to the west. There will be no impact to the general flora and fauna within this area. Therefore, it is concluded that the Project **is not likely to adversely affect** federally and locally listed threatened or endangered species, or existing critical habitats.

The following recommendations are proposed to protect listed threatened or endangered species and existing critical habitats:

- ❖ That protection measures are established so that the forested area as well as the shore and submerged habitats adjacent to the west and southwest sides of the Project site are not affected. Some of these measures may include:
  - Noise barriers,

- Fugitive dust containment fences,
- Silt fences,
- Erosion/sedimentation control measures,
- Avoid any construction activity within the buffer area.
- ❖ Notify the USFWS and the DNER if any of the following species are seen within or next to the construction area:
  - The Yellow-shouldered blackbird,
  - The Puerto Rican Boa, or
  - The Virgin Islands Tree Boa.
- ❖ Implement all USFWS's and DNER's lighting standards/requirements to avoid affecting the sea turtles nesting habitat. These may include:
  - The use of exterior light fixtures on the seaward and shore-perpendicular sides of structures that are well shielded, full cut-off and directed downward.
  - The use of lamps that are:
    - Of Low Pressure Sodium (LPS) of 18 or 35 watts.
    - Red, orange or amber LED (true red, orange or amber diodes, not filters).
    - True red neon.
    - Other lighting sources that produce light of 560 nm or longer wavelength.
  - Interior lighting on the seaward and shore-perpendicular sides of structures shall be filtered through tinted glass or film with a visible light transmittance value of 45% or less
- ❖ Implement manatee protection measures to avoid impacts on them or affecting its habitat. It could include measures such as post signs that indicate that there are manatees in the area ("Manatee Area") and limiting boat speed ("No Wake Zone").
- ❖ Pesticide and herbicide applications must follow local/federal regulations.

In terms of the existing wetlands/U.S. Waters under the jurisdiction of the USACE, it has been determine that they are located outside the Project's construction area. They are

located within the south and southwest of Parcel 46 in association with the Caribbean Sea, which is their hydrology source.

Even though that hydrophytic vegetation and wetland hydrology indicators were found within the construction area, their development is due to ponding of rain water along car tracks or where vehicles/boat trailers park. No hydrological connectivity exists between these ponds (1 to 2 inches deep) and the Caribbean Sea. No hydric soil indicators were found. As stated before, Parcel 46 was filled or “made land” before 1950; therefore, these areas were impacted prior to implementation of Section 404 of the Clean Water Act of 1972.

As stated in the **Results and Discussion** section above, although the National Wetland Inventory (NWI) shows a portion of a wetland classified as estuarine, intertidal, scrub/shrub, broad-leaved, evergreen, irregularly flooded (E2SS3P) over a section of Parcel 46, the Jurisdictional Wetlands and U.S. Water Determination performed as part of this Biological Resources Survey concluded that the area is not wetland.

Nevertheless, we recommend the following measures:

- ❖ Prevent construction activities on jurisdictional areas.
- ❖ No dredge, fill, equipment, or any material shall be placed on jurisdictional areas.
- ❖ If the Project would have impacts on jurisdictional areas a permit process shall be commenced prior to affect those areas. If impacts on these jurisdictional areas cannot be avoided, mitigation as a consequence of impacting wetlands/U.S. Waters may be required by the USACE.

## References

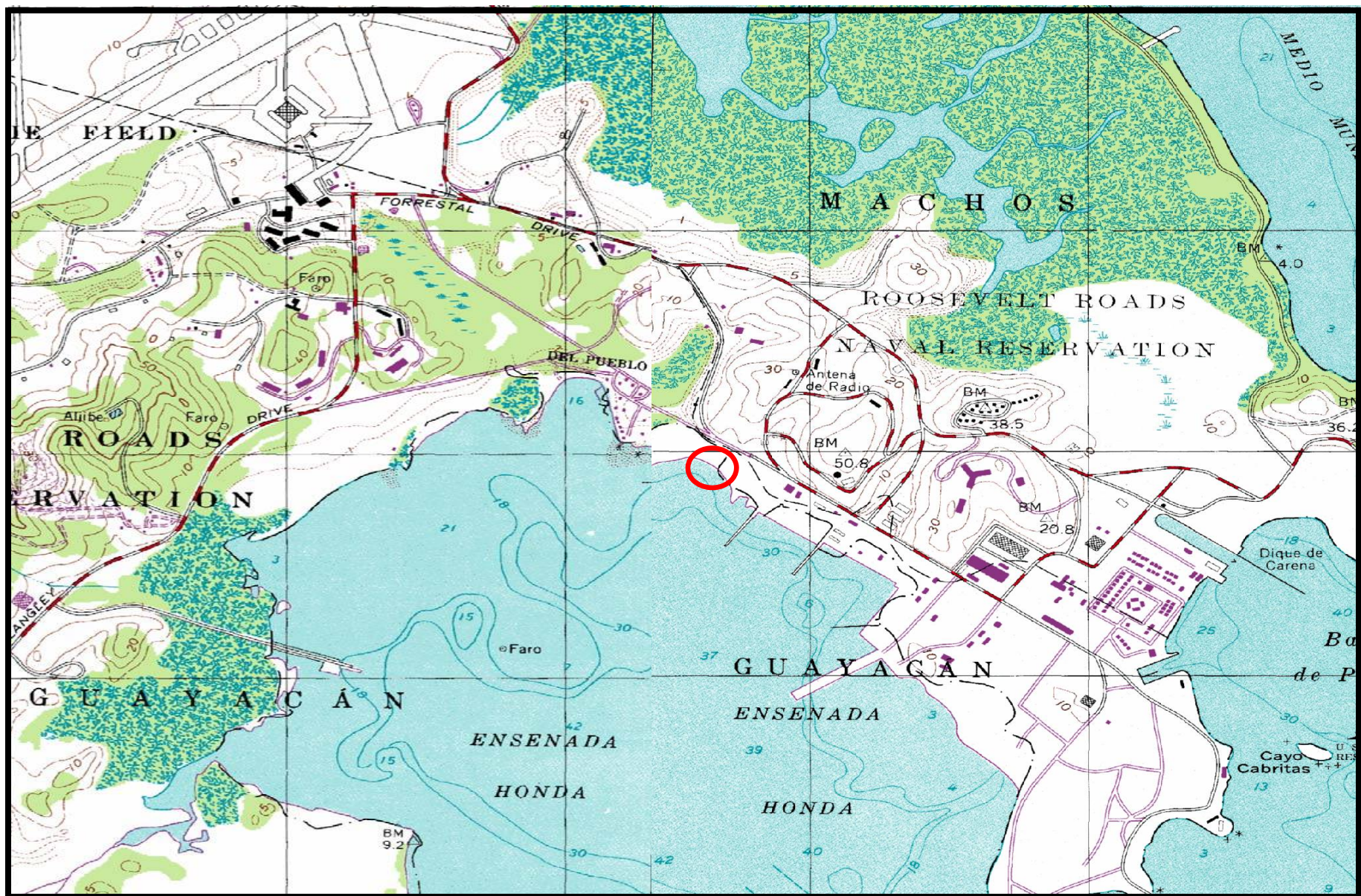
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## **Appendix A: Figures**





Topographic Quadrangles of Naguabo and Punta  
 Puerca, Puerto Rico  
 Source: USGS 1982  
 Scale: 1:20,000

FIGURE 1  
 SITE LOCATION MAP

U.S. CUSTOMS BORDER PROTECTION NEW  
 MARINE FACILITY  
 GUAYACÁN WARD, CEIBA

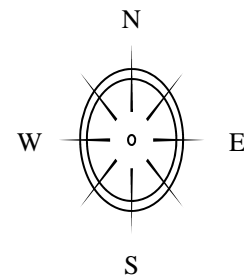




FIGURE 2: AERIAL PHOTOGRAPH (1:10,000)

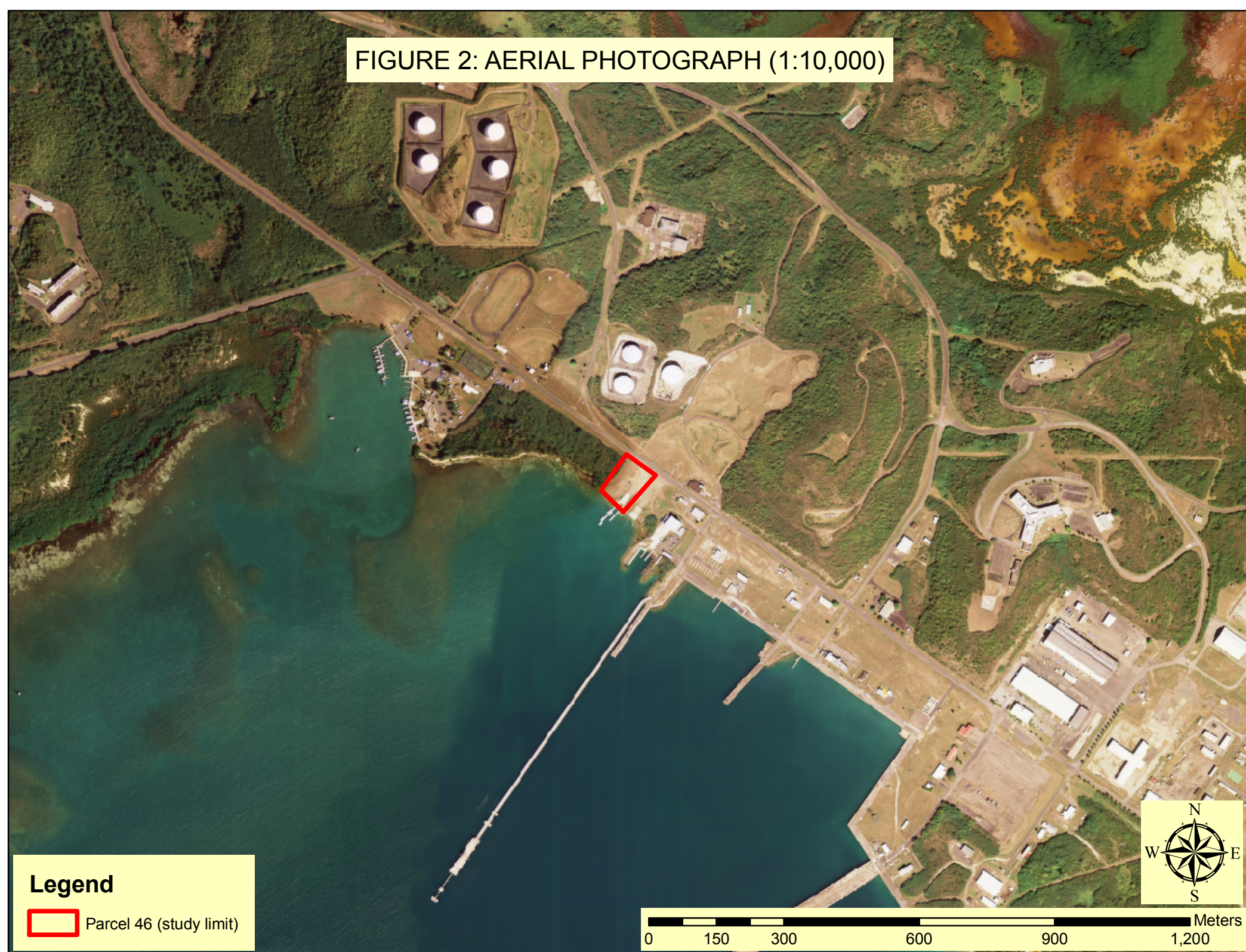




FIGURE 3: AERIAL PHOTOGRAPH SHOWING PROJECT LIMIT (1:1,000)





FIGURE 4: HYDROGRAPHIC MAP (1:40,000)

**Legend**

- Hydrography
- Parcel 46 (study limit)

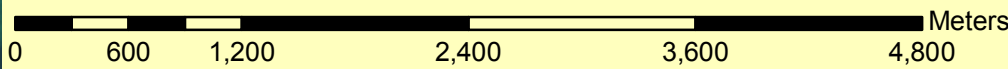
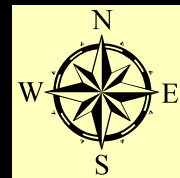







FIGURE 5: SOILS MAP (1:1,000)

**Legend**

-  Made land (Md)
-  Descalabrado clay loam (DeE2)
-  Parcel 46 (study limit)

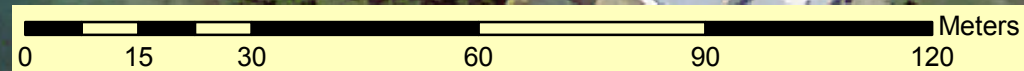
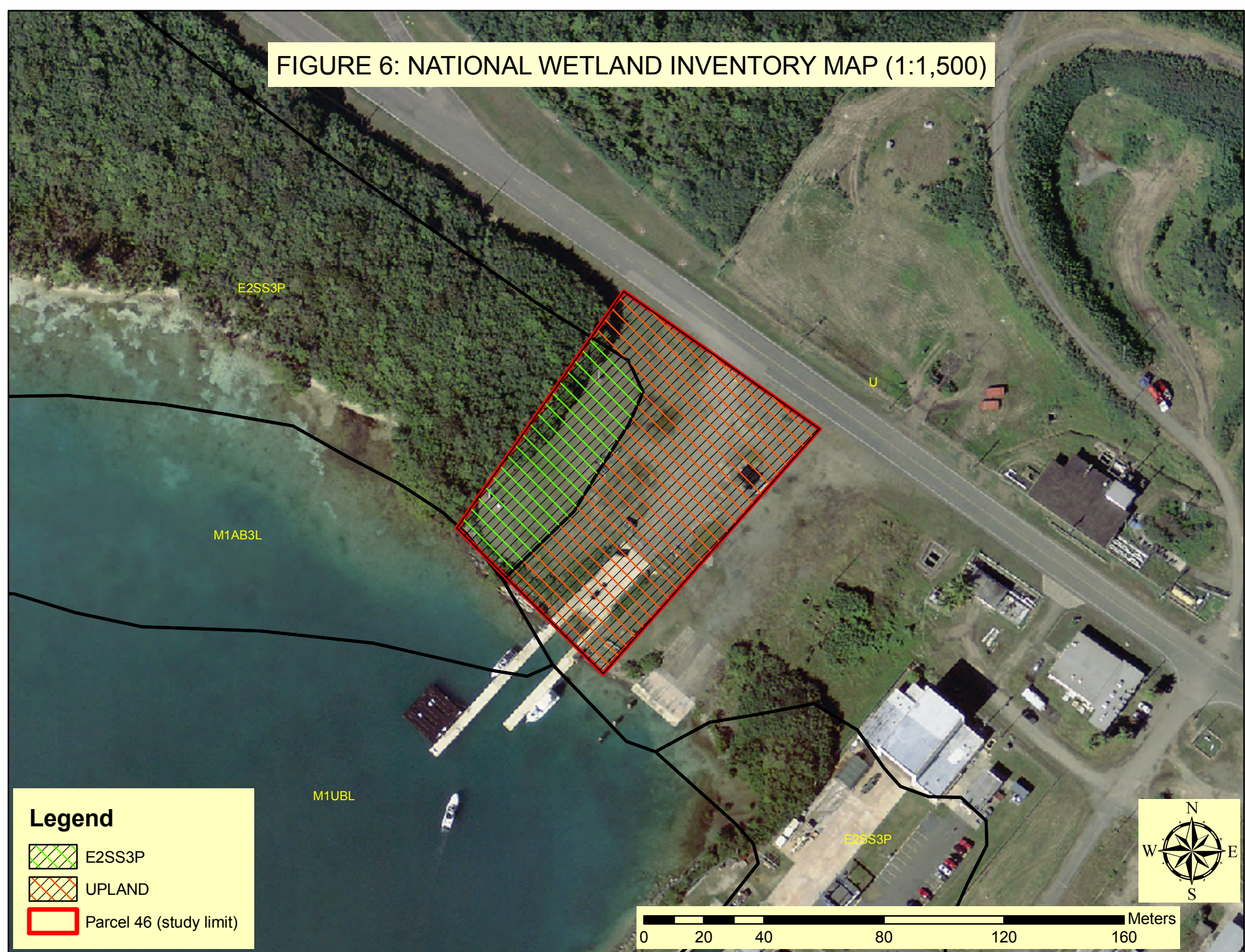


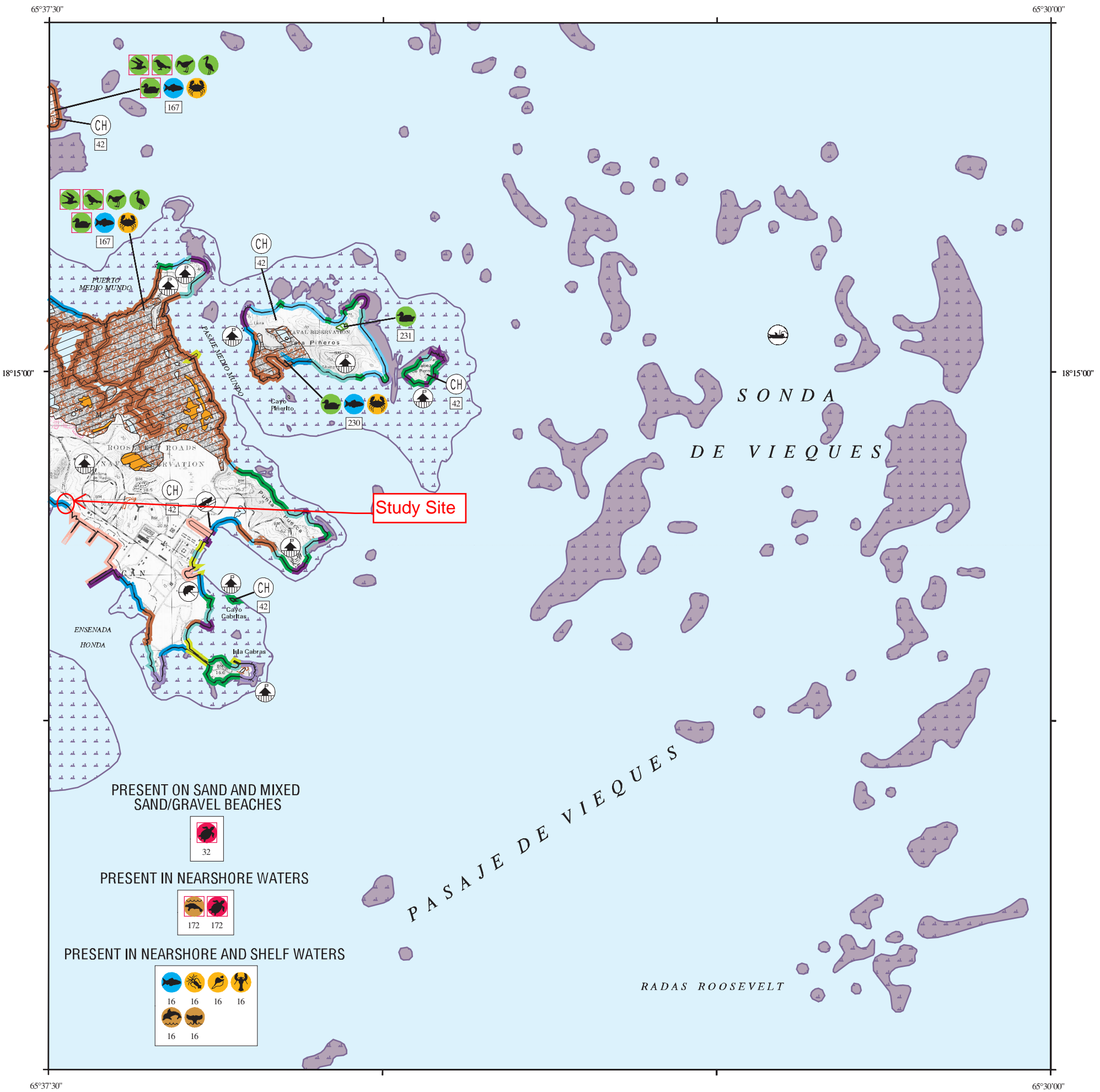


FIGURE 6: NATIONAL WETLAND INVENTORY MAP (1:1,500)





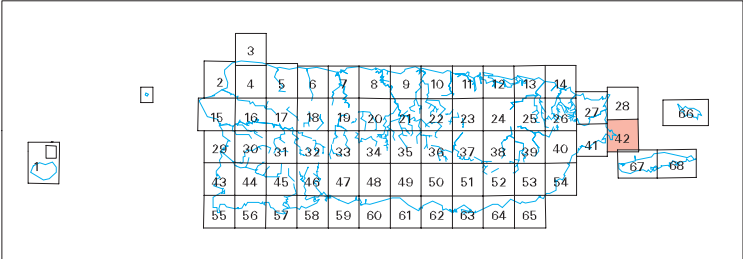
ENVIRONMENTAL SENSITIVITY INDEX MAP



- SHORELINE HABITATS (ESI)

  - 1A EXPOSED ROCKY CLIFFS
  - 1B EXPOSED, SOLID MAN-MADE STRUCTURES
  - 2A EXPOSED WAVE-CUT PLATFORMS IN BEDROCK
  - 2B SCARPS AND STEEP SLOPES IN MUDDY SEDIMENTS
  - 3A FINE-TO MEDIUM-GRAINED SAND BEACHES
  - 4 COARSE-GRAINED SAND BEACHES
  - 5 MIXED SAND AND GRAVEL BEACHES
  - 6A GRAVEL BEACHES
  - 6B RIPRAP
  - 7 EXPOSED TIDAL FLATS
  - 8A SHELTERED ROCKY SHORES
  - 8B SHELTERED, SOLID MAN-MADE STRUCTURES
  - 9A SHELTERED TIDAL FLATS
  - 9B SHELTERED VEGETATED LOW BANKS
  - 10D MANGROVES
  - SALT- AND BRACKISH-WATER MARSHES
  - FRESHWATER MARSHES
  - FRESHWATER SWAMPS
  - FRESHWATER SCRUB/SHRUB
- STREAM REACHES (RSI)

  - 1 QUIET POOL; LOW-SENSITIVE BANKS
  - 2 STRAIGHT CHANNEL WITH CURRENTS; LOW-SENSITIVE BANKS (MUD DOMINANT)
  - 3 MEANDERING CHANNEL; SAND POINT BARS
  - 4 MEANDERING CHANNEL; VEGETATED POINT BARS
  - 5 RAPIDS OVER BEDROCK
  - 6 MEANDERING CHANNEL; SAND AND GRAVEL POINT BARS
  - 7 SPLIT CHANNEL WITH COARSE GRAVEL; SOME RAPIDS
  - 8 SMALL FALLS; BOULDERS IN CHANNEL
  - 9 LARGE FALLS; BOULDERS IN CHANNEL
  - 10 CHANNELS WITH ASSOCIATED VULNERABLE WETLANDS
  - KARST



Not For Navigation  
Published: May 2000  
Published at Seattle, Washington  
National Oceanic and Atmospheric Administration  
National Ocean Service  
Office of Response and Restoration  
Hazardous Materials Response Division  
PUNTA PUERCA, P.R. (1982) **PR-42**

PUERTO RICO - ESIMAP 42

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting
-----																	
167	American coot			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-
	Black-necked stilt					X	X	X	X	X	X	X	X				-
	Blue-winged teal			HIGH	X	X	X	X					X	X	X		-
	Brown pelican	S/F	E/E		X	X	X	X	X	X	X	X	X	X	X	X	-
	Caribbean coot	S	T	HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-
	Common moorhen			HIGH	X	X	X	X	X	X	X	X	X	X	X		-
	Green-winged teal			LOW	X	X	X						X	X	X		-
	Least grebe	S	T		X	X	X	X	X	X	X	X	X	X	X	X	-
	Lesser scaup			LOW	X	X	X							X	X		-
	Pied-billed grebe			HIGH	X	X	X	X	X	X	X	X	X	X	X		-
	Ring-necked duck			LOW	X	X	X						X	X	X		-
	Ruddy duck	S	T	HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-
	Shorebirds			HIGH	X	X	X	X			X	X	X	X	X		-
	Wading birds			HIGH	X	X	X	X	X	X	X	X	X	X	X		-
	West Indian whistling-duck	S	T		X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC
	White-cheeked pintail			MEDIUM	X	X	X	X	X	X	X	X	X	X	X		FEB-JUN
	White-crowned pigeon				X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP
	Yellow-shouldered blackbird	S/F	E/E		X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP
230	Waterfowl				X	X	X	X	X	X	X	X	X	X	X		-
231	Waterfowl				X	X	X	X	X	X	X	X	X	X	X		-

FISH:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
-----																					
16	Pelagic fish				X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC
	Reef fish				X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC
167	Nursery fish				X	X	X	X	X	X	X	X	X	X	X		-	-	-	JAN-DEC	-
	Snook				X	X	X	X	X	X	X	X	X	X	X	X	APR-FEB	APR-FEB	JAN-DEC	JAN-DEC	JAN-DEC
	Tarpon				X	X	X	X	X	X	X	X	X	X	X	X	-	-	MAY-DEC	JAN-DEC	JAN-DEC
230	Nursery fish				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
	Snook				X	X	X	X	X	X	X	X	X	X	X	X	APR-FEB	APR-FEB	JAN-DEC	JAN-DEC	JAN-DEC
	Tarpon				X	X	X	X	X	X	X	X	X	X	X	X	-	-	MAY-DEC	JAN-DEC	JAN-DEC

INVERTEBRATE:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
-----																					
16	Caribbean spiny lobster				X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC
	Octopus				X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-APR	-	JAN-DEC	JAN-DEC
	Queen conch				X	X	X	X	X	X	X	X	X	X	X	X	APR-OCT	APR-OCT	APR-OCT	JAN-DEC	JAN-DEC
167	Blue land crab				X	X	X	X	X	X	X	X	X	X	X	X	JUL-AUG	JUL-AUG	JUL-SEP	JAN-DEC	JAN-DEC
230	Blue land crab				X	X	X	X	X	X	X	X	X	X	X	X	JUL-AUG	JUL-AUG	JUL-SEP	JAN-DEC	JAN-DEC

MARINE MAMMAL:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving
-----																		
16	Dolphins				X	X	X	X	X	X	X	X	X	X	X	X	-	-
	Whales				X	X	X	X	X	X	X	X	X	X	X	X	-	-
172	West Indian manatee	S/F	E/E		X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC

REPTILE:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
-----																					
32	Green sea turtle	S/F	E/T		X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	-	JAN-DEC	JAN-DEC
	Hawksbill sea turtle	S/F	E/E		X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	-	JAN-DEC	JAN-DEC
	Leatherback sea turtle	S/F	E/E			X	X	X	X	X	X	X					FEB-JUN	APR-SEP	-	APR-SEP	FEB-JUN
172	Green sea turtle	S/F	E/T		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Hawksbill sea turtle	S/F	E/E		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC

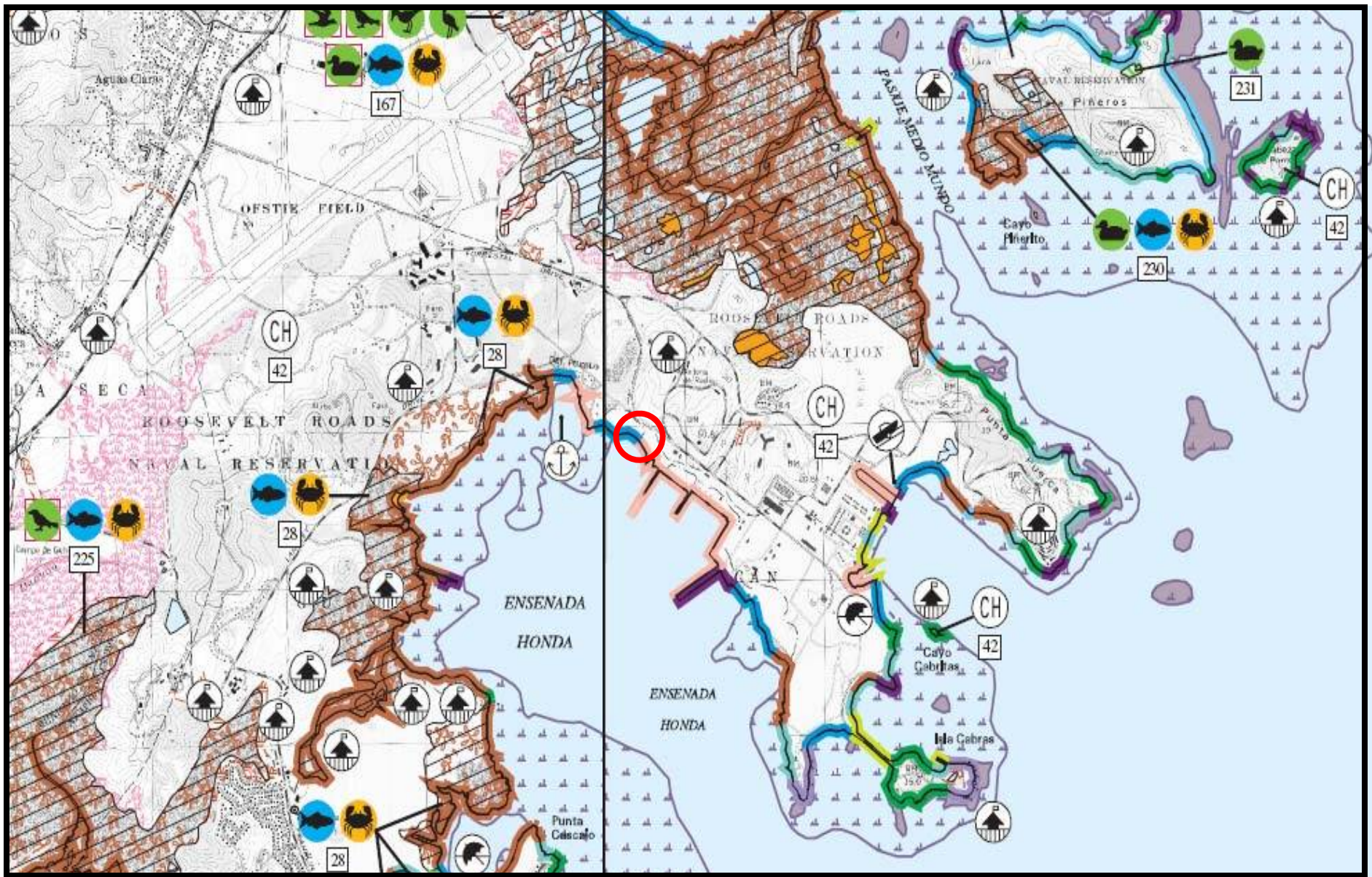
HUMAN USE RESOURCES:

CRITICAL HABITAT:

HUN#	Name	Owner/Manager	Contact	Phone
-----				
42	YELLOW-SHOULDERED BLACKBIRD DCH	USFWS	CARIBBEAN FIELD OFFICE	787/851-7297

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

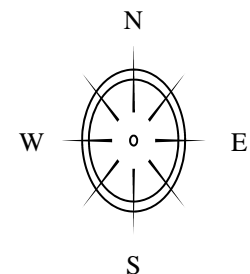




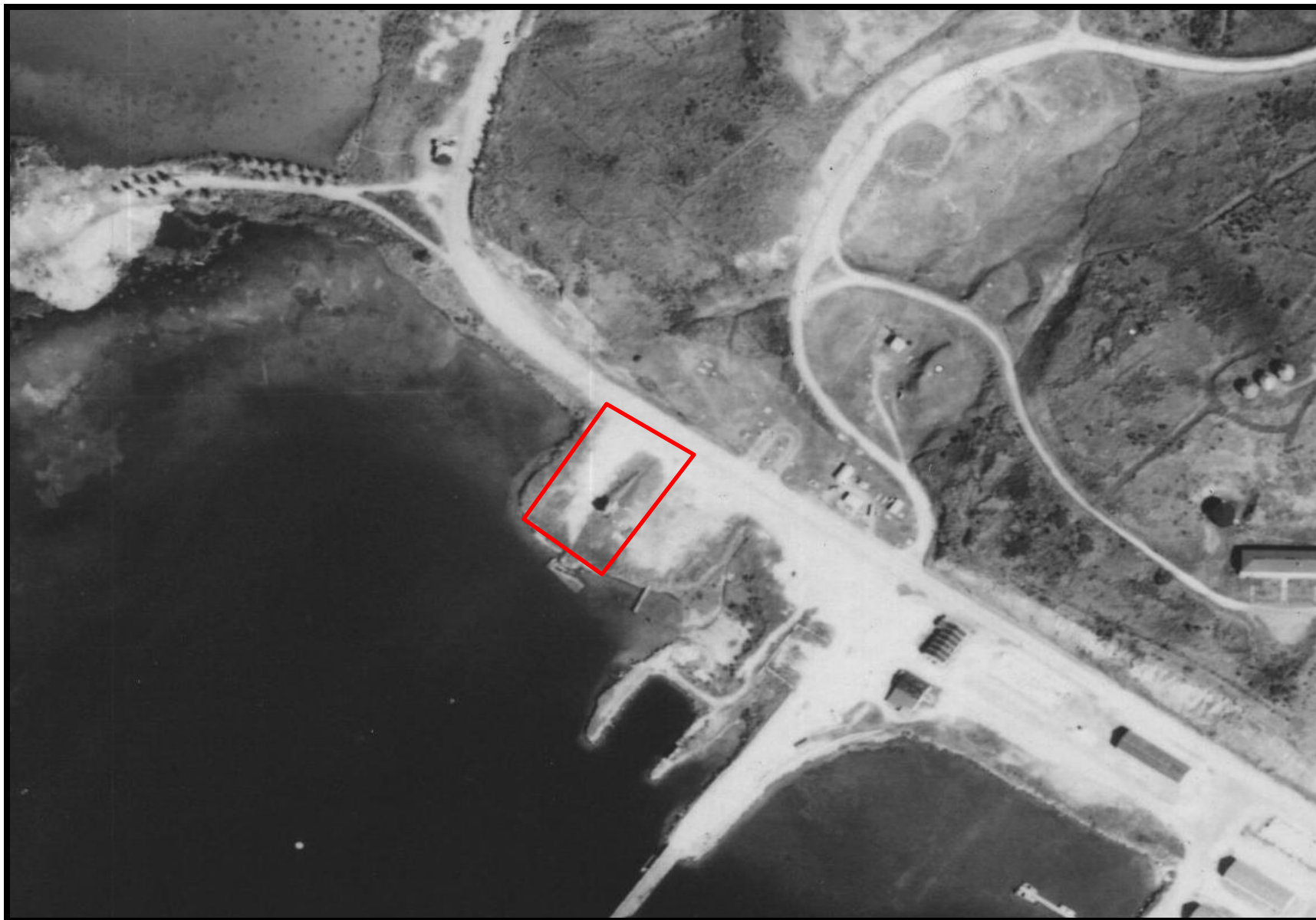
Source: NOAA 2001  
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FIGURE 8  
ZOOM IN ENVIRONMENTAL SENSITIVITY INDEX  
MAP

U.S. CUSTOMS BORDER PROTECTION NEW  
MARINE FACILITY  
GUAYACÁN WARD, CEIBA







Source: USGS 1950  
Scale: 1:2,800

FIGURE 9  
1950 AERIAL PHOTOGRAPH

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U.S. CUSTOMS BORDER PROTECTION NEW  
MARINE FACILITY  
GUAYACÁN WARD, CEIBA

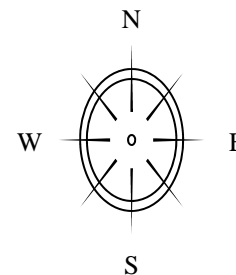










FIGURE 10: JURISDICTIONAL WETLAND AND U.S. WATERS DETERMINATION MAP (1:800)

### Legend

-  Sampling point
-  Jurisdictional Wetland (Mangrove)
-  U.S. Waters
-  Non-wetland
-  Project Limit
-  Parcel 46 (study limit)

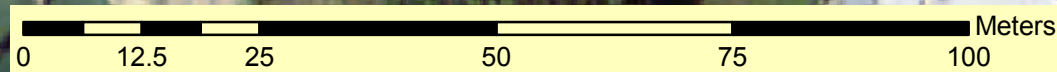
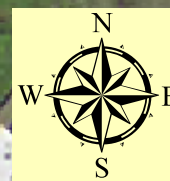



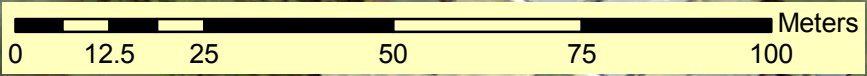




FIGURE 11: GEOLOGIC MAP (1:1,000)

**Legend**

-  Daguao formation
-  Artificial fill (fl)
-  Parcel 46 (study limit)



## **Appendix B: General Flora and Fauna Inventory**

**Flora Observed Within Parcel 46 (CBP New Marine Facility)**

<b>Family</b>	<b>Cientific Name</b>	<b>Common Name</b>	<b>Location</b>
Cyperaceae	<i>Abilgaardia ovata</i> (Burm. F.) Kral	N/A	H
Acanthaceae	<i>Avicennia germinans</i> (L.) L.	Black mangrove	F
Asteraceae	<i>Bidens alba</i> (L.) DC. var <i>radiata</i> (Sch.-Bip.) Ballard in Melchert	Sheperd's needle	H
Boraginacea	<i>Bouyeria succulenta</i> Jacq.	Pigeon berry	F
Burseraceae	<i>Bursera simaruba</i> (L.) Sarg.	Gumbo-limbo	F
Fabaceae-Faboideae	<i>Canavalia rosea</i> (Sw.) DC.	Bay-bean	H
Salicaceae	<i>Casearia guianensis</i> (Aubl.) Urb.	Wild cofee	F
Verbenaceae	<i>Citharexylum spinosum</i> L.	Fiddlewood	F
Poaceae	<i>Chloris barbata</i> Sw.	Mexican blue grass	H
Combretaceae	<i>Conocarpus erectus</i> L.	Buttonwood mangrove	F
Asteraceae	<i>Cyanthillium cinereum</i> (L.) H. Rob.	"Rabo de buey"	H
Poaceae	<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	H
Capparaceae	<i>Cynophalla flexuosa</i> (L.) J. Presl in Berchtold & J. Presl	"Burro"	F
Cyperaceae	<i>Cyperus difformis</i> L.	N/A	H
Poaceae	<i>Dichantium annulatum</i> (Forssk.) Stapf in Prain	Railroad-track grass	H
Poaceae	<i>Echinochloa colona</i> (L.) Link	Jungle rice	H
Asteraceae	<i>Eclipta prostrata</i> (L.) L.	"Eclipta blanca"	H
Rubiaceae	<i>Erithalis fruticosa</i> L.	Black torch	F
Erythroxylaceae	<i>Erythroxylum brevipes</i> DC.	"Jibá"	F
Euphorbiaceae	<i>Euphorbia heterophylla</i> L.	"Leche vana"	H
Euphorbiaceae	<i>Euphorbia hirta</i> L.	"Lechecillo"	H
Euphorbiaceae	<i>Euphorbia hyssopifolia</i> L.	"Lechera"	H
Euphorbiaceae	<i>Euphorbia thymifolia</i> L.	N/A	H
Cyperaceae	<i>Fimbristylis cymosa</i> R. Br.	N/A	H
Cyperaceae	<i>Fimbristylis dichotoma</i> (L.) Vahl	"Junquito"	H
Nyctaginaceae	<i>Guapira fragans</i> (Dum. Cours.) Little	Black mampoo	H
Poaceae	<i>Hyparrhenia rufa</i> (Nees) Stapf in Prain	Jaragua grass	H
Convolvulaceae	<i>Ipomoea setifera</i> Poir	Wild morning glory	H
Combretaceae	<i>Laguncularia racemosa</i> (L.) C. F. Gaernt.	White mangrove	F
Fabaceae-Mimosoideae	<i>Leucaena leucocephala</i> (Lam.) de Wit	Wild tamarind	H, F
Onagraceae	<i>Ludwigia octovalvis</i> (Jacq.) P. H. Raven	Primerose willow	H
Bignoniaceae	<i>Macfadyena unguis-cati</i> (L.) A. H. Gentry	Cat's claw	F
Poaceae	<i>Megathyrsus maximus</i> (Jacq.) B.K. Simon & S.W.L. Jacobs	Guinea grass	H, F
Convolvulaceae	<i>Merremia quinquefolia</i> (L.) Hallier f.	"Batatilla blanca"	H, F



Fabaceae-Mimosoideae	<i>Neptunia plena</i> (L.) Benth.	Water neptunia	H
Cactaceae	<i>Opuntia stricta</i> (Haw.) Haw.	"Higo de mar"	H
Rubiaceae	<i>Randia aculeata</i> L.	Ink berry	F
Apocynaceae	<i>Rauvolfia viridis</i> Roem. & Schult.	N/A	F
Rhizophoraceae	<i>Rhizophora mangle</i> L.	Red mangrove	F
Cyperaceae	<i>Rhynchospora holoschoenoides</i> (Rich.) Herter	N/A	H
Cyperaceae	<i>Rhynchospora rugosa</i> (Vahl) Gale	N/A	H
Malvaceae	<i>Sida acuta</i> Burm. F.	Wire weed	H
Solanaceae	<i>Solanum torvum</i> Sw.	Turkey berry	H
Malpighiaceae	<i>Stigmaphyllon emarginatum</i> (Cav.) A. Juss.	"Bejuco de San Pedro"	F
Rubiaceae	<i>Stylosanthes hamata</i> (L.) Taub.	"Zarabacoa enana"	F
Combretaceae	<i>Terminalia catappa</i> L.	Indian almond	F
Malvaceae	<i>Thespesia populnea</i> (L.) Sol. Ex Correa	Portiatree	F
Boraginacea	<i>Tournefortia volubilis</i> L.	"Nigua enredadera"	F
Phytolaccaceae	<i>Trichostigma octandrum</i> (L.) H. Walter in Engler	Basquet wiss	F
Rutaceae	<i>Zanthoxylon monophyllum</i> (Lam.) P. Wilson	Yellow prickle	F

Legend:

N/A: unknown

H: herbaceous area

F: forested area

**Fauna Observed Within Parcel 46 (CBP New Marine Facility)**

Scientific Name	Common Name	Status	Location
<b>VERTEBRATES</b>			
<b><u>Birds</u></b>			
<b>Alcedinidae</b>			
<i>Ceryle alcyon</i>	Belted kingfisher	M	FO
<b>Columbidae</b>			
<i>Columba leucocephala</i>	White-crowned pigeon	R, EC	FO
<i>Zenaida asiatica</i>	White-winged dove	R	F
<i>Zenaida aurita</i>	Zenaida dove	R	F
<b>Emberizidae</b>			
<i>Coereba flaveola</i>	Bananaquit	R	F
<i>Dendroica adelaidae</i>	Adelaide's warbler	R	F
<i>Dendroica discolor</i>	Prairie warbler	M	F
<i>Quiscalus niger</i>	Greater antillean grackle	R	F
<i>Tiaris bicolor</i>	Black-faced grassquit	R	H
<b>Hirundinidae</b>			
<i>Hirundo fulva</i>	Cave swallow	R	FO
<b>Mimidae</b>			
<i>Mimus polyglottos</i>	Northern mockingbird	R	F
<b>Picidae</b>			
<i>Melanerpes portoricensis</i>	Puerto Rican woodpecker	E	F
<b>Tyrannidae</b>			
<i>Tyrannus dominicensis</i>	Gray kingbird	R	FO
<b><u>Reptiles</u></b>			
<b>Iguanidae</b>			
<i>Anolis cristatellus cristatellus</i>	Common anole	R	H, F
<i>Iguana iguana</i>	Green iguana	I	F
<b><u>Anphibians</u></b>			
<b>Leptodactylidae</b>			
<i>Eleutherodactylus antillensis</i>	"Coquí churí"	E	F
<i>Eleutherodactylus coqui</i>	"Coquí común"	E	F
<b>INVERTEBRATES</b>			
<b><u>Odonata</u></b>			
<b>Libellulidae</b>			
<i>Orthemis ferruginea</i>	Dragonfly	R	H
<b>Termitidae</b>			
<i>Nasutitermes costalis</i>	Termite	R	F
<b><u>Lepidoptera</u></b>			
<b>Heliconiidae</b>			
<i>Heliconius charotonia charotonia</i>	Zebra longwing	R	F
<b>Pieridae</b>			
<i>Ascia monuste eubotea</i>	Greater southern white	R	F



<b><u>Mollusks</u></b>			
<b>Camaenidae</b>			
<i>Polydontes lima</i>	Terrestrial snail	R	F
<b><u>Crustaceans</u></b>			
<b><u>Decapoda</u></b>			
<b>Coenobitidae</b>			
<i>Coenobita clypeatus</i>	Hermit crab	R	F
<b>Gergarcinidae</b>			
<i>Cardisoma guanhumi</i>	Land crab	R	F

Legend:

E: endemic

EC: critical element designated by the DNER

I: introduced

M: Migratory

R: permanent resident

H: herbaceous area

F: forested area

FO: flying over area

## **Appendix C: U.S. Fish and Wildlife Caribbean Endangered Species Table for the Municipality of Ceiba**

## CEIBA (1-2)

SCIENTIFIC NAME	COMMON NAME	COMMON NAME SPANISH	GROUP	STATUS	DISTRIBUTION
<i>Accipiter striatus venator</i>	Puerto Rican Sharp-Shinned Hawk	Falcon de Sierra	Bird	E	El Yunque National Forest
<i>Agelaius xanthomus</i>	Yellow Shouldered Black Bird	Mariquita	Bird	E, CH	Coastal Forest
<i>Amazona vittata vittata</i>	Puerto Rican Parrot	Cotorra Puertorriqueña	Bird	E	El Yunque National Forest
<i>Buteo platypterus brunescens</i>	Puerto Rican Broad-winged Hawk	Guaraguo de Bosque	Bird	E	El Yunque National Forest
<i>Caretta caretta</i>	Loggerhead Sea Turtle	Cabezona	Reptile	T	Coastal Zones
<i>Charadrius melodus</i>	Piping Plover	Playero Melodico	Bird	T	Coastal Zones, No Nesting
<i>Chelonia mydas</i>	Green Sea Turtle	Peje Blanco	Reptile	T, CH	Coastal Zones
<i>Epicrates inornatus</i>	Puerto Rican Boa	Boa Puertorriqueña	Reptile	E	Forested Volcanic and Limestone (Karst) Hills
<i>Epicrates monensis granti</i>	Virgin Islands Tree Boa	Boa de Islas Virgenes	Reptile	E	Rocky Soils
<i>Eretmochelys imbricata</i>	Hawksbill Sea Turtle	Carey	Reptile	E, CH	Coastal Zones
<i>Eugenia haematocarpa</i>	No Common Name	Uvillo	Plant	E	El Yunque National Forest
<i>Ilex sintenisii</i>	No Common Name	No Tiene Nombre Comun	Plant	E	Rio Abajo Ward, El Yunque National Forest
<i>Lepanthes eltoensis</i>	No Common Name	No Tiene Nombre Comun	Plant	E	El Yunque National Forest
**Continues on Next Page**					

### **Status**

E=Endangered

T=Threatened

CH=Critical Habitat

**BACK**

**CONTINUE**



## CEIBA (2-2)

SCIENTIFIC NAME	COMMON NAME	COMMON NAME SPANISH	GROUP	STATUS	DISTRIBUTION
<i>Pelecanus occidentalis</i>	Brown Pelican	Pelicano Pardo	Bird	D, MP	Coastal Zones, No Nesting
<i>Stahlia monosperma</i>	No Common Name	Cobana Negra	Plant	T	Ensenada Honda, Playa
<i>Ternstroemia luquillensis</i>	No Common Name	Palo Colorado	Plant	E	Rio Abajo Ward
<i>Trichechus manatus manatus</i>	Antillean Manatee	Manati Antillano	Mammal	E	Coastal Zones

### Status

E=Endangered

T=Threatened

CH=Critical Habitat

D=Delisted due to Recovery

MP= Monitoring Plan

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[PREVIOUS](#)


## **Appendix D: Photographic Documentation**



Photo 1. Herbaceous (fenced) area within Parcel 46. Photo was taken looking northeast.  
This area is being used to park boat trailers and cars (see next photo).



Photo 2. Another view to the southeast of the herbaceous area of Parcel 46.





Photo 3. Southwest view of the herbaceous area, where the piers are located.



Photo 4. Another look to the southwest. The herbaceous area of Parcel 46 is constantly maintained. The security guard post is shown.



Photo 5. The fenced area is also use to storage containers. Photo was taken looking west.



Photo 6. Northeastern limit of Parcel 46. Photo taken looking southeast.





Photo 7. Southeastern limit of Parcel 46. Photo taken looking southwest.



Photo 8. Southwestern limit of Parcel 46. Photo taken looking southeast.





Photo 9. Northwestern limit of Parcel 46. Photo taken looking southwest. The buffer between the fenced and the forested areas is shown. Nevertheless, Parcel 46 includes a section of the forested area.



Photo 10. A steel rod with flagging tape (a surveyors mark) placed within the forested area identifies Parcel 46 northwestern limit.





Photo 11. View of the forested section of Parcel 46. Vegetation is typical of the coastal scrub forest, which is in a succession towards a more mature secondary forest.



Photo 12. Another view of the forested area. This area is near the transition zone (ecotone) between the scrub forest and the mangrove.





Photo 13. The edge of the filled area (Parcel 46 northwestern limit) is shown to the right side of the photo (where the sun is brighter).



Photo 14. Transition zone between the scrub and the mangrove forests. Common crab burrows are visible on the wetland side of the ecotone (outside Parcel 46).





Photo 15. Mangrove area near southwest of Parcel 46. Red mangrove prop roots are shown.



Photo 16. Transition between the constructed (“made land”) area and the Caribbean Sea at the southwestern limit of Parcel 46.





Photo 17. View toward Parcel 46 from the foot of the constructed area.



Photo 18. View toward Parcel 46 from the southeast.





Photo 19. View to the beach from the southwest.



Photo 20. Jurisdictional determination sampling point 1. One of the depressions formed by car tracks.





Photo 21. Jurisdictional determination sampling point 2. General view of the herbaceous condition that dominates the fenced area.



Photo 22. Jurisdictional determination sampling point 3. Another depression that accumulates rain water.





Photo 23. Jurisdictional determination sampling point 4. Another depression that accumulates rain water.



Photo 24. Jurisdictional determination sampling point 5. Corner of Parcel 46 that contains a small wetland (mangrove) area.

## **Appendix E: Jurisdictional Determination Data Forms**







## SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 4/3	100%					Clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Dark Surface (S7)          |
| <input type="checkbox"/> Organic Bodies (A6)               | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7)           | <input type="checkbox"/> Depleted Matrix (F3)       |
| <input type="checkbox"/> Muck Presence (A8)                | <input type="checkbox"/> Redox Dark Surface (F6)    |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |

Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ Stratified Layers (A5)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☒

Remarks:

No hydric soil indicators were found.

## HYDROLOGY

## Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Fauna (B13)                        |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input checked="" type="checkbox"/> Algal Mat or Crust (B4)        | <input type="checkbox"/> Thin Muck Surface (C7)                     |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Fiddler Crab Burrows (C10)                 |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                 |

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)  
☒ Sparsely Vegetated Concave Surface (B8)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☒ FAC-Neutral Test (D5)

## Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):Water Table Present? Yes ☐ No ☒ Depth (inches):Saturation Present? Yes ☐ No ☒ Depth (inches): (includes capillary fringe)Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sampling point is located within a depression formed by car tracks and accumulates rain water.



# WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: U.S. Custom Border Protection New Facility Municipality/Town: Ceiba Sampling Date: November 16, 2013  
 Applicant/Owner: U.S. Customs and Border Protection PR or USVI: PR Sampling Point: 2  
 Investigator(s): Jorge L. Coll Rivera Ward/Estate: Guayacán  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 1-3%  
 Lat: 285815.273 Long: 244364.425 Datum: State Plane, NAD 83  
 Soil Map Unit Name: Descalabrado clay loam (DeE2) NWI classification: E2SS3P

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:  <b>Study site is a "made land" that was constructed (filled) before 1950.</b>			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 feet radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)														
1. N/A																		
2.																		
3.																		
4.																		
5.				<b>Prevalence Index worksheet:</b> <table border="1"> <thead> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> </thead> <tbody> <tr><td>OBL species <u>0</u></td><td>x 1 = <u>0</u></td></tr> <tr><td>FACW species <u>0</u></td><td>x 2 = <u>0</u></td></tr> <tr><td>FAC species <u>20</u></td><td>x 3 = <u>60</u></td></tr> <tr><td>FACU species <u>60</u></td><td>x 4 = <u>240</u></td></tr> <tr><td>UPL species <u>20</u></td><td>x 5 = <u>100</u></td></tr> <tr><td>Column Totals: <u>100</u></td><td>(A) <u>400</u> (B)</td></tr> </tbody> </table> Prevalence Index = B/A = <u>4.0</u>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>20</u>	x 3 = <u>60</u>	FACU species <u>60</u>	x 4 = <u>240</u>	UPL species <u>20</u>	x 5 = <u>100</u>	Column Totals: <u>100</u>	(A) <u>400</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>0</u>	x 2 = <u>0</u>																	
FAC species <u>20</u>	x 3 = <u>60</u>																	
FACU species <u>60</u>	x 4 = <u>240</u>																	
UPL species <u>20</u>	x 5 = <u>100</u>																	
Column Totals: <u>100</u>	(A) <u>400</u> (B)																	
= Total Cover																		
<b>Sapling/Shrub Stratum (Plot size: <u>15 feet radius</u>)</b>																		
1. N/A																		
2.																		
3.																		
4.																		
5.																		
= Total Cover																		
<b>Herb Stratum (Plot size: <u>5 feet radius</u>)</b>																		
1. Euphorbia thymifolia	20%	Yes	UPL															
2. Dichanthium annulatum	60%	Yes	FACU															
3. Abilgaardia ovata	20%	Yes	FAC															
4.																		
5.																		
6.																		
7.																		
8.																		
100% = Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>30 feet radius</u>)</b>																		
1. N/A																		
2.																		
3.																		
4.																		
= Total Cover																		

**Hydrophytic Vegetation Indicators:**  
☐ Rapid Test for Hydrophytic Vegetation  
☐ Dominance Test is >50%  
☐ Prevalence Index is ≤3.0<sup>1</sup>  
☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ☐ No ☒

Remarks:

**The 2012 Wetland Plant List was used to determine indicator status.**



## SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 4/3	100%					Clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Dark Surface (S7)          |
| <input type="checkbox"/> Organic Bodies (A6)               | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7)           | <input type="checkbox"/> Depleted Matrix (F3)       |
| <input type="checkbox"/> Muck Presence (A8)                | <input type="checkbox"/> Redox Dark Surface (F6)    |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |

Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ Stratified Layers (A5)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☒

Remarks:

No hydric soil indicators were found.

## HYDROLOGY

## Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Fauna (B13)                        |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Thin Muck Surface (C7)                     |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Fiddler Crab Burrows (C10)                 |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                 |

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)  
☐ Sparsely Vegetated Concave Surface (B8)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)

## Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators were found.



# WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: U.S. Custom Border Protection New Facility Municipality/Town: Ceiba Sampling Date: November 16, 2013  
 Applicant/Owner: U.S. Customs and Border Protection PR or USVI: PR Sampling Point: 3  
 Investigator(s): Jorge L. Coll Rivera Ward/Estate: Guayacán  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1-3%  
 Lat: 285836.728 Long: 244348.845 Datum: State Plane, NAD 83  
 Soil Map Unit Name: Descalabrado clay loam (DeE2) NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:  <b>Study site is a "made land" that was constructed (filled) before 1950.</b>					

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 feet radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>N/A</u>				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100%</u> (A/B)
4. _____					
5. _____					
			= Total Cover		
<b>Prevalence Index worksheet:</b>					
Sapling/Shrub Stratum (Plot size: <u>15 feet radius</u> )			Total % Cover of: _____ Multiply by: _____		
1. <u>N/A</u>				OBL species _____	x 1 = _____
2. _____				FACW species _____	x 2 = _____
3. _____				FAC species _____	x 3 = _____
4. _____				FACU species _____	x 4 = _____
5. _____				UPL species _____	x 5 = _____
			= Total Cover	Column Totals:	_____ (A) _____ (B)
Herb Stratum (Plot size: <u>5 feet radius</u> )			Prevalence Index = B/A = <u>N/A</u>		
1. <u>Fimbristylis dichotoma</u>	<u>10%</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators:	
2. <u>Rhynchospora rugosa</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation	
3. _____				<input checked="" type="checkbox"/> Dominance Test is >50%	
4. _____				<input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>	
5. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
6. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
7. _____					
8. _____					
			= Total Cover		
Woody Vine Stratum (Plot size: <u>30 feet radius</u> )					
1. <u>N/A</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
2. _____					
3. _____					
4. _____					
			= Total Cover		

Remarks:

**The 2012 Wetland Plant List was used to determine indicator status.**



## SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 4/3	100%					Clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Dark Surface (S7)          |
| <input type="checkbox"/> Organic Bodies (A6)               | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7)           | <input type="checkbox"/> Depleted Matrix (F3)       |
| <input type="checkbox"/> Muck Presence (A8)                | <input type="checkbox"/> Redox Dark Surface (F6)    |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |

Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ Stratified Layers (A5)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☒

Remarks:

No hydric soil indicators were found.

## HYDROLOGY

## Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Fauna (B13)                        |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input checked="" type="checkbox"/> Algal Mat or Crust (B4)        | <input type="checkbox"/> Thin Muck Surface (C7)                     |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Fiddler Crab Burrows (C10)                 |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                 |

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)  
☒ Sparsely Vegetated Concave Surface (B8)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☒ FAC-Neutral Test (D5)

## Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):Water Table Present? Yes ☐ No ☒ Depth (inches):Saturation Present? Yes ☐ No ☒ Depth (inches): (includes capillary fringe)Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sampling point is located within a depression formed by car tracks and accumulates rain water.



# WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: U.S. Custom Border Protection New Facility Municipality/Town: Ceiba Sampling Date: November 16, 2013  
 Applicant/Owner: U.S. Customs and Border Protection PR or USVI: PR Sampling Point: 4  
 Investigator(s): Jorge L. Coll Rivera Ward/Estate: Guayacán  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1-3%  
 Lat: 285857.417 Long: 244330.199 Datum: State Plane, NAD 83  
 Soil Map Unit Name: Made land (Md) NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks:  <b>Study site is a "made land" that was constructed (filled) before 1950.</b>			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 feet radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>N/A</u>				
2. <u>          </u>				
3. <u>          </u>				
4. <u>          </u>				
5. <u>          </u>				
= Total Cover				
<b>Sapling/Shrub Stratum (Plot size: <u>15 feet radius</u>)</b>				
1. <u>N/A</u>				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>          </u>				
3. <u>          </u>				
4. <u>          </u>				
5. <u>          </u>				
= Total Cover				
<b>Herb Stratum (Plot size: <u>5 feet radius</u>)</b>				
1. <u>Fimbristylis dichotoma</u>	<u>10%</u>	<u>Yes</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. <u>Fimbristylis cymosa</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>          </u>				
4. <u>          </u>				
5. <u>          </u>				
6. <u>          </u>				
7. <u>          </u>				
8. <u>          </u>				
= Total Cover				
<b>Woody Vine Stratum (Plot size: <u>30 feet radius</u>)</b>				
1. <u>N/A</u>				
2. <u>          </u>				
3. <u>          </u>				
4. <u>          </u>				
= Total Cover				

Remarks:

**The 2012 Wetland Plant List was used to determine indicator status.**



## SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 4/3	100%					Clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Dark Surface (S7)          |
| <input type="checkbox"/> Organic Bodies (A6)               | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7)           | <input type="checkbox"/> Depleted Matrix (F3)       |
| <input type="checkbox"/> Muck Presence (A8)                | <input type="checkbox"/> Redox Dark Surface (F6)    |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |

Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ Stratified Layers (A5)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☒

Remarks:

No hydric soil indicators were found.

## HYDROLOGY

## Wetland Hydrology Indicators:

## Primary Indicators (minimum of one required; check all that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Fauna (B13)                        |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input checked="" type="checkbox"/> Algal Mat or Crust (B4)        | <input type="checkbox"/> Thin Muck Surface (C7)                     |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Fiddler Crab Burrows (C10)                 |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                 |

## Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)  
☒ Sparsely Vegetated Concave Surface (B8)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☒ FAC-Neutral Test (D5)

## Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_Saturation Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sampling point is located within a depression formed by car tracks and accumulates rain water.



# WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: U.S. Custom Border Protection New Facility Municipality/Town: Ceiba Sampling Date: November 16, 2013  
 Applicant/Owner: U.S. Customs and Border Protection PR or USVI: PR Sampling Point: 5  
 Investigator(s): Jorge L. Coll Rivera Ward/Estate: Guayacán  
 Landform (hillslope, terrace, etc.): Gentle slope Local relief (concave, convex, none): none Slope (%): 1-3%  
 Lat: 285777.983 Long: 244333.775 Datum: State Plane, NAD 83  
 Soil Map Unit Name: Made land (Md) NWI classification: E2SS3P

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐  
 Hydric Soil Present? Yes ☒ No ☐  
 Wetland Hydrology Present? Yes ☒ No ☐

Is the Sampled Area within a Wetland? Yes ☒ No ☐

Remarks:

**Study site is a "made land" that was constructed (filled) before 1950.**

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 feet radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Thespesia populnea</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Rhizophora mangle</u>	<u>30%</u>	<u>Yes</u>	<u>OBL</u>
3. <u>Laguncularia racemosa</u>	<u>50%</u>	<u>Yes</u>	<u>OBL</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	<u>100%</u>	<u>= Total Cover</u>	

Sapling/Shrub Stratum (Plot size: <u>15 feet radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>N/A</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____	<u>= Total Cover</u>	

Herb Stratum (Plot size: <u>5 feet radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>N/A</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	<u>15%</u>	<u>= Total Cover</u>	

Woody Vine Stratum (Plot size: <u>30 feet radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>N/A</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	_____	<u>= Total Cover</u>	

### Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: \_\_\_\_\_ (A)  
 Total Number of Dominant Species Across All Strata: \_\_\_\_\_ (B)  
 Percent of Dominant Species That Are OBL, FACW, or FAC: N/A (A/B)

### Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)
Prevalence Index = B/A = <u>N/A</u>	

### Hydrophytic Vegetation Indicators:

- ☒ Rapid Test for Hydrophytic Vegetation  
☐ Dominance Test is >50%  
☐ Prevalence Index is  $\leq 3.0^1$   
☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

**The 2012 Wetland Plant List was used to determine indicator status.**



## SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Dark Surface (S7)          |
| <input type="checkbox"/> Organic Bodies (A6)               | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7)           | <input type="checkbox"/> Depleted Matrix (F3)       |
| <input type="checkbox"/> Muck Presence (A8)                | <input type="checkbox"/> Redox Dark Surface (F6)    |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |

Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ Stratified Layers (A5)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Inundated area with 80% OBL species.

## HYDROLOGY

## Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input checked="" type="checkbox"/> Water-Stained Leaves (B9)       |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Fauna (B13)                        |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 |
| <input checked="" type="checkbox"/> Water Marks (B1)               | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Thin Muck Surface (C7)                     |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Fiddler Crab Burrows (C10)                 |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                 |

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)  
☐ Sparsely Vegetated Concave Surface (B8)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☒ FAC-Neutral Test (D5)

## Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 5"Water Table Present? Yes ☒ No ☐ Depth (inches): 3"Saturation Present? Yes ☒ No ☐ Depth (inches): @ surfaceWetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sampling point is located within a mangrove area.