

**Environmental Assessment  
Horizon Monitoring and Surveillance Facility  
*Puerto Nuevo Port Complex, San Juan, Puerto  
Rico*  
2008-GB-T8-0150 Part 4 (12030)**

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## **List of Acronyms**

AMSP	Area Maritime Security Plan
ASCE	American Society of Civil Engineers
BFE	Base Flood Elevation
CCTV	Closed circuit television
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulation
CZMA	Coastal Zone Management Act
DHS	Department of Homeland Security
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Floodplain Insurance Rate Map
FONSI	Finding of No Significant Impact
IBC	International Building Code
MSL	Mean Sea Level
MTSA	Maritime Transportation Security Act
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
OSHA	Occupational Safety & Health Administration
PEA	Programmatic Environmental Assessment
PRPA	Puerto Rico Ports Authority
PSGP	Port Security Grant Program
RCRA	Resource Conservation & Recovery Act
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office(r)
USDA	U.S. Department of Agriculture
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USVI	U.S. Virgin Islands

## **1.0 Introduction**

The Horizon Lines de Puerto Rico, Inc., the Subgrantee, has applied for federal funding from the Department of Homeland Security-Federal Emergency Management Agency's (DHS-FEMA) Grants Program Directorate's Port Security Grant Program (PSGP) to construct a security monitoring and surveillance building at the Puerto Nuevo Port Complex, San Juan, Puerto Rico. (*See Appendix A Figures 1-2 and Appendix B Elevation Certificate Site Photographs*). The Puerto Rico Ports Authority (PRPA) serves as the grantee for the proposed funding. The proposed project is referenced as grant application 2008-GB-T8-0150 Part 4 (12030).

The proposed action would involve engineering and design, construction and equipping of a new concrete building with a 35' x 25' footprint, an above-ground septic tank, portable water tank, fence, security features and building equipment, as well as other utilities (*See Appendix A Figures 3*). The new monitoring and surveillance structure would be located adjacent to the existing undersized facility with the same function and also next to the Subgrantee's offices in the Puerto Nuevo Port Complex.

In accordance with 44 Code of Federal Regulations (CFR) for FEMA, Subpart B, Agency Implementing Procedures, Part 10.9, a Programmatic Environmental Assessment (PEA) for Grant Programs Directorate Projects was prepared and a Finding of No Significant Impact (FONSI) was issued in July 2010, pursuant to Section 102 of the National Environmental Policy Act (NEPA) of 1969, as implemented by the regulations promulgated by the President's Council on Environmental Quality (CEQ; 40 CFR Parts 1500-1508). This Tiered Site-Specific Environmental Assessment (EA) is being prepared in accordance with the July 2010 PEA. The focus of this Tiered EA is on those areas of concern requiring additional discussion or analysis that are beyond the scope of the PEA. This EA serves as documentation of FEMA's analysis of the potential environmental impacts of the proposed security facility project, including analysis of project alternatives, and identification of impact minimization measures. The document serves as written communication of the environmental evaluation for public and interested party comment. Public involvement is a component of NEPA to inform an agency's determination of whether to prepare an Environmental Impact Statement (EIS) or issue a Finding of No Significant Impact (FONSI).

## **2.0 Purpose and Need**

The objective of Homeland Security's Port Security Grant Program (PSGP) is to build, enhance and sustain national preparedness capabilities. The purpose of this action is to enhance security operations for the Puerto Nuevo Port Complex, improve target hardness, protect the waterfront, and provide surveillance while offering access to information for local U.S. Coast Guard (USCG), first responders and law enforcement from local and federal agencies in the event of an incident or emergency operations affecting the port complex. The need for the project is to address safety and security vulnerabilities associated with the existing monitoring and surveillance facility's lack of capacity for current and anticipated future security operations and equipment.

### **3.0 Background & Site Description**

The proposed project is part of a multi-layered initiative to sustain positive surveillance and employment of security systems in compliance with 33CFR part 105.275, while meeting Maritime Transportation Security Act (MTSA), and Subgrantee's Facility Security Plan requirements. It supports the PR–USVI Area Maritime Security Plan (AMSP). The project would improve the capability for command and control of security operations for the benefit of the company facility and as a member of the Port of San Juan Contingency Preparedness Group (Consortium) and a tenant of the Puerto Nuevo Port Complex. The Subgrantee would be able to achieve and support Maritime Domain Awareness by having an upgrade to reliable and efficient state of the art security features and controls, surveillance and monitoring equipment. The construction of the proposed action would allow for the relocation of the company monitoring and surveillance facility to a structure with the capability to accommodate the existing Closed Circuit Television (CCTV) surveillance and security communications facility, while providing additional space to accommodate future requirements identified for the forthcoming years. The use of CCTV as a monitoring and surveillance resource would provide positive maritime domain awareness within the facility and other carriers sharing the port complex. The completion of the project would allow the company to harden the security measures and the overall security posture of the Puerto Nuevo Port Complex.

The monitoring room is a critical facility that would allow the security force to maintain positive control of security operations, monitor, detect, prevent, identify, and deter any activity that takes place within the terminal facility. In addition, to support the company's security operations, the facility would be available to the USCG, the PRPA, local and federal law enforcement elements, and first responders, in the event of an emergency, to have access to data and video in support of any given operation. The project would complement the monitoring and surveillance system utilized by the PRPA. In addition, as envisioned, the project would provide an operational space for Command and Control operations or serve as an Incident Command Post in the event of an emergency or disaster impacting the Puerto Nuevo Port Complex and waterfront.

Horizon Lines, Inc. is one of the nation's leading domestic ocean shipping companies and the only ocean cargo carrier serving all three noncontiguous domestic markets of Alaska, Hawaii and Puerto Rico from the continental United States. The Subgrantee's services include providing ocean transportation and inland distribution of goods. Puerto Nuevo is a medium sized port managed by the PRPA. The Puerto Nuevo Port Complex is part of the Port of San Juan with direct access to the Atlantic Ocean via the San Juan Bay. Approximately ninety percent of the consumer goods arriving in Puerto Rico pass through the PRPA docks in San Juan. The Bay is surrounded by land on three sides, providing the safest harbor on the Island's north side.

The project site is located approximately 692 meters from the open waters of the bay of the Puerto Nuevo. The project site is located on the port's higher-elevation ground, found in the south-central portions of the port. The proposed building would be located adjacent to the existing monitoring and surveillance facility and next to the Subgrantee's offices in the Puerto Nuevo Port Complex. The immediate project site environment has

existing impervious cover parking lots, with existing buildings, both of which are actively used as a developed port facility.

## 4.0 Alternatives

### 4.1 Alternative 1 – No Action Alternative

If no federally funded project were implemented, the Subgrantee, under the No Action Alternative, the Subgrantee would not construct the proposed new monitoring and surveillance facility and would continue utilizing their existing security facilities. Continued use of the existing facilities would limit their ability to provide robust surveillance services and rapid responses. The Subgrantee would not move its security operations to a structure with the capability to accommodate the existing CCTV surveillance and security communications facility, and additional space to accommodate future requirements identified for the forthcoming years would not be available.

The No Action Alternative would not allow the Subgrantee to harden the security measures and the overall security posture of the Puerto Nuevo Port Complex, and would not provide for positive control of security operations, monitor, detect, prevent, identify, and deter any activity that takes place within the terminal facility.

In addition to limiting the security and safety capabilities of port complex, the No Action Alternative would limit the facility's support to USCG, the PRPA, local and federal law enforcement elements, and first responders, in the event of an emergency. The No Action Alternative would not provide an operational space for Command and Control operations and would not provide for an Incident Command Post in the event of an emergency or disaster impacting the Puerto Nuevo Port Complex and waterfront. With the No Action Alternative, the Subgrantee would not be able to achieve and support the maritime Domain Awareness. With the No Action Alternative, the Subgrantee would not be able to contribute to the protection of the Port Complex for the benefit of all carriers sharing the port complex.

### 4.2 Alternative 2 – Proposed Action Alternative

The proposed action would involve engineering and design, construction and equipping of a new concrete building with a 35' x 25' footprint, an above-ground septic tank, portable water tank, perimeter cyclone fence with gate, security features and building equipment, as well as other utilities at Latitude/Longitude: Lat. 18°25' 44.70" N Long. 66° 5' 38.20" W. The structure would serve as the new monitoring and surveillance structure and would be located adjacent to the existing undersized facility with the same function and also next to the Subgrantee's offices in the Puerto Nuevo Port Complex. The smaller structure currently being used as monitoring room will be converted to a storage room for security equipment once the new structure is constructed. The foundation of the proposed building would have an approximate depth of 3 feet. A conceptual floor plan is included as *Figure 3* in *Appendix A*. The proposed facility would include the operations room, conference room, restroom and storage closet and the structure would have aluminum security doors, swing-out security windows, polished cement floor, acoustic ceiling, granite counter tops, light fixtures, two (2) split unit air

conditioners, a folding wall room divider and conduits for running surveillance camera wiring.

### **4.3 Alternatives Considered and Dismissed**

An alternate offsite location for the proposed facility outside of mapped flood zones and above the base flood elevation was considered and dismissed. It was determined that the remote placement would not meet the need for direct contact with port property and facilities.

## **5.0 Affected Environment and Potential Impacts**

Table 1 below summarizes potential impacts of the No Action and Proposed Action alternatives, and the following sections provide a more detailed description of the affected environment and potential environmental impacts of the No Action and Proposed Action Alternatives.

**Table 1**

**Summary of Potential Impacts for Evaluated Alternatives**

Affected Environment/Resource Area	No Action Alternative	Proposed Action Alternative
Topography, Soils, Geology & Land Use	No Impact	No adverse effects anticipated.
Air Quality	No Impact	No significant impact. Minimal impact during construction.
Water Resources - Floodplain Management	No Impact	No adverse effect on floodplain habitat or function. Proposed facility to be constructed at/above the BFE. No impact to wetlands.
Coastal Resources	No Impact	No adverse coastal effect.
Threatened Species/Critical Habitats	No Impact	No Impact
Migratory Birds & Habitat	No Impact	No Impact
Cultural Resources	No Impact	No Historic Properties Affected.
Visual Resources	No Impact	No Impact.
Socioeconomic Resources	No Impact	Minor short-term benefit related to construction jobs.
Environmental Justice	No Impact	No Impact
Noise	No Impact	No significant impact. Minimal impact during construction.
Traffic	No Impact	No Impact
Public Service and Utilities	No Impact	Significant positive impact to public services and no impact to utilities.
Public Health and Safety	Negative Impact due to border security risk and communication deficiencies	Significant positive impact due to improved border surveillance and improved communication for emergency response.
Hazardous Materials	No Impact	No Impact
Climate Change	No Impact	No Impact
Cumulative Effects	No Impact	No Impact

## **5.1 Topography, Soils, Geology & Land Use**

The project site in the coastal plain has relatively flat bay front topography. A topographic site map is included in *Appendix A (Figure 4)*. A field survey was conducted in July 2013. Elevations at the project site vary from 3.0 m to 3.5 meters above Mean Sea Level (MSL). The ground elevation in the project vicinity has an approximate 1.5 foot grade change over the span of several meters. Soil classification information from the U.S. Department of Agriculture (USDA) 1978 Soil Survey of San Juan Area of Puerto Rico mapped the soils of the general area as Martin Pena-Saladar-Hydraquents, which are defined as deep nearly level very poorly drained soils in low depressions and lagoons of the coastal plains. Seismic hazard maps for the area are available for download from at the following website from the USGS: <http://earthquake.usgs.gov/hazards/products/prvi/2003/maps/>. The immediate proposed project site has impervious cover, developed with parking lots and an existing building. The land use of the property is as a port complex.

### **5.1.1 Alternative 1 (No Action)**

The No Action Alternative would not have any impact on topography, soils, geology or land use.

### **5.1.2 Alternative 2 (Proposed Action)**

The proposed project requires federal coastal zone consistency review in accordance with the Coastal Zone Management Act. FEMA found the project to be consistent with the Commonwealth's coastal zone management plan. In correspondence dated August 22, 2013 the Puerto Rico Department of Natural and Environmental Resources agreed with FEMA and concluded that the proposed project is not expected to affect natural resources, land uses or water uses in the Coastal Zone and as a result, it does not require a Federal Consistency Certificate with the Puerto Rico Coastal Management Program.

## **5.2 Air Quality**

San Juan and surrounding of area is in attainment for criteria pollutants established by U.S Environmental Protection Agency (EPA) and assessed for purposes of air quality conformity with the Clean Air Act inclusive of ozone, carbon monoxide, sulfur dioxide, nitrogen oxides, lead, and particulate matter.

### **5.2.1 Alternative 1 (No Action)**

The No Action alternative would not result in construction or any alteration of the current marina layout and would thereby not impact air quality.

### **5.2.2 Alternative 2 (Proposed Action)**

Air quality would be minimally impacted during construction activities. Impacts would be short-term and limited to dust and diesel emissions from excavation and construction equipment. There would be no long-term significant air quality impacts as result of this action. The emission levels are anticipated to be below de minimis levels for criteria

pollutants, and as stated above, the area is in attainment in accordance with National Ambient Air Quality Standards.

### **5.3 Water Resources**

Executive Order (EO) 11988 requires federal agencies to take action to minimize occupancy and modification of the floodplain. Specifically, EO 11988 prohibits Federal agencies from funding construction in the 100-year floodplain unless there are no practicable alternatives. FEMA's regulations for complying with EO 11988 are promulgated in 44 CFR Part 9. Executive Order (EO) 11990 requires agencies to take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.

According to the National Flood Insurance Program's (NFIP) Flood Insurance Rate Map (FIRM) Community Map Number 72000C0365J, effective date November 18, 2009, the proposed project area is located in an AE zone, otherwise referred to as the Special Flood Hazard Area (SFHA) or 100-Year Floodplain (1 percent chance of flood any given year). The project area has a Base Flood Elevation (BFE) of 2.1 meters in reference to MSL. See the FIRM included in *Appendix B*. The nearby transect PR-44, as described in the *Flood Insurance Study Volume 1 of 5 (FEMA June 22, 2012)*, indicates that the project area has a wave setup of 0.3 meters and wave runup of 3.5 meters.

The project site is located approximately 692 meters distance from the open waters of the bay of the Puerto Nuevo. According to National Wetland Inventory maps and site information, the proposed project site is not located in or adjacent to a wetland.

#### **5.3.1 Alternative 1 (No Action)**

Because there would be no construction under the No Action Alternative, there would be no change to the impervious surfaces on the property. Additionally there would be no potential impacts to drainage patterns in the area, and no impacts to wetlands or to floodplain habitat or function.

#### **5.3.2 Alternative 2 (Proposed Action)**

Although the proposed project location is mapped within a SFHA, the site elevations have been determined to be at/above the BFE. A field survey was conducted in July 2013. Elevations at the project site vary from 3.0 m to 3.5 meters, Mean Sea Level. Existing elevations are above the BFE of 2.1 meters. No practicable alternatives were identified to locate the proposed facility outside of the SFHA. The facility's first floor and above-ground utilities would be floodproofed or elevated to at/above the BFE to comply with 44 CFR Part 9 and NFIP. An EO 11988 Eight Step Decision-Making Process summary is included in *Appendix B*, along with an elevation certificate. The proposed project is not anticipated to induce flooding onto other properties. The proposed project would not affect wetlands. Construction in a paved area would not result in any substantive increase in stormwater for the site. Efforts would be made during construction to minimize disturbance of the parking lot and control fugitive sediment discharges and runoff.

## **5.4 Coastal Resources**

The proposed site is located within the coastal zone.

### **5.4.1 Alternative 1 (No Action)**

The No Action Alternative would have no effect on Coastal Resources.

### **5.4.2 Alternative 2 (Proposed Action)**

The proposed project requires federal coastal zone consistency review in accordance with the Coastal Zone Management Act. FEMA found the project to be consistent with the Commonwealth's coastal zone management plan. In correspondence dated August 22, 2013 the Puerto Rico Department of Natural and Environmental Resources agreed with FEMA and concluded that the proposed project is not expected to affect natural resources, land uses or water uses in the Coastal Zone and as a result, it does not require a Federal Consistency Certificate with the Puerto Rico Coastal Management Program.

## **5.5 Threatened and Endangered Species, Critical Habitat and Migratory Birds**

The project area does not support any habitat for Federally-listed endangered or threatened species or candidate species. There is no critical habitat located within the project area. The site is located within the Atlantic Flyway for migratory birds.

### **5.5.1 Alternative 1 (No Action)**

Because there would be no construction under the No Action Alternative, there would be no possible impact to endangered species and critical habitat or migratory birds.

### **5.5.2 Alternative 2 (Proposed Action)**

The proposed action entails construction in an already developed area, positioned on an existing impervious paved parking area. Therefore, no disturbance to wildlife and fisheries habitat is anticipated within the facility footprint. FEMA has determined that the proposed action would have no effect on any federally listed threatened or endangered species, candidate species or critical habitat. The proposed action would have no effect on migratory birds or bird habitat.

## **5.6 Cultural Resources**

The project area was originally mangrove swamps but was artificially filled since 1960 for development of the port complex. There are no structures over 50 years of age affected within the project area and there are no National Register of Historic Places properties within a half-mile radius of the site. The area has been extensively altered since the 1960's and previous archaeological assessments with the area have not yielded any archaeological resources.

### **5.6.1 Alternative 1 (No Action)**

Implementation of the No Action Alternative would not affect cultural resources.

### **5.6.2 Alternative 2 (Proposed Action)**

As described above, there are no known historic properties in the project area and vicinity. FEMA has determined that no historic properties would be affected by the proposed action. FEMA consulted with the Puerto Rico State Historic Preservation Office (SHPO) via correspondence dated April 11, 2012. SHPO concurred with FEMA's determination via correspondence dated May 16, 2012. Correspondence is included in *Appendix C*.

## **5.8 Environmental Justice**

Executive Order 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" mandates that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of programs on minority and low-income populations. The population of the surrounding area of the proposed action has a minority percentage of 100%, as identified via the EPA Environmental Justice (EJ) View mapping tool and based upon 2010 Census data. Typically 29% of family households in the project vicinity are below poverty (based upon 2000 Census data), as identified on EPA EJ View tool. The EPA Region 2 percentage threshold for classification as an EJ community is 52% for below poverty characteristic (Reference: EPA Region 2 Guidelines for Conducting Environmental Justice Analyses). Thus, the project area is classified as an EJ community based upon minority demographics, not low income demographics.

### **5.8.1 Alternative 1 (No Action)**

Implementation of the No Action Alternative would not affect minority or low income populations.

### **5.8.2 Alternative 2 (Proposed Action)**

Under the proposed action alternative, there would be no adverse or disproportionate impacts on low-income or minority populations.

## **5.9 Noise**

The port facility ambient noise levels are that consistent with industrial zone operations.

### **5.9.1 Alternative 1 (No Action)**

Implementation of the No Action Alternative would not affect ambient noise levels.

### **5.9.2 Alternative 2 (Proposed Action)**

A temporary increase in noise levels would be anticipated during construction, though there would be no major long-term impacts to ambient noise levels subsequent to construction.

## **5.10 Traffic**

### **5.10.1 Alternative 1 (No Action)**

Implementation of the No Action Alternative would not impact traffic.

### **5.10.2 Alternative 2 (Proposed Action)**

The proposed action alternative would have limited impact to parking at the port complex site during construction and have limited to no effect on traffic when the facility is operational.

## **5.11 Public Services and Utilities**

### **5.11.1 Alternative 1 (No Action)**

Implementation of the No Action Alternative would not affect public services and utilities.

### **5.11.2 Alternative 2 (Proposed Action)**

The proposed action alternative would not have any impact on utilities. It is anticipated that the project facility would tie into existing electrical and phone lines. An above-ground septic tank and portable water tank are planned as elements of the new facility. Emergency services would benefit from the proposed action alternative through improved communications. No other public services or utilities would be impacted by the proposed action.

## **5.12 Public Health and Safety**

### **5.12.1 Alternative 1 (No Action)**

Public safety would be negatively impacted by the No Action Alternative as a result of continued security deficiencies.

### **5.12.2 Alternative 2 (Proposed Action)**

The Proposed Action Alternative would improve security of the port and benefit public safety. During construction, Occupational Safety & Health Administration (OSHA) standards would be followed to protect worker and public health & safety.

## **5.13 Hazardous Materials**

The management of hazardous materials is regulated under various federal and state environmental and transportation laws and regulations including the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the Emergency Response and Community Right to Know Act and the Hazardous Materials Transportation Act. The purpose of the regulatory requirements set forth under these laws is to ensure the protection of human health and the environment through proper management (identification, use, storage, treatment, transportation and disposal) of hazardous materials. This EA also evaluates the potential for the proposed project to use hazardous materials and release hazardous substances. Based upon screening of available EPA mapping, there are no

CERCLA sites in the project vicinity. There are several RCRA sites identified via EPA EJ View Tool within one mile of the proposed project including: Alberic Colon, Auto Sales Inc., Parapiezas Corp DBA Niberic Dc, Clean Harbor Env Services and Prasa Puerto Rico.

### **5.13.1 Alternative 1 (No Action)**

No Action Alternative would not impact nor be impacted by hazardous materials.

### **5.13.2 Alternative 2 (Proposed Action)**

The proposed action is not anticipated to be affected by or affect nearby RCRA sites. In the event that other hazardous materials are unexpectedly encountered in the project area during construction, appropriate measures for the proper assessment, remediation and management of contamination would be initiated in accordance with applicable federal, state and local regulations.

## **5.14 Climate Change**

Climate change could potentially increase temperatures and cause more severe weather incidents to occur with weather extremes, and is also projected to cause sea level rise. Consideration of climate change does not change the decision-making to implement the proposed project. The proposed new facility would be designed to current codes and standards. The Puerto Rico Building Code, the standard against which the project's design would be measured, incorporates the International Building Code (IBC) and corresponding American Society of Civil Engineers (ASCE) Standards for Flood Resistant Design and Construction including designing to the following site-specific loads: High Winds (internal/external pressures and wind-borne debris); Flood Loads (hydrostatic load – buoyancy (flotation) effects; lateral loads from standing water, slowly moving water, and non-breaking and breaking; debris impact load from waterborne objects); and Seismic Events (base shear, inverted pendulum/cantilevered column and stacked structural systems and vertical combinations).

The proposed facility would not contribute significantly to climate change. The architect and/or engineer of the proposed project could take into account structural resiliency to withstand storms and seismic events for final design development. The architect and/or engineer could also take into consideration principles for energy saving and renewable materials such as promoted by Leadership and Energy and Environmental Design and the Energy Star program for selecting appliances and utilities. For more information, visit the following websites:

- U.S. Green Building Council's rating systems: [www.usgbc.org/leed/rating-systems/core-shell](http://www.usgbc.org/leed/rating-systems/core-shell)
- U.S. Green Building Council's resource checklist: [www.usgbc.org/resources/core-and-shell-v2009-checklist-xls](http://www.usgbc.org/resources/core-and-shell-v2009-checklist-xls)
- Energy Star program information for selecting appliances: [www.energystar.gov/](http://www.energystar.gov/)

## **5.15 Cumulative Effects**

Table 1 summarizes the potential environmental impacts of the No Action and Proposed Action alternative. Neither alternative would significantly adversely impact the environment due to the cumulative assessment of potential impacts. The known past or reasonably foreseeable future actions in the project vicinity would not change the cumulative effects determination for the proposed action. FEMA has funded two other PSGP grants within the project area: Sea Star Inspection Site; Road resurfacing and security enhancements (Cargo Scanners Infrastructure) Grant Number: 2008-GB-T8-0150 (12031) and Horizon Inspection Site; Road resurfacing and security enhancements Grant Number: 2008-GB-T8-0150 (12032). The scopes of work of the two other grant projects involved resurfacing and reconstruction of existing pavement, new security fence construction, installation of new exterior lighting, installation of new underground electrical system and communication conduits and storm sewer system construction. All of the proposed projects were located in a developed landscape and would not cumulatively impact natural or cultural resources.

## **6.0 Permits and Project Conditions**

The Subgrantee is responsible for obtaining all applicable local, State and Federal permits and approvals for project implementation prior to construction, and to adhere to permit conditions. Any substantive change to the approved scope of work will require re-evaluation by DHS-FEMA for compliance with NEPA and other laws and executive orders. The Subgrantee must also adhere to the following conditions during project implementation:

1. In accordance with 44CFR Part 9 and consistent with the National Flood Insurance Program (NFIP), the Subgrantee must elevate or floodproof the facility to at/above the SFHA BFE and acquire/maintain flood insurance for the proposed building. According to the NFIP's Flood Insurance Rate Map Community Map Number 72000C0365J, effective date November 18, 2009, the proposed project area has a BFE of 2.1 meters.
2. The Subgrantee's building design must comply with the NFIP and building codes.
3. Excavated soil and waste materials will be managed and disposed of in accordance with applicable local, state and federal regulations.
4. The Subgrantee is responsible to comply with the Puerto Rico Environmental Policy Act and to fulfill the applicable environmental compliance requirements prior to construction.
5. The Subgrantee is responsible to obtain a construction permit either the Office of Permits Administration or from the Municipality of San Juan, as applicable.
6. The grantee and Subgrantee will follow applicable mitigation measures as identified in Section 7 of the Programmatic Environmental Assessment (PEA) for Grant Programs Directorate Project to the maximum extent possible.
7. It is expected that the Subgrantee and its construction contractor(s) will conduct construction utilizing best management practices to limit noise, dust and sedimentation & erosion during construction.
8. Occupational Safety and Health Administration (OSHA) standards shall be followed during construction to avoid adverse impacts to worker health and safety.

## 7.0 Public Involvement

In accordance with NEPA, this Environmental Assessment (EA) will be released for a 15-day public review and comment period. Availability of the document for comment will be advertised and made available in the Puerto Rico Ports Authority website at: <http://www.prpa.gobierno.pr>. A hard copy of the EA will be available for review at the Puerto Rico Ports Authority, Engineering Building, 2<sup>nd</sup> Floor, 64 Lindbergh Street, Isla Grande, San Juan, Puerto Rico 00907. An electronic copy of the EA with a format accessible by disabled users (per Section 508 electronic and information technology accessibility standards) will be made available for download from the FEMA website at: [www.fema.gov/resource-document-library](http://www.fema.gov/resource-document-library). An electronic copy can also be obtained by contacting FEMA Region 2 at the following email address: [FEMAR2COMMENT@fema.dhs.gov](mailto:FEMAR2COMMENT@fema.dhs.gov). This EA reflects the evaluation and assessment of the Federal government, the federal agency decision-maker for the Federal action; however, FEMA will take into consideration any substantive comments received during the public review period to inform the final decision regarding grant approval and project implementation. The public is invited to submit written comments by mail to FEMA Region 2, Mitigation Division, Office of Environmental Planning & Historic Preservation, Attn: PSGP Project, 26 Federal Plaza, NY, NY 10278, or E-mail to: [FEMAR2COMMENT@fema.dhs.gov](mailto:FEMAR2COMMENT@fema.dhs.gov).

The EA evaluation resulted in the identification of no unmitigated significant impacts to the human environment. Obtaining and implementing permit requirements along with appropriate best management practices will avoid or minimize potential adverse effects associated with the alternatives considered in this EA to below the level of a significant impact. If no substantive comments are received from the public and/or agency reviewers, the EA will be adopted as final and a FONSI will be issued by FEMA. If substantive comments are received, FEMA will evaluate and address comments as part of final Environmental Assessment documentation.

## 8.0 List of Preparers

This document was prepared by the following Atkins team in collaboration with Janet Nieves, Safety and Security Manager at Horizon Lines de Puerto Rico, Inc.

**Francisco Pérez Aguiló, M.S., REM  
Project Manager**

Atkins Caribe, LLP  
Metro Office Park, Lot 8, Suite 102  
Guaynabo, PR 00968  
[francisco.perez@atkinsglobal.com](mailto:francisco.perez@atkinsglobal.com)  
787.439.5768

Mr. Perez has thirty years of experience in the environmental field including project management, permitting, compliance assurance and enforcement. His discipline experience includes ports, renewable energy, wetland delineation, wetland mitigation design, pipeline construction, biological sampling, potable water, wastewater, coliform analyses, and community relations.

**Wilma Yunes, M.S.C.E.**

**Technical Lead**

Atkins Caribe, LLP  
Metro Office Park, Lot 8, Suite 102  
Guaynabo, PR 00968  
wilma.yunes@atkinsglobal.com  
787.294.2010

Mrs. Yunes has over fourteen years of design experience in the Water Resources Area including: Watershed modeling, flood frequency analysis, safe yield analysis, roadway drainage, runoff mitigation analysis, bridge and culvert evaluation and design, scour analysis and stream encroachment analysis.

**Steve Pophal, B.S.L.A.**

**Ports Specialist**

Atkins North America  
2639 N Monroe Street, Building C  
Tallahassee, Florida, 32303  
steven.pophal@atkinsglobal.com  
850.575.1800

Mr. Pophal is a senior project manager within Atkins' Ports and Coast Services Group, serving as a multidiscipline team leader for coastal and waterfront projects, coordinating the various architectural, engineering and science components of the projects. His 39 years of experience provide him with a broad base of expertise in the planning and design for new and renovated private, municipal and state run water-related facilities.

**FEMA Region 2**

**Mitigation Division – Office of Environmental Planning & Historic Preservation**

13<sup>th</sup> Floor, 26 Federal Plaza  
New York, NY 10278

**9.0 Conclusion**

During the construction period, short-term impacts to soils, surface water, transportation, air quality, and noise are anticipated. Short-term impacts would be mitigated utilizing best management practices, proper equipment maintenance, and appropriate signage. At this time, it is anticipated that the proposed action, Alternative 2, would not have any significant impact upon the human environment. FEMA anticipates that a FONSI will be issued upon closure of the public review period. The FONSI will be made available on the FEMA website.

**Appendix A**  
**Maps and Concept Plan**

**Figure 1 Location Map**

**Figure 2 Site Aerial Photograph**

**Figure 3 Conceptual Site Plan**

**Figure 4 Topographic Survey**

Figure 1: Location Map

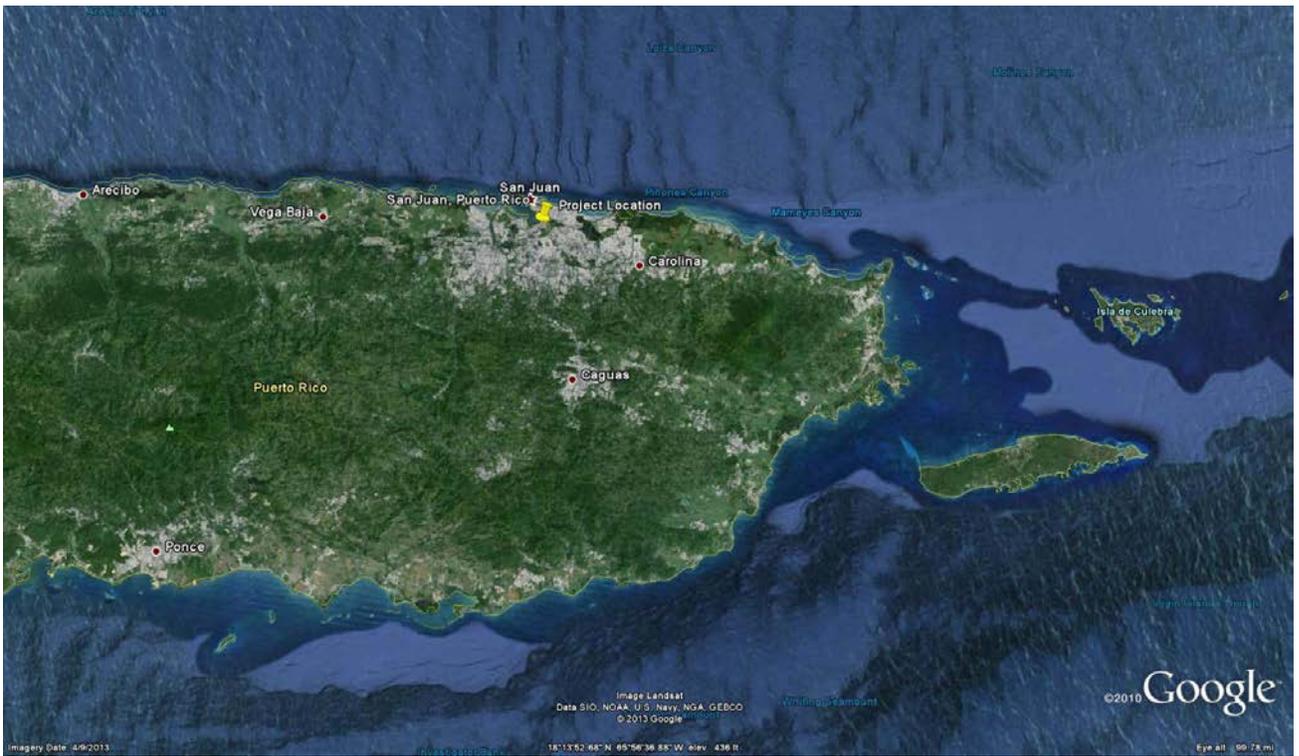
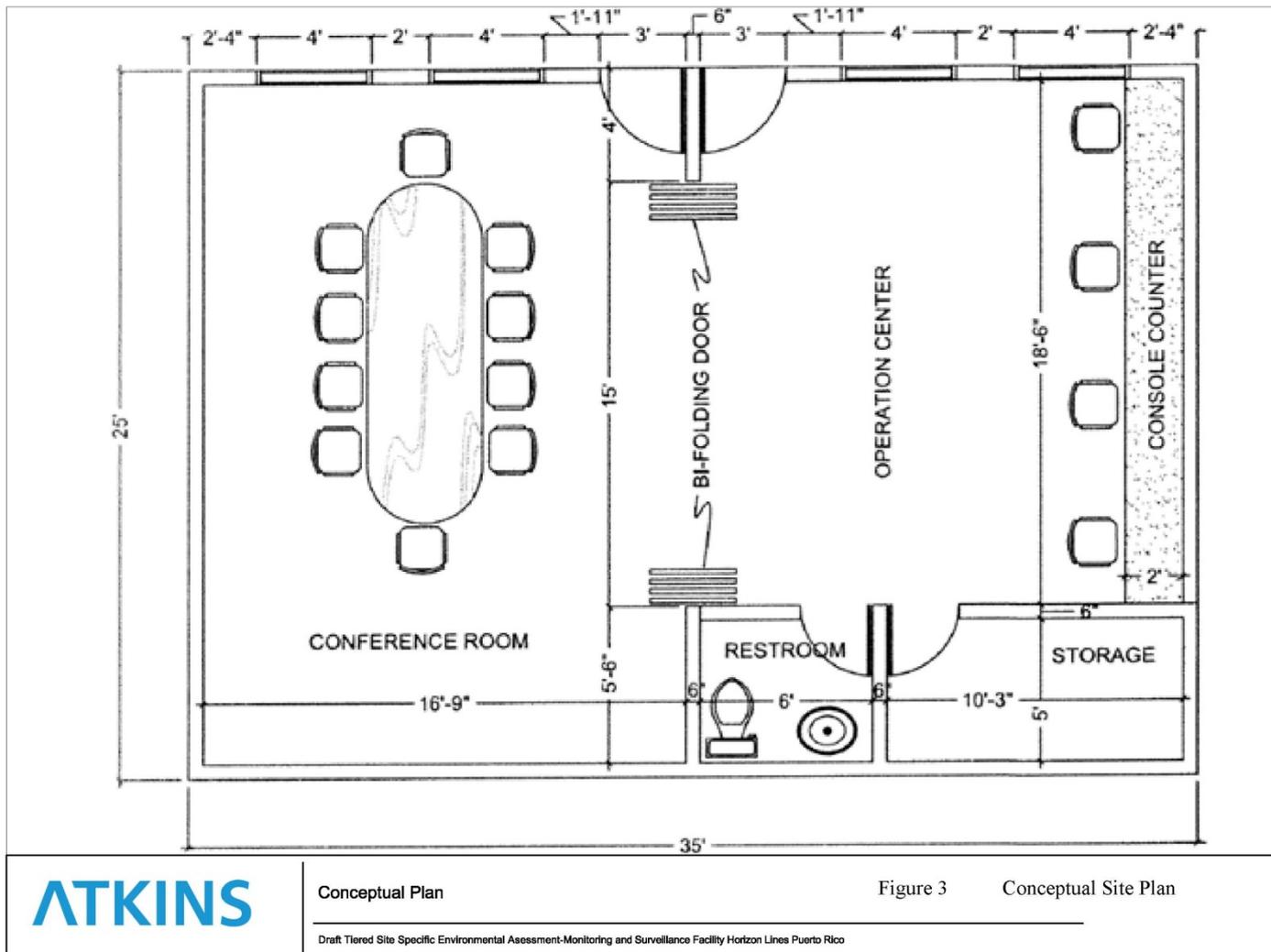


Figure 2: Site Aerial Photograph



Figure 3: Conceptual Site Plan





**Appendix B**

**EO 11988 Eight Step Decision-Making Process Summary**

**Summary**

**FIRM**

**Elevation Certificate**

## **EIGHT STEP DECISION-MAKING PROCESS SUMMARY**

In compliance with FEMA regulations, 44 CFR Part 9, implementing Executive Order 11988, Floodplain Management, an eight-step decision-making process is used for actions that are proposed in floodplains.

### **Step 1:**

**Determine whether the Proposed Action is located in (or adjacent to and affecting or affected by) a floodplain or wetland.**

The proposed action is located in a 100-yr floodplain, Zone AE with a Base Flood Elevation (BFE) of 2.1 meters (reference MSL), as depicted in FEMA's Flood Insurance Rate Map Community Map Number 72000C0365J, effective date November 18, 2009 (*included in this Appendix*). The nearby transect PR-44, as described in the *Flood Insurance Study Volume 1 of 5 (FEMA June 22, 2012)*, indicates that the project area has a wave setup of 0.3 meters and wave runup of 3.5 meters.

The proposed action is not located in or adjacent to a wetland per review of the National Wetland Inventory mapping and based on site evaluation.

### **Step 2:**

**Notify the public of proposed floodplain actions and give opportunity to participate in the decision-making process.**

The public notice for Step 2 will be integrated with the public notice for the National Environmental Policy Act Environmental Assessment.

### **Step 3:**

**Identify and evaluate practicable alternatives to locating a project in the floodplain, including alternative sites outside of the floodplain.**

No practicable construction sites were identified outside the 100-year floodplain. Much of the port complex is located within a floodplain. Locating the proposed building outside of the floodplain will entail an offsite location which would not meet the need for direct contact with the Subgrantee's property and their facilities. The No Action alternative would not achieve the project purpose nor project need.

### **Step 4:**

**Identify impacts associated with occupancy and modification of floodplains and support of floodplain development that could result from the Proposed Action.**

The proposed action is not expected to cause an increase in the BFE nor increase the flood hazard potential to other nearby infrastructure. The project area is already developed with the port facilities and other tenants of the Puerto Nuevo Port Complex, thus the proposed action is not expected to encourage future development in the

floodplain. The area is already existing impervious cover; therefore, no impacts to floodplain habitat are involved with the proposed action.

A field survey was conducted in July 2013. Elevations at the project site vary from 3.0 m to 3.5 meters, Mean Sea Level. Existing elevations are above the BFE of 2.1 meters.

## **Step 5:**

### **Develop impact minimization measures and ways to restore and preserve the floodplain.**

The proposed structure's lowest floor elevation will be above the BFE of 2.1 meters in keeping with existing elevations at the site which are already above the flood levels (see *Appendix A, Figure 4 Topographic Survey*). Therefore, flood hazard mitigation measures are incorporated through elevation condition.

## **Step 6:**

Determine whether the proposed action is practicable and reevaluate alternatives.

Pursuant to the discussion above, namely (1) that the proposed facility will be appropriately designed for the 100-yr floodplain, (2) that the existing site elevations for the area selected for

the project are higher than the base flood elevation, (3) that the proposed action will not increase the flood levels, thus will not disrupt floodplain values, and (4) that the project will improve the capability for command and control of security operations for the benefit of the Subgrantee's facility, as a member of the Port of San Juan Contingency Preparedness Group (Consortium) and a tenant of the Puerto Nuevo Port Complex, the proposed action seems practicable, and reevaluation of alternatives does not seem necessary. The practicable alternative is to construct the proposed project within the selected area, even though it is mapped as a floodplain on the FIRM. The security and safety benefits that the project would provide are in the public interest and outweigh the federal investment risks associated with construction in a floodplain and susceptibility to future flood damage. Hazard mitigation has been incorporated to the extent practicable via elevation at/above the BFE.

## **Step 7:**

### **Provide the public with an explanation of any final decision that the floodplain action is the only practicable alternative.**

Step 7 will be fulfilled via anticipated issuance of the Finding of No Significant Impact (FONSI) and posting of the FONSI to the FEMA website at: [www.fema.gov/resource-document-library](http://www.fema.gov/resource-document-library) publicly accessible website. Public controversy is not anticipated, as the facility is located within an existing port facility.

## **Step 8:**

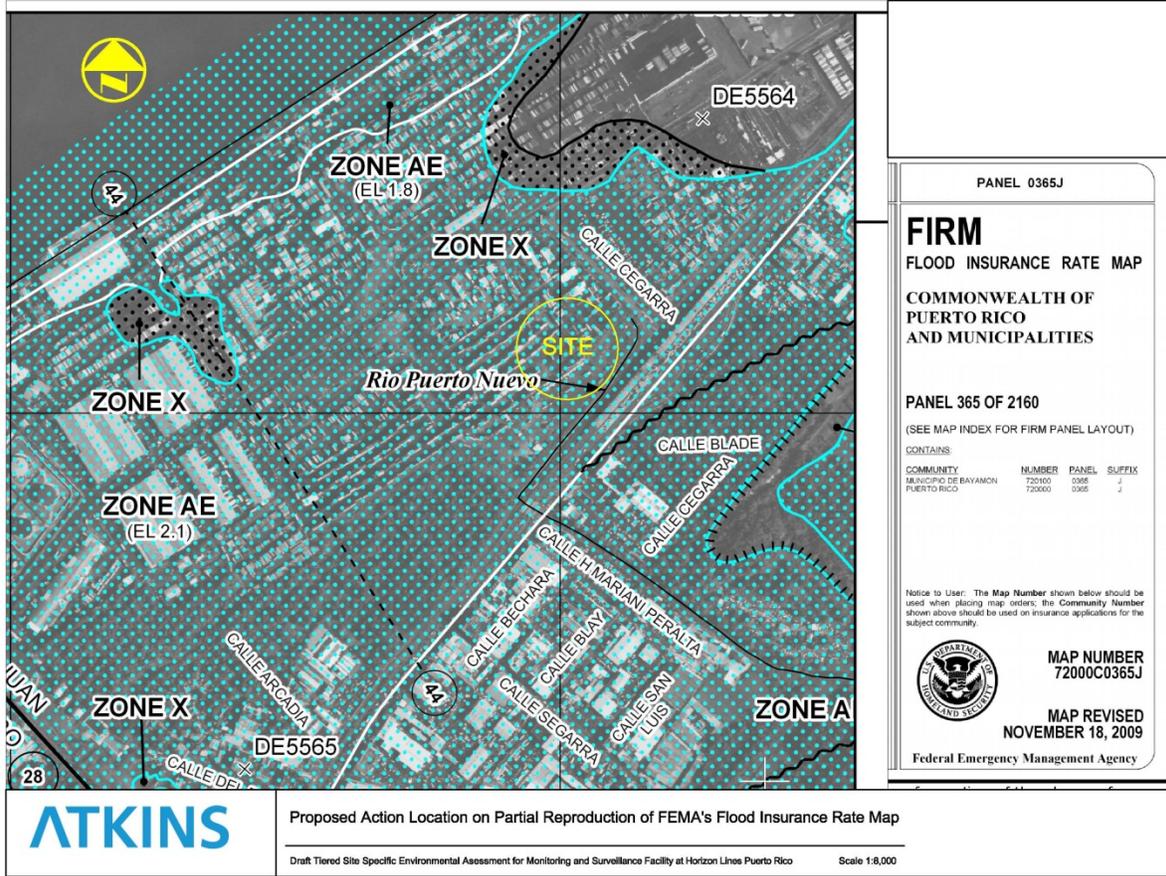
### **Implement the Proposed Action following release of grant funding.**

The proposed facility will be constructed with a first floor elevation at or above the Base Flood Elevation (BFE).

The Subgrantee is responsible to obtain/maintain insurance to cover the proposed facility in accordance with the National Flood Insurance Program.

The Subgrantee is responsible for all applicable coordination with the local floodplain administrator, to consider building codes for design development, and to obtain all applicable building permit(s). Included in this *Appendix* is the Elevation Certificate provided by the Subgrantee.

# FIRM



# Elevation Certificate-Page 1

U.S. DEPARTMENT OF HOMELAND SECURITY  
 FEDERAL EMERGENCY MANAGEMENT AGENCY  
 National Flood Insurance Program

## ELEVATION CERTIFICATE

Important: Read the instructions on pages 1–9.

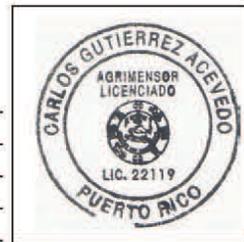
OMB No. 1660-0008  
 Expiration Date: July 31, 2015

SECTION A – PROPERTY INFORMATION		FOR INSURANCE COMPANY USE			
A1. Building Owner's Name	Horizon Lines Puerto Rico	Policy Number:			
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.	Puerto Nuevo Complex, Cegarra Street	Company NAIC Number:			
City	San Juan	State	PR	ZIP Code	00920
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) Horizon Lines Puerto Rico, Puerto Nuevo Complex, San Juan, PR					
A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) <u>Non-Residential</u>					
A5. Latitude/Longitude: Lat. <u>18°25' 44.70" N</u> Long. <u>66°5' 38.20" W</u>		Horizontal Datum: <input type="checkbox"/> NAD 1927 <input checked="" type="checkbox"/> NAD 1983			
A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.					
A7. Building Diagram Number <u>1B</u>					
A8. For a building with a crawlspace or enclosure(s):		A9. For a building with an attached garage:			
a) Square footage of crawlspace or enclosure(s)	<u>0</u> sq ft	a) Square footage of attached garage	<u>0</u> sq ft		
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade	<u>0</u>	b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade	<u>0</u>		
c) Total net area of flood openings in A8.b	<u>0</u> sq in	c) Total net area of flood openings in A9.b	<u>0</u> sq in		
d) Engineered flood openings?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	d) Engineered flood openings?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		

SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION					
B1. NFIP Community Name & Community Number Commonwealth of Puerto Rico 720000		B2. County Name San Juan		B3. State PR	
B4. Map/Panel Number 72000C0365	B5. Suffix J	B6. FIRM Index Date Nov 18, 2009	B7. FIRM Panel Effective/Revised Date Nov 18, 2009	B8. Flood Zone(s) AE	B9. Base Flood Elevation(s) (Zone AO, use base flood depth) 2.1 m
B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9. <input type="checkbox"/> FIS Profile <input checked="" type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input type="checkbox"/> Other/Source: _____					
B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input type="checkbox"/> NAVD 1988 <input checked="" type="checkbox"/> Other/Source: <u>MEAN SEA LEVEL 1927 DATUM</u>					
B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Designation Date: <u>N/A</u> <input type="checkbox"/> CBRS <input type="checkbox"/> OPA					

SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)	
C1. Building elevations are based on: <input checked="" type="checkbox"/> Construction Drawings* <input type="checkbox"/> Building Under Construction* <input type="checkbox"/> Finished Construction *A new Elevation Certificate will be required when construction of the building is complete.	
C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters. Benchmark Utilized: <u>RM 4.395 &amp; RM 3.85</u> Vertical Datum: <u>Mean Sea Level 1927 MSL</u> Indicate elevation datum used for the elevations in items a) through h) below. <input type="checkbox"/> NGVD 1929 <input type="checkbox"/> NAVD 1988 <input checked="" type="checkbox"/> Other/Source: <u>MSL</u> Datum used for building elevations must be the same as that used for the BFE.	
Check the measurement used.	
a) Top of bottom floor (including basement, crawlspace, or enclosure floor)	<u>3.55</u> <input type="checkbox"/> feet <input checked="" type="checkbox"/> meters
b) Top of the next higher floor	<u>3.55</u> <input type="checkbox"/> feet <input checked="" type="checkbox"/> meters
c) Bottom of the lowest horizontal structural member (V Zones only)	<u>N/A</u> <input type="checkbox"/> feet <input type="checkbox"/> meters
d) Attached garage (top of slab)	<u>N/A</u> <input type="checkbox"/> feet <input type="checkbox"/> meters
e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments)	<u>3.0</u> <input type="checkbox"/> feet <input checked="" type="checkbox"/> meters
f) Lowest adjacent (finished) grade next to building (LAG)	<u>3.0</u> <input type="checkbox"/> feet <input checked="" type="checkbox"/> meters
g) Highest adjacent (finished) grade next to building (HAG)	<u>3.4</u> <input type="checkbox"/> feet <input checked="" type="checkbox"/> meters
h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support	<u>3.0</u> <input type="checkbox"/> feet <input checked="" type="checkbox"/> meters

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION							
This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.							
<input type="checkbox"/> Check here if comments are provided on back of form. Were latitude and longitude in Section A provided by a licensed land surveyor? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No							
<input checked="" type="checkbox"/> Check here if attachments.							
Certifier's Name	Carlos Gutierrez	License Number	22119				
Title	Land Surveyor	Company Name	Atkins Caribe, LLP				
Address	Metro Office Park, Lot 8	City	Guaynabo	State	PR	ZIP Code	00968-1717
Signature	<i>Carlos Gutierrez</i>	Date	7/17/2013	Telephone	787-309-8608		



# Elevation Certificate-Page 2

**ELEVATION CERTIFICATE, page 2**

<b>IMPORTANT: In these spaces, copy the corresponding information from Section A.</b>			<b>FOR INSURANCE COMPANY USE</b>	
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. Horizon Lines Puerto Rico Puerto Nuevo Complex, Cegarra Street			Policy Number:	
City San Juan	State PR	ZIP Code 00920	Company NAIC Number:	

**SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION (CONTINUED)**

Copy both sides of this Elevation Certificate for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments Vertical coordinates for this project are referred to Mean Sea Level. GPS observations were used and post-processed using OPUS from the National Geodetic Survey. A constant of 0.22 meters between USGS Mean Sea Level 1927 datum and the PRVD02 was derived via GPS observation on USGS Mean Sea Level 1927 benchmarks RM 4.395 & RM 3.. The coordinates from opus were adjusted using said constant. Vertical accuracy is estimated to be 0.1 meters as required by FEMA in Puerto Rico.

Signature *Carlos Antonio*

Date 7/17/2013

**SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)**

For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B, and C. For Items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

- E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).
  - a) Top of bottom floor (including basement, crawlspace, or enclosure) is \_\_\_\_\_  feet  meters  above or  below the HAG.
  - b) Top of bottom floor (including basement, crawlspace, or enclosure) is \_\_\_\_\_  feet  meters  above or  below the LAG.
- E2. For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 8–9 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is \_\_\_\_\_  feet  meters  above or  below the HAG.
- E3. Attached garage (top of slab) is \_\_\_\_\_  feet  meters  above or  below the HAG.
- E4. Top of platform of machinery and/or equipment servicing the building is \_\_\_\_\_  feet  meters  above or  below the HAG.
- E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance?  Yes  No  Unknown. The local official must certify this information in Section G.

**SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION**

The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.

Property Owner's or Owner's Authorized Representative's Name

Address	City	State	ZIP Code
Signature	Date	Telephone	

Comments

Check here if attachments.

**SECTION G – COMMUNITY INFORMATION (OPTIONAL)**

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in Items G8–G10. In Puerto Rico only, enter meters.

- G1.  The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)
- G2.  A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.
- G3.  The following information (Items G4–G10) is provided for community floodplain management purposes.

G4. Permit Number	G5. Date Permit Issued	G6. Date Certificate Of Compliance/Occupancy Issued
-------------------	------------------------	---

- G7. This permit has been issued for:  New Construction  Substantial Improvement
- G8. Elevation of as-built lowest floor (including basement) of the building: \_\_\_\_\_  feet  meters Datum \_\_\_\_\_
- G9. BFE or (in Zone AO) depth of flooding at the building site: \_\_\_\_\_  feet  meters Datum \_\_\_\_\_
- G10. Community's design flood elevation: \_\_\_\_\_  feet  meters Datum \_\_\_\_\_

Local Official's Name	Title
Community Name	Telephone
Signature	Date

Comments

Check here if attachments.

# Elevation Certificate-Page 3

ELEVATION CERTIFICATE, page 3

## Building Photographs

See Instructions for Item A6.

**IMPORTANT: In these spaces, copy the corresponding information from Section A.**

Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.  
 Horizon Lines Puerto Rico Puerto Nuevo Complex, Cegarra Street  
 City: San Juan State: PR ZIP Code: 00920

FOR INSURANCE COMPANY USE

Policy Number:

Company NAIC Number:

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 building photographs below according to the instructions for Item A6. Identify all photographs with date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.



North-South View of Site



South-North View of Site

# Elevation Certificate-Page 4

ELEVATION CERTIFICATE, page 4

## Building Photographs

Continuation Page

**IMPORTANT: In these spaces, copy the corresponding information from Section A.**

Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.  
 Horizon Lines Puerto Rico Puerto Nuevo Complex, Cegarra Street  
 City San Juan State PR ZIP Code 00920

FOR INSURANCE COMPANY USE

Policy Number:

Company NAIC Number:

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.



West-East View of Site



East-West View of Site

## Elevation Certificate-Page 5

Attachment – OPUS solution from GPS observation on Benchmark 1, on the site of Horizon Lines Puerto Rico Monitoring & Surveillance Facility Site.

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**Subject:** OPUS solution : 2\_\_1920.13o OP1373597126255  
**From:** opus (opus@ngs.noaa.gov)  
**To:** surveypuertorico@yahoo.com;  
**Date:** Thursday, July 11, 2013 10:54 PM

---

FILE: 2\_\_1920.13o OP1373597126255

2005 NOTE: The IGS precise and IGS rapid orbits were not available  
2005 at processing time. The IGS ultra-rapid orbit was/will be used to  
2005 process the data.  
2005

### NGS OPUS SOLUTION REPORT

All computed coordinate accuracies are listed as peak-to-peak values.  
For additional information: <http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: surveypuertorico@yahoo.com      DATE: July 12, 2013  
RINEX FILE: 2\_\_192m.13o      TIME: 02:54:36 UTC

SOFTWARE: page5 1209.04 master12.pl082112      START: 2013/07/11 12:55:00  
EPHEMERIS: igu17484.eph [ultra-rapid]      STOP: 2013/07/11 18:17:00  
NAV FILE: brdc1920.13n      OBS USED: 12319 / 12990 : 95%  
ANT NAME: LEIAT502      NONE      # FIXED AMB: 84 / 90 : 93%  
ARP HEIGHT: 2.000      OVERALL RMS: 0.020(m)

REF FRAME: NAD\_83(2011)(EPOCH2010.0000)      IGS08 (EPOCH2013.5251)

X:	2452958.762(m)	0.011(m)	2452958.074(m)	0.011(m)
Y:	-5533712.248(m)	0.005(m)	-5533710.438(m)	0.005(m)
Z:	2003521.119(m)	0.016(m)	2003520.991(m)	0.016(m)

LAT:	18 25 45.96046	0.013(m)	18 25 45.97639	0.013(m)
E LON:	293 54 23.52256	0.009(m)	293 54 23.52612	0.009(m)
W LON:	66 5 36.47744	0.009(m)	66 5 36.47388	0.009(m)
EL HGT:	-39.481(m)	0.011(m)	-41.355(m)	0.011(m)
ORTHO HGT:	2.873(m)	0.018(m)	[ H = h-N (N = GEOID12A HGT)]	

UTM COORDINATES		STATE PLANE COORDINATES	
UTM (Zone 19)		SPC (5200 PRVI)	
Northing (Y) [meters]	2040161.024	266010.815	

## Elevation Certificate-Page 6

Easting (X) [meters]	807046.024	235905.490
Convergence [degrees]	0.91958434	0.10634049
Point Scale	1.00076569	0.99999977
Combined Factor	1.00077190	1.00000598

US NATIONAL GRID DESIGNATOR: 19QHA0704640161(NAD 83)

### BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL9080	PRLP LAS PIEDRAS CORS ARP	N181141.627	W0655205.750	35223.7
DO2636	PRFJ FAJARDO CORS ARP	N181934.736	W0653905.008	48090.8
DL6657	PRN4 4N INC CORS ARP	N180442.915	W0662208.704	48555.1

### NEAREST NGS PUBLISHED CONTROL POINT

DE5564	D 1002	N182550.33	W0660526.95	310.4
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This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

**Appendix C**  
**Correspondence**

**FEMA letter to SHPO**

**SHPO concurrence letter to FEMA**