PUERTO RICO COASTAL STUDY

DRAFT INTEGRATED FEASIBILITY REPORT AND ENVIRONMENTAL ASSESSMENT

APPENDIX G

Environmental

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November 2020

US Army Corps
of Engineers
Jacksonville District

PROPOSED FINDING OF NO SIGNIFICANT IMPACT

DRAFT INTEGRATED FEASIBILITY REPORT AND ENVIRONMENTAL ASSESSMENT PUERTO RICO COASTAL STUDY PUERTO RICO

The U.S. Army Corps of Engineers, Jacksonville District (Corps) has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended. The final Integrated Feasibility Report and Environmental Assessment (IFR/EA) dated **DATE OF IFR/EA**, for the **Puerto Rico Coastal Study** addresses **Federal interest in a Federal plan to reduce damages to property and infrastructure as a result of erosion, wave attack, and flooding from coastal storms and hurricanes along specific areas** in the **Puerto Rico coastline**. The final recommendation is contained in the report of the Chief of Engineers, dated **DATE OF CHIEF'S REPORT**.

The Final IFR/EA, incorporated herein by reference, evaluated various alternatives that would **reduce damages to property and infrastructure as a result of erosion, wave attack, and flooding from coastal storms and hurricanes** in the study area. The recommended plans are the **National Economic Development (NED) Plans** and includes:

- **Condado Pocket Beach – 50 foot berm with initial nourishment volume of 110,000 cubic yards, and two renourishments of 51,000 cubic yards each.**
- **Punta Piedrita – 1100 feet of 14 foot Revetment on the west side, and 1350 feet of 11 foot Revetment on the east side**
- **Ocean Park Pocket Beach – 350,000 cubic yards of 50' Berm and dune Nourishment, 8 Breakwaters, and one renourishment of 161,000 cubic yards.**
- **Puntas Las Marias – 1400 feet of 11 foot Revetment**
- **Rincon – 5650 feet of 11 foot Revetment**

In addition to a "no action" plan, **four** alternatives were evaluated.[1] The alternatives included **Revetments, beach nourishment, breakwaters, and combination of breakwaters with beach nourishment**

For all alternatives, the potential effects were evaluated, as appropriate. A summary assessment of the potential effects of the recommended plan are listed in Table 1:

[1] **40 CFR 1505.2(b) requires a summary of the alternatives considered.**

Table 1: Summary of Potential Effects of the Recommended Plan

	Insignificant effects	Insignificant effects as a result of mitigation*	Resource unaffected by action
Aesthetics	☐	☒	☐
Air quality	☒	☐	☐
Aquatic resources/wetlands	☐	☒	☐
Invasive species	☐	☒	☐
Fish and wildlife habitat	☐	☒	☐
Threatened/Endangered species/critical habitat	☐	☒	☐
Historic properties	☒	☐	☐
Other cultural resources	☐	☒	☐
Floodplains	☒	☐	☐
Hazardous, toxic & radioactive waste	☐	☐	☒
Hydrology	☒	☐	☐
Land use	☐	☒	☐
Navigation	☒	☐	☐
Noise levels	☒	☐	☐
Public infrastructure	☐	☒	☐
Socio-economics	☐	☐	☒
Environmental justice	☒	☐	☐
Soils	☒	☐	☐
Tribal trust resources	☐	☐	☒
Water quality	☒	☐	☐
Climate change	☐	☒	☐

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended plan. Best management practices (BMPs) as detailed in the IFR/EA will be implemented, if appropriate, to minimize impacts. [2]

There is some uncertainty in terms of the quantity and siting of onsite compensatory mitigation which would be conducted during the PED Phase of the project when site-specific survey data is available. Upon final design, the functional lift provided from the construction of the TSP would be incorporated into the functional assessments and mitigation plan.

Public review of the draft IFR/EA and FONSI was completed on **DATE DRAFT EA AND FONSI REVIEW PERIOD ENDED**. All comments submitted during the public review period were responded to in the Final IFR/EA and FONSI. A 30-day state and agency review of the Final IFR/EA was completed on **PICK DATE**. **PICK OPTION BASED ON RESULTS OF STATE AND AGENCY REVIEW**.

[2] 40 CFR 1505.2(C) all practicable means to avoid and minimize environmental harm are adopted.

d. Pursuant to Section 7 of the Endangered Species Act of 1973, as amended (ESA) the Corps has determined that construction of the TSP would have "no effect" (NE) on scalloped hammerhead shark, Nassau grouper, and giant manta ray, elkhorn, staghorn, pillar, rough cactus, lobed star, mountainous star and boulder star corals; plan may affect but is not likely to adversely affect the following federally listed species or their designated critical habitat: **loggerhead turtle, hawksbill turtle, leatherback turtle, green sea turtle, Antillean manatee, and Puerto Rican Boa**. The National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) concurred with the Corps' determination on **DATE OF CONCURRENCE LETTER**

Pursuant to the National Historic Preservation Act, the Corps has initiated consultation, consulted on a tentative Area of Potential Effect (APE) prior to determination of a TSP, and received concurrence on the development of a programmatic agreement. Pursuant to 54 U.S.C. 306108, 36 CFR 800.4(b)(2), and 36 CFR 800.14(b)(1)(ii), the Corps will defer final identification and evaluation of historic properties until after project approval, additional funding becomes available, and prior to construction by executing the programmatic agreement. A draft programmatic agreement has been provided to SHPO and ICP, and is included as an appendix to the draft IFR/EA.

Pursuant to the Clean Water Act of 1972, as amended, the discharge of dredged or fill material associated with the recommended plan has been found to be compliant with section 404(b)(1) Guidelines (40 CFR 230). The Clean Water Act Section 404(b)(1) Guidelines evaluation is found in **Appendix G Attachment 1** of the IFR/EA.

This project is being coordinated with the Commonwealth of Puerto Rico, and all applicable water quality standards will be met. Water Quality Certification will be obtained from the Puerto Rico Department of Natural and Environmental Resources (DNER) prior to construction. In addition, a determination of consistency with the Puerto Rico Coastal Management Program pursuant to the Coastal Zone Management Act of 1972 has been prepared and will be submitted to the Puerto Rico Planning Board. The Corps has determined construction of the TSP would be consistent to the maximum extent practicable with the enforceable policies of the Puerto Rico Coastal Management Program. The consistency determination is found in Appendix G Attachment 1 of the IFR/EA.

CZMA CONSISTENCY PENDING:

The Corps will seek concurrence with its determination of consistency with the **Puerto Rico** Coastal Zone Management program pursuant to the Coastal Zone Management Act of 1972 from the **Puerto Rico Planning Board** prior to construction. In a letter dated **DATE OF LETTER**, the **Puerto Rico** stated that the recommended plan appears to be consistent with state Coastal Zone Management plans, pending confirmation based on information to be developed during the pre-construction engineering and design phase. All conditions of the consistency determination shall be implemented in order to minimize adverse impacts to the coastal zone.

All applicable environmental laws have been considered and coordination with appropriate agencies and officials has been completed.

FINDING

Technical, environmental, and economic criteria used in the formulation of alternative plans were those specified in the Water Resources Council's 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies. All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives.[3] Based on this report, the reviews by other Federal, State and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the recommended plan would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.[4]

Date

ANDREW D. KELLY, JR.
COL, Corps of Engineers
District Commander

[3] 40 CFR 1505.2(B) requires identification of relevant factors including any essential to national policy which were balanced in the agency decision.

[4] 40 CFR 1508.13 stated the FONSI shall include an EA or a summary of it and shall note any other environmental documents related to it. If an assessment is included, the FONSI need not repeat any of the discussion in the assessment but may incorporate by reference.

APPENDIX G– ENVIRONMENTAL

ATTACHMENT 1 – CLEAN WATER ACT SECTION 404(B)(1)

SECTION 404(b) EVALUATION

PUERTO RICO COASTAL STORM RISK MANAGEMENT (PR CSRM)

I. Project Description

a. Location. The project will focus on approximately 2.3 miles of coastline in the San Juan and approximately 1.0 miles of coastline in the Rincón municipality. The San Juan area fronts the Atlantic Ocean on the north coast of Puerto Rico. The project will focus on the Condado Beach and Ocean Park Beach area, from La Ventana al Mar city beachfront park to Punta Las Marias. The Rincón study area fronts the Atlantic Ocean on the west coast of Puerto Rico. The project in this area will focus on Stella and Córcega Beach from the southern end of Doña Lala Beach to the Sunfish Beachfront Condo.

b. General Description. The U.S. Army Corps of Engineers, Jacksonville District (Corps), is proposing measures for the reduction of damages to infrastructure as a result of erosion, wave attack, and flooding from coastal storms and hurricanes along the Puerto Rico coastline in the municipalities of San Juan and Rincón. The measures proposed for this project include stone revetment along the shoreline of San Juan and Rincón. In addition, dune nourishment and breakwaters would be constructed along targeted shoreline sections of San Juan.

The areas proposed for implementing the measures mentioned consists of Class SB waters, which includes coastal and estuarine waters, according to PR Water Quality Standards Regulation No. 9079. The predominant issue that affects water quality in these areas is turbidity, which varies significantly due to storm activity, rainfall, currents, and other natural phenomena. In addition, coastal water quality has been affected by unrelated anthropogenic sources such as storm water and effluent runoff resulting in increased nutrients and freshwater inputs. Also, urbanization and population growth in the region contribute to coastal water quality degradation.

The proposed measures are expected to cause short-term turbidity adjacent to the construction sites, except for the dune nourishment measure, which is above Mean High Water (MHW) and no effect to local water quality is expected. The other proposed measures are expected to have direct or indirect and temporary effects on water quality. Nonetheless, Best Management Practices (BMPs) would be implemented during construction to reduce the magnitude and extent of turbidity, and adverse effects on water quality are expected to be minor. Turbidity would be monitored during construction to ensure that Puerto Rico's water quality standards are met. Due to the small spatial extent and short duration of project impacts, no long-term effects are expected.

c. Authority and Purpose. Authority for the PR CSRM study was granted under Section 204 of the Flood Control Act of 1970, Public Law 91-611. The purpose of this study is to determine whether there is economic justification and Federal interest in a recommended plan to reduce damages to infrastructure as a result of erosion, wave attack, and flooding from coastal storms and hurricanes along the Puerto Rico coastline.

d. Public Interest Factors. While USACE does not process and issue permits for its own activities, pursuant to 33 CFR 336.1, USACE authorizes its own discharges of dredged or fill material by applying all applicable substantive legal requirements, including public notice, opportunity for public hearing, and application of the section 404(b)(1) guidelines. As part of its review, the Corps evaluates the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. All factors which may be relevant to the proposal must be considered including the cumulative effects thereof. These factors may include:

- Conservation
- Economics
- Aesthetics
- General Environmental Concerns
- Wetlands
- Historic Properties
- Fish and Wildlife Values
- Flood Hazards
- Flood Plain Values
- Land Use
- Navigation
- Shore Erosion and Accretion
- Recreation
- Water Supply and Conservation
- Water Quality
- Energy Needs
- Safety
- Food and Fiber Production
- Mineral Needs
- Consideration of Property Ownership
- Needs and Welfare of the People

As discussed in Sections 4.5 of the draft report, the proposed activity would use key structural, non-structural and natural and nature based features in strategic locations designed to appropriate elevations to work together to effectively and efficiently reduce the risk of damages due to coastal flooding in the San Juan and Rincon. In addition, while the proposed activity is expected to directly impact benthic habitat, the nature based CSRM measures would provide benthic habitat functions. It is anticipated that the project would result in no net loss of habitat function. Finally, several of the measures (renourishment, breakwaters) include recreational elements which could be used by the local communities as well as potentially support tourism. For these reasons, the Corps concludes that the proposed activity is clearly in the public interest.

e. General Description of Dredged or Fill Material.

(1) General Characteristics of Material. No dredging activities are to take place as part of the construction actions in the Puerto Rico CSRM. Fill material for beach or dune nourishment will include suitable and compatible sediment

material from upland sources, for revetment and breakwaters it will include 12" marine mattress and granite stones. All fill material will be clean and free of contaminants. The granite stones for the revetments will be about 2-5 Ton and the granite stones for the breakwaters will be of about 4-8 Ton. Analysis and modeling for some of this alternatives has not been completed. More detailed information on the project design will be provided once analysis and modeling are completed.

(2) Quantity of Material. The quantity of fill material will be calculated with further development of the construction design considering the local wave and sediment transport characteristics.

(3) Source of Material. The source of material will be determined following project awarded.

f. Description of the Proposed Discharge Site(s).

(1) Location. The proposed discharge sites in San Juan, which covers approximately 2.4 miles, will be on Condado Pocket Beach, Punta Piedritas, on the eastern part of Condado Beach and the western part of Ocean Park Beach, Ocean Park Pocket Beach and Punta Las Marías, on the eastern part of Ocean Park Beach. The proposed discharge sites in Rincón, which is approximately 1 mile, will be south of Doña Lala Beach to Córcega Beach.

(2) Size. The size of the Punta Piedrita reach in San Juan will be of approximately 2450 ft of shoreline, about 1100 ft towards Condado Beach and about 1350 ft towards Ocean Park Beach. The Punta Las Marías reach will be approximately 1400 ft towards Ocean Park Beach. The Condado Pocket Beach reach size could cover approximately 2000 ft of shoreline nourishment, 2 breakwaters of 500 ft or a variation or combination of these. The Ocean Park Pocket Beach reach size could cover approximately 1.3 miles of shoreline nourishment, 8 breakwaters of 600 ft, or a variation or combination of these. If breakwaters measures are incorporated, they would be constructed at approximately 500 ft from 0ft contour cross-shore distance. In Rincón the reach size, which is in Stella and Córcega Beach from the the southern end of Doña Lala Beach to the Sunfish Beachfront Condo, would be of approximately 1.0 miles of shoreline revetment, or a beach nourishment in combination with 20 breakwaters of 200 ft. All constructions will incorporate a 50-m buffer zone.

(3) Type of Site. The type of site where the revetments and/or nourishment will be constructed in San Juan include sand, scattered coral/rock in unconsolidated sediment, colonized bedrock, colonized pavement and patch reef (Aggregated). The breakwaters site includes scattered coral/rock in unconsolidated sediment and patch reef (Aggregated). In Rincón only includes scattered coral/rock in unconsolidated sediment.

(4) Type(s) of Habitat. The types of habitat found in the footprint and buffer zones for the proposed construction areas in San Juan are unconsolidated sediments and coral reef and colonized hardbottom. In Rincón the type of habitat found in the footprint and buffer zone for the proposed construction areas is coral reef and colonized hardbottom. Surveys still need to be conducted to determine the type and extent of the habitats within the current construction limits in order to calculate the type and amount of habitat being impacted by the project.

(5) Timing and Duration of Discharge. The timing and duration of discharge of fill material will be restricted to the construction period necessary to build each feature within the overall construction period necessary for project completion. Discharge activities of fill material will be performed using heavy equipment and it will be managed to control turbidity increases and maintain environmentally acceptable conditions.

g. Description of Disposal Method. No disposal material is expected from the construction activities.

II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The preliminary designs for revetment in San Juan and Rincón have a height ranging from 11 to 14 ft Puerto Rico Vertical Datum of 2002 (PRVD02), a crest width between 10-12 ft and a 3H to 1V, Height to Vertical side slopes. The preliminary design for the breakwaters in Ocean Park has them at a depth of -15 to -22 ft (PRVD02). The crest elevation will be at approximately -0.8 (PRVD02) with a crest width of 15 ft and a 2H:1V side slopes. The potential measures of nourishment in the reaches and breakwaters in Rincón still need to be analyzed further in order to determine its design.

(2) Sediment Type. The sediment type to be used for these revetments will be clean and free of contaminants granite stones of about 2-5 Ton and 3-4 feet in diameter. For the breakwater the clean and free of contaminants granite stones to be used will be of about 4-8 Ton with an approximate 4.5 ft in diameter.

(3) Dredged/Fill Material Movement. Fill material will be mobilized with heavy equipment such as cranes, barges and trucks.

(4) Physical Effects on Benthos. During construction there is the potential of injury or mortality of benthic species as well as a direct effect in foraging and refuge habitat. There could also be indirect effects in foraging behavior and movements in the immediate area and adjacent areas to the construction activity. These potential effects would be limited to the spatial area of current construction. In addition, all

these potential effects on benthic species would be temporary in nature and limited to the time period necessary to construct the nourishments, revetments and/or breakwaters. There is also the potential of long-lasting benefits to benthic species from the construction of the breakwaters that would create foraging habitat and refuge for benthic organisms. An early direct impact estimate for all habitats and by all construction features estimates 24 acres of direct impact.

(5) Actions to minimize impacts. In order to minimize environmental impacts, construction in the areas identified were limited to the minimum required to meet the project's purpose. During construction developed recommendations would be implemented to avoid or minimize impacts. Although the construction activities will be performed in a manner so as to avoid or minimize environmental impacts, they may occur and if direct impacts are expected to occur a mitigation plan will be developed. All in-water operations would be monitored to ensure turbidity levels are within WQC parameters. If at any point turbidity standards are exceeded, those activities causing the violation would cease.

b. Water Circulation. Fluctuation and Salinity Determinations.

(1) Water Column Effects.

(a) Salinity: No significant effect.
(b) Water Chemistry: No significant effect.
(c) Clarity: Turbidity would temporarily decrease clarity.
(d) Color: No significant effect.
(e) Odor: No significant effect.
(f) Taste: No significant effect.
(g) Dissolved Gas Levels: No significant effect.
(h) Nutrients: No significant effect.

(2) Current Patterns and Circulation.

(a) Current Patterns and Flow: No significant effect.
(b) Velocity: No significant effect.
(c) Stratification: No significant effect.
(d) Hydrologic Regime: No significant effect.

(3) Normal Water Level Fluctuations. The project would not affect normal water level fluctuations.

(4) Salinity Gradients. The project would not affect salinity gradients.

(5) Actions to minimize impacts. The project would not affect water levels. Turbidity would be monitored per the water quality certificate (WQC) requirements. If at any point turbidity standards are exceeded, those activities causing the violation would cease.

c. Suspended Particulate/Turbidity Determinations.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site. There will be an increase in suspended particulates and turbidity levels in the vicinity of the features being constructed.

(2) Effects (degree and duration) on Chemical and Physical Properties of the Water Column.

(a) Light Penetration: Light penetration would decrease temporarily during construction.
(b) Dissolved Oxygen: Dissolved oxygen levels would not be significantly altered by this project.
(c) Toxic Metals and Organics: No Hazardous or Toxic materials, or Radioactive Waste (HTRW) have been identified within the project area. No HTRW would be released in the project area during or after construction and therefore no impact to the existing sediment conditions is expected. This project would not cause any significant release of toxic metals or organics.
(d) Pathogens: This project would not cause any release of pathogens.
(e) Aesthetics: Turbidity would temporarily impact aesthetic quality of the water in the vicinity of the construction area.

(3) Effects on Biota.

(a) Primary Production, Photosynthesis: Suspended particulate and turbidity would be temporarily and would not have a significant impact on primary production or photosynthesis.
(b) Suspension/Filter Feeders: Turbidity would affect suspension/filter feeders, but the effects would not be significant and only temporarily.
(c) Sight Feeders: Sight feeders would be affected by turbidity, but the effects would not be significant and only temporarily.

(4) Actions to minimize impacts. Turbidity would be monitored per the water quality certificate requirements. If at any point turbidity standards are exceeded, those activities causing the violation would cease.

d. Contaminant Determinations. Levels of contaminants are not expected to have a significant impact on plankton, benthos, nekton, or the aquatic food web. Re-suspension of sediment within the construction areas is expected to have minimal impact on these organisms.

e. Aquatic Ecosystem and Organism Determinations.

(1) Effects on Plankton: Significant effects on plankton are not anticipated.

(2) Effects on Benthos: Benthos would be impacted by the project during construction activities, but benthic organisms would be expected to begin recovery once construction operations have finished.
(3) Effects on Nekton: Significant effects on nekton are not anticipated.
(4) Effects on Aquatic Food Web: Benthos would be impacted, but additional significant effects on the food web are not anticipated.
(5) Effects on Special Aquatic Sites:

(a) Sanctuaries and Refuges: No sanctuaries or refuges are present in the projects construction areas
(b) Wetlands: There are no wetlands in the project area.
(c) Mud Flats: There are no mud flats in the project area.
(d) Vegetated Shallows: There are no vegetated shallows in the project area.
(e) Coral Reefs: The proposed work footprint will be limited so as to minimize the direct impact to coral reefs. The calculated direct impact to coral reefs will be address in a developing mitigation plan. In order to minimize the impacts to coral reefs outside the project's area best management practices will be implemented. In addition, turbidity monitoring will be conducted in accordance with a developed monitoring plan prior to construction to insure avoidance and minimization of effects to hardbottom habitat.
(f) Riffle and Pool Complexes: There are no riffle and pool complexes in the project area.

f. Threatened and Endangered Species. USACE determined that the proposed project, will have "no effect" (NE) on scalloped hammerhead shark, Nassau grouper, and giant manta ray; "may affect, but is not likely to adversely affect" (MANLAA), Antillean manatee, Loggerhead sea turtle, Hawksbill sea turtle, Leatherback sea turtles, Green sea turtle Nassau grouper, Scalloped hammerhead shark, Giant manta ray, Elkhorn coral, Staghorn coral, Pillar coral, Lobed star coral, Mountainous star coral, Boulder star coral and Rough cactus coral (Table 1). The project is also "not likely to adversely modify" (NLAM) critical habitat for Acroporid corals. Project designs will be refined to minimize potential effects to the extent feasible. Also, the implementation of identified standard protection measures would avoid or minimize adverse impacts to threatened and endangered species. A biological assessment evaluating these determinations will be sent to the NMFS and USFWS initiating consultation under Section 7 of the ESA.

Table 1. Summary of Effect Determination for Threatened and Endangered Species.

PUERTO RICO COASTAL STORM RISK MANAGEMENT STUDY ESA TABLE			
Common Name	**Scientific Name**	**Status**	**Determination**
Marine Mammals			
Antillean manatee	*Trichechus manatus*	T	MANLAA
Sea Turtles			
Loggerhead sea turtle NW Atlantic DPS	*Caretta caretta*	T	MANLAA
Hawksbill sea turtle	*Eretmochelys imbricata*	E	MANLAA
Leatherback sea turtle	*Dermochelys coriacea*	E	MANLAA

Green sea turtle South Atlantic DPS	*Chelonia mydas*	T	MANLAA
Fish			
Nassau grouper	*Epinephelus striatus*	T	NE
Scalloped hammerhead shark	*Sphyrna lewinii*	E	NE
Giant manta ray	*Manta birostris*	T	NE
Invertebrates			
Elkhorn coral	*Acropora palmata*	T	MANLAA
Staghorn coral	*Acropora cervicornis*	T	MANLAA
Acroporid Coral Designated Critical Habitat			NLAM
Pillar coral	*Dendrogyra cylindrus*	T	MANLAA
Lobed star coral	*Orbicella annularis*	T	MANLAA
Mountainous star coral	*Orbicella faveolata*	T	MANLAA
Boulder star coral	*Orbicella franksi*	T	MANLAA
Rough cactus coral	*Mycetophyllia ferox*	T	MANLAA

g. Other Wildlife. Construction of the proposed work would potentially displace wildlife in their respective areas temporarily. USACE will request U.S. Fish and Wildlife Services to provide technical assistance regarding possible impacts to fish and wildlife resources.

h. Actions to Minimize Impacts. Measures shall be taken, as well as recommendations and guidelines implemented to avoid and minimize impacts to threatened and endangered species as well as other wildlife.

i. Proposed Disposal Site Determinations

(1) Mixing Zone Determination. This determination will be in accordance with the project's WQC.

(2) Determination of Compliance with Applicable Water Quality Standards. The work would be conducted in accordance with the project's WQC.

(3) Potential Effects on Human Use Characteristic.

(a) Municipal and Private Water Supply: No effects are anticipated.

(b) Recreational and Commercial Fisheries: Impacts to fisheries would not be significant.

(c) Water Related Recreation: Construction activities would temporarily disrupt water related recreation. As a public safety measure, swimming and other water related recreational activities would be prohibited near the operating construction equipment.

(d) Aesthetics: Construction would temporarily impact aesthetics.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves: The proposed work would temporarily disrupt some recreational activities associated with La Ventana al Mar City beachfront park.

j. Determination of Cumulative Effects on the Aquatic Ecosystem. Potential cumulative impacts on many resources were considered as part of this study and the majority of these resources were determined to have little risk of being cumulatively impacted (See draft report section 5.2 for cumulative effects).

k. Determination of Secondary Effects on the Aquatic Ecosystem. Secondary effect to aquatic ecosystems within the 50-m ft buffer zones of the construction areas are expected and will be address in a developing mitigation plan.

III. Findings of Compliance or Non-Compliance with the Restrictions on Discharge

a. Adaptation of the Section 404(b)(l) Guidelines to this Evaluation: No significant adaptations of the guidelines were made relative to this evaluation.

b. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem: No practical alternative exists to meet the project objectives that do not involve discharge of fill material into waters of the United States.

c. Compliance with Applicable State Water Quality Standards: All construction activities will be performed in compliance with the WQC issued by the PR's Department of Natural and Environmental Resources (DNER).

d. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 of the Clean Water Act: The proposed work operations would not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

e. Compliance with Endangered Species Act of 1973: The proposed project would not jeopardize the continued existence of any species listed as threatened or endangered or result in the destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973.

f. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972: This act does not apply to this project.

g. Evaluation of Extent of Degradation of the Waters of the United States

(1) Significant Adverse Effects on Human Health and Welfare

(a) Municipal and Private Water Supplies: No effect.

(b) Recreation and Commercial Fisheries: No significant adverse impacts are anticipated.

(c) Plankton: No substantial adverse impacts are anticipated.

(d) Fish: No substantial adverse impacts are anticipated.

(e) Shellfish: No substantial adverse impacts are anticipated.

(f) Wildlife: The proposed project would potentially displace wildlife in their respective construction areas temporarily.

(g) Special Aquatic Sites: The proposed work is expected to have a direct impact on SAV and wetland habitats. A mitigation plan is being developed to address these environmental impacts.

(2) Significant Adverse Effects on Life Stages of Aquatic Life and Other Wildlife Dependent on Aquatic Ecosystems: Essential Fish Habitat (EFH) includes all waters and substrates, including corals, SAV, intertidal vegetation and wetlands that are necessary for the reproduction, growth, and feeding of marine species. In the Future Without Project/no-action alternative there could be degradation of water quality from erosion and sedimentation due to SLR and storm events. This could result to impacts to EFH. Construction could also affect EFH including SAV, estuarine water column, estuarine scrub shrub (mangroves), and palustrine emergent wetlands. However, the proposed work is not anticipated to significantly adversely affect managed species or EFH.

(3) Significant Adverse Effects on Aquatic Ecosystem Diversity, Productivity and Stability: No significant adverse effects are anticipated.

(4) Significant Adverse Effects on Recreational, Aesthetic, and Economic Values: Temporary impacts to recreational activities during construction and a temporary reduction in the aesthetic appeal during construction are expected. No significant adverse effects on recreational, aesthetic, and economic values are anticipated.

h. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem: All appropriate and practicable measures shall be taken to minimize impacts.

i. On the basis of the guidelines, the proposed work is specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem.

FINDING OF COMPLIANCE
FOR
PUERTO RICO COASTAL STORM RISK MANAGEMENT

1. No significant adaptations of the guidelines were made relative to this evaluation.

2. All construction activities will be performed in compliance with the WQC issued by the PR's Department of Natural and Environmental Resources (DNER).

3. The discharge of fill material for construction of the proposed features will involve the use of heavy equipment such as cranes, barges and trucks. These discharge activities of fill material will be managed to control turbidity increases and maintain environmentally acceptable conditions. All appropriate steps shall be taken to minimize potential adverse impacts of the fill material discharge on aquatic systems.

4. In order to minimize environmental impacts, construction in the areas identified were limited to the minimum required to meet the project's purpose. During construction developed recommendations would be implemented to avoid or minimize impacts. However, impacts are expected to occur, specifically to corals, as such a mitigation plan is being developed. All in-water operations would be monitored to ensure turbidity levels are within WQC parameters. If at any point turbidity standards are exceeded, those activities causing the violation would cease.

5. No Hazardous or Toxic materials, or Radioactive Waste (HTRW) have been identified within the project area. No HTRW would be released in the project area during or after construction. No significant impact on plankton, benthos, nekton, or the aquatic food web are expected. The re-suspension of sediment within the construction areas is expected to have minimal impact on these organisms. The construction operations will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

6. The proposed project would not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended. Consultation with the U.S. Fish and Wildlife Service will be completed.

7. The proposed project will not result in significant long-term adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. No significant adverse effects on life stages of aquatic life and other wildlife, aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic and economic values are expected.

8. Potential cumulative impacts on threatened or endangered species, other fish and wildlife, managed fishes, the estuarine water column, certain water quality parameters (turbidity and hazardous and toxic constituents), sediments (hazardous and toxic constituents), coastal barrier resources, aesthetics, and recreation, among others were considered as part of this proposed project and the majority of these resources were determined to have little risk of being cumulatively impacted.

9. Based on the guidelines, the proposed work is specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem.

Appendix G– Environmental

Attachment 2 – Coastal Zone Management Consistency (CZMA)

COASTAL ZONE MANAGEMENT PROGRAM FEDERAL
CONSISTENCY EVALUATION PROCEDURES

Applicability of the Coastal Zone Management Act.

The following table summarizes the process and procedures under the Coastal Zone Management Act for Federal Actions and for non-Federal Applicants*.

Item	Non Federal Applicant (15 CFR 930, subpart D)	Federal Action (15 CFR 930, subpart C)
Enforceable Policies	Reviewed and approved by NOAA	Same
Effects Test	Direct, Indirect (cumulative, secondary), adverse or beneficial	Same
Review Time	6 months from state receipt of Consistency Certification (30-days for completeness notice) Can be altered by written agreement between State and applicant	60 Days, extendable (or contractible) by mutual agreement
Consistency	Must be Fully Consistent	To Maximum Extent Practicable**
Procedure Initiation	Applicant provides Consistency Certification to State	Federal Agency provides "Consistency Statement" to State
Appealable	Yes, applicant can appeal to Secretary (NOAA)	No (NOAA can "mediate")
Activities	Listed activities with their geographic location (State can request additional listing within 30 days)	Listed or Unlisted Activities in State Program
Activities in Another State	Must have approval for interstate reviews from NOAA	Interstate review approval NOT required
Activities in Federal Waters	Yes, if activity affects state waters	Same

* There are separate requirements for activities on the Outer Continental Shelf (subpart E) and for "assistance to an applicant agency" (subpart F).

** Must be fully consistent except for items prohibited by applicable law (generally does not count lack of funding as prohibited by law, 15 CFR 930.32).

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P.O. BOX 4970
JACKSONVILLE, FLORIDA
32232-0019

Planning Division
Environmental Branch

Ms. Rose A. Ortíz Diaz
Coastal Zone Management Consistency Office
Puerto Rico Planning Board
P.O. Box 41119, Minillas Station
San Juan, Puerto Rico 00940

Dear Ms. Ortíz Diaz:

I have enclosed seven copies of an application for Certification of Consistency with the Puerto Rico Coastal Management Program for the Puerto Rico Coastal Storm Risk Management Project. This project involves reducing damages to infrastructure as a result of coastal flooding from storm surge and waves generated by coastal storms and hurricanes. The project consists in the construction of structural features in specific locations designed to reduce the risk of damages as a result of wave attack, coastal flooding, and erosion in the municipalities of Rincón and San Juan, Puerto Rico.

The structural features would consist of:

- Stone revetment (approximately 0.7 miles) on the headlands of Punta Piedritas (0.4 miles) and Punta Las Marías (0.3 miles) in San Juan,
- Beach nourishment (approximately 0.4 miles) in Condado Beach, San Juan is currently the preferred alternative, but a final preferred plan may propose revetment, nourishment or breakwaters, or a combination of these features.
- Beach nourishment (approximately 1.3 miles) and a series of breakwaters (5 to 8 breakwaters protecting 3,500 ft to 5,500 ft) in Ocean Park Beach, San Juan is currently the preferred alternative, but a final preferred plan may propose revetment, nourishment or breakwaters, or a combination of these features.
- Stone revetment (approximately 1.0 miles) in Rincón is currently the preferred alternative, but a final preferred plan may propose revetment, nourishment or breakwaters, or a combination of these features.

Upon final design, functional lift provided from the construction of these features would be incorporated into functional assessments and mitigation plan. The final determinations in terms of the quantity and siting of any onsite compensatory mitigation would be conducted during the water quality certification (WQC) process in the PED Phase of the project when site-specific survey data and the final designs are available.

The following additional information on this project is available on the internet http://www.saj.usace.army.mil/About/DivisionsOffices/Planning/EnvironmentalBranch/EnvironmentalDocuments.aspx#Puerto_Rico:

1. The Notice of Availability of the Draft Finding of No Significant Impact
2. The Draft Integrated Feasibility Report and Environmental Assessment
3. Maps, drawings, and other information

If you have any questions, please contact Paul DeMarco at 904-232-1897 (paul.m.demarco@usace.army.mil).

Sincerely,

Angela E. Dunn
Chief, Environmental Branch

Enclosures

Rev. MAR 2005

Commonwealth of Puerto Rico
Office of the Governor

Puerto Rico Planning Board Physical Planning Area Land Use Planning Bureau

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

General Instructions:

A. Attach a 1:20,000 scale, U.S. Geological Survey topographic quadrangular base map of the site.

B. Attach a reasonably scaled plan or schematic design of the proposed object, indicating the following:

1. Peripheral areas
2. Bodies of water, tidal limit and natural systems.

C. You may attach any further information you consider necessary for proper evaluation of the proposal.

D. If any information requested in the questionnaire does not apply in your case, indicate by writing "N/A" (not applicable).

E. Submit a minimum of seven (7) copies of this application.

DO NOT WRITE IN THIS BOX

Type of application:_____ Application Number: _____

Date received:_____ Date of Certification: _____

Evaluation result: ☐ Objection ☐ Acceptance ☐ Negotiation

Technician: _____ Supervisor: _____

Comments: _____

1. Name of Federal Agency: U.S. Army Corps of Engineers, Jacksonville District
2. Federal Program Catalog Number: 12.106 Flood Control Projects CFDA
3. Type of Action:

   ☒ Federal Activity ☐ License or permit ☐ Federal Assistance

4. Name of Applicant: Angela E. Dunn, Environmental Branch Chief for US Army Corps of Engineers

   Postal Address: 701 San Marco Blvd. Jacksonville, FL 32207-8175

   Telephone: 904-232-2336 Fax: 904-232-3442

5. Project name: Puerto Rico Coastal Storm Risk Management (CSRM) Project, Puerto Rico
6. Physical Description of Project Location (area, facilities such as vehicular access, drainage, storm and sanitary sewer placement, etc.):

   Condado Beach: Condado Beach is one of the smallest areas of dry beach in the San Juan area. The proposed work covers from La Ventana al Mar Park to Punta Piedritas headland area. Waves break directly on exposed nearshore reef and rock revetments. This area is highly developed with hotels, condominiums, residential, and commercial buildings. There are currently 8 public beach access points to this area with 1 of these points being blocked.

Ocean Park Beach: This reach extends from Punta Piedrita east about 1.8 miles to Punta Las Marias. The eastern and western extents of Ocean Park Beach contain little to no dry beach with prevalent nearshore hardbottom and a wider central beach expanse. This area is a mixture of single-family homes, condominiums, commercial structures, and hotels. The middle section of this reach includes a public park (Barbosa Park, colloquially known as the Ultimo Trolley), which is historically known for extensive coastal inundation, as storm surge and wave attack may focus on this unimpeded stretch of coast. There are currently 16 public beach access points to this area with 6 of these points being blocked.

Rincón: The Rincón focus area generally contains wider beaches and elevated berm crests to the north and narrower beaches with damaged/abandoned homes, some physically in the water, to the south (Córcega). This area is a mixture of single-family homes, condominiums, commercial structures, and hotels. Seawalls, revetments, and non-engineered armoring protection in front of homes and hotels represent the majority of the coastal protection structures already in place. There are currently 10 public beach access points to this area.

Lambert Coordinates:

Condado Beach	X = 66.0757167°W	Y = 18.4592341°N
Ocean Park Beach	X = 66.0523947°W	Y = 18.4544986°N
Rincón	X = 67.2490924°W	Y = 18.3245289°N

7. Type of construction or other work proposed:

__drainage	__channeling	__landfill	__sand extraction
__ pier	__bridge	__residential	__tourist

others (specify and explain): Revetment, nourishment and breakwaters.

Description of proposed work: The project consists in the construction of structural features in specific locations designed to reduce the risk of damages as a result of wave attack, coastal flooding, and erosion in the municipalities of Rincón and San Juan, Puerto Rico. The structural features would consist of:

- Stone revetment (approximately 0.7 miles) on the headlands of Punta Piedritas (0.4 miles) and Punta Las Marías (0.3 miles) in San Juan,
- Beach nourishment (approximately 0.4 miles) in Condado Beach, San Juan is currently the preferred alternative, but a final preferred plan may propose revetment, nourishment or breakwaters, or a combination of these features.
- Beach nourishment (approximately 1.3 miles) and a series of breakwaters (5 to 8 breakwaters protecting 3,500 ft to 5,500 ft) in Ocean Park Beach, San Juan is currently the preferred alternative, but a final preferred plan may propose revetment, nourishment or breakwaters, or a combination of these features.
- Stone revetment (approximately 1.0 miles) in Rincón is currently the preferred alternative, but a final preferred plan may propose revetment, nourishment or breakwaters, or a combination of these features.

8. Natural, artificial, historic or cultural systems likely to be affected by the project

Place an X opposite any of the systems indicated below that are in the project area or its surroundings, which are likely to be affected by that activity. Indicate the distance from the project to any outside system that would likely be affected.

System	Within Project	Outside Project	Distance (meters)	Local name of affected system
beach, dunes	X			Condado Beach, Ocean Park Beach & Rincón.
mangroves, wetlands				
coral, reefs	X	X	0 m	Condado Beach, Ocean Park Beach & Rincón.
river, estuary				
bird sanctuary				
pond, lake, lagoon				
agricultural unit				
forest, wood				
cliff, breakwater				
cultural or tourist area	X			Condado Beach, Ocean Park Beach & Rincón.
other (explain) Submerged Aquatic Vegetation				

Describe the likely impact of the project on the identified system (s).

Positive ☒ Negative ☒

Explain:

The proposed revetment work in Punta Piedrita, San Juan could potentially have a direct and indirect impact on 2.53 acres of hardbottom and the proposed revetment work in Punta Las Marías, San Juan could potentially have a direct and indirect impact on 2.13 acres of hardbottom. In Condado Beach, San Juan of the different alternatives proposed, which include revetment, nourishment and/or breakwaters, any of them or their combination would only have direct and indirect impacts on hardbottom. The largest potential impacts from any of the construction footprint measures would impact 4.08 acres of hardbottom. In Ocean Park Beach, San Juan, similar to Condado Beach, of the different alternatives proposed, which include revetment, nourishment and/or breakwaters, any of them would only have direct and indirect impacts on hardbottom. The largest potential impacts from any of the construction footprint measures would impact 5.52 acres of hardbottom. Finally, in Rincón of the different alternatives proposed, which also include revetment, nourishment and/or breakwaters, any of them would only have direct and indirect impacts on hardbottom. The largest potential impacts from any of the construction footprint measures would impact 5.33 acres of hardbottom.
Currently 19.59 acres are the greatest potential impacts calculated for this project. At the same time in the reaches where breakwater features may be constructed it would have the potential of creating benthic habitat for aquatic species. As more information is obtained and more analysis is completed it will allow for a

more precise and accurate calculation of the projects design's direct and indirect impacts. A mitigation plan is being developed, nonetheless other Best Management Practices (BMP) and methods will be implemented to manage the construction. Prior to any construction activity, turbidity controls such as turbidity curtains, silt fences, and other BMP measures must be installed. The final details for BMPs and methods will be determined during the permitting and contracting process. The impact to tourist areas would be temporary and access would be restricted during construction for safety reasons.

9. Indicate permits, approvals and endorsements of the proposal by Federal and Puerto Rican government agencies. Evidence of such support should be attached to the proposal.

	Yes	No	Pending	Application Number
a. Planning Board	☐	☐	☒	
b. Regulation and Permits Administration	☐	☐	☐	
c. Environmental Quality Board	☐	☐	☒	
d. Department of Natural Resources	☐	☐	☒	
e. State Historic Preservation Office	☐	☐	☒	
f. U.S. Army Corps of Engineers	☐	☐	☐	
g. U.S. Coast Guard	☐	☐	☐	
h. Other (s) (specify)	☐	☐	☐	

CERTIFICATION

I CERTIFY THAT (project name) Puerto Rico CSRM Project is consistent with the Puerto Rico Coastal Zone Management Program, and that to the best of my knowledge the above information is true.

Angela E. Dunn
Name (legible)

Signature

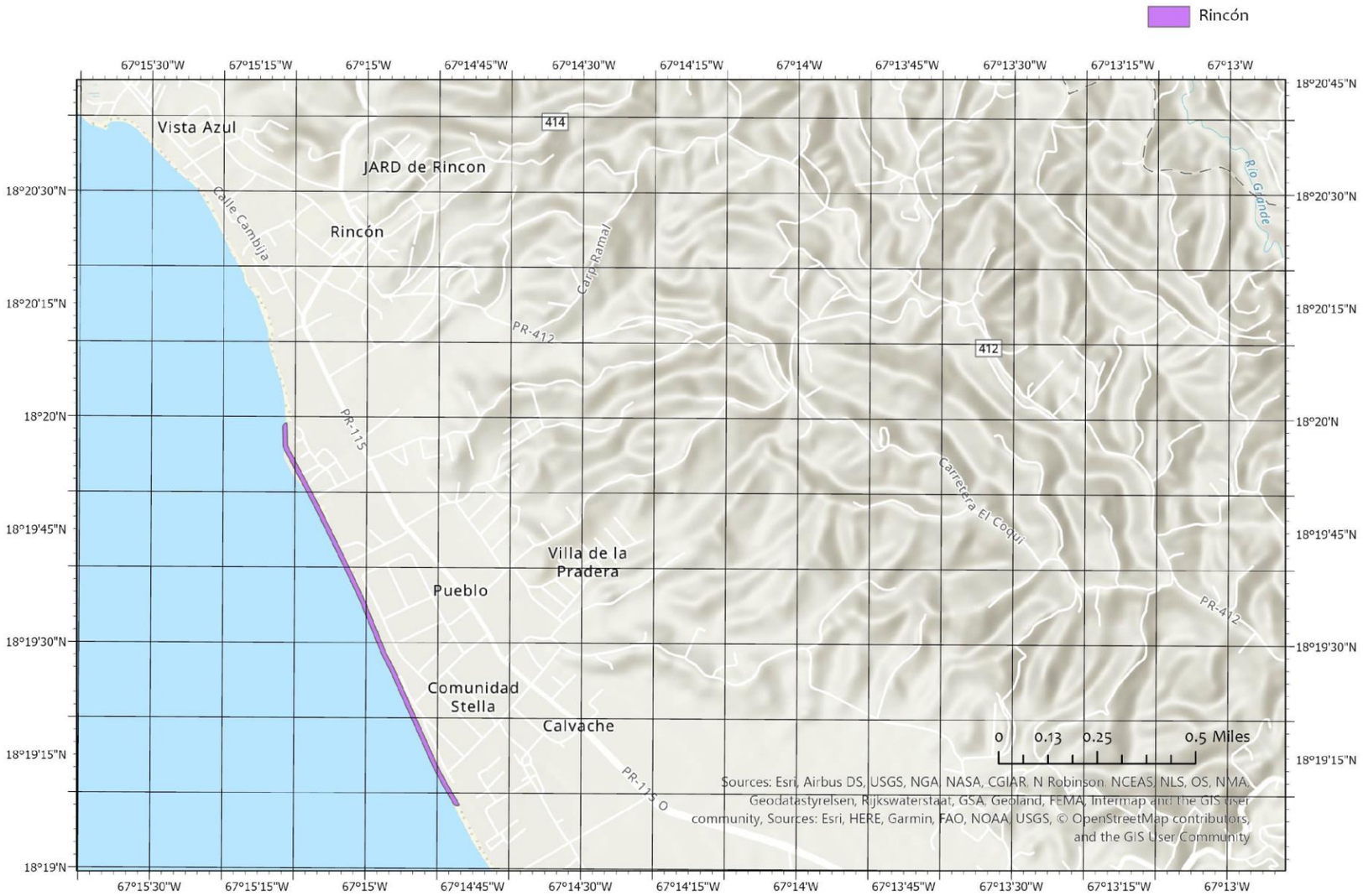
Chief, Environmental Branch
Position

Date

Puerto Rico
Coastal Storm Risk Management

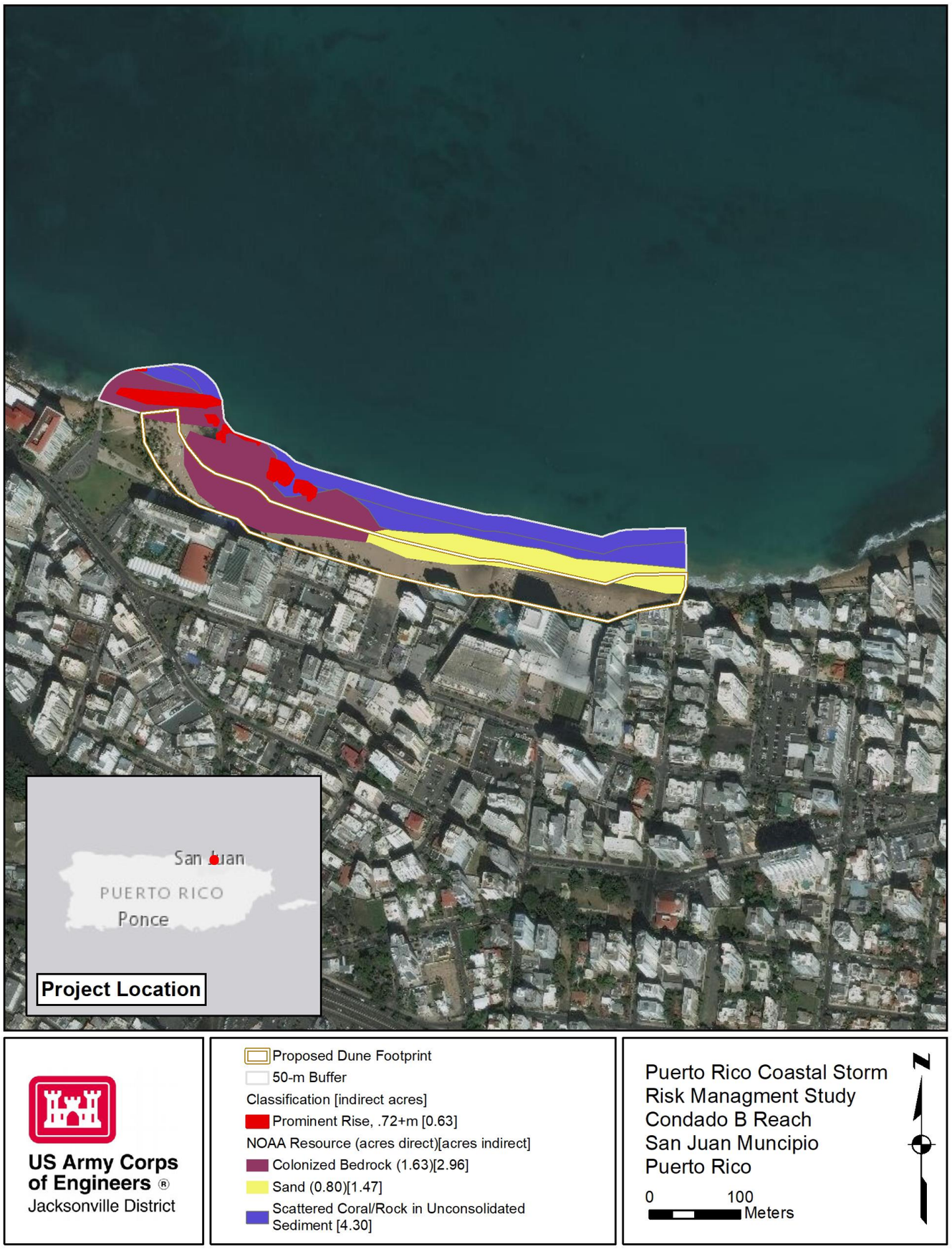
Map 1a. Puerto Rico Coastal Storm Risk Management, San Juan area, 1:20,000 scale topographic map.

Puerto Rico
Coastal Storm Risk Management

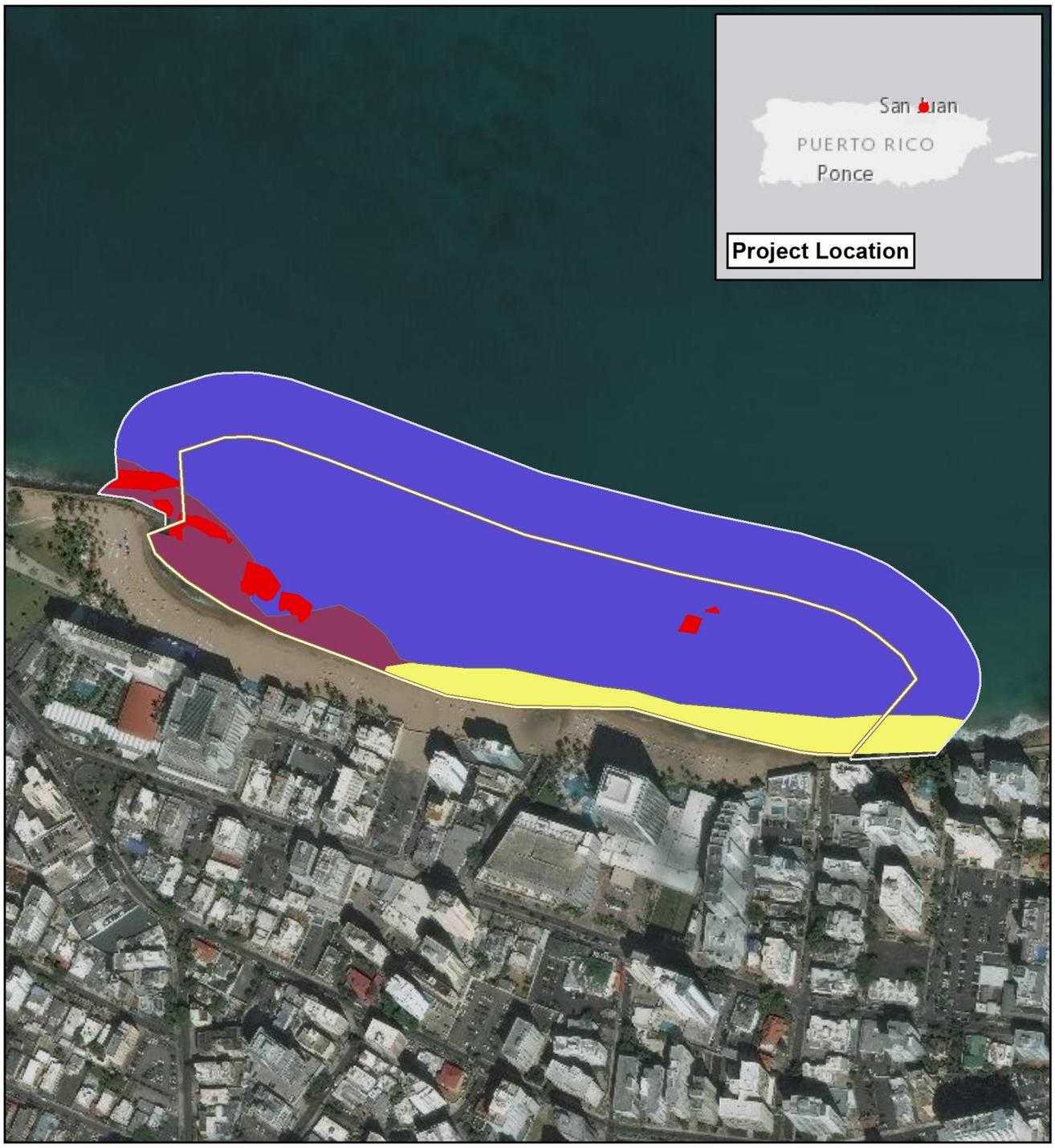


Map 1b. Puerto Rico Coastal Storm Risk Management, Rincón area, 1:20,000 scale topographic map.

Map 2. Condado Beach potential dune nourishment area with a 50-m buffer zone and benthic resources.



Map 3. Condado Beach potential beach nourishment area with a 50-m buffer zone and benthic resources.



US Army Corps of Engineers ®
Jacksonville District

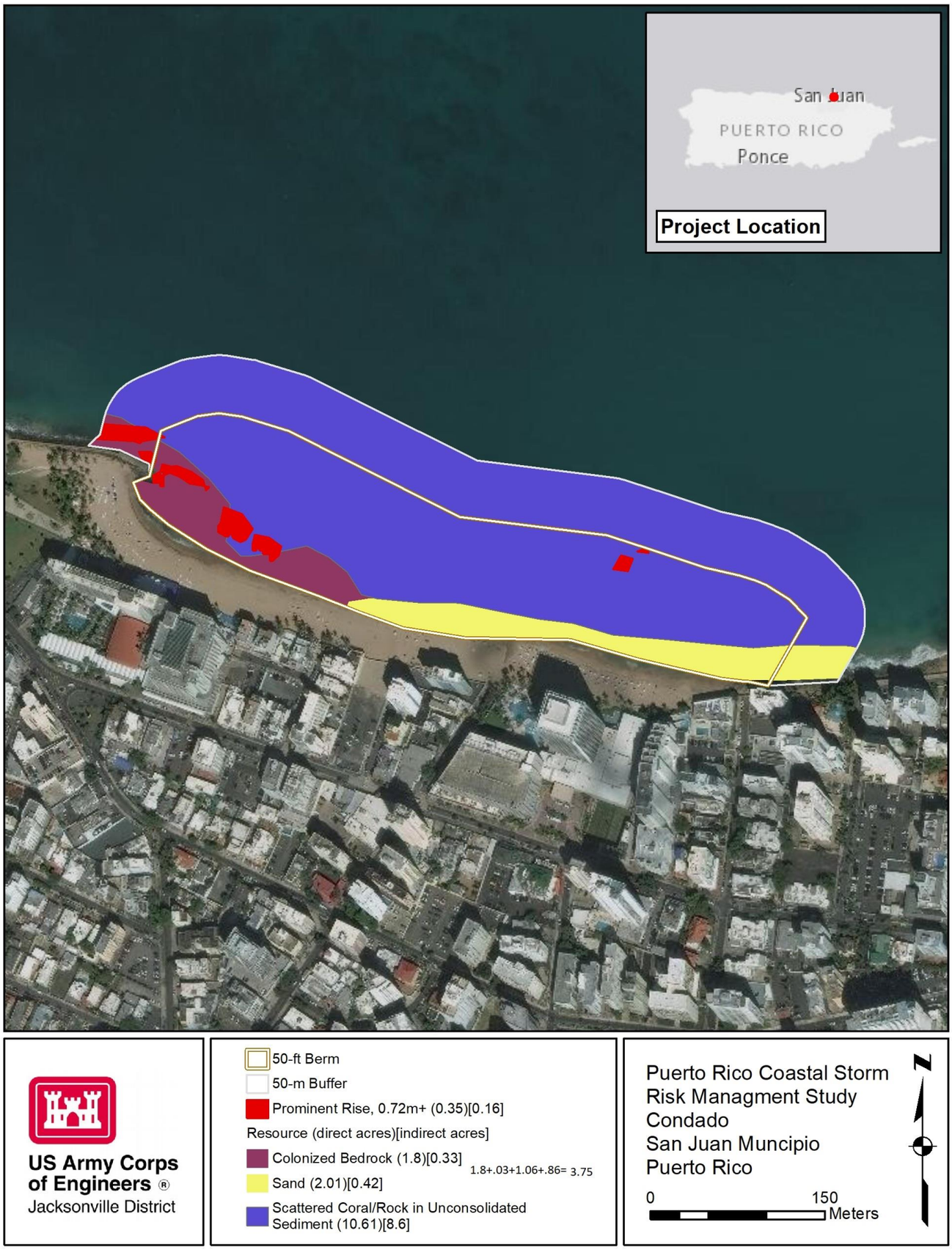
100-ft Berm
50-m Buffer
Prominent Rise, 0.72m+ (0.34)[0.17]
Resource (direct acres)[indirect acres]
Colonized Bedrock (1.74)[0.38]
Sand (2.03)[0.47]
1.74+.04+1.38+.92=4.08
Scattered Coral/Rock in Unconsolidated Sediment (13.83)[9.19]

Puerto Rico Coastal Storm Risk Managment Study
Condado
San Juan Muncipio
Puerto Rico

0 150 Meters

N

Map 4. Condado Beach potential reduced beach nourishment area with a 50-m buffer zone and benthic resources.



US Army Corps of Engineers ®
Jacksonville District

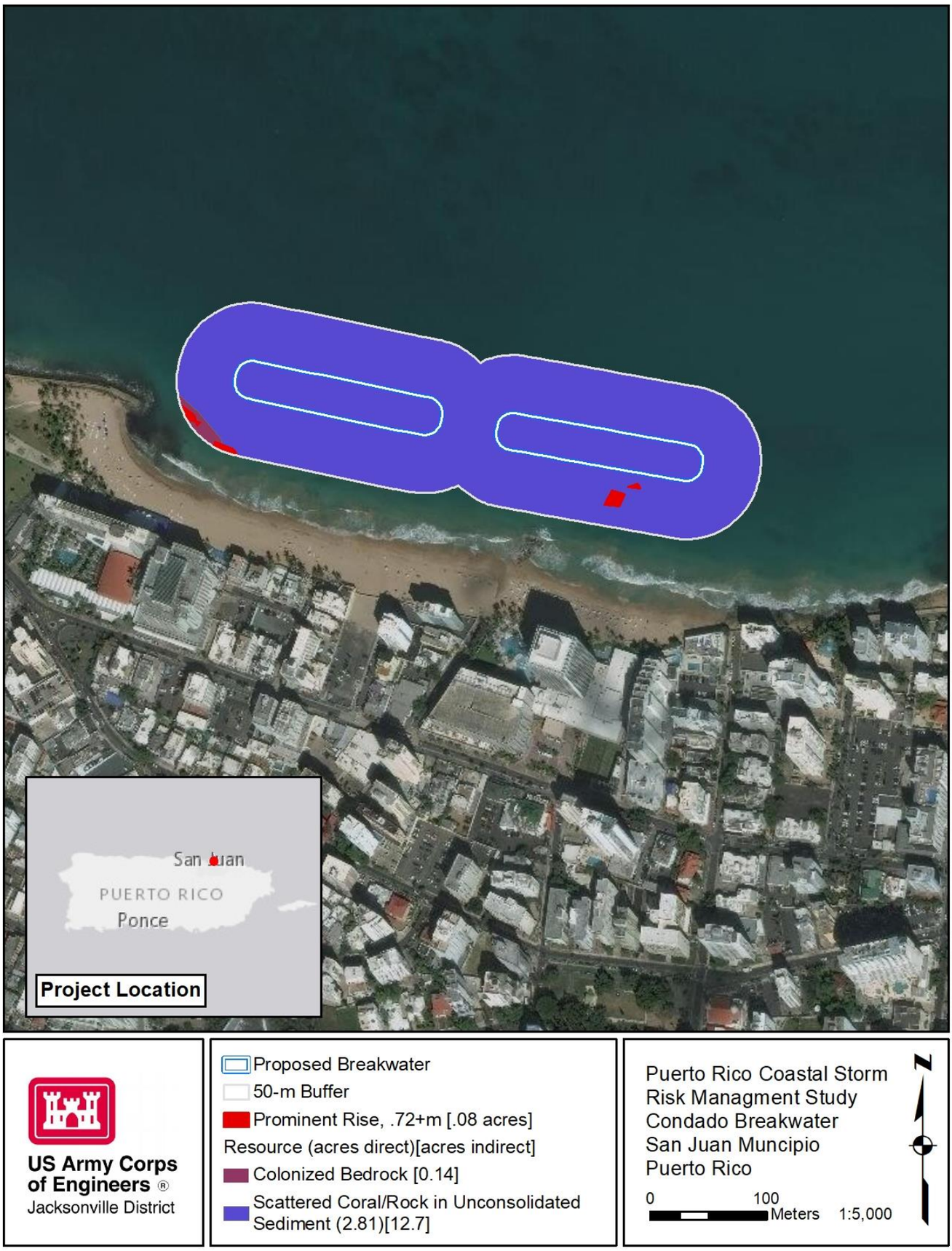
50-ft Berm
50-m Buffer
Prominent Rise, 0.72m+ (0.35)[0.16]
Resource (direct acres)[indirect acres]
Colonized Bedrock (1.8)[0.33]
Sand (2.01)[0.42]
1.8+.03+1.06+.86= 3.75
Scattered Coral/Rock in Unconsolidated Sediment (10.61)[8.6]

Puerto Rico Coastal Storm Risk Managment Study
Condado
San Juan Muncipio
Puerto Rico

0 150 Meters

N

Map 5. Condado Beach potential breakwaters area with a 50-m buffer zone and benthic resources.



US Army Corps of Engineers ®
Jacksonville District

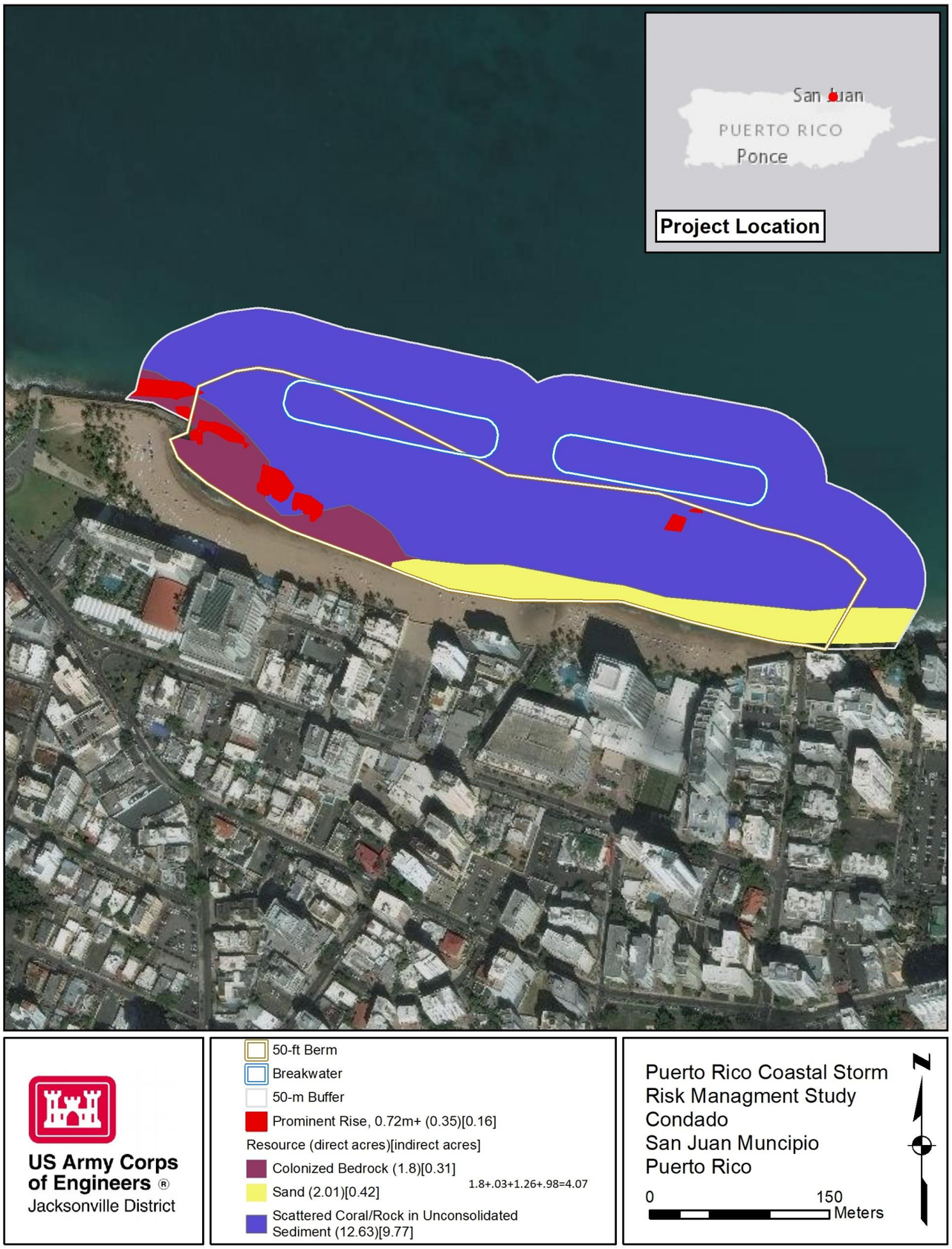
Proposed Breakwater
50-m Buffer
Prominent Rise, .72+m [.08 acres]
Resource (acres direct)[acres indirect]
Colonized Bedrock [0.14]
Scattered Coral/Rock in Unconsolidated Sediment (2.81)[12.7]

Puerto Rico Coastal Storm Risk Managment Study
Condado Breakwater
San Juan Muncipio
Puerto Rico

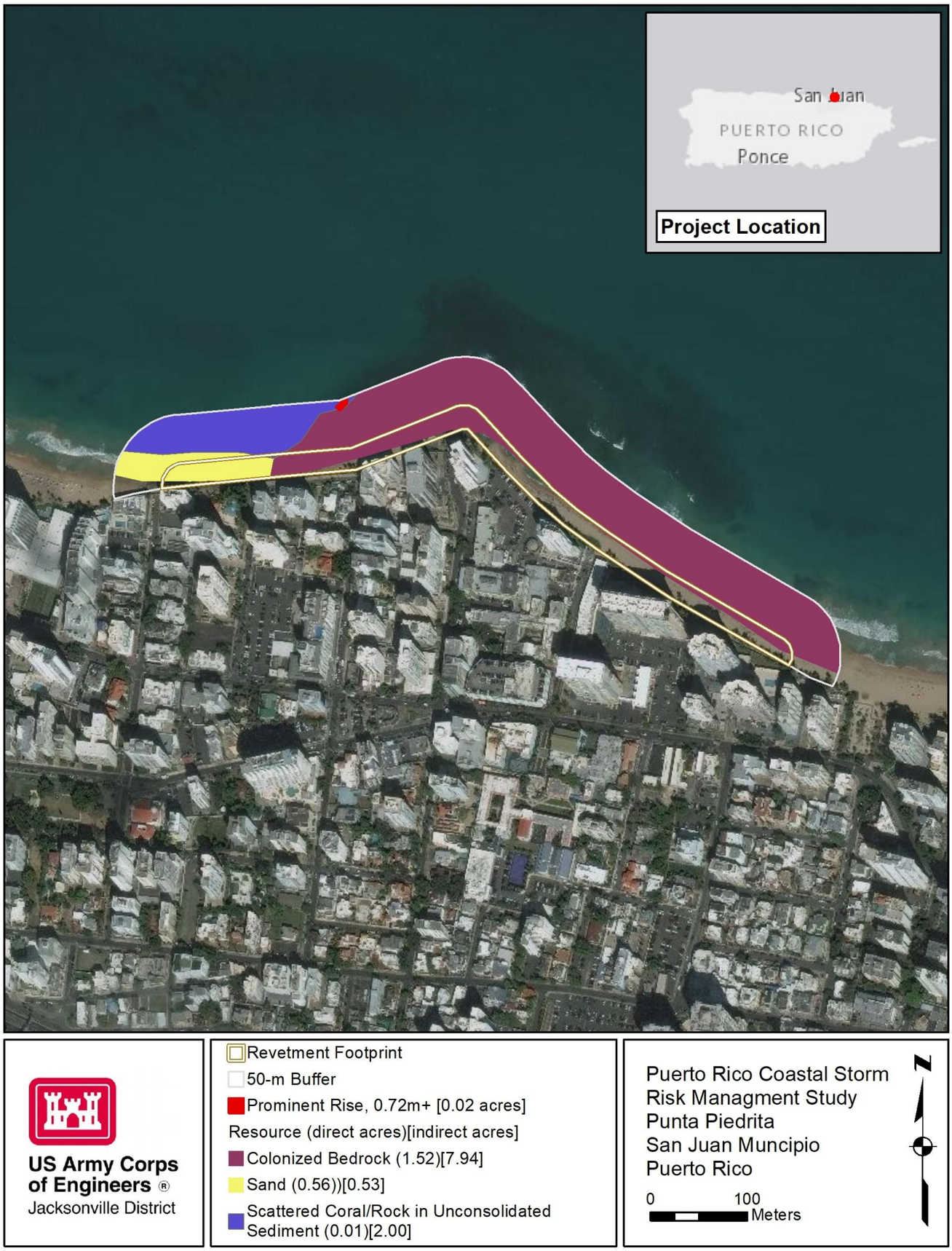
N

0 100 Meters 1:5,000

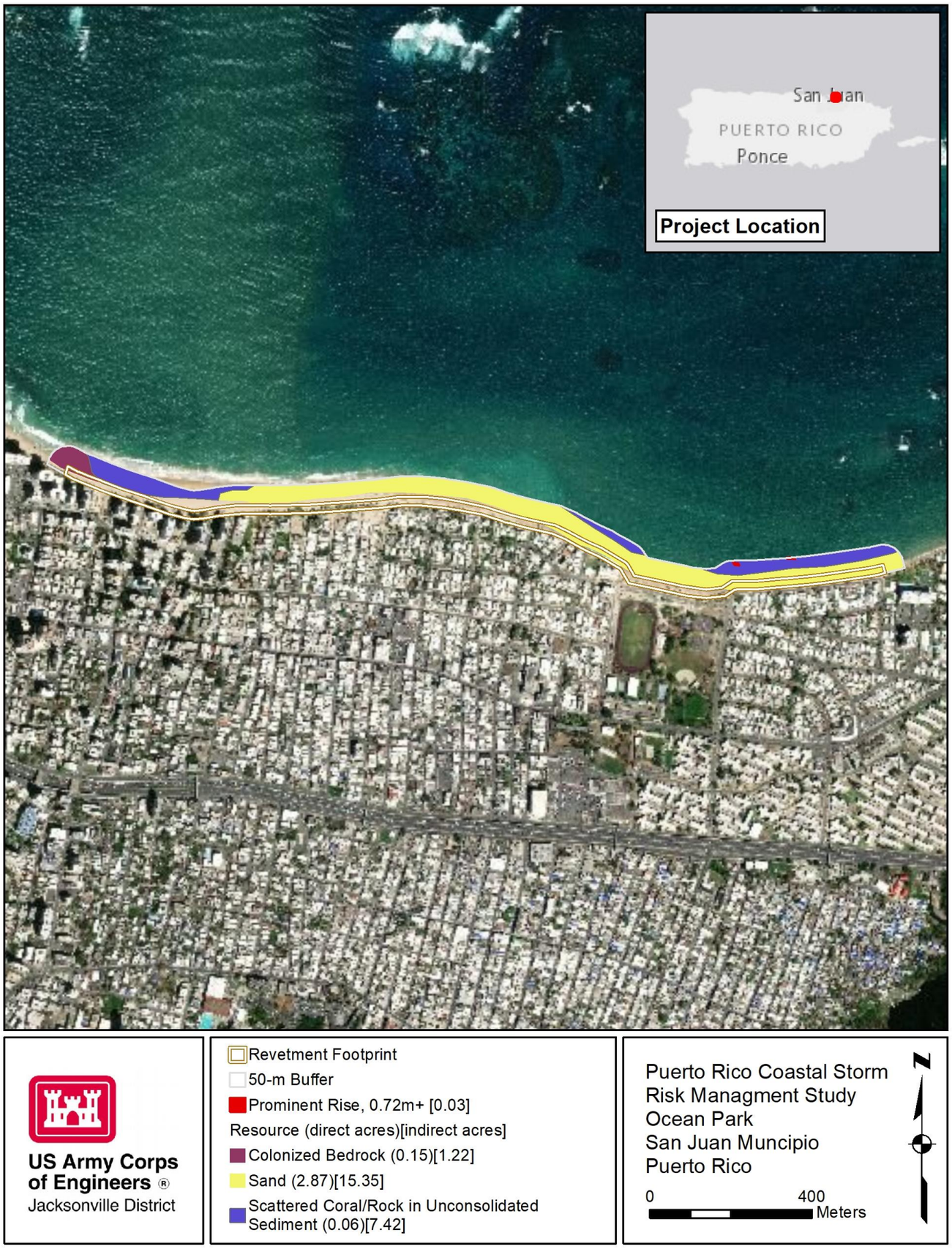
Map 6. Condado Beach potential reduced beach nourishment and breakwaters area with a 50-m buffer zone and benthic resources.



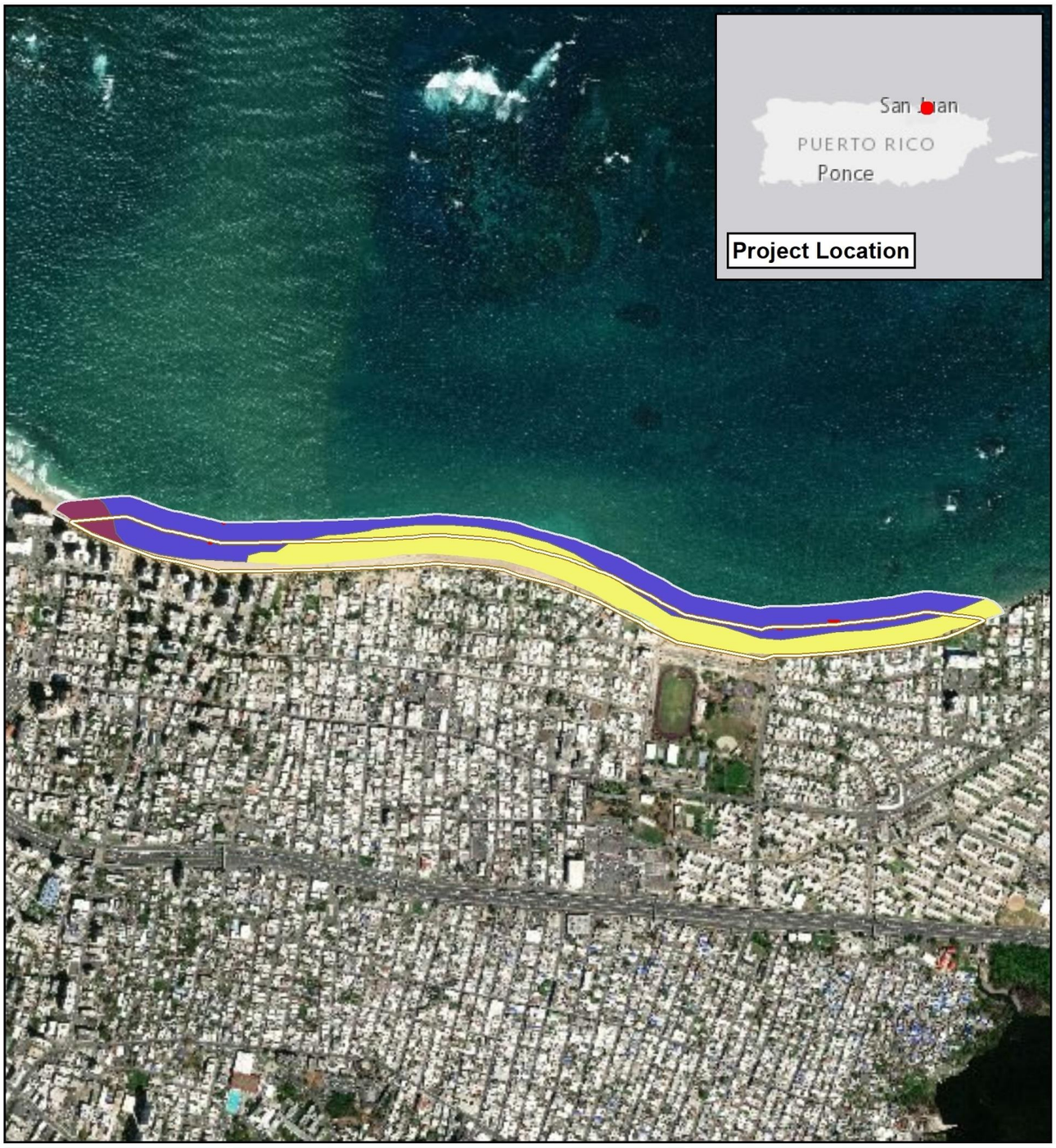
Map 7. Punta Piedritas revetment area with a 50-m buffer zone and benthic resources.



Map 8. Ocean Park Beach potential revetment area with a 50-m buffer zone and benthic resources.



Map 9. Ocean Park Beach potential beach and dune nourishment area with a 50-m buffer zone and benthic resources.



US Army Corps of Engineers ®
Jacksonville District

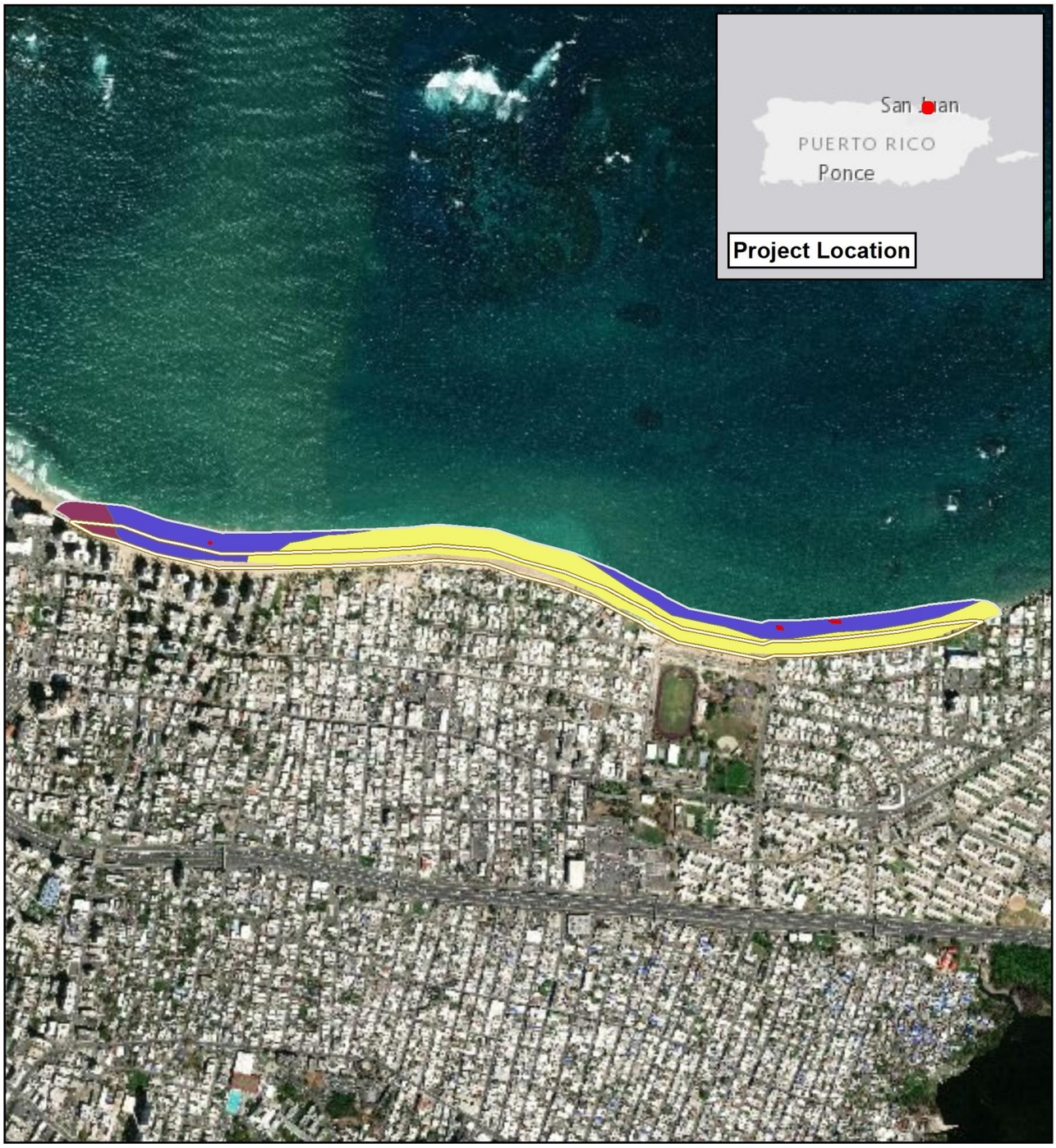
Dune and Berm, No Breakwater
50-m Buffer
Prominent Rise, 0.72m+ (0.03)[0.21]
Resource (direct acres)[indirect acres]
Colonized Bedrock (0.81)[1.3] .81+.13=.94
Sand (20.56)[4.72]
Scattered Coral/Rock in Unconsolidated Sediment (8.21)[22.38] 0.821+2.238= 3.06

Puerto Rico Coastal Storm
Risk Managment Study
Ocean Park
San Juan Muncipio
Puerto Rico

0 400
Meters

N

Map 10. Ocean Park Beach potential reduced beach and dune nourishment area with a 50-m buffer zone and benthic resources that would include the breakwaters in Map 11.



US Army Corps of Engineers ®
Jacksonville District

Dune and Berm, with Breakwater
50-m Buffer
Prominent Rise, 0.72n+ [0.04]
Resource (direct acres)[indirect acres]
Colonized Bedrock (0.54)[1.42] .54+.14=.68
Sand (11.09)[13.59]
Scattered Coral/Rock in Unconsolidated Sediment (2.19)[13.27] .219+1.327=1.55

Puerto Rico Coastal Storm Risk Managment Study
Ocean Park
San Juan Muncipio
Puerto Rico

N

0 400 Meters

Map 11. Ocean Park Beach potential breakwaters area with a 50-m buffer zone and benthic resources.

US Army Corps of Engineers ®
Jacksonville District

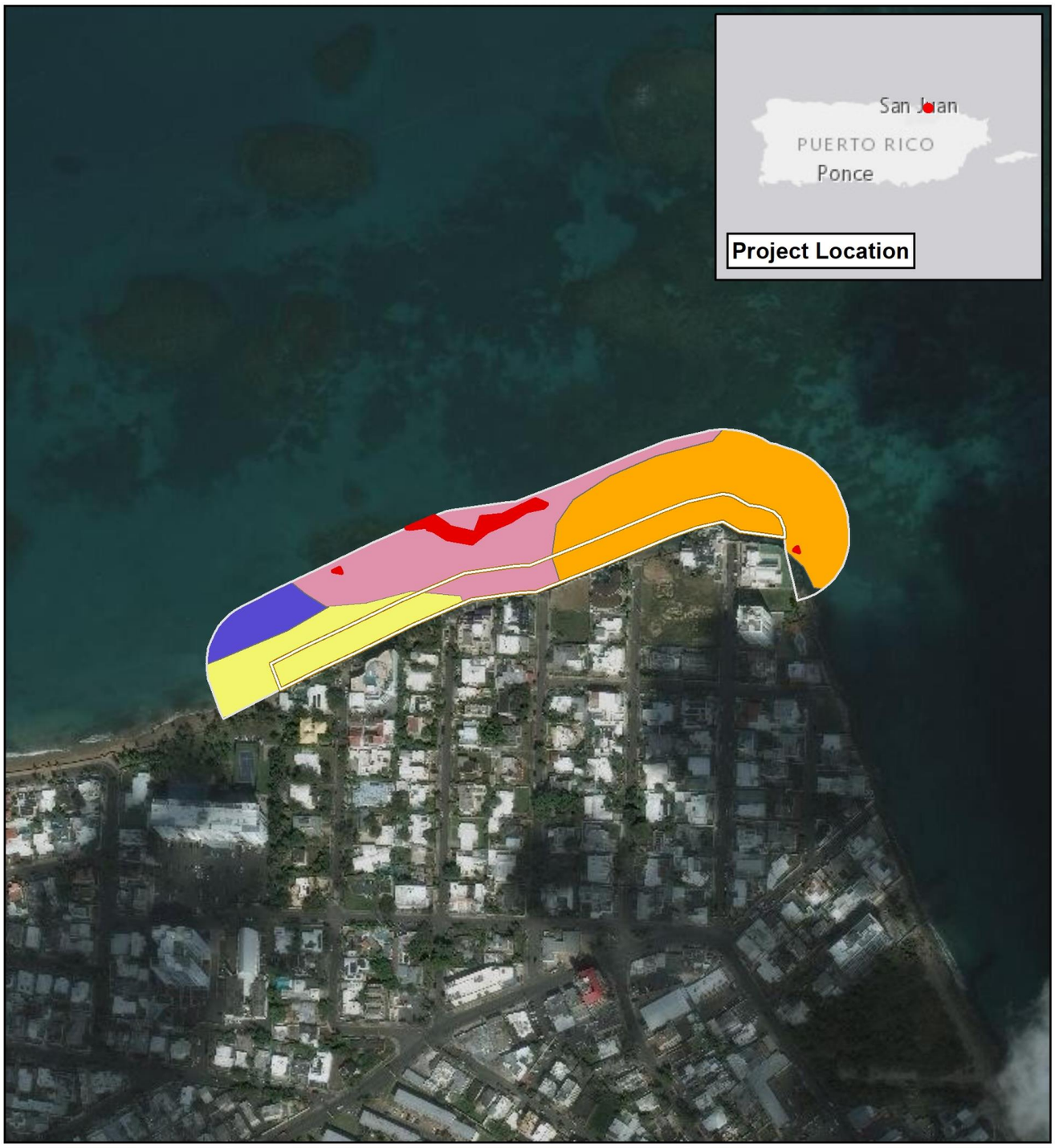
Breakwater
50-m Buffer on Breakwaters
Classification (direct acres)[indirect acres]
Minor relief, .24-.72m (0.54)[4.66]
Prominent relief, .72+m (0.37)[.83]
NOAA Resource (direct acres)[indirect acres]
Patch Reef (Aggregated) (0.55)[12.81]
Scattered Coral/Rock in Unconsolidated Sediment (8.77)[144.29]

Puerto Rico Coastal Storm Risk Managment Study
Ocean Park Reach
San Juan Muncipio
Puerto Rico

N

0 200 Meters

Map 12. Punta Las Marías revetment area with a 50-m buffer zone and benthic resources.



US Army Corps of Engineers ®
Jacksonville District

Revetment Footprint
50-m Buffer
Prominent Rise, 0.72m+ [0.21 acres]
Resource (direct acres)[indirect acres]
Colonized Pavement (0.97)[2.97]
Patch Reef (Aggregated) (0.46)[2.63]
Sand (0.76)[0.94]
Scattered Coral/Rock in Unconsolidated Sediment [0.64]

Puerto Rico Coastal Storm Risk Managment Study
Ocean Park R1 and R2
San Juan Muncipio
Puerto Rico

N

0 100 Meters

Figure 1. Punta Piedritas Preliminary Revetment Design.

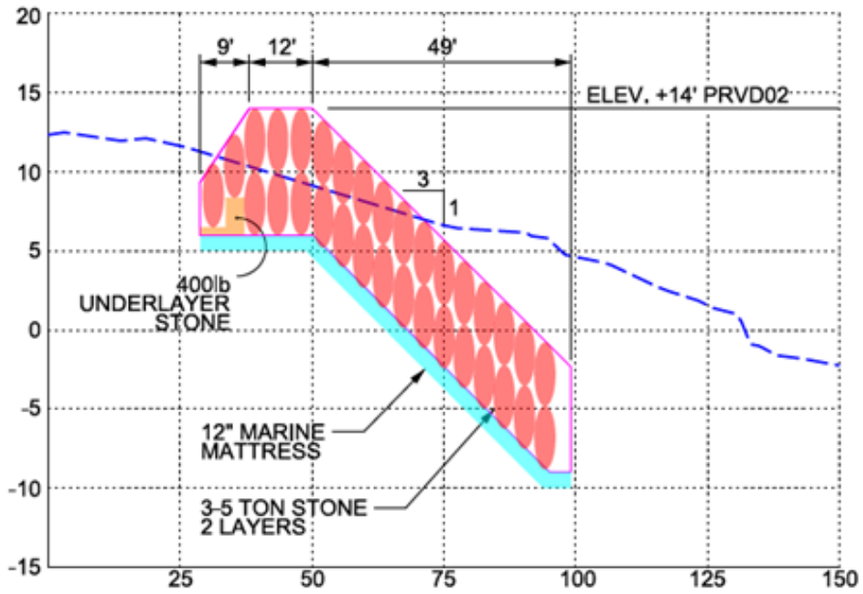


Figure 2. Punta Las Marías Preliminary Revetment Design.

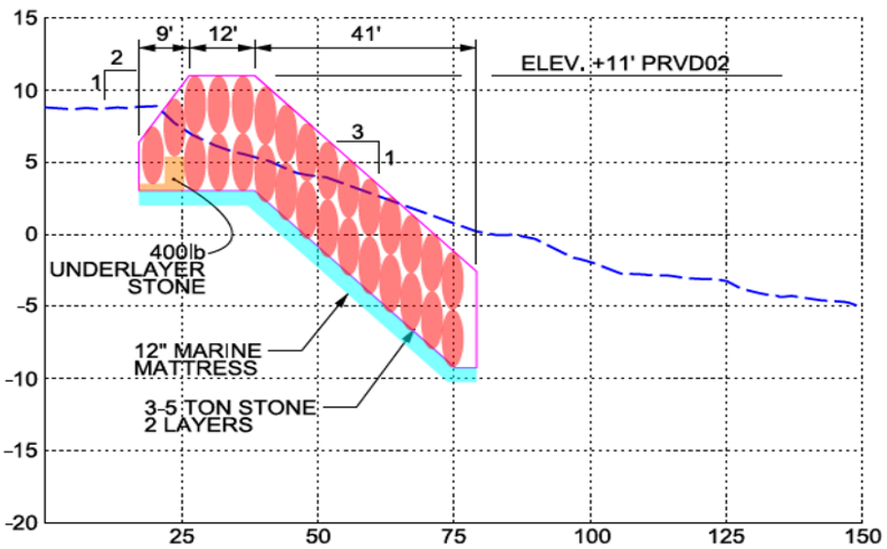


Figure 3. Ocean Park Preliminary Breakwater Design for breakwaters number 1-5.

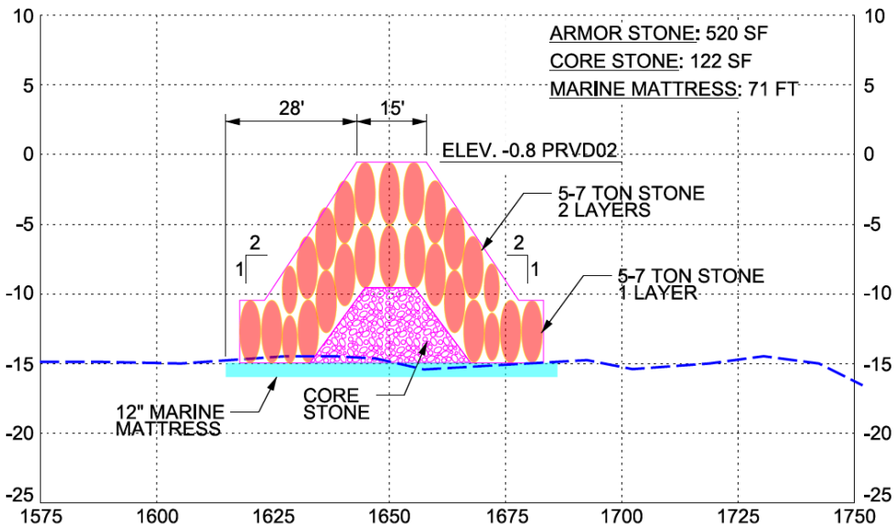
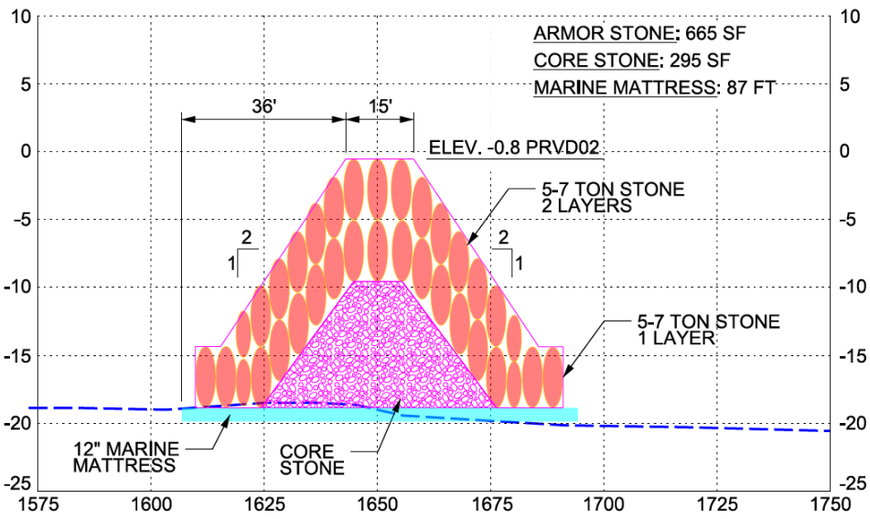


Figure 4. Ocean Park Preliminary Breakwater Design for breakwaters number 6-8.



Map 13. Rincón potential beach nourishment area with a 50-m buffer zone and benthic resources.

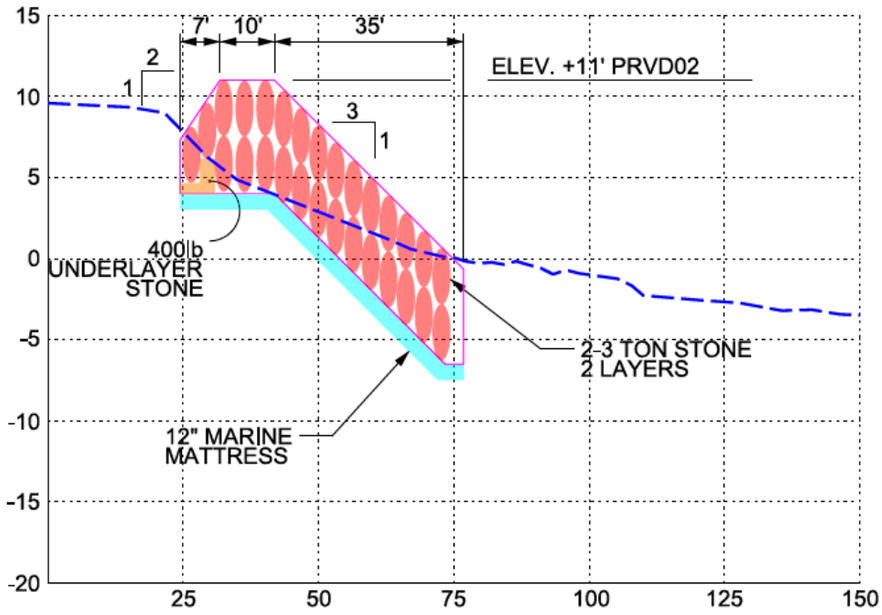
Map 14. Rincón potential revetment area with a 50-m buffer zone and benthic resources.

Map 15. Rincón potential reduced 25 ft beach nourishment area with a 50-m buffer zone and benthic resources.

Map 16. Rincón potential breakwaters area with a 50-m buffer zone and benthic resources.

Map 17. Rincón potential reduced 25 ft beach nourishment and breakwaters area with a 50-m buffer zone and benthic resources.

Figure 5. Rincón Preliminary Revetment Design.



PUERTO RICO COASTAL STORM RISK MANAGEMENT PROJECT

Appendix G - Environmental

Attachment 3. Draft Environmental Mitigation Plan

Jacksonville District
701 San Marco Boulevard
Jacksonville, Florida 32207

November 2020

US Army Corps of Engineers ®
Jacksonville District

DRAFT ENVIRONMENTAL MITIGATION PLAN

PUERTO RICO COASTAL STORM RISK MANAGEMENT

SAN JUAN, PUERTO RICO

November 2020

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 PURPOSE OF THIS DOCUMENT AND MITIGATION OBJECTIVES

The purpose of this document is to describe the strategy for determining the type and quantity of compensatory mitigation required for implementation of the Tentatively Selected Plan (TSP) for the Puerto Rico Coastal Storm Risk Management (CSRM) Integrated Feasibility Report and Environmental Assessment (IFR/EA). This document also serves to describe the mitigation strategies and alternatives that were considered, and the functional model used to assess functional resource loss requiring mitigation.

The compensatory mitigation objectives for the Puerto Rico CSRM Project are the following:

- Describe the methodology that will be used to estimate the functional loss of unavoidable impacts to coral reef and hardbottom with implementation of the TSP Alternatives at five locations: Rincon, Condado Pocket Beach, Ocean Park Pocket Beach Punta Piedrita, and Punta Las Marias;
- Identify potential environmental mitigation plan alternatives that compensate for the functional loss of coral and hardbottom;
- Identify the most cost-effective compensatory mitigation alternative that strategizes to identify and implement the most cost-effective mitigation plan while also meeting all environmental mitigation requirements;

This document is meant to describe the environmental mitigation strategy and would be updated during the Preconstruction, Engineering, and Design (PED) Phase of the project when the final siting of structures and engineering designs are provided and the quantity and type of required environmental mitigation are finalized. Any additional mitigation requirements, based on a functional analysis (UMAM) and associated monitoring and adaptive management actions, would be added to this plan after additional information is obtained. Within the Condado and Ocean Park pocket beaches and Rincon, the final preferred plan may have some combination of these measures. The largest potential project footprint will be used for planning purposes, but the final project may end up smaller after modeling, updated benthic surveys, and design refinements are completed.

2.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

The U.S. Army Corps of Engineers (Corps) is the lead federal agency for this project and the Department of Natural and Environmental Resources (DNER) is the non-federal sponsor for the project. The study serves to identify and evaluate potential coastal storm risk management measures for coastal areas of Puerto Rico, to include Rincon, Condado, Ocean Park, Punta Piedrita, and Punta Las Marias. These measures will be formulated to reduce risk to residents, industries, and businesses which are critical to the nation's economy. For a detailed description of the purpose and need for the proposed action, please refer to the draft Puerto Rico Coastal CSRM IFR/EA.

3.0 ENVIRONMENTAL MITIGATION REGULATORY BACKGROUND

The Corps and U.S. Environmental Protection Agency (USEPA) published regulations entitled, "Compensatory Mitigation for Losses of Aquatic Resources" (Mitigation Rule) on April 10, 2008. One of the primary goals of these regulations (33 Code of Federal Regulation (CFR) Parts 325 and 332) was to improve the quality and success of compensatory mitigation plans that are

designed to offset impacts to aquatic resources. The Mitigation Rule emphasizes the strategic selection of mitigation sites on a watershed basis and established equivalent standards for all types of compensatory mitigation (mitigation banks, in-lieu fee programs, and permittee-responsible mitigation plans). Per these regulations, compensatory mitigation means the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of wetlands and special aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved. The three mechanisms for providing compensatory mitigation listed in order of preference as stated in the Mitigation Rule are the following: mitigation banks, in-lieu fee programs, and permittee-responsible mitigation. Compensatory mitigation is necessary to offset these unavoidable impacts to aquatic resource functions and services and to meet the programmatic goal of "no overall net loss" of aquatic resource functions and services. Additionally, Section 2039 of the Water Resources Development Act of 2007 (WRDA) directs the Corps to incorporate a plan for monitoring success of the ecosystem restoration during a feasibility study. The WRDA guidance requires the inclusion of a description of the monitoring activities, the criteria for success, and the estimated cost and duration of the monitoring as well as specifications that monitoring will continue until the success criteria have been met.

4.0 DESCRIPTION OF THE TENTATIVELY SELECTED PLAN

The single purpose of this study is to determine whether there is economic justification and Federal interest in a recommended plan to reduce damages to infrastructure as a result of erosion, wave attack, and flooding from coastal storms and hurricanes along the Puerto Rico coastline. The report will consider all engineering alternatives and their effects under the National Environmental Policy Act (NEPA) of 1969. For a detailed description of the TSP, please refer to the Puerto Rico Coastal CSRM IFR/EA.

5.0 DESCRIPTION OF PROJECT SITE AND IMPACT ANALYSIS

Based on existing geospatial data, the project features that have the potential to be sited in or affect aquatic habitats (revetments, dunes, breakwaters) have the potential to impact coral/hardbottom habitat, patch reef, and oolianite bedrock. However, due to the lack of recent site-specific data in the Region of Influence for this study, detailed site-specific surveys of bedrock and coral coverage would be conducted during the PED Phase of the project for inclusion in the functional analysis to determine final impacts. Coral and bedrock presence and density in the future, when the project would be implemented is relatively uncertain as well as determining an exact quantity of impacts at this time is not possible. It is possible that coral and bedrock composition and/or distribution may shift in the future with the effects of climate change and major storm events between the current time and implementation of the project. However, this is relatively uncertain, and justifies the future need for surveys in the timeframe closer to project implementation. Given the current restrictions on travel, availability of resources and personnel due to the COVID-19 pandemic, and small timeframes, ground truthing the limits and amounts of all resources is not possible at this time. Best available information is being utilized to construct a compensatory mitigation plan.

5.1 Rincon Reach (R11-R19)

The preferred alternative for the Rincon Reach is Alternative-2 – revetment, which could impact 0.82 acres of hardbottom habitat. It is possible after Future With Project modeling is completed a new preferred alternative or combination could be justified in the final report. Additional alternatives evaluated for Rincon (and their estimated hardbottom impacts) include Alternative-3a – 75-feet of beach nourishment (5.33 acres), Alternative-3b – 25-feet beach nourishment (2.86 acres), Alternative-4 - breakwater (2.0 acres), and Alternative-5 – beach nourishment and breakwaters (2.87 acres). Figures 5-1 through 5-5 show the Alternatives for the Rincon Reach. Table 5-1 shows the impacts to resources in the project footprint.

Table 5-1 Rincon Alternatives and Resource Impacts

Alternative		Resource Impacts
Alt-1	No Action	N/A
Alt-2	Revetment	0.82 acres potential hardbottom impact (0.75 acres unconsolidated sediment with scattered coral/rock and 0.07 acres colonized pavement)
Alt-3a	Beach Nourishment – 75’	5.33 acres potential hardbottom impact (0.75 acres unconsolidated sediment with scattered coral/rock and 4.58 acres colonized pavement)
Alt-3b	Beach Nourishment – 25’	2.86 acres potential hardbottom impact (0.75 acres unconsolidated sediment with scattered coral/rock and 2.11 acres colonized pavement)
Alt-4	Breakwater	2.01 acres potential hardbottom impact (1.27 acres colonized pavement and 0.74 acres unconsolidated sediment with scattered coral/rock)
Alt-5	Beach Nourishment and Breakwater	2.87 acres potential hardbottom impact (2.13 acres colonized pavement and 0.74 acres unconsolidated sediment with scattered coral/rock)

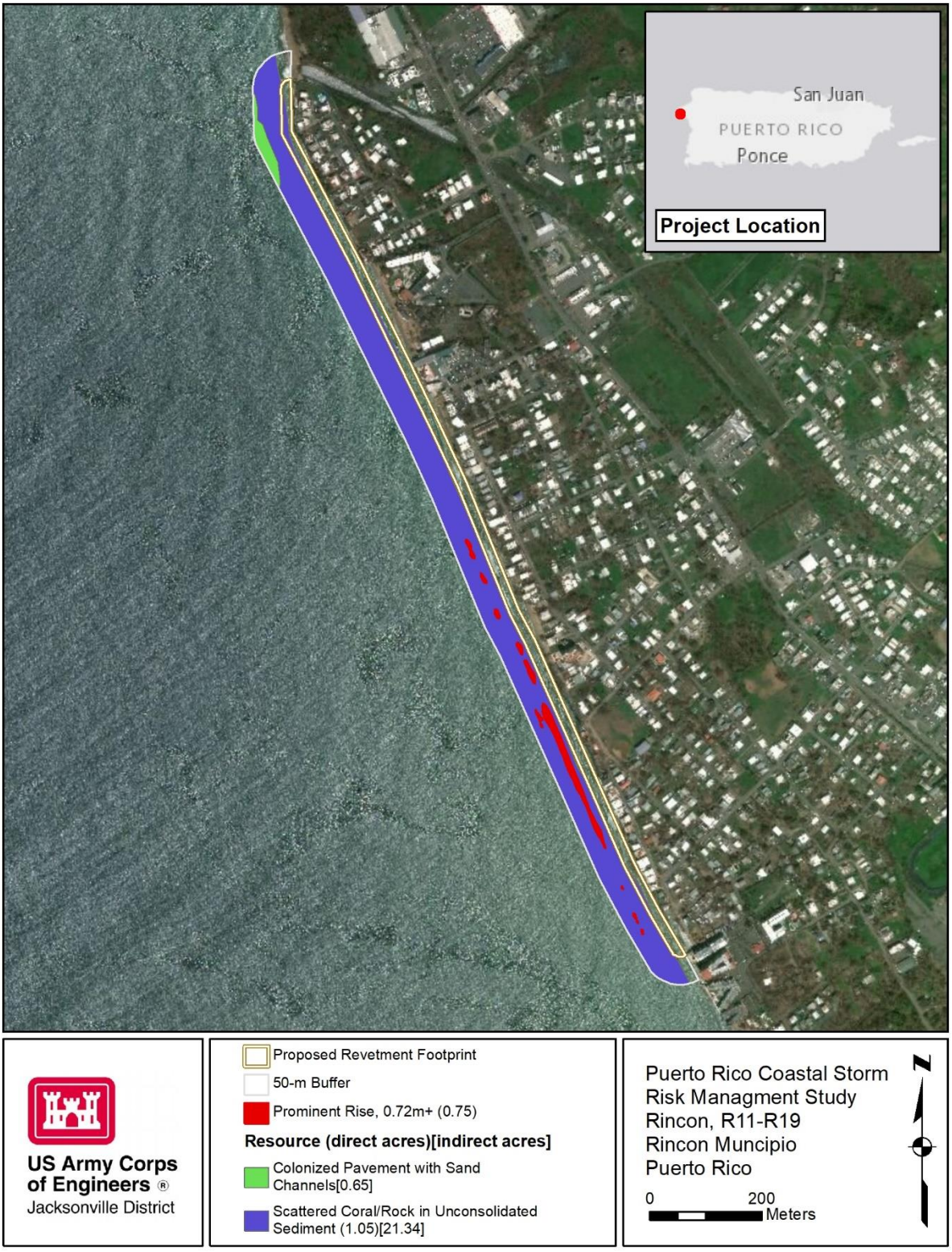

Figure 5-1. Location and type of resources and proposed work in Rincon (Alternative-2)

Figure 5-2. Location and type of resources and proposed work in Rincon (Alternative-3a)

Figure 5-3. Location and type of resources and proposed work in Rincon (Alternative-3b)

Figure 5-4. Location and type of resources and proposed work in Rincon (Alternative-4)

Figure 5-5. Location and type of resources and proposed work in Rincon (Alternative-5)

5.2 Condado Pocket Beach

The preferred alternative for Condado Pocket Beach is Alternative-3c – 50 foot berm nourishment which could impact 3.75 acres of nearshore hardbottom. It is possible after Future With Project modeling is completed a new preferred alternative or combination could be justified in the final report. Additional alternatives evaluated for Condado (and their estimated hardbottom impacts) include Alternative-2 - revetment (1.73 acres), Alternative-3a - dune nourishment (2.36 acres), Alternative-3b - 100 foot berm nourishment (4.08 acres), Alternative-4 - breakwaters (2.82 acres), and Alternative-5 - 50 foot berm nourishment with breakwater (4.07 acres).. Figures 5-6 through 5-11 show the Alternatives for the Condado Pocket Beach. Table 5-2 shows the impacts to resources in the project footprint.

Table 5-2. Condado Alternatives and Resource Impacts

Alternative		Resource Impacts
Alt-1	No Action	N/A
Alt-2	Revetment	1.73 acres potential hardbottom impact (1.34 acres colonized bedrock, 0.39 acres unconsolidated sediment with scattered coral/rock)
Alt-3a	Beach Nourishment – Dune Only	2.36 acres potential hardbottom impact (1.93 acres colonized bedrock and 0.43 acres unconsolidated sediment with scattered coral/rock)
Alt-3b	Beach Nourishment – 100’	4.08 acres potential hardbottom impact (1.74 acres colonized bedrock, 2.3 acres unconsolidated sediment with scattered coral/rock)
Alt-3c	Beach Nourishment – 50’	3.75 acres potential hardbottom impact (1.83 acres colonized bedrock, 1.92 acres unconsolidated sediment with scattered coral/rock)
Alt-4	Breakwater	2.82 acres potential hardbottom impact (2.82 acres unconsolidated sediment with scattered coral/rock)
Alt-5	Beach Nourishment and Breakwater	4.07 acres potential hardbottom impact (1.83 acres colonized bedrock, 2.24 acres unconsolidated sediment with scattered coral/rock)

Figure 5-6. Location and type of resources and proposed work in Condado Pocket Beach (Alternative-2)

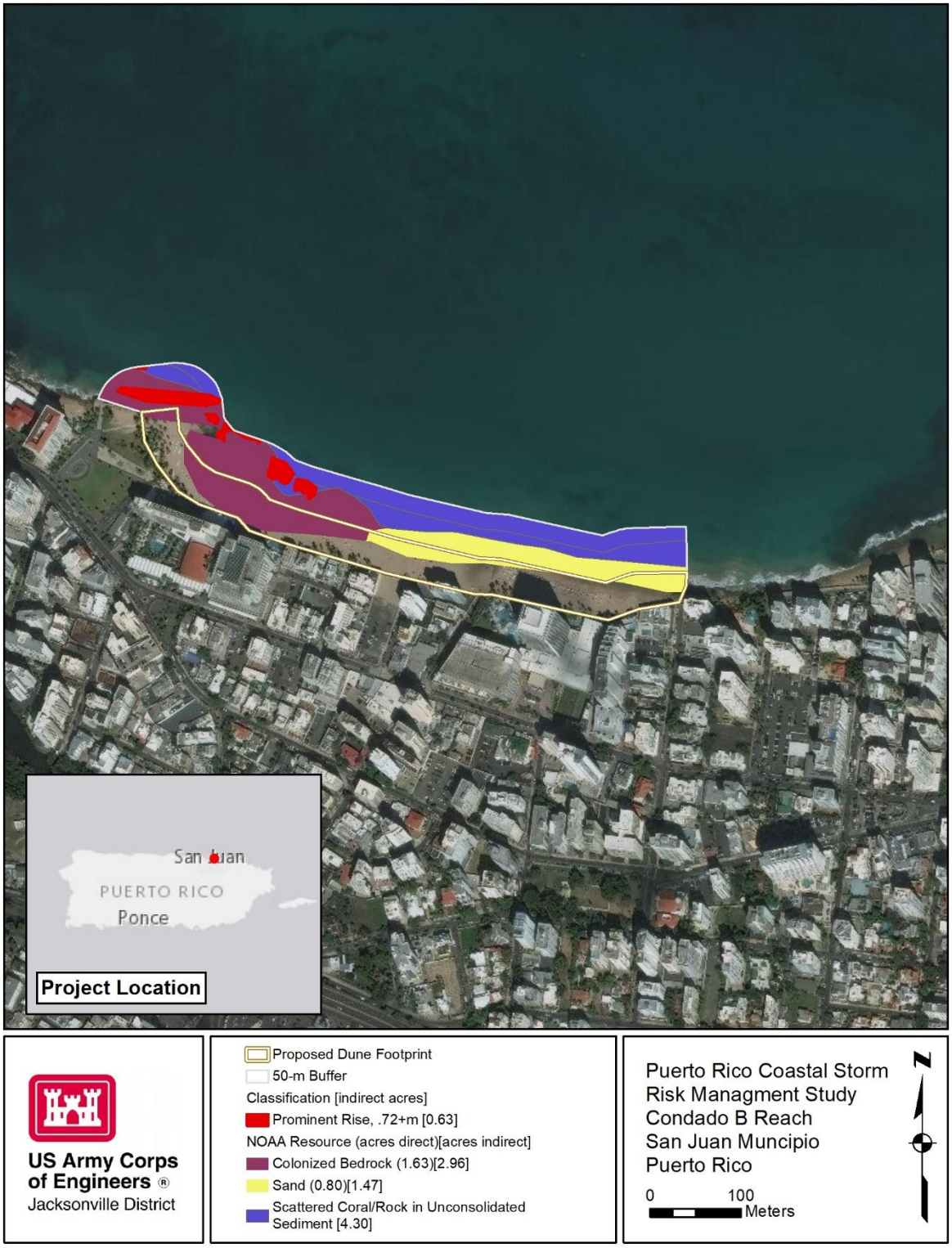

Figure 5-7. Location and type of resources and proposed work in Condado Pocket Beach (Alternative-3a)

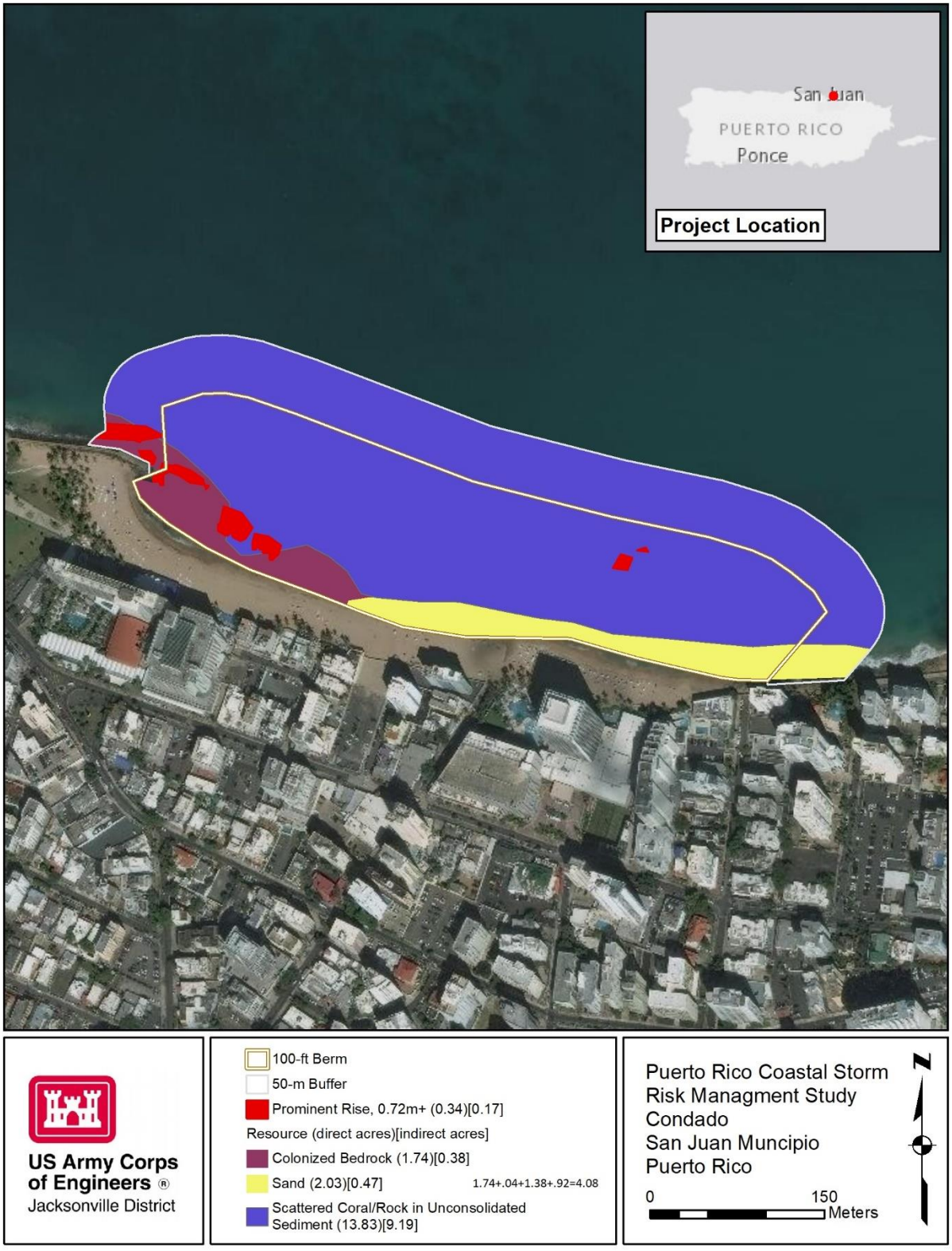

Figure 5-8. Location and type of resources and proposed work in Condado Pocket Beach (Alternative-3b)

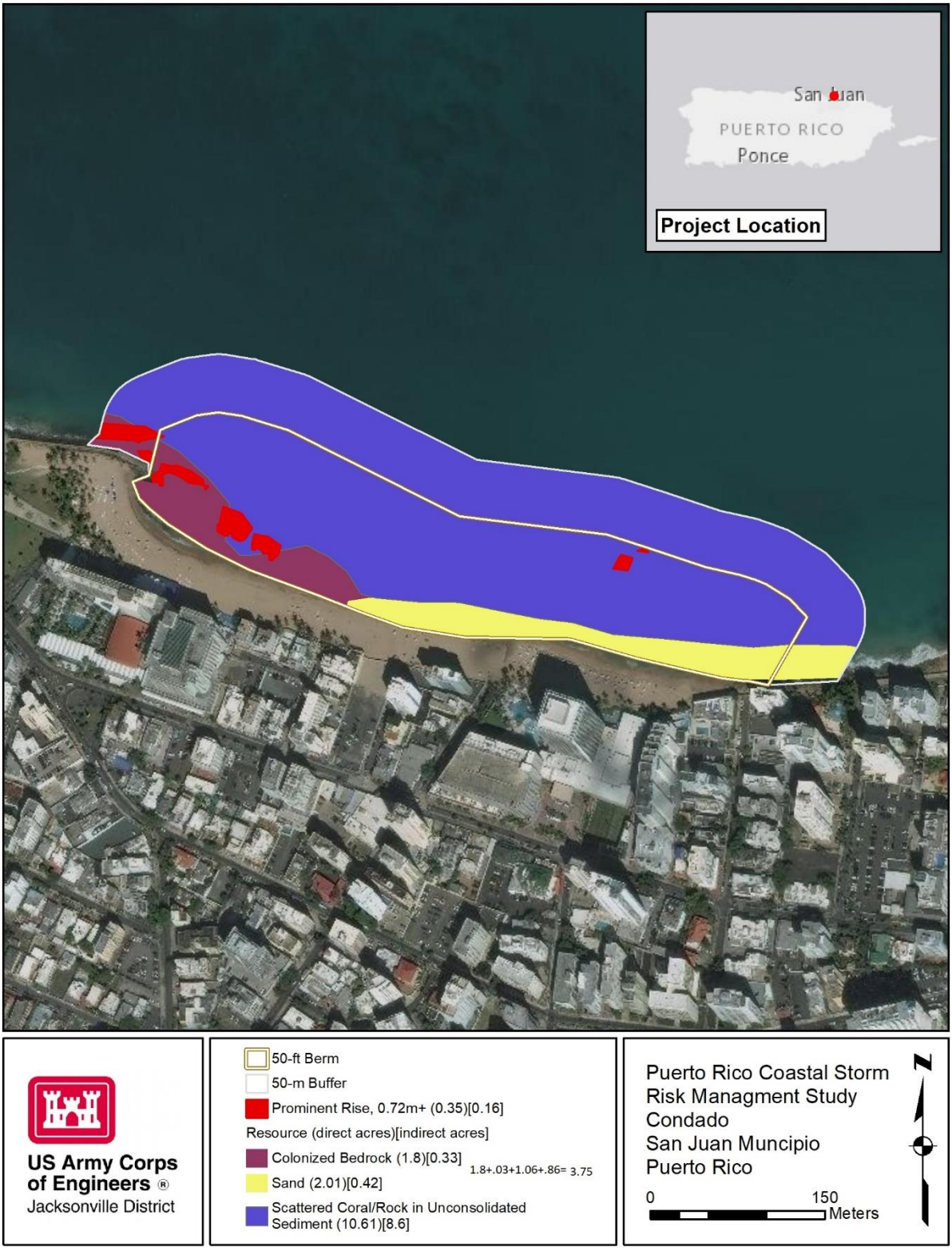

Figure 5-9. Location and type of resources and proposed work in Condado Pocket Beach (Alternative-3c)

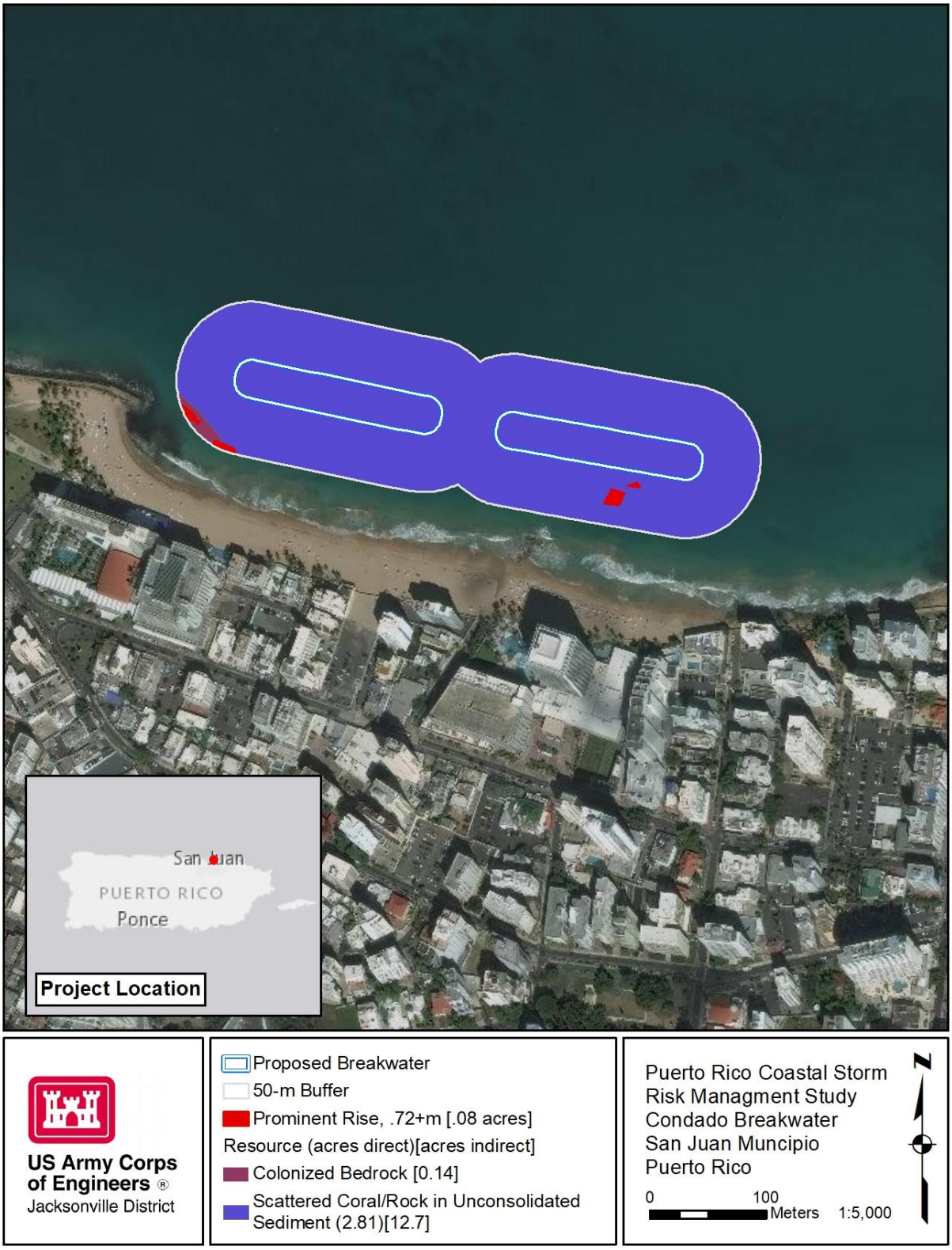

Figure 5-10. Location and type of resources and proposed work in Condado Pocket Beach (Alternative-4)

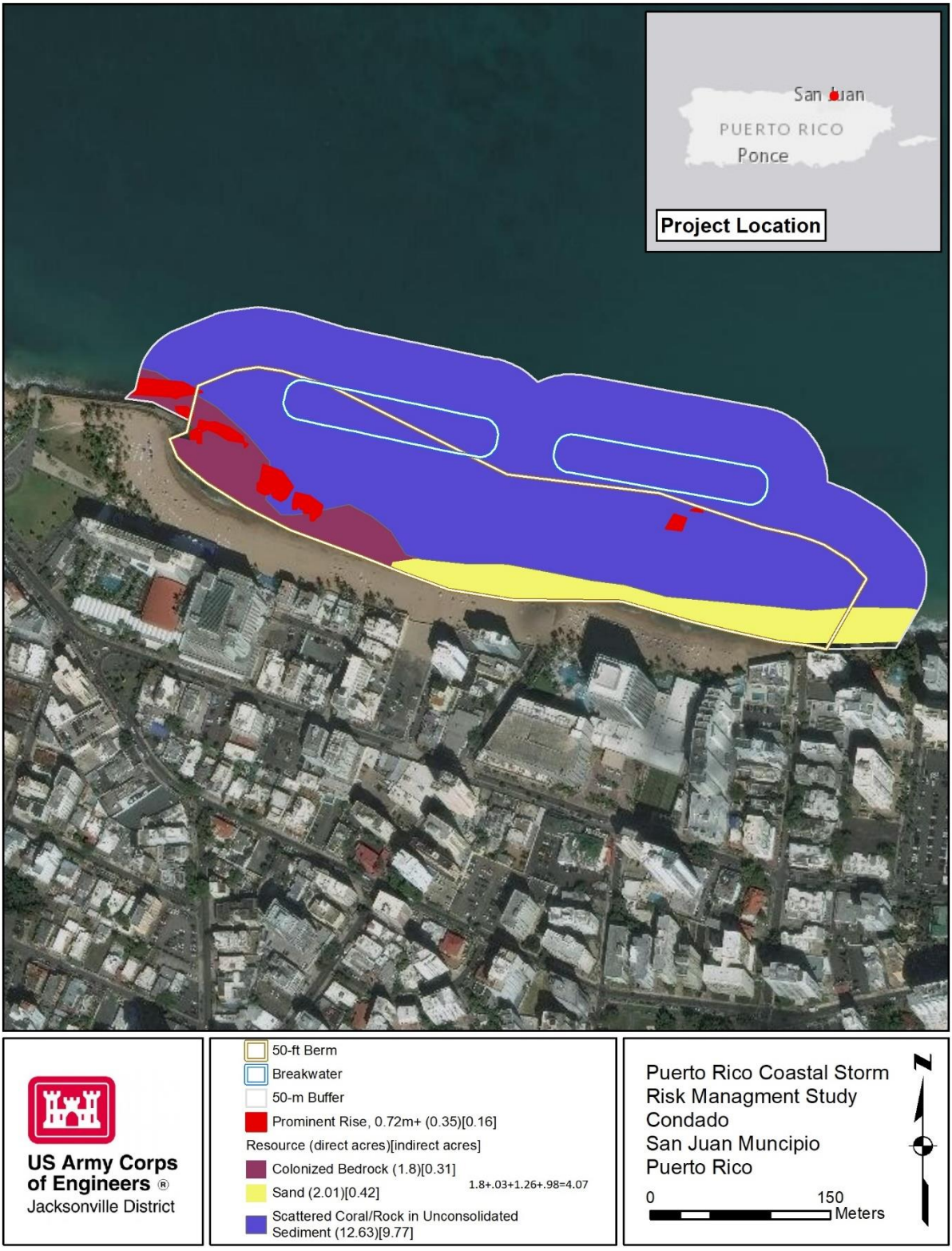

Figure 5.11. Location and type of resources and proposed work in Condado Pocket Beach (Alternative-5)

5.3 Ocean Park Pocket Beach

The preferred alternative for Ocean Park Pocket Beach is Alternative-5 – 50 foot renourishment and breakwater which could impact 5.52 acres of nearshore hardbottom. It is possible after Future With Project modeling is completed a new preferred alternative or combination could be justified in the final report. Additional alternatives evaluated for Ocean Park (and their estimated hardbottom impacts) include Alternative-2 - revetment (0.95 acres), Alternative-3a – 100 foot beach nourishment (4.00 acres), Alternative-3b – 50 foot beach nourishment (2.23 acres), and Alternative-4 - breakwaters (3.29 acres). Figures 5-12 through 5-15 show the Alternatives for the Condado Pocket Beach. Table 5-3 shows the impacts to resources in the project footprint.

Table 5-3. Ocean Park Alternatives and Resource Impacts

Alternative		Resource Impacts
Alt-1	No Action	N/A
Alt-2	Revetment	0.95 acres potential hardbottom impact (0.15 acres colonized bedrock, 0.80 acres unconsolidated sediment with scattered coral/rock)
Alt-3a	Beach Nourishment – 100’	4.00 acres potential hardbottom impact (0.94 acres colonized bedrock, 3.06 acres unconsolidated sediment with scattered coral/rock)
Alt-3b	Beach Nourishment – 50’	2.23 acres potential hardbottom impact (0.68 acres colonized bedrock, 1.55 acres unconsolidated sediment with scattered coral/rock)
Alt-4	Breakwater	3.29 acres potential hardbottom impact (1.83 acres colonized bedrock, 1.46 acres unconsolidated sediment with scattered coral/rock)
Alt-5	Beach Nourishment (50’) and Breakwater	5.52 acres potential hardbottom impact (0.68 acres colonized bedrock, 3.01 acres unconsolidated sediment with scattered coral/rock, 1.83 acres patch reef)

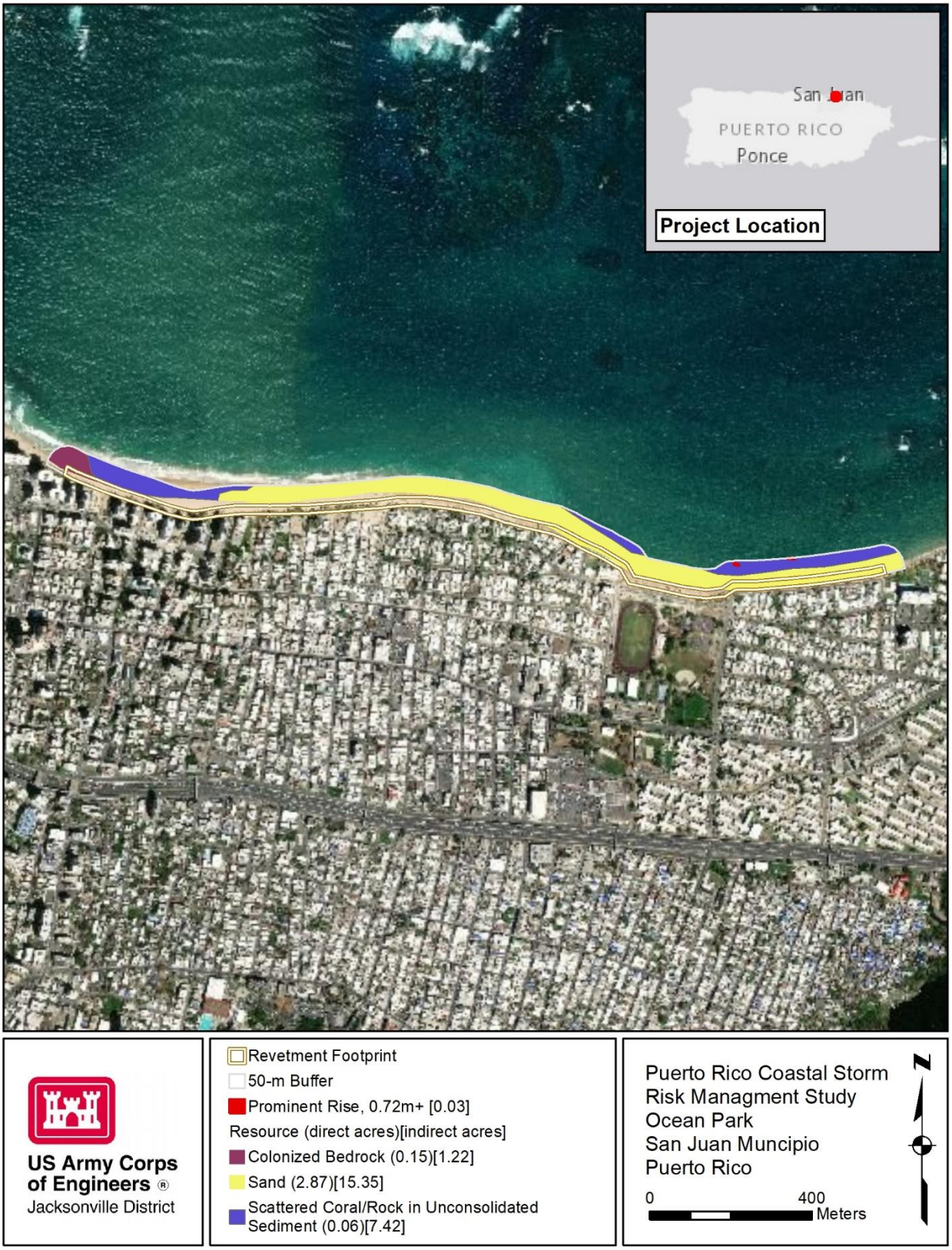

Figure 5-12. Location and type of resources and proposed work in Condado Pocket Beach (Alternative-2)

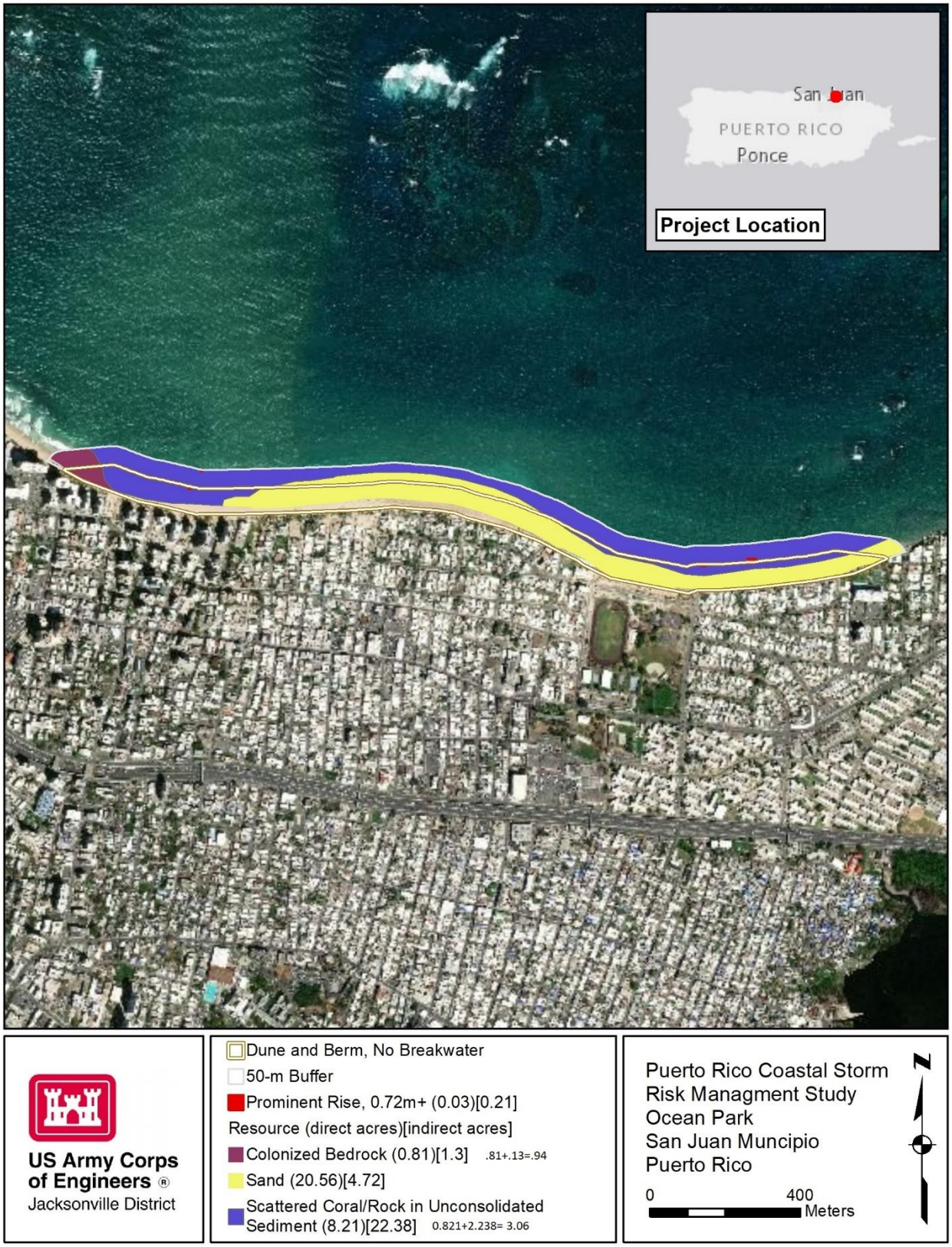

Figure 5-13. Location and type of resources and proposed work in Condado Pocket Beach (Alternative-3a)

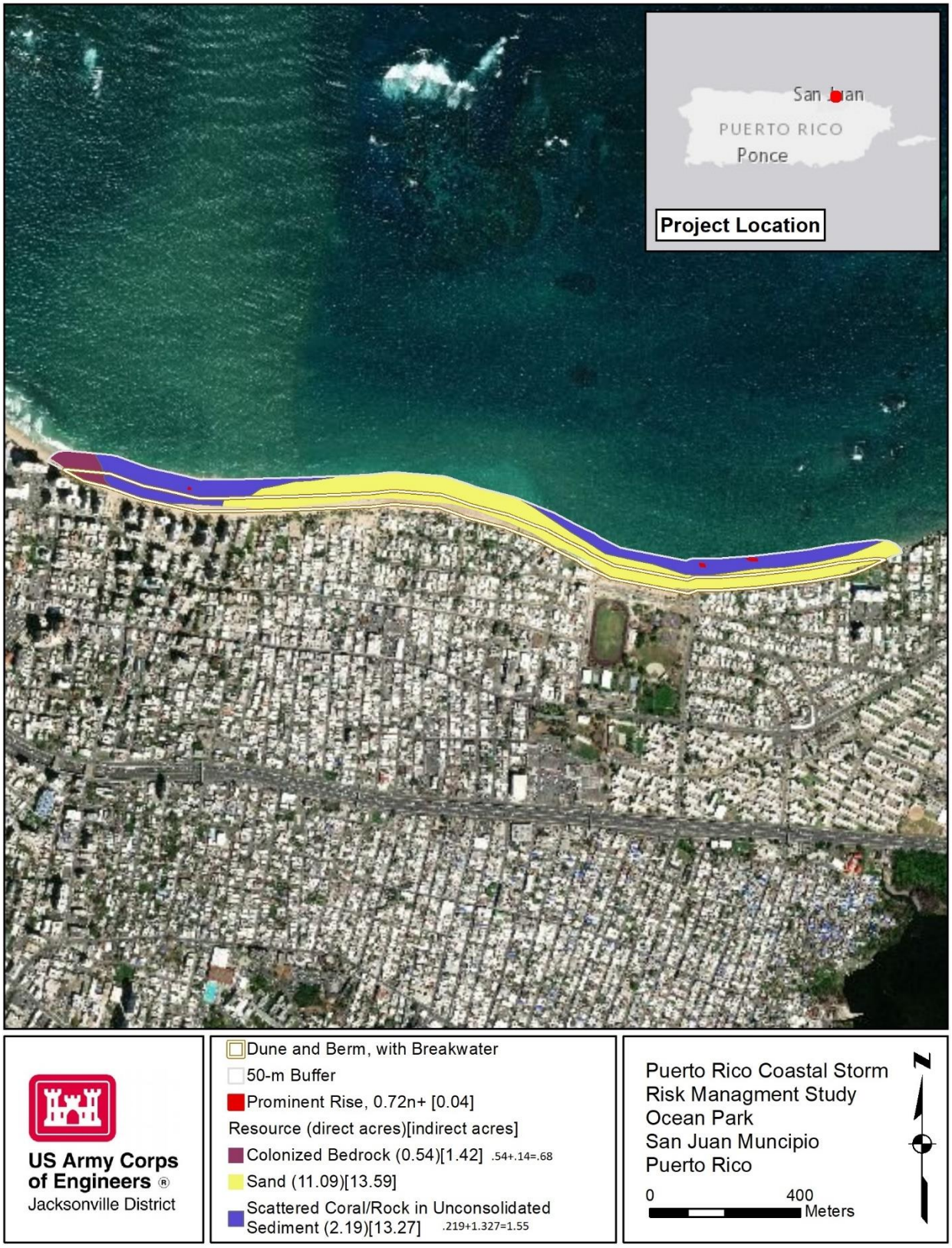

Figure 5-14. Location and type of resources and proposed work in Condado Pocket Beach (Alternative-3b)

Figure 5-15. Location and type of resources and proposed work in Condado Pocket Beach (Alternative-4)

5.4 Punta Las Marias

The Punta Las Marias location has one alternative (Alternative-2 – revetment) which could impact 2.13 acres of hardbottom resources. There are no other alternatives for this reach. Figure 5-16 shows the proposed work and resource locations of the Punta Las Marias alternative. Table 5-4 shows the impacts to resources in the project footprint.

Table 5-4. Punta Las Marias Alternative and Resource Impacts

Alternative		Resource Impacts
Alt-1	No Action	N/A
Alt-2	Revetment	2.13 acres potential hardbottom impact (0.724 acres patch reef, 1.265 acres patch reef, unconsolidated sediment with scattered coral/rock, 0.14 acres patch reef)

Figure 5-16. Location and type of resources and proposed work in Punta Las Marias (Alternative-2)

5.5 Punta Piedrita

The Punta Piedrita location has one alternative (Alternative-2 – revetment) which could impact 2.53 acres of hardbottom resources. There are no other alternatives for this reach. Figure 5-17 shows the proposed work and resource locations of the Punta Piedrita alternative. Table 5-5 shows the impacts to resources in the project footprint.

Table 5-5. Punta Las Marias Alternative and Resource Impacts

Alternative		Resource Impacts
Alt-1	No Action	N/A
Alt-2	Revetment	2.53 acres potential hardbottom impact (2.31 acres colonized bedrock and 0.22 acres unconsolidated sediment with scattered coral/rock)

Figure 5-17. Location and type of resources and proposed work in Punta Piedrita (Alternative-2)

While the actual acreage of direct impact and functional habitat loss to corals/hardbottom habitat will not be quantified via survey and functional analysis during the feasibility phase of the project, based on the visual site investigation and examination of existing geospatial data, an estimation of the types of resources that could potentially be impacted and may require mitigation depending on the final siting of structures and designs that would be determined during the PED Phase of the project.

6.0 COMPENSATORY MITIGATION FUNCTIONAL ANALYSIS AND MITIGATION REQUIREMENTS

Coral/Hardbottom Habitat Functional Analysis and Mitigation Requirements

The Visual Habitat Equivalency Analysis (HEA) will be used to determine the compensatory mitigation required to evaluate the estimated functional loss of corals/hardbottom habitat associated with implementation of the TSP.

Habitat Equivalency Analysis (HEA) is a means to determine the amount of compensatory restoration required to provide services that are equivalent to the interim loss of natural resource services following construction impacts. HEA includes a discounting procedure to account for asset valuation in that the total asset value is equal to the discounted value of the future stream of all services from the natural resource or the compensatory resource. Discounting is used to include the relative valuation of loss and gain of ecological services of the resources over time. HEA results are highly dependent upon assumptions, and consequently it is useful to examine sensitivity of results to a range of parameter values. The ability to calculate results of many scenarios allows ready comparisons that may assist in determination of the most appropriate compensatory action.

7.0 POTENTIAL MITIGATION STRATEGIES/ALTERNATIVES

This section describes the mitigation alternatives that were evaluated that serve to meet the mitigation objectives. Based on a comprehensive search of the Regulatory In-Lieu Fee and Bank Information Tracking System (RIBITS), there are no mitigation banks or in-lieu fee sites approved for use in Puerto Rico. Therefore, mitigation banks and in-lieu fee funds were eliminated as potential mitigation alternatives due to lack of availability. Therefore, we anticipate all coral/hardbottom mitigation to be onsite compensatory mitigation. Mitigation will be accomplished through artificial reef design and placement within the project area. During the design phase, breakwaters could be designed and utilized as an artificial reef, providing a mitigation benefit to the project while meeting the goals of the project.

8.0 SITING OF ONSITE COMPENSATORY MITIGATION SITES

The final siting of onsite compensatory mitigation sites would be conducted during the PED Phase of the project when site-specific survey data is available to assess bottom conditions, hydrology, water quality, and presence of other protected species (to avoid potential impacts to other protected species). A bathymetric survey would be conducted prior to in-water work to assess water depths and bottom conditions in the project area. Wherever feasible, mitigation sites would be sited within approximately five miles of the impact site to offset impacts as close as possible to the impact site.

Appropriate real estate protections of the mitigation site(s) would be required to determine the protection and perpetuity of the site over time. Designs for the mitigation site would be completed during the PED Phase of the project. The actual location, acreage, and mitigation methodology may vary depending on the final development of the project and mitigation site designs that will occur during the PED Phase of the project, including the functional assessment to determine impacts.

CORAL/HARDBOTTOMMONITORING AND ADAPTIVE MANAGEMENT

Coral/Hardbottom Mitigation Monitoring

The monitoring program for the coral and bedrock will include both physical and biological underwater assessment methods for five years. Physical monitoring will assess the degree of settling of reef materials, and annual biological monitoring will assess populations of algae, invertebrates, and fishes, and compare them to control sites on natural reefs. The degree of settling and/or sand covering will be assessed by measuring the relief at each of the permanent quadrat stations. Measurements will be taken with a weighted flexible tape from a point one meter shoreward of the quadrat benchmark to the surface of the water and from the top of the reef structure at the benchmark to the surface of the water, with the difference being the relief. The mean of five such measurements will be used to assess the degree of settling and/or sand covering of the materials. Changes in relief at the control reef quadrat benchmarks will be assessed by the same method. If physical inspection reveals that the acreage or typical relief of the reef has been significantly reduced by subsidence, scour, or sand accretion, additional materials will be added as necessary to restore the reef to the as-built design.

A study design consisting of standard underwater assessment methods will be used in order to statistically compare mitigation reefs to natural reefs (control sites). Success criteria for benthic algae, invertebrates and fish populations will be established in order to demonstrate mitigation success. Success criteria will be based on the biological communities of control sites (natural reefs) and may include species richness, density, and cover of benthic algae, invertebrates, and fishes. Standard methods used to assess these parameters may include, but are not limited to in situ and/or video transect data collection for assessing benthic algae and invertebrate populations; in situ or photo-quadrat data collection for benthic algae and invertebrates; cylinder fish population surveys; and/or roving diver fish surveys. Appropriate parametric and/or non-parametric statistics shall be employed in order to demonstrate mitigation success criteria are met. An example of one possible biological sampling protocol is described below (specific methods will be developed during the PED phase of the project):

> Five randomly selected locations on each type of mitigation reef will be chosen and benchmarked for permanent photo-quadrat stations to assess sessile invertebrate and algae abundance. Randomly selected stations on high and low relief natural hardbottom reefs will also be established to serve as controls. Locations for ½- square-meter photo-quadrats will be established by driving two steel pins into the reef that will precisely locate the quadrat frame. The sites will be benchmarked using a DGPS system with sub-meter accuracy. Invertebrate and algal abundance will be evaluated from digital photography of each quadrat. Species will be identified to the lowest practical taxon and ranked in order of abundance. Superimposing a grid over the digital image and counting bare and colonized grid squares will assess overall percent cover (Bohnsack 1979). Criteria for success of the mitigation reef will be based upon a comparison of a total percent cover of algae and invertebrates at the new reefs and at control reefs of corresponding relief type. The criteria for success of the mitigation reefs in establishing a similar community structure will be a

finding of no significant difference in the rank abundance orders of species between mitigation and control reefs of each type. Statistical comparisons between mitigation and control reefs will be made using the Wilcoxon Rank-Sum (Zar 1984) or similar nonparametric test at p=0.05.

Fish population evaluations will be based on visual censuses conducted separately on HRHC and LRLC mitigation reefs and high and low relief control reefs. The pointcount method (Bohnsack and Bannerot 1986) will be used for fish assessment. This method has the advantage of gathering quantitative data in a relatively short time in a very repeatable pattern that is relatively insensitive to differences in habitat structure. Each census will have a duration of five minutes and a radius (the distance from the stationary observer) of ten feet. Ten censuses will be collected on each of the four reef types. Data from these types of censuses is rarely normally distributed, so the Wilcoxon Rank-Sum or a similar nonparametric test will be used for significance testing. The criteria for mitigation reef success will be a finding of no significant difference at p=0.05 between reef type pairs (HRHC vs. high-relief control and LRLC vs. low-relief control).

Results of all mitigation reef monitoring efforts will be summarized in an annual report to be completed by December 31 of each year the monitoring program is in place (i.e., until success criteria are met). Copies of the report will be electronically available to all agencies and interested parties. Data from monitoring events will be reviewed by USACE staff in consultation with other federal and Puerto Rico agencies to guide decisions on necessary operational or structural changes (corrective actions) that may be needed to ensure that the mitigation project meets success criteria as defined above.

The following success criteria for hardbottom mitigation sites is based on the most recent criteria developed and permitted for a deep-water mitigation site associated with a project in Puerto Rico:

1. The mitigation area and impact site must have biota with 75% species similarity by the time of the final, proposed (i.e., fifth year) monitoring event.

2. Percent-cover of major functional groups at the mitigation area will be similar to that of the impact site (80% similarity) by the time of the final, proposed (i.e., fifth-year) monitoring event.

POST-CONSTRUCTION SURVEY AND ADAPTIVE MANAGEMENT

If mitigation is not trending towards success by Year 3 following implementation of mitigation, corrective measures will be engaged. Among them, transplantation of additional corals from coral nurseries and deployment of additional reef material. Other options as deemed appropriate by USACE, in consultation with NMFS, FWS, EPA and Puerto Rico may also be carried out, depending on various site-specific factors.

Coral/HardbottomAdaptive Management

Potential adaptive management of the coral and bedrock mitigation sites could include one or more of the following activities:

- Attempt a different type of mitigation strategy, such as reef balls or other reef-centered mitigation
- Movement to a different mitigation site;

- Installation of predation-deterrent devices; and
- Sample corals for disease or conduct additional water quality monitoring if there is an unusual mortality event or if it is otherwise unknown if the coral metrics are not being met.

Reports – The Contractor shall record and create datasets of the required data for the species within the placement area and analyze the data.

The survey monitoring report will include a general description of the site(s), site maps identifying photo stations where monitoring transects or points were taken, and all raw data from all samples taken and subsequently analyzed in addition to the following elements:

- Summary of all activities completed during the monitoring year;
- Description of monitoring methods;
- Number and location of samples;
- Properly labeled photographs of samples;
- % coverage of each coral species by area and depth and % coverage of bedrock
- Standard error of the mean (SE) calculations based on monitoring data;
- Listing of additional species observed;
- Discussion of data collected, methods, results and conclusions to support the number of samples necessary for next monitoring cycle;
- Comparison of site conditions from the previous monitoring year (when possible).
- Any recommended adaptive management if metrics are not being met

9.0 RECOMMENDED MITIGATION PLAN ALTERNATIVE AND JUSTIFICATION OF THE SELECTED MITIGATION PLAN ALTERNATIVE

During the PED Phase of the project detailed site investigation surveys and HEA site investigations would be conducted to determine the type and quantify of the required mitigation for the project and perform the HEA functional assessment. A cost effective, incremental cost assessment would be performed to ensure that the most appropriate mitigation alternative is selected as the final recommendation.

10.0 COST SHARE OF RECOM MENDED MITIGATION PLAN ALTERNATIVE

In accordance with the cost share provisions in Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213), project design and implementation are cost shared 65% federal and 35% non-federal. The cost of the required mitigation is included as part of the total project cost estimate for the project.

11.0 PROJECTED LERRD NEED OF COM PENSATORY MITIGATION

Because the mitigation would be conducted on state-owned bottom, there would be no anticipated LERRD needs for the potential onsite compensatory mitigation sites. Some minor labor costs of the real estate USACE staff would be required to verify and document real estate requirements of the mitigation portions of the project.

12.0 REFERENCES

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Zar, J.H. 1984. Biostatisical Analysis. Prentice-Hall, New Jersey.

PUERTO RICO COASTAL STUDY

Appendix G - Environmental

Attachment 4. Environmental Justice Analysis

Puerto Rico Coastal Study

Puerto Rico

Appendix G - Attachment 4 – ENVIRONMENTAL JUSTICE ANALYSIS
November 2020

On February 11, 1994, the President of the U.S. issued Executive Order (E.O.) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This E.O. mandates that each Federal agency make environmental justice (EJ) part of the agency mission and to address, as appropriate, disproportionately high and adverse human health or environmental effects of the programs and policies on minority and low-income populations. Significance thresholds that may be used to evaluate the effects of a proposed action related to EJ are not specifically outlined. However, Council on Environmental Quality (CEQ) guidance requires an evaluation of a proposed action's effect on the human environment and the Corps must comply with Executive Order 12898. The Corps has determined that a proposed action or its alternatives would result in significant effects related to EJ if the proposed action or an alternative would disproportionately adversely affect an EJ community through its effects on:

- Environmental conditions such as quality of air, water, and other environmental media; degradation of aesthetics, loss of open space, and nuisance concerns such as odor, noise, and dust;
- Human health such as exposure of EJ populations to pathogens;
- Public welfare in terms of social conditions such as reduced access to certain amenities like hospitals, safe drinking water, public transportation, etc.; and
- Public welfare in terms of economic conditions such as changes in employment, income, and the cost of housing, etc.

The Corps conducted an evaluation of EJ impacts using a two-step process: as a first step, the study area was evaluated to determine whether it contains a concentration of minority and/or low-income populations. The second step includes evaluation to determine whether the proposed action would result in a disproportionately, high adverse effect on these populations.

As defined in Executive Order 12898 and the CEQ guidance, a minority population occurs where one or both of the following conditions are met within a given geographic area:

- The American Indian, Alaskan Native, Asian, Pacific Islander, Black, or Hispanic population of the affected area exceeds 50 percent; or
- The minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

An affected geographic area is considered to consist of a low-income population (i.e. below the poverty level for purposes of this analysis) where the percentage of low-income persons:

- is at least 50 percent of the total population; or

- is meaningfully greater than the low-income population percentage in the general population or other appropriate unit of geographic analysis.

Step 1: Study Area's Minority and Low-Income Population Average Percentages

Using the USEPA EJScreen Tool, the three project areas were user-defined (**Figures 1, 2, and 3**) to calculate the average percentages for EJ criteria. **Table 1** compares the average percentages for the project areas, Puerto Rico, and U.S.

Figure 1. User defined EJ Analysis Buffer for Condado Reach.

Figure 2. User defined EJ Analysis Buffer for Ocean Park Reach

Figure 3. User defined EJ Analysis Buffer for Rincon Reach

Table 1. USEPA EJScreen Tool Environmental Justice Criteria Percentages

	Condado Reach %	Ocean Park Reach %	Rincon Reach %	Puerto Rico Average %	U.S. Average %
Minority Population	88%	89%	88%	99%	39%
Low Income Population	28%	40%	77%	73%	33%

Based on the information provided by the USEPA EJAssist tool, the average minority population is approximately 88%, 89%, and 88% within Condado, Ocean Park, and Rincon, respectively, of the total population and approximately 28%, 40%, and 77% of the individuals in the project areas are considered below the poverty level. Therefore, all three study areas, which comprises the Condado, Ocean Park, and Rincon areas, are EJ communities because the population percentages are above 50 percent. It should be noted that the general population of Puerto Rico is Hispanic, and any area selected on the island would measure above the 50 percent threshold for an EJ community based on a minority population when compared to the general population of the mainland United States.

Step 2: Recommended Plan's Effect on EJ Community The study area is comprised of an EJ community. The Corps has determined any potential temporary adverse effects resulting from construction of the project would be mainly to adjacent landowners during construction. There would be a long-term beneficial effect to the overall area from a more sustainable beach and storm-resistant infrastructure. These effects would benefit all populations in the area. There are no disproportionate adverse impacts to minority or low-income populations resulting from the implementation of the project.

REFERENCES

U.S. Environmental Protection Agency (USEPA). 2019. EPA EJScreen EPA'S Environmental Justice Screening and Mapping Tool (Version 2019). https://ejscreen.epa.gov/mapper/index.html?. Website accessed August 19, 2020.

PUERTO RICO COASTAL STUDY

Appendix G - Environmental

Attachment 5. Cultural Resources

GOBIERNO DE PUERTO RICO
Oficina Estatal de Conservación Histórica
State Historic Preservation Office

Wednesday, November 28, 2018

Gina Paduano Ralph, Ph.D.

Chief, Environmental Branch
Attn. Planning Division
Corps of Engineers, Jacksonville District
Department of the Army
701 San Marco Boulevard
Jacksonville, Florida 32207-8915

SHPO: 10-23-18-02 PUERTO RICO COASTAL STORM DAMAGE REDUCTION STUDY, ISLANDWIDE, PUERTO RICO

Dear Dr. Paduano Ralph,

We acknowledge the receipt of your letter on October 31, 2018 regarding the above referenced project, supported with an aerial photograph depicting the possible study areas. The purpose of your letter is to formally initiate the scoping process for the above referenced undertaking. During this process, a NEPA document will assess the effects of the potential alternatives under consideration to reduce coastal storm damages along segments of the coastline in 5 areas labeled *Loíza to Luquillo*, *Humacao*, *Aguadilla to Cabo Rojo*, *Arecibo* and *Vega Baja*.

The proposed project comprises areas with a high density of terrestrial and submerged archaeological sites, historic buildings and structures, as well as historic districts, included and eligible to be included in the National Register of Historic Places. Moreover, there are vast extensions of the Puerto Rico coastline that have not been previously surveyed and the probability for identifiying unknown historic properties is high as well.

Our Office is committed to helping the US Army Corps of Engineers fulfill its historic preservation responsibilities. Considering the above, we encourage you to continue communicating with our office so we may advise and assist you properly during the early planning stages of this endeavor. If you have any questions concerning our comments, do not hesitate to contact our Office at (787) 721-3737 or ediaz@prshpo.pr.gov.

Sincerely,

Carlos A. Rubio-Cancela
State Historic Preservation Officer

CARC/GMO/MC

Cuartel de Ballajá (Tercer Piso),
Calle Norzagaray, Esquina Beneficencia, Viejo San Juan, P.R. 00901

PO Box 9023935, San Juan, P.R. 00902-3935
Tel: 787-721-3737 Fax: 787-721-3773
www.oech.pr.gov

SHPO
OECH
OFICINA ESTATAL DE CONSERVACIÓN HISTÓRICA
OFICINA DEL GOBERNADOR
STATE HISTORIC PRESERVATION OFFICE
OFFICE OF THE GOVERNOR

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, JACKSONVILLE DISTRICT
701 SAN MARCO BLVD
JACKSONVILLE, FL 32207-8175

Planning and Policy Division
Environmental Branch

MAR 1 2 2020

Prof. Carlos R. Ruiz Cortés
Executive Director
Instituto de Cultura Puertorriqueña
Apartado 9024184
San Juan, Puerto Rico
00902-4184

Re: Puerto Rico Coastal Storm Risk Management Project, Carolina, and San Juan, Puerto Rico (SHPO No.: 10-23-18-02)

Dear Prof. Ruiz:

The U.S. Army Corps of Engineers, Jacksonville District (Corps) is currently studying the feasibility and environmental effects of alternatives proposed to manage risks associated with coastal storms along the shoreline of Santurce Barrio, San Juan Municipality, and Cangrejo Arriba Barrio, Carolina Municipality, Puerto Rico. Coastal storms in this region threaten life safety and have significant economic consequences. The current study is evaluating an array alternatives that include a combination of sand placement on the shoreline, coastal hardening, and constructing breakwaters to reduce the risk of damages associated with coastal storms.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108), and it's implementing regulations (36 CFR § 800), the Corps has determined that the Puerto Rico Coastal Storm Risk Management Project (Project) constitutes an undertaking as defined in 36 CFR 800.16(y). The Corps previously initiated consultation with your office on this Project by letter dated October 16, 2018. The feasibility study for the Project is ongoing, and a tentatively selected plan has not been identified. However, as part of the continuation of consultation for the Project, the Corps has tentatively identified the areas of potential effects (APE) for the undertaking to encompass all areas of proposed ground disturbance for all measures under consideration, including access, staging, and construction areas (Figure 1). As the measures include the placement of sand on the shoreline, the Corps will include locations identified as potential offshore sand sources in the APE (Figure 2). The APE will be subject to further refinement as the study progresses.

The Corps is initiating survey of the APE, but current uncertainty regarding the tentatively selected plan and timing constraints for the study may mean the Corps may not complete all of the necessary surveys to identify and evaluate cultural resources and determine effects of the Project prior to completing the appropriate National Environmental Policy Act (NEPA)

documentation. If the Corps is unable to complete identification and evaluation efforts, the Corps will proposes to develop a programmatic agreement with your office to comply with Section 106 of the NHPA for the feasibility study. Pursuant to 54 U.S.C. § 306108 and 36 CFR § 800.4(b)(2), it may be necessary for the Corps to defer final identification and evaluation of historic properties until after the Project is congressionally authorized, funding is appropriated, and prior to construction by executing a programmatic agreement with the SHPO and the ACHP, if inclined to participate. The Institute of Puerto Rican Cultural would be invited to participate in any agreements as a Consulting Party. The programmatic agreement would outline the efforts and schedule for identifying historic properties, assessing the effects of proposed measures on historic properties, and avoiding, minimizing, and/or mitigating the effects of the measures on historic properties.

Pursuant to 36 CFR § 800.4(a)(1) the Corps kindly requests your comments on the proposed APE within 30 days from receipt of this letter. If there are any questions, please contact Mr. Christopher Altes by telephone at 904-232-1694 or e-mail at Christopher.F.Altes@usace.army.mil.

Sincerely,

Angela E. Dunn
Chief, Environmental Branch

Enclosure

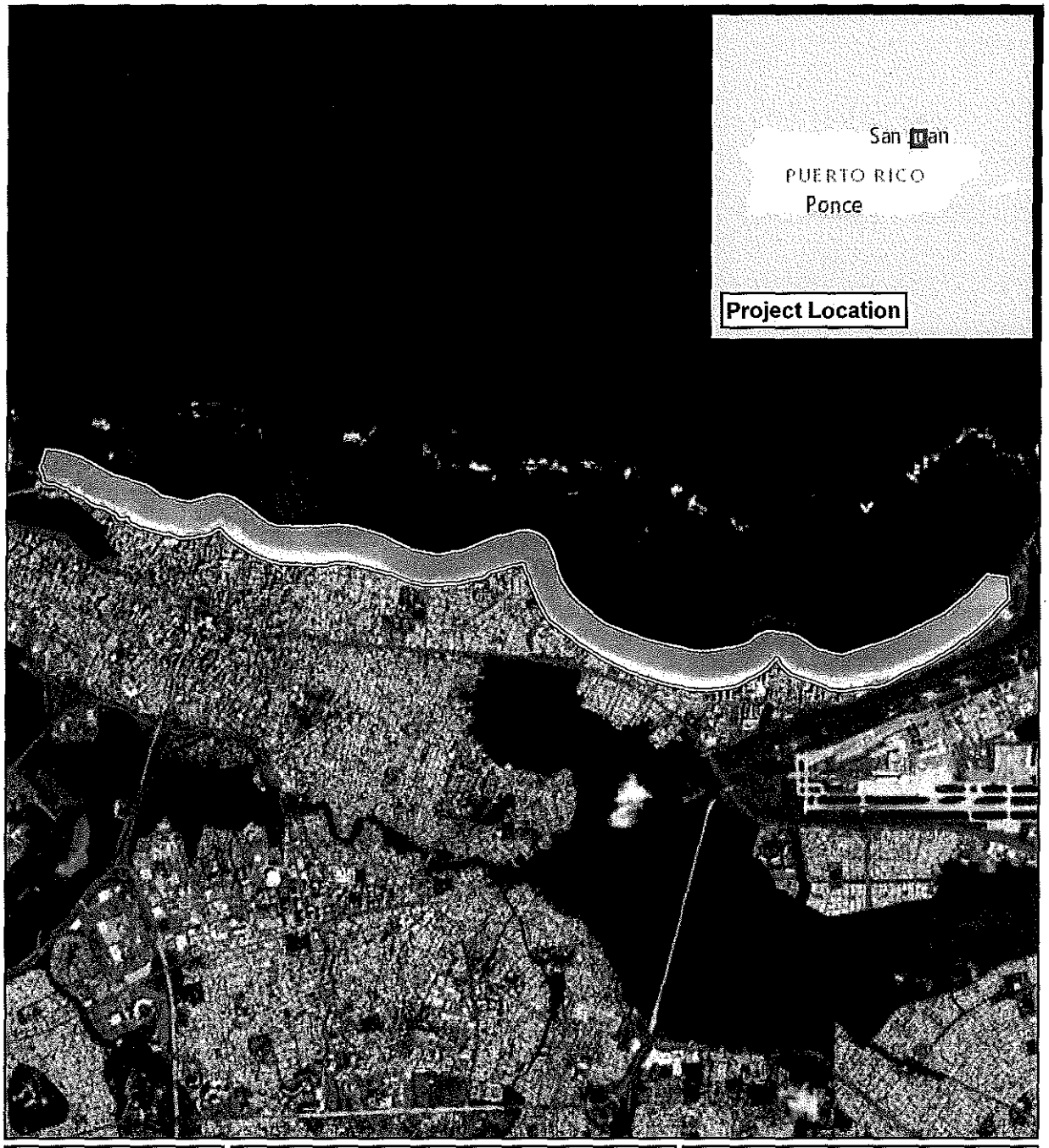

Figure 1. Approximate footprint of measures under consideration in the Puerto Rico Coastal Storm Flood Risk Management Project.

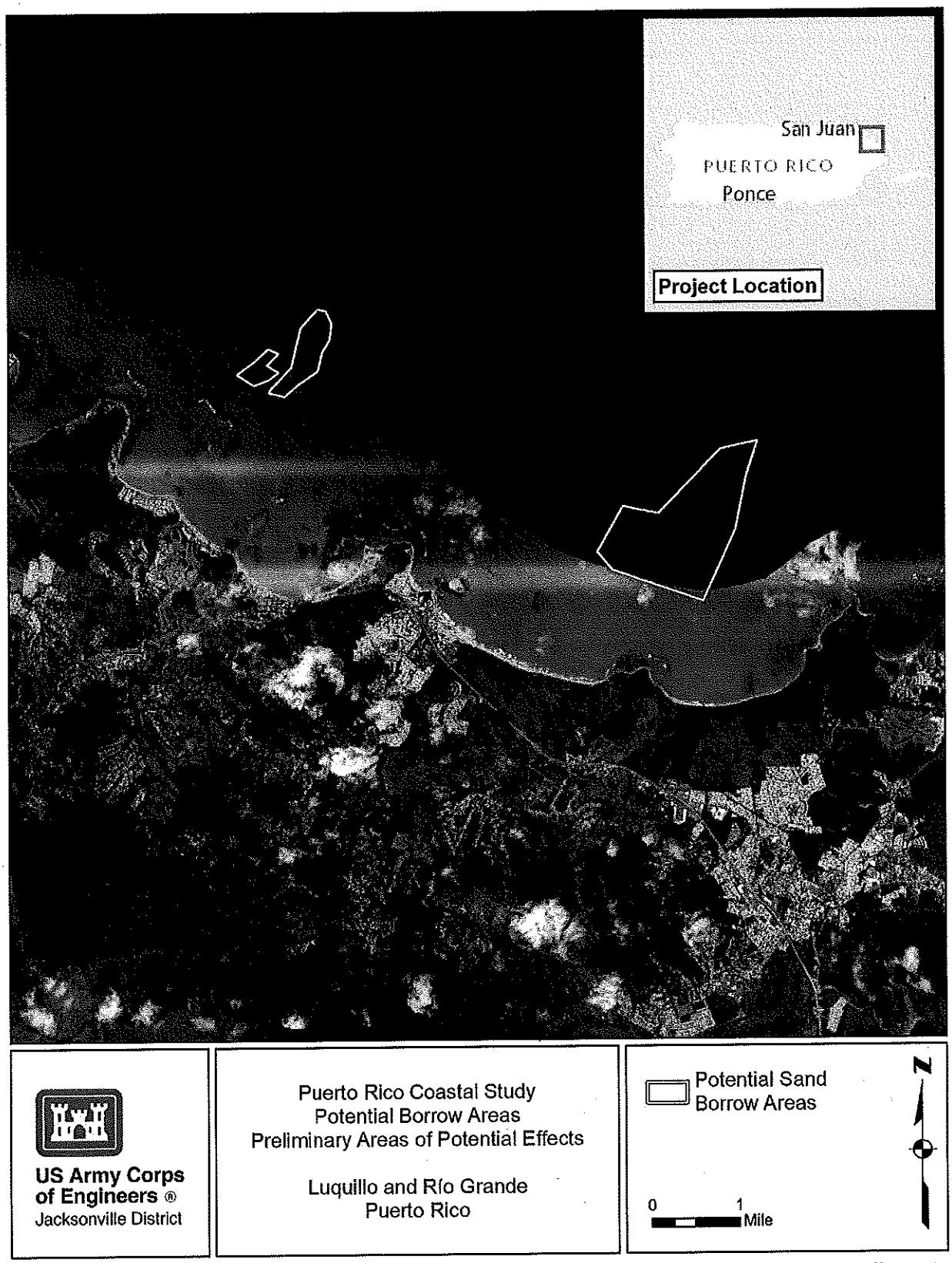

Figure 2. Approximate area of potential effect of areas under investigation as sediment sources for the Puerto Rico Coastal Storm Flood Risk Management Project.

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, JACKSONVILLE DISTRICT
701 SAN MARCO BLVD
JACKSONVILLE, FL 32207-8175

Planning and Policy Division
Environmental Branch

MAR 12 2020

Prof. Carlos R. Ruiz Cortés
Executive Director
Instituto de Cultura Puertorriqueña
Apartado 9024184
San Juan, Puerto Rico
00902-4184

Re: San Juan Metropolitan Area (Back Bay) Coastal Storm Risk Management Project, Cataño, Guaynabo, and San Juan, Puerto Rico (SHPO No.: 12-27-18-01)

Dear Prof. Ruiz:

The U.S. Army Corps of Engineers, Jacksonville District (Corps) is currently studying the feasibility and environmental effects of alternatives proposed to manage risks associated with back bay flooding in the San Juan, Puerto Rico metropolitan area. The dense settlement around the bay is threatened by flooding which creates life safety and economic consequences. The current study is evaluating an array alternatives that include a combination of levees, coastal hardening, property buyouts, containment areas, and floodgates to reduce the risk of damages associated with flooding.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA) (54 USC 306108), and its implementing regulations (36 CFR 800), the Corps has determined that the San Juan Metropolitan Area (Back Bay) Coastal Storm Risk Management Project (Project) constitutes an undertaking as defined in 36 CFR § 800.16(y). The Corps previously initiated consultation with your office on this Project by letter dated October 16, 2018. The feasibility study for the Project is ongoing, and a tentatively selected plan has not been identified. However, as part of the continuation of consultation for the Project, the Corps has tentatively identified the areas of potential effects (APE) for the undertaking to encompass all areas of proposed ground disturbance for all measures under consideration, including access, staging, and construction areas (Figure 1). The APE will be subject to further refinement as the study progresses.

The Corps currently proposes to develop a programmatic agreement with your office to comply with Section 106 of the NHPA for the feasibility study. The feasibility study was authorized under Section 204 of the River and Harbor and Flood Control Acts of 1970 (PL 91-611) and funded through Supplemental Appropriations in the Bipartisan Budget Act of 2018 (Public Law 115-123). The Corps intends to initiate identification surveys, but current uncertainty regarding the tentatively selected plan and timing constraints for the study may

mean the Corps will not complete all of the necessary surveys to identify and evaluate cultural resources and determine effects of the Project prior to completing the appropriate National Environmental Policy Act (NEPA) documentation. Therefore, pursuant to 54 U.S.C. 306108 and 36 CFR § 800.4(b)(2), it may be necessary for the Corps to defer final identification and evaluation of historic properties until after the Project is congressionally authorized, funding is appropriated, and prior to construction by executing a programmatic agreement with the SHPO and the ACHP, if inclined to participate. The Institute of Puerto Rican Cultural would be invited to participate in any agreements as a Consulting Party. The programmatic agreement would outline the efforts and schedule for identifying historic properties, assessing the effects of proposed measures on historic properties, and avoiding, minimizing, and/or mitigating the effects of the measures on historic properties.

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Sincerely,

Angela E. Dunn
Chief, Environmental Branch

Enclosure

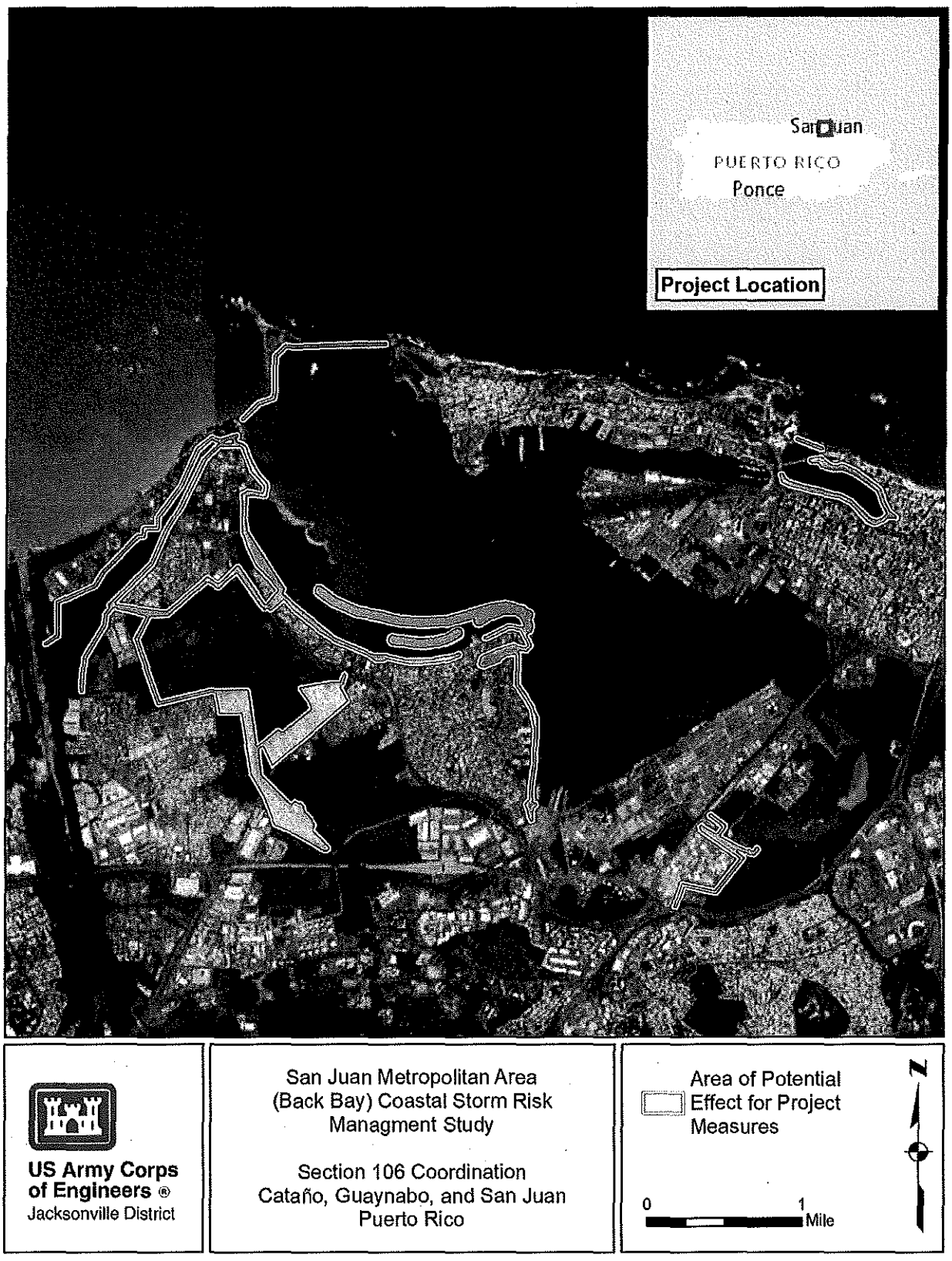

Figure 1. Approximate footprint of measures under consideration in the San Juan Metropolitan Area (Back Bay) Coastal Storm Flood Risk Management Project.

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, JACKSONVILLE DISTRICT
701 SAN MARCO BLVD
JACKSONVILLE, FL 32207-8175

Planning and Policy Division
Environmental Branch

MAR 1 2 2020

Mr. Carlos Rubio-Cancela
State Historic Preservation Officer
Office of the Governor
P.O. Box 9023935
San Juan, Puerto Rico 00902-3935

Re: San Juan Metropolitan Area (Back Bay) Coastal Storm Risk Management Project, Cataño, Guaynabo, and San Juan, Puerto Rico (SHPO No.: 12-27-18-01)

Dear Mr. Rubio-Cancela:

The U.S. Army Corps of Engineers, Jacksonville District (Corps) is currently studying the feasibility and environmental effects of alternatives proposed to manage risks associated with back bay flooding in the San Juan, Puerto Rico metropolitan area. The dense settlement around the bay is threatened by flooding which creates life safety and economic consequences. The current study is evaluating an array alternatives that include a combination of levees, coastal hardening, property buyouts, containment areas, and floodgates to reduce the risk of damages associated with flooding.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA) (54 USC 306108), and its implementing regulations (36 CFR 800), the Corps has determined that the San Juan Metropolitan Area (Back Bay) Coastal Storm Risk Management Project (Project) constitutes an undertaking as defined in 36 CFR § 800.16(y). The Corps previously initiated consultation with your office on this Project by letter dated October 16, 2018. The feasibility study for the Project is ongoing, and a tentatively selected plan has not been identified. However, as part of the continuation of consultation for the Project, the Corps has tentatively identified the areas of potential effects (APE) for the undertaking to encompass all areas of proposed ground disturbance for all measures under consideration, including access, staging, and construction areas (Figure 1). The APE will be subject to further refinement as the study progresses.

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Pursuant to 36 CFR 800.4(1) the Corps kindly requests your comments on the proposed APE within 30 days from receipt of this letter. If there are any questions, please contact Mr. Christopher Altes by telephone at 904-232-1694 or e-mail at Christopher.F.Altes@usace.army.mil.

Sincerely,

Angela E. Dunn
Chief, Environmental Branch

Enclosure

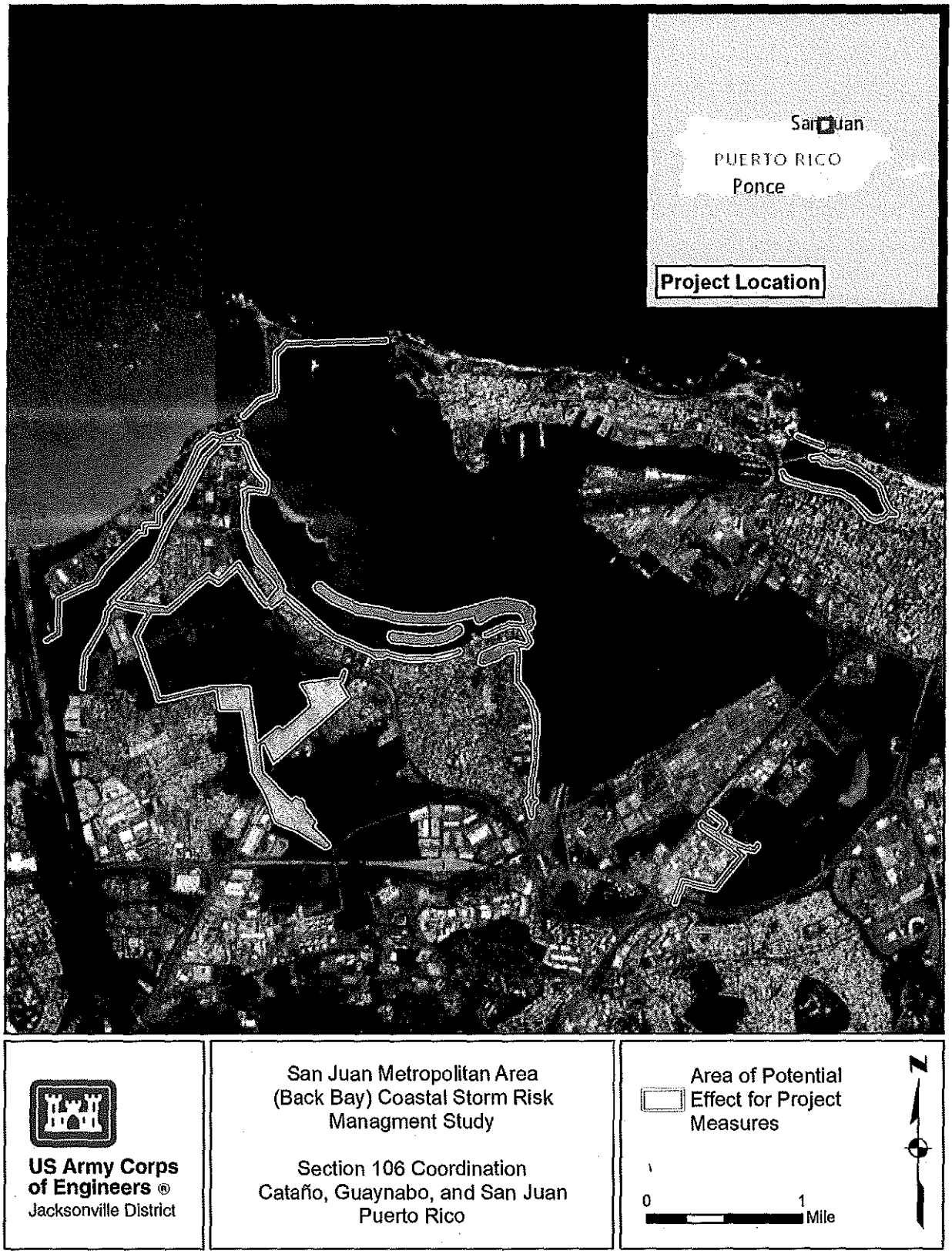

Figure 1. Approximate footprint of measures under consideration in the San Juan Metropolitan Area (Back Bay) Coastal Storm Flood Risk Management Project.

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, JACKSONVILLE DISTRICT
701 SAN MARCO BLVD
JACKSONVILLE, FL 32207-8175

Planning and Policy Division
Environmental Branch

MAR 1 2 2020

Mr. Carlos Rubio-Cancela
State Historic Preservation Officer
Office of the Governor
P.O. Box 9023935
San Juan, Puerto Rico 00902-3935

Re: Puerto Rico Coastal Storm Risk Management Project, Carolina, and San Juan, Puerto Rico (SHPO No.: 10-23-18-02)

Dear Mr. Rubio-Cancela:

The U.S. Army Corps of Engineers, Jacksonville District (Corps) is currently studying the feasibility and environmental effects of alternatives proposed to manage risks associated with coastal storms along the shoreline of Santurce Barrio, San Juan Municipality, and Cangrejo Arriba Barrio, Carolina Municipality, Puerto Rico. Coastal storms in this region threaten life safety and have significant economic consequences. The current study is evaluating an array alternatives that include a combination of sand placement on the shoreline, coastal hardening, and constructing breakwaters to reduce the risk of damages associated with coastal storms.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108), and its implementing regulations (36 CFR § 800), the Corps has determined that the Puerto Rico Coastal Storm Risk Management Project (Project) constitutes an undertaking as defined in 36 CFR 800.16(y). The Corps previously initiated consultation with your office on this Project by letter dated October 16, 2018. The feasibility study for the Project is ongoing, and a tentatively selected plan has not been identified. However, as part of the continuation of consultation for the Project, the Corps has tentatively identified the areas of potential effects (APE) for the undertaking to encompass all areas of proposed ground disturbance for all measures under consideration, including access, staging, and construction areas (Figure 1). As the measures include the placement of sand on the shoreline, the Corps will include locations identified as potential offshore sand sources in the APE (Figure 2). The APE will be subject to further refinement as the study progresses.

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documentation. If the Corps is unable to complete identification and evaluation efforts, the Corps will proposes to develop a programmatic agreement with your office to comply with Section 106 of the NHPA for the feasibility study. Pursuant to 54 U.S.C. § 306108 and 36 CFR § 800.4(b)(2), it may be necessary for the Corps to defer final identification and evaluation of historic properties until after the Project is congressionally authorized, funding is appropriated, and prior to construction by executing a programmatic agreement with the SHPO and the ACHP, if inclined to participate. The Institute of Puerto Rican Cultural would be invited to participate in any agreements as a Consulting Party. The programmatic agreement would outline the efforts and schedule for identifying historic properties, assessing the effects of proposed measures on historic properties, and avoiding, minimizing, and/or mitigating the effects of the measures on historic properties.

Pursuant to 36 CFR § 800.4(a)(1) the Corps kindly requests your comments on the proposed APE within 30 days from receipt of this letter. If there are any questions, please contact Mr. Christopher Altes by telephone at 904-232-1694 or e-mail at Christopher.F.Altes@usace.army.mil.

Sincerely,

Angela E. Dunn
Chief, Environmental Branch

Enclosure

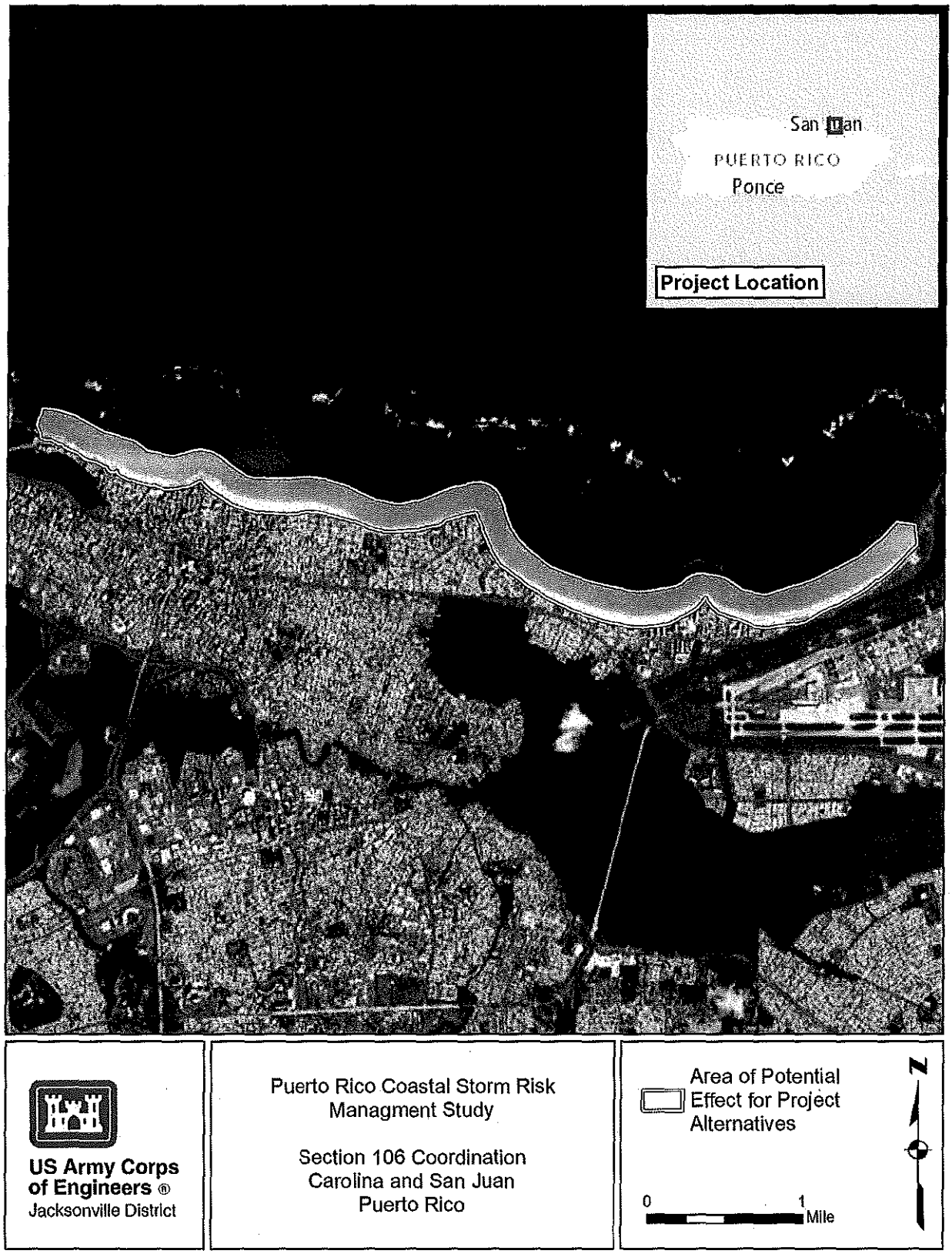

Figure 1. Approximate footprint of measures under consideration in the Puerto Rico Coastal Storm Flood Risk Management Project.

Figure 2. Approximate area of potential effect of areas under investigation as sediment sources for the Puerto Rico Coastal Storm Flood Risk Management Project.

GOBIERNO DE PUERTO RICO

Oficina Estatal de Conservación Histórica

Wednesday, May 20, 2020

Angela E. Dunn
Chief, Environmental Branch
Department of the Army
Corps of Engineers, Jacksonville District
701 San Marco Blvd.
Jacksonville, FL 32207-8175

SHPO: 10-23-18-02 PUERTO RICO COASTAL STORM RISK MANAGEMENT PROJECT, ISLANDWIDE, PUERTO RICO

Dear Ms. Dunn,

We acknowledge the receipt of your letter dated March 12, 2020 related to the above referenced undertaking, supplemented with two satellite photographs depicting its approximate footprint and approximate Area of Potential Effects (APE).

Your letter establishes the undertaking and notifies the US Army Corps of Engineers (Corps) is currently carrying out feasibility and environmental effects studies of alternatives. The Corps proposes the development of a Programmatic Agreement (PA) to comply with Section 106 of the National Historic Preservation Act for the feasibility study. This would provide for a phased approach in the completion of identification and evaluation efforts, the determination of project's effects, as well as avoiding, minimizing and/or mitigating the effects on historic properties after authorization and appropriation of funds, and before construction.

Regarding the proposed approximate APE, we believe that once the scope of the project is refined, we will be in a better position to assist you in defining the APE. The SHPO agrees with the Corps recommendation for the development of a PA for the feasibility study and will be looking forward to continuing supporting your agency with this undertaking.

If you have any questions concerning our comments, do not hesitate to contact our Office.

Sincerely,

Carlos A. Rubio-Cancela
State Historic Preservation Officer

CARC/GMO/MC

SHPO OECH
OFICINA ESTATAL DE CONSERVACIÓN HISTÓRICA
OFICINA DEL GOBERNADOR
STATE HISTORIC PRESERVATION OFFICE
OFFICE OF THE GOVERNOR

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, JACKSONVILLE DISTRICT
701 SAN MARCO BOULEVARD
JACKSONVILLE, FLORIDA 32207-8915

Planning and Policy Division
Environmental Branch

June 5, 2020

Prof. Carlos R. Ruiz Cortés
Executive Director
Instituto de Cultura Puertorriqueña
Apartado 9024184
San Juan, Puerto Rico
00902-4184

Re: Puerto Rico Coastal Storm Risk Management Project, Luquillo, Rincon, Río Grande, Carolina, and San Juan, Puerto Rico

Dear Prof. Ruiz:

The U.S. Army Corps of Engineers, Jacksonville District (Corps) is currently studying the feasibility and environmental effects of alternatives proposed to manage risks associated with coastal storms along the shoreline of Calvache and Pueblo barrios, Rincon Municipality, Santurce Barrio, San Juan Municipality, and Cangrejo Arriba Barrio, Carolina Municipality, Puerto Rico (Figures 1 and 2). The Puerto Rico Coastal Storm Risk Management Project (Project) is evaluating an array alternatives that include a combination of sand placement on the shoreline, coastal hardening, and constructing breakwaters to reduce the risk of damages associated with coastal storms. A possible offshore sand source is being evaluated (Figure 3).

The Corps previously initiated consultation with your office on this Project pursuant to Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108), and its implementing regulations (36 CFR § 800) by letter dated October 16, 2018. The Corps provided an area of potential effects and invited your office to participate in the development of a programmatic agreement (Agreement) as a Consulting Party by letter dated March 12, 2020.

Enclosed is a draft Agreement for your review and comment. The Agreement outlines the efforts and schedule for identifying historic properties, assessing the effects of proposed measures on historic properties, and avoiding, minimizing, and/or mitigating the effects of the measures on historic properties. Pursuant to 36 CFR 800.14, the Corps kindly requests your comments on the draft Agreement within 30 days from receipt of this letter. If there are any questions, please contact Mr. Christopher Altes by telephone at 904-232-1694 or e-mail at Christopher.F.Altes@usace.army.mil.

Sincerely,

Angela E. Dunn
Chief, Environmental Branch

Encls

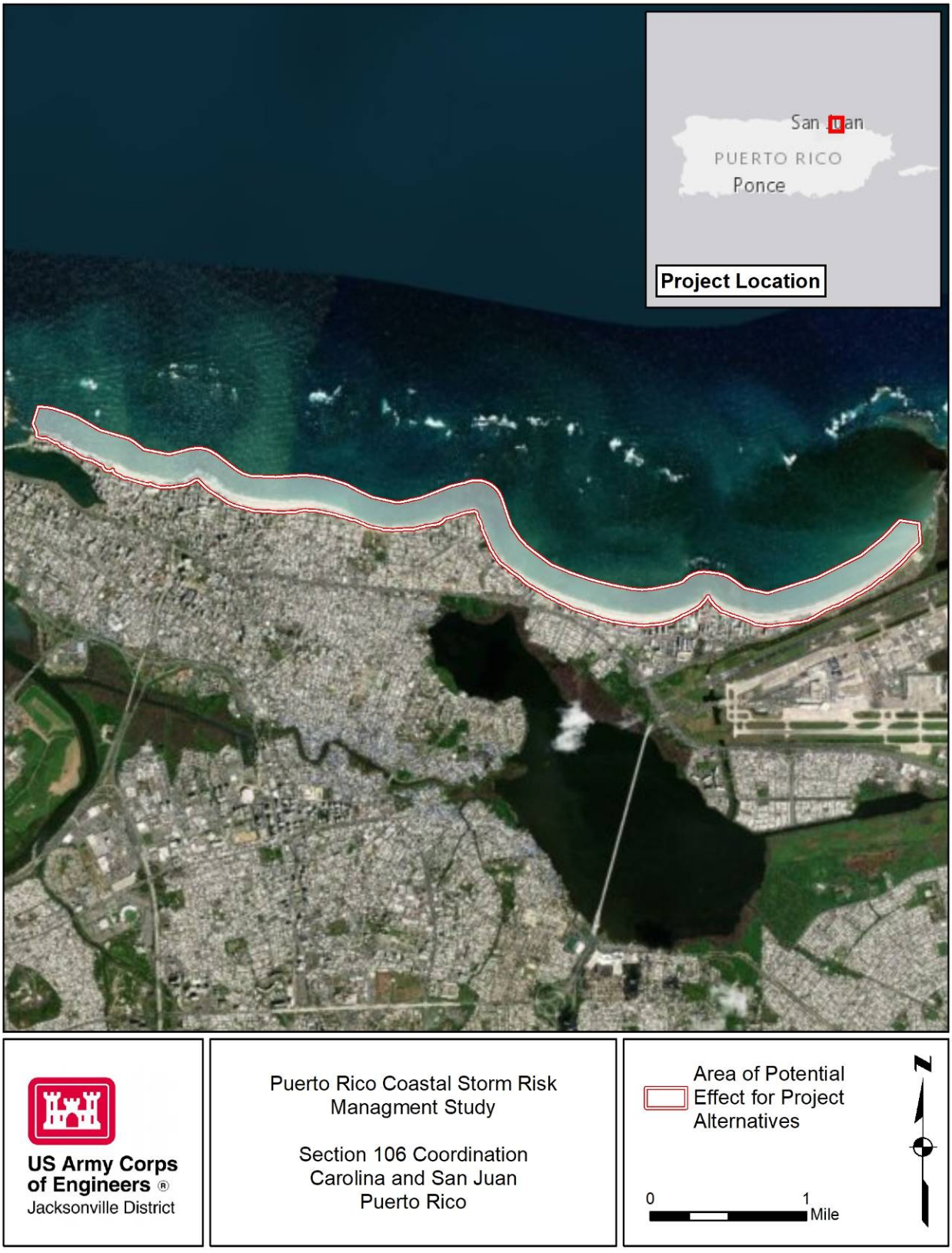

Figure 1. Approximate footprint of measures under consideration in the Puerto Rico Coastal Storm Flood Risk Management Project in Carolina and San Juan.

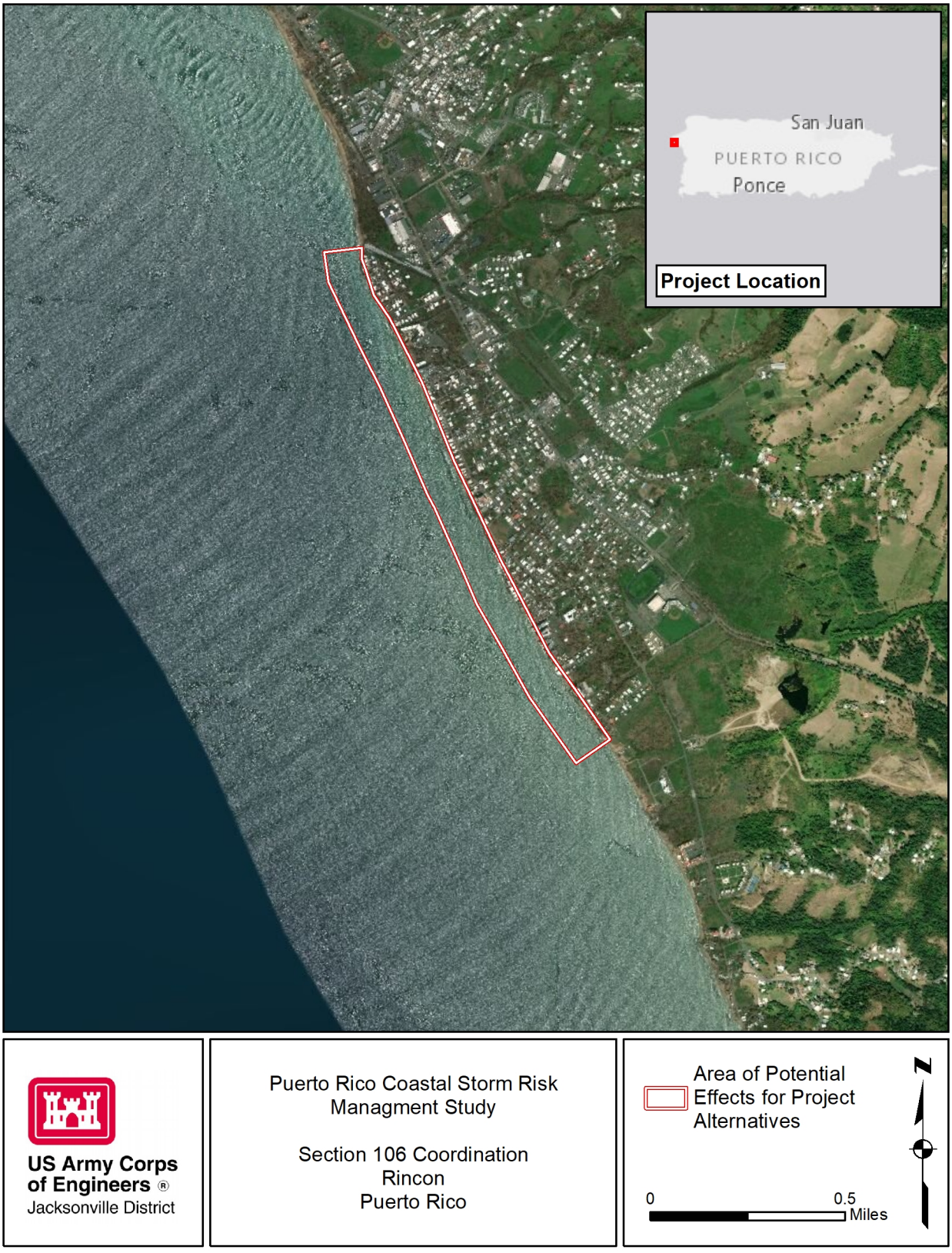

Figure 2. Approximate footprint of measures under consideration in the Puerto Rico Coastal Storm Flood Risk Management Project in Rincon.

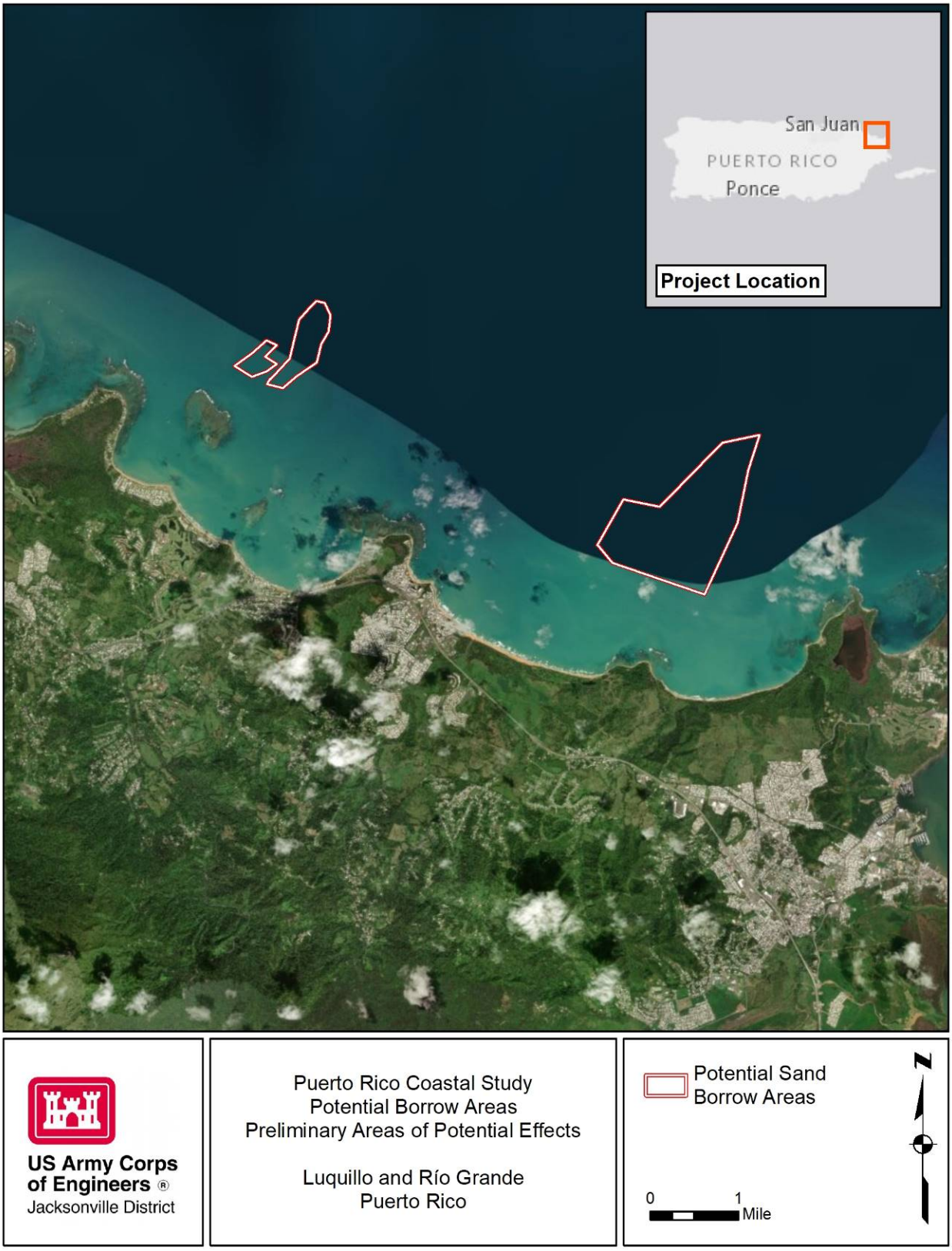

Figure 3. Approximate area of potential effect of areas under investigation as sediment sources for the Puerto Rico Coastal Storm Flood Risk Management Project.

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, JACKSONVILLE DISTRICT
701 SAN MARCO BOULEVARD
JACKSONVILLE, FLORIDA 32207-8175

Planning and Policy Division
Environmental Branch

June 5, 2020

Mr. Carlos Rubio-Cancela
State Historic Preservation Officer
Office of the Governor
P.O. Box 9023935
San Juan, Puerto Rico 00902-3935

Re: Puerto Rico Coastal Storm Risk Management Project, Luquillo, Rincon, Río Grande, Carolina, and San Juan, Puerto Rico

Dear Mr. Rubio-Cancela:

The U.S. Army Corps of Engineers, Jacksonville District (Corps) is currently studying the feasibility and environmental effects of alternatives proposed to manage risks associated with coastal storms along the shoreline of Calvache and Pueblo barrios, Rincon Municipality, Santurce Barrio, San Juan Municipality, and Cangrejo Arriba Barrio, Carolina Municipality, Puerto Rico (Figures 1 and 2). The Puerto Rico Coastal Storm Risk Management Project (Project) is evaluating an array alternatives that include a combination of sand placement on the shoreline, coastal hardening, and constructing breakwaters to reduce the risk of damages associated with coastal storms. A possible offshore sand source is being evaluated (Figure 3).

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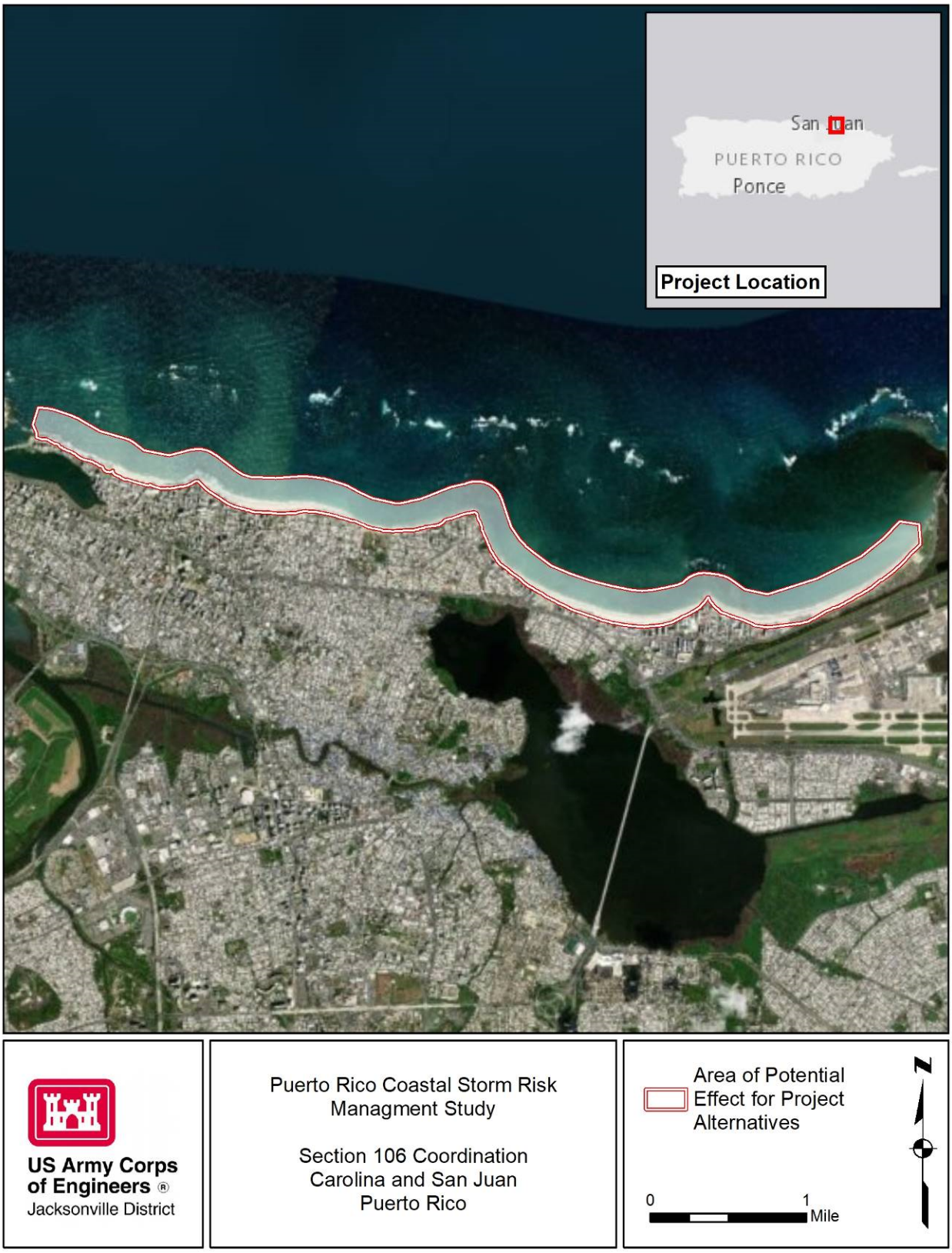
Sincerely,

Angela E. Dunn
Chief, Environmental Branch

Encls



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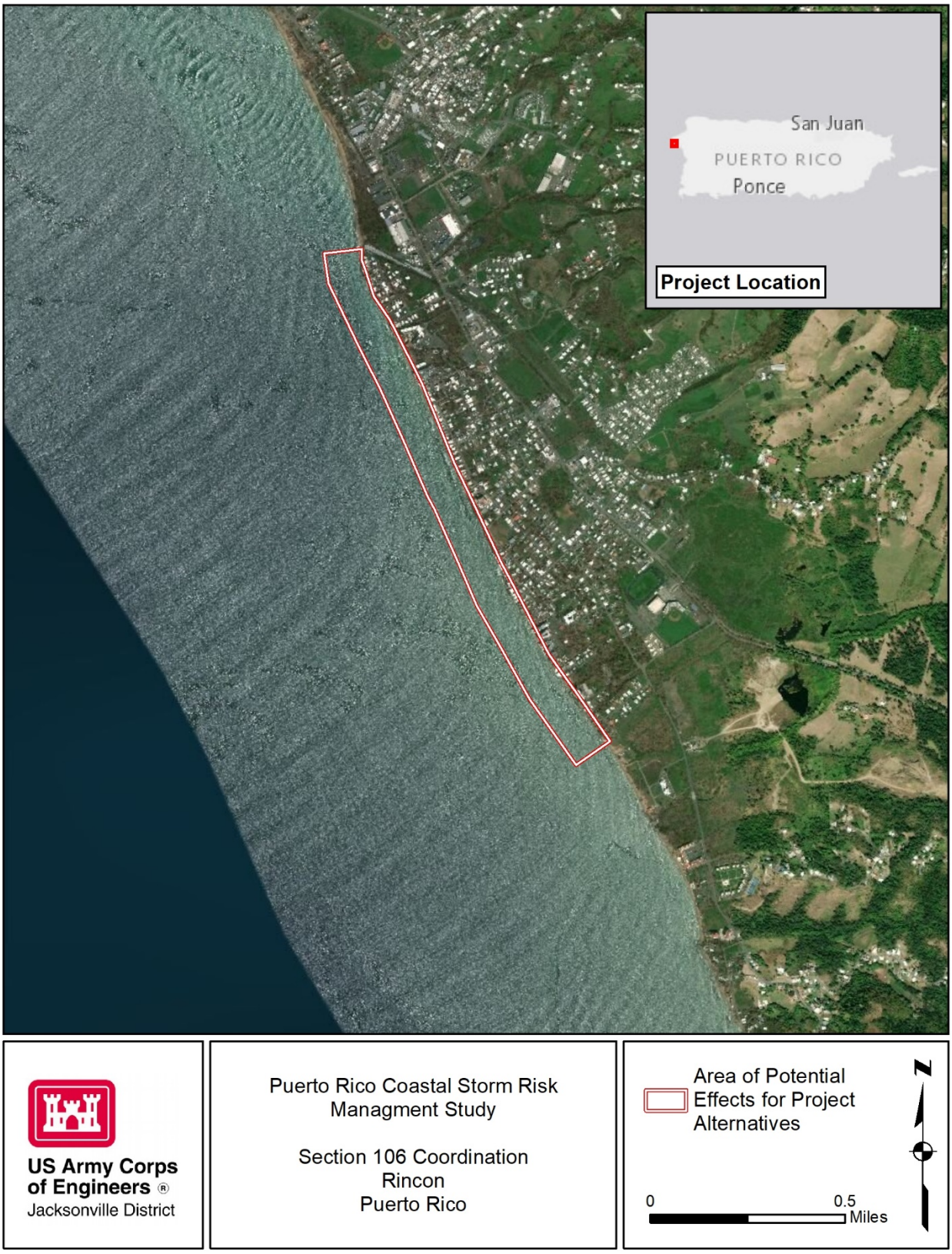


Figure 2. Approximate footprint of measures under consideration in the Puerto Rico Coastal Storm Flood Risk Management Project in Rincon

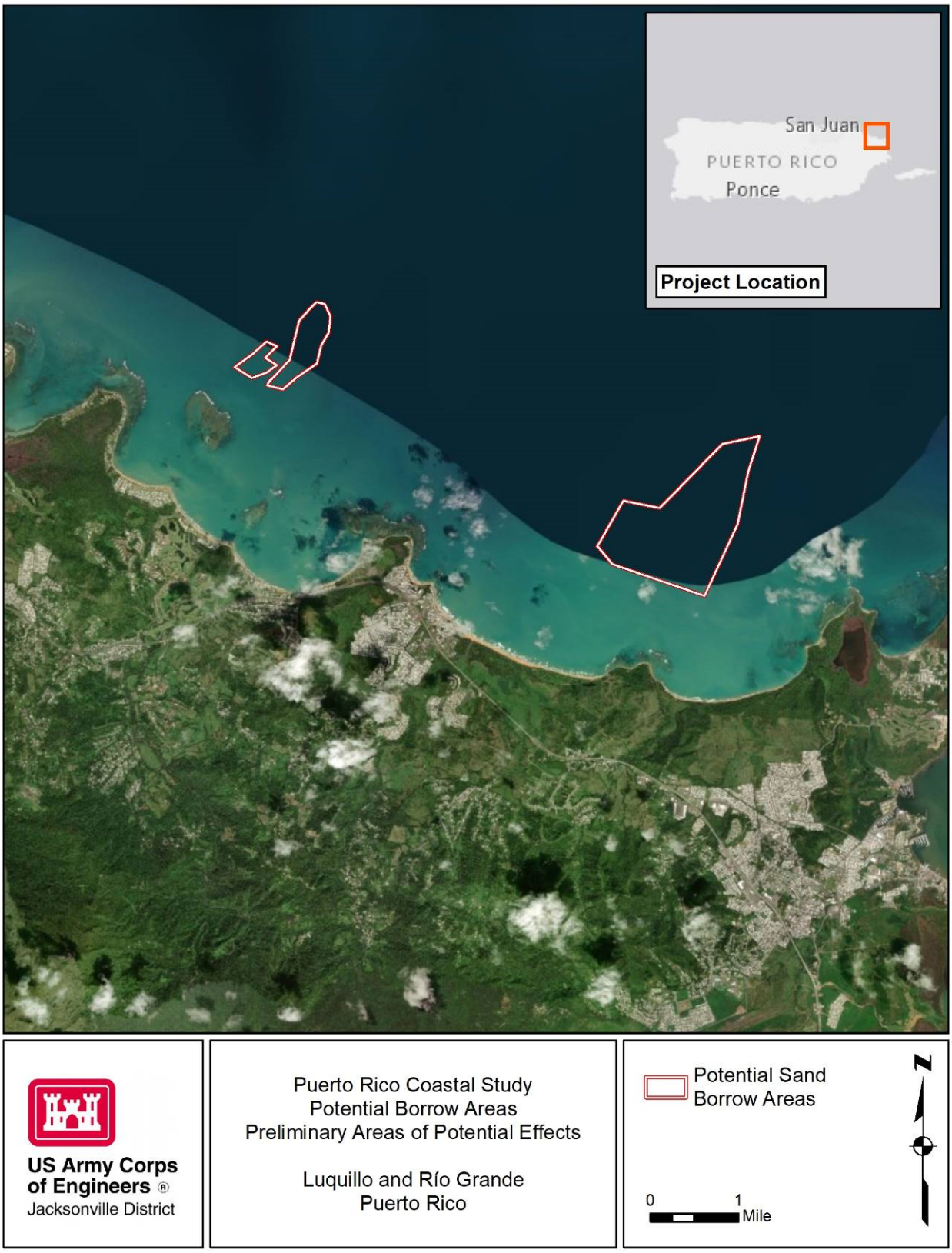


Figure 3. Approximate area of potential effect of areas under investigation as sediment sources for the Puerto Rico Coastal Storm Flood Risk Management Project

GOBIERNO DE PUERTO RICO
Instituto de Cultura Puertorriqueña

30 de junio de 2020

Ms. Angela E. Dunn
Planning and Policy Division, Environmental Branch
701 S.Marco Blvd. Jacksonville, Florida 32207-8175

Christopher.F.Altes@usace.army.mil
Vía email

Ref: Puerto Rico Coastal Strom Risk Management Project, Carolina and San Juan, Puerto Rico

Estimada Ms. Dunn:

El Programa de Arqueología y Etnohistoria, como parte de los requisitos para los procesos de permisos de construcción de la ley 161 de la Oficina de Gerencia de Permisos (OGPe), su Reglamento Conjunto para la Evaluación y Expedición de Permisos, la agencia del estado Instituto de Cultura Puertorriqueña y el Consejo Para la Protección del Patrimonio Arqueológico Terrestre de Puerto Rico, ha recibido el documento que informa su intención de realizar el proyecto en referencia. La ley federal de Protección a Propiedades Históricas de 1966, le requiere cumplir con la ley del estado, tal como lo exige la Sección 106, 36 CFR Parte 800 Subparte C 800.16 (k), entre otras que le complementan.

Para cumplir con la ley del estado no. 89 de 1955, según enmendada, así como la ley 112 de 1988, según enmendada, que regula la práctica de la arqueología en Puerto Rico, y que, creó el Consejo para la Protección del Patrimonio Arqueológico Terrestre de Puerto Rico, necesitará someter los documentos requeridos ya establecidos en el Reglamento Núm.8932, Reglamento para la Radicación y Evaluación Arqueológica de Proyectos de Construcción y Desarrollo 2016, de dicha ley, aprobado el 8 de febrero de 2017, que son los requisitos para cumplir las leyes antes citadas:

1. Someter para nuestra evaluación y determinación un Estudio Arqueológico Fase 1A-1B que cumpla con el Reglamento No. 8932 de la ley del estado núm. 112, antes citada Artículos 6 y 7 (páginas 12-25).
2. Dicho estudio deberá ser realizado por un arqueólogo cualificado por el Consejo para la Protección del Patrimonio Arqueológico Terrestre de Puerto Rico de la Ley núm. 112, antes citada. Si el arqueólogo no está cualificado, deberá someter sus documentos para cualificación por el estado, especificados en dicho Reglamento, para las diversas fases arqueológicas (p.19; 25; 33; 43).

Deberá cumplir con la ley de Compatibilidad Federal del Programa de Manejo de la Zona Costanera Federal de 1972 (CZMA por sus siglas en inglés) (PL92-583), que establece la política pública y las medidas de planificación y manejo para el uso adecuado, la protección y el desarrollo de los recursos costaneros de Puerto Rico, de la Administración Nacional Oceánica y Atmosférica (NOAA por sus siglas en inglés), en vigor desde 1978. Esta ley requiere del Cuerpo de Ingenieros cumplir con el Instituto de Cultura Puertorriqueña, entre otras agencias.

Por otra parte, el objetivo de esta misiva es orientar y ayudar al Cuerpo de Ingenieros de los Estados Unidos hacia el cumplimiento con la ley del estado, en lo referente a la protección de los recursos arqueológicos en Puerto Rico. De no cumplir con todos los requisitos antes señalados, estaría en violación a las leyes del estado. Cualquier información adicional, quedamos en la mejor disposición, puede escribir a este servidor, al correo electrónico cperez@icp.pr.gov

Cordialmente,

DIGITAL SIGN 631
Dr. Carlos Pérez Merced
Director Interino

PROGRAMA DE ARQUEOLOGIA Y ETNOHISTORIA
CONSEJO PARA LA PROTECCIÓN DEL
PATRIMONIO ARQUEOLÓGICO TERRESTRE
Apartado 9024184, San Juan, Puerto Rico 00902-4184
Teléfono: (787) 723-2524 / (787) 724-0700 ext. 1362

PROGRAMMATIC AGREEMENT AMONG
THE U.S. ARMY CORPS OF ENGINEERS, THE PUERTO RICO STATE HISTORIC PRESERVATION OFFICER, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION (IF PARTICIPATING) REGARDING THE PUERTO RICO COASTAL STORM RISK MANAGEMENT PROJECT, LUQUILLO, RINCON, RÍO GRANDE, AND SAN JUAN, PUERTO RICO

WHEREAS, the U.S. Army Corps of Engineers, Jacksonville District (Corps), is studying the effects of constructing coastal storm risk management features in San Juan, and Rincon, Puerto Rico as part of the Puerto Rico Coastal Storm Risk Management Project (Project), as authorized by the Bipartisan Budget Act of 2018 (Public Law [PL] 115-123);

WHEREAS, the Project is being developed to reduce the risk of the costal storm damage from hurricanes and large storms which result in danger to residents and damage to residential, public, and commercial property in Calvache and Pueblo barrios, Rincon Municipality, and Santurce barrio, San Juan Municipality;

WHEREAS, the Corps has determined that the Project, consisting of shoreline protection measures such as revetment, nourishment, and breakwaters (Appendix A), constitutes an undertaking, as defined in 36 CFR § 800.16(y);

WHEREAS, the Project is in the Feasibility phase, during which plans remain conceptual and do not include technical or developed designs;

WHEREAS, the Corps has cannot determine the area of potential effects (APE) for the Project until economic and engineering analyses planned to determine the most effective methods and footprints of Project features are completed in the Preconstruction, Engineering, and Design (PED) phase;

WHEREAS, the Corps has initiated survey of portions of the APE for potential use as offshore borrow sites in Luquillo and Río Grande, but cannot determine all of the effects of the project on historic properties prior to the approval of the undertaking;

WHEREAS, the Corps has determined that the Project has the potential to affect properties eligible for listing in the National Register of Historic Places (NRHP) and has consulted with the Puerto Rico State Historic Preservation Officer (SHPO) pursuant to Section 106 of the NHPA;

WHEREAS, the Corps, with the concurrence of SHPO, will comply with Section 106 of the NHPA for the undertaking through the execution and implementation of this Programmatic Agreement (Agreement), following 36 CFR § 800.14(b);

WHEREAS, the Institute for Puerto Rican Culture (Instituto Cultura Puertoricaño) expressed an interest in the Project and has been invited to participate in this Agreement as a Concurring Party;

WHEREAS, in accordance with 36 CFR § 800.14(b), the Corps will notify the Advisory Council on Historic Preservation (ACHP) to participate in this Agreement as a Signatory and the ACHP will elected (or declined) to participate as a Signatory;

WHEREAS, in accordance with 36 CFR § 800.6(a)(4) and 36 CFR § 800.14(b)(2)(ii), the Corps held public meetings to notify the public of the Project and provide an opportunity for members of the public to comment on the Project and the Section 106 process. Multiple public meetings for this project occurred in Puerto Rico and this Agreement was provided in the Draft National Environmental Policy Act document for agency and public review; and

WHEREAS, during the implementation of this Agreement, the Corps will consult with SHPO, DNER, and ICP (Consulting Parties) as detailed below;

NOW, THEREFORE, the Corps, SHPO, and ACHP (if participating) (herein referred to as Signatories) agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the undertaking on historic properties.

STIPULATIONS

The Corps shall ensure that the following measures are carried out:

I. TREATMENT OF HISTORIC PROPERTIES

A. AREA OF POTENTIAL EFFECTS

As plans and designs are refined, the Corps may revise the APE. The Corps shall consult on that revision in accordance with Stipulation III (Timeframes and Review Procedures), and the Corps shall determine the potential for Project activities in a revised APE to affect potential historic properties pursuant to 36 CFR §§ 800.3 - 800.5. If the Corps determines that changes to the APE will affect historic properties, the Corps shall consult on this finding of effect in accordance with Stipulation III (Timeframes and Review Procedures).

B. IDENTIFICATION AND EVALUATION

The Corps shall complete any identification and evaluation of historic properties in consultation with the SHPO prior to beginning construction, defined as ground-disturbing activities which have the potential to effect historic properties. If the Project is authorized and receives appropriations for the Preconstruction Engineering and Design, the Corps will see the following steps are carried out. This will be prior to any ground-disturbing construction activities.

1. Identification of historic properties: An inventory of properties within the final APE, agreed to under Stipulation IA (Area of Potential Effects), consistent with the *Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation* (48 FR 44716–44740) will be initiated for the undertaking when the Project received authorization and appropriation.
    a. All cultural resources surveys and associated reporting will comply with all applicable SHPO guidelines (*Guía para Preparar Informes Arqueológicos, Fases I,*

II, III). Survey recordation shall include features, isolates, and re-recordation of previously recorded sites, as necessary. The survey shall ensure that historic properties such as historical structures and buildings, historical engineering features, landscapes, viewsheds, and traditional cultural properties (TCPs), are recorded in addition to archaeological sites. Recordation of historic structures, buildings, objects, and sites shall be prepared using the SHPO Site File forms (*Hoja de Registro de Yacimientos Arqueológicos)*.

b. The Corps shall submit Identification and Evaluation reports for SHPO and Concurring Parties for review and comment consistent with Stipulation III (Timeframes and Review Procedures).

2. Determinations of Eligibility: The Corps shall review or determine NHRP eligibility based on identification and evaluation efforts, and consult with SHPO regarding these determinations. Should SHPO disagree with the determination of eligibility, the Corps shall either:
   a. Elect to consult further with the objecting party until the objection is resolved; or
   b. Obtain a formal determination of eligibility from the Keeper of the National Register. The Keeper's determination will be final in accordance with 36 CFR § 63.4.

C. DETERMINATION OF EFFECTS

1. Findings of **No Historic Properties Affected**:
   a. Basis for Finding. The Corps shall make a finding of "no historic properties affected" under the following circumstances:
      1. If no historic properties are present in the APE; or
      2. The undertaking shall avoid effects to historic properties (including cumulative effects).
   b. The Corps shall notify Consulting Parties of this finding and provide supporting documentation in accordance with 36 CFR § 800.11(d). Unless SHPO objects to the finding within 30 days, the review of the undertaking will have concluded.
   c. If SHPO objects to a finding of "no historic properties affected," the Corps shall consult with the objecting party to resolve the disagreement.
      1. If the objection is resolved, the Corps either may proceed with the undertaking in accordance with the resolution or reconsider effects on the historic property by applying the criteria of adverse effect pursuant to 36 CFR § 800.5(a)(1).
      2. If the Corps is unable to resolve the disagreement, it will forward the finding and supporting documentation to ACHP and request that ACHP review the Corps' finding in accordance with the process described Section VIII (Dispute Resolution). The Corps shall prepare a summary of its decision that contains the rationale for the decision and evidence of consideration of the ACHP's opinion, and provide this to the SHPO. If the Corps' final determination is to reaffirm its "no historic properties affected" finding, the Section 106 review of the undertaking will have concluded. If the Corps revises its finding then it shall proceed to Stipulation I.C.2 or Stipulation I.C.3 (below).

2. Findings of **No Adverse Effect:** If the Corps determines that the undertaking does not meet the adverse effect criteria, the Corps shall propose a finding of "no adverse effect" and consult with SHPO in accordance with 36 CFR § 800.5(b) and following steps a-c below.
    a. The Corps shall notify Consulting Parties of its finding; describe any project specific conditions and/or modifications required to the undertaking to avoid or minimize effects to historic properties; and provide supporting documentation pursuant to 36 CFR § 800.11(e).
    b. Unless a Signatory objects within 30 days, the Corps will proceed with its "no adverse effect" determination and conclude the review.
    c. If a Signatory objects to a finding of "no adverse effect," the Corps will consult with the objecting party to resolve the disagreement.
        1. If the objection is resolved, the Corps shall proceed with the undertaking in accordance with the resolution; or
        2. If the objection cannot be resolved, the Corps shall request that ACHP review the findings in accordance with 36 CFR § 800.5(c)(3)(i)-(ii) and submit the required supporting documentation. The Corps shall, pursuant 36 CFR § 800.5(c)(3)(ii)(B), prepare a summary of its decision that contains the rationale for the decision and evidence of consideration of the ACHP's opinion, and provide this to the SHPO. If the Corps' final determination is to reaffirm its "no adverse effect" finding, the review of the undertaking will have concluded. If the Corps will revise its finding then it shall proceed to Stipulation III.B.3 below.
    d. Avoidance and Minimization of Adverse Effects: Avoidance of adverse effects to historic properties is the preferred treatment approach. The Corps will consider redesign of elements of the undertaking in order to avoid and/or minimize historic properties and Project effects that may be adverse. If the Corps determines that the undertaking cannot be modified to avoid or minimize effects, the Corps will make a determination of Adverse Effect.
3. **Determination of Adverse Effects**: If the Corps determines that an undertaking may adversely affect a historic property, it shall notify Consulting Parties of the determination and consult to resolve the adverse effects as outlined in Section I.D Historic Properties Treatment Plan.

D. HISTORIC PROPERTIES TREATMENT PLAN

If it is determined that project activities will result in adverse effects, the Corps, in consultation with the SHPO, Concurring Parties, and other consulting parties, shall develop a Historic Properties Treatment Plan (HPTP) to resolve all adverse effects resulting from the Project, which would be attached to this Agreement without amending the Agreement. The HPTP shall outline the minimization and mitigation measures necessary to resolve the adverse effects to historic properties. Proposed mitigation measures may include, but are not limited to, historic markers, interpretive brochures, data recovery, documentation, and publications, depending on their criterion for eligibility. Development of appropriate measures shall include consideration of historic property types and provisions for avoidance or protection of historic properties where

possible. If it is determined that archaeological monitoring is appropriate, the HPTP shall include a Monitoring Plan. Should the Signatories be unable to agree on a HPTP, the Signatories shall proceed in accordance with Stipulation VII (Dispute Resolution)

If adverse effects are identified, the HPTP shall be in effect before construction commences. The Corps would submit the HPTP for review, in accordance with Stipulation III (Timeframes and Review Procedures). The Corps shall ensure that the provisions of the HPTP, as outlined in the consultation and agreed to by SHPO, are documented in writing and implemented. The use of these Treatment Measures in a Treatment Plan shall not require the execution of an individual MOA or Programmatic Agreement.

1. Review: The Corps shall submit the Draft HPTP to the Signatories for review and comment pursuant to Stipulation I (Timeframes and Review Procedures).
2. Reporting: Reports and other data pertaining to the treatment of effects to historic properties will be distributed to Signatories and other members of the public, consistent with Stipulation VI (Confidentiality) of this PA, unless a Signatory(s) have indicated through consultation that they do not want to receive a report or data. Reports will be consistent with the procedures outlined in the PR SHPO's *Guía para Preparar Informes Arqueológicos, Fases I, II, III.*
3. Amendments/Addendums/Revisions**:** If a historic property that is not covered by the existing HPTP is discovered within the APE subsequent to the initial inventory effort, or if there are previously unexpected effects to a historic property, or if the Corps and SHPO agree that a modification to the HPTP is necessary, the Corps shall prepare an addendum to the HPTP. If necessary, the Corps shall then submit the addendum to the Signatories and follow the provisions of Stipulation III (Timeframes and Review Procedures). The HPTP may cover multiple discoveries for the same property type.
4. Data Recovery: When data recovery is proposed, the Corps, in consultation with the Signatories, shall ensure that specific Research Designs are developed consistent with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation*,PR SHPO's *Guía para Preparar Informes Arqueológicos, Fases I, II, III*, and the ACHP's "Recommended Approach for Consultation on Recovery of Significant Information from Archaeological Sites" (ACHP, May 18, 1999).
5. Final Report Documenting Implementation of the Historic Properties Treatment Plan: Within one year after the completion of all work for the Project, the Corps shall submit to the Signatories a Final Report documenting the results of all work prepared under the HPTP, and the information learned from each of the historic properties. The submittal of the Final Report shall be in accordance with Stipulation III (Timeframes and Review Procedures).

II. QUALIFICATIONS

A. PROFESSIONAL QUALIFICATIONS

All technical work required for historic preservation activities implemented pursuant to this Agreement shall be carried out by or under the direct supervision of a person or persons meeting, at a minimum, the *Secretary of the Interior's Historic Preservation Professional Qualification*

Standards for archeology, history, or architecture as appropriate (48 FR 44739). "Technical work" here means all efforts to inventory, evaluate, and perform subsequent treatment such as data recovery excavation or recordation of potential historic properties that is required under this Agreement. This stipulation shall not be construed to limit peer review, guidance, or editing of documents by SHPO and associated Project consultants.

B. HISTORIC PRESERVATION STANDARDS

Historic preservation activities carried out pursuant to this Agreement shall meet the *Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716-44740, September 29, 1983), as well as standards and guidelines for historic preservation activities established by the SHPO. The Corps shall ensure that all reports prepared pursuant to this Agreement will be provided to the Signatories, and are distributed in accordance with Stipulation VII (Confidentiality), and meet published standards of the Puerto Rico State Historic Preservation Office, specifically,the Puerto Rico SHPO's *Guía para Preparar Informes Arqueológicos, Fases I, II, III*.

III. TIME FRAMES AND REVIEW PROCEDURES

For all documents and deliverables produced in compliance with this Agreement, the Corps shall provide a hard copy draft document via mail to the SHPO for review and concurrence and other Consulting Parties for review and comment. If Consulting Parties agree, draft documents may be sent electronically for formal review and for communications amongst themselves for activities in support of this Agreement. Any written comments provided by the Consulting Parties within 30 calendar days from the date of receipt shall be considered in the revision of the document or deliverable. If no comments are received from the Consulting Parties within the 30 calendar-day review period, the Corps may assume that the non-responsive party has no comment. The Corps shall document and report any written comments received for the document or deliverable and how comments were addressed. If comments were received and incorporated into the final document or deliverable, the Corps shall provide a revised final to the SHPO for concurrence. The SHPO shall have 30 calendar days to respond. Failure of the SHPO to respond within 30 calendar days of receipt of any document or deliverable shall not preclude the Corps from moving to the next step in this Agreement. A copy of the final document shall be provided to the Consulting Parties, subject to the limitations in Stipulation VII (Confidentiality).

IV. TREATMENT OF HUMAN REMAINS

Human remains and grave goods encountered during the undertaking that are located on non-federal lands will be treated in accordance with the February 23, 2007 ACHP's *Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects*.

V. PUBLIC CONSULTATION AND PUBLIC NOTICE

The interested public will be invited to provide input during the implementation of this Agreement. The Corps shall carry this out through letters of notification, public meetings,

environmental assessment/environmental impact statements, site visits and/or other appropriate methods. The Corps shall ensure that any comments received from members of the public are taken under consideration and incorporated where appropriate. Review periods shall be consistent with Stipulation III (Timeframes and Review Procedures). In seeking input from the interested public, locations of historic properties will be handled in accordance with Stipulation VI (Confidentiality). In cases where the release of location information may cause harm to the historic property, this information will be withheld from the public in accordance with Section 304 of the NHPA (54 USC § 307103).

VI. CONFIDENTIALITY

The Signatories to this Agreement acknowledge that historic properties are subject to the provisions of Section 304 of the NHPA (54 USC § 307103) and 36 CFR § 800.11(c), relating to the disclosure of information about the location, character or ownership of a historic property, and will ensure that any disclosure of information under this Agreement is consistent with the terms of this Agreement and with Section 304 of the NHPA, 36 CFR § 800.11(c), and the Freedom of Information Act (5 USC § 552), as amended. Confidentiality regarding the specific nature and location of the archaeological sites and any other cultural resources discussed in this Agreement shall be maintained to the extent allowable by law. Dissemination of such information shall be limited to appropriate personnel within the Corps (including their contractors), the Signatories, and those parties involved in planning, reviewing, and implementing this Agreement. When information is provided to the Corps by SHPO or others who wish to control the dissemination of that information more than described above, the Corps will make a good faith effort to do so, to the extent permissible by federal law.

VII. DISPUTE RESOLUTION

A. OBJECTION BY A SIGNATORY

Should any Signatory to this Agreement object at any time to any actions proposed or the manner in which the terms of this agreement are implemented, the Corps shall consult with such party to resolve the objection. If the Corps determines that such objection cannot be resolved, the Corps will:

1. Forward all documentation relevant to the dispute, including the Corps' proposed resolution, to the ACHP. The ACHP shall provide the Corps with its advice on the resolution of the objection within 30 days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the Corps shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP and Signatories, and provide them with a copy of this written response. The Corps will then proceed according to its final decision.
2. If the ACHP does not provide its advice regarding the dispute within the 30 day time period, the Corps may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the Corps shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories to the Agreement, and provide them and the ACHP with a copy of such written

response.

3. The Corps' responsibility to carry out all other actions subject to the terms of this Agreement that are not the subject of the dispute remain unchanged.

B. OBJECTION BY A CONCURRING PARTY OR THE PUBLIC

At any time during implementation of the measures stipulated in this Agreement, should an objection pertaining to the Agreement be raised by a Concurring Party or member of the public, the Corps shall notify the Signatories and take the objection under consideration, consulting with the objecting party and, should the objecting party request, any of the Signatories to this Agreement, for no longer than 15 calendar days. The Corps shall consider the objection, and in reaching its decision, will consider all comments provided by the other Signatories. Within 15 calendar days following closure of the comment period, the Corps will render a decision regarding the objection and respond to the objecting party. The Corps will promptly provide written notification of its decision to the other Signatories, including a copy of the response to the objecting party. The Corps' decision regarding resolution of the objection will be final. Following issuance of its final decision, the Corps may authorize the action that was the subject of the dispute to proceed in accordance with the terms of that decision. The Corps' responsibility to carry out all other actions under this Agreement shall remain unchanged.

C. OBJECTION ON NRHP ELIGIBILITY

Should any Signatory Party to this Agreement object in writing to the determination of National Register eligibility, the objection will be addressed pursuant to 36 CFR § 800.4(c)(2) and Stipulation I.B.2.

VIII. NOTICES

All notices, demands, requests, consents, approvals or communications from all parties to this Agreement to other parties to this Agreement shall be either personally delivered, sent by United States Mail, or electronic mail. All parties shall be considered in receipt of the materials on the day after it being sent by electronic mail.

If Signatories agree in advance, in writing or by electronic mail, facsimiles, copies, or electronic versions of signed documents may be used as if they bore original signatures.

If Signatories agree, hard copies and/or electronic communications may be used for formal communication amongst themselves for activities in support of Stipulation III (Time Frames and Review Procedures).

IX. AMENDMENTS AND TERMINATION

A. AMENDMENT

Any Signatory Party to this Agreement may propose that the Agreement be amended, whereupon the Corps shall consult with the Signatories to consider such amendment. This Agreement may be amended when such an amendment is agreed to in writing by all Signatories. The amendment will

be effective on the date a copy signed by all of the Signatories is filed with the ACHP.

All appendices to this Agreement, and other instruments prepared pursuant to this agreement including, but not limited to, the maps of the APE may be individually revised or updated through consultation consistent with Stipulation III (Timeframes and Review Procedures) and agreement in writing of the Signatories without requiring amendment of this Agreement, unless the Signatories through such consultation decide otherwise. In accordance and Stipulation V (Public Consultation and Public Notice), the Signatories and interested members of the public, will receive amendments to the Project's APE as appropriate, and copies of any amendment(s) to the Agreement.

B. TERMINATION

Any Signatory to this Agreement may terminate this Agreement. If this Agreement is not amended as provided for in Stipulation IX.A., or if any Signatory proposes termination of this Agreement, the Signatory proposing termination shall notify the other Signatories in writing, explain the reasons for proposing termination , and consult with the other Signatories to seek alternatives to termination, within 30 calendar days of the notification.

1. Should such consultation result in an agreement on an alternative to termination, the Signatories shall proceed in accordance with that agreement and amend the Agreement as required.
2. Should such consultation fail, the Signatory proposing termination may terminate this Agreement by promptly notifying the other Signatories in writing.
3. Beginning with the date of termination, the Corps shall ensure that until and unless a new agreement is executed for the actions covered by this Agreement, such undertakings shall be reviewed individually in accordance with 36 CFR §§ 800.4-800.6.

X. DURATION

This Agreement shall remain in effect for a period of 15 years after the date it takes effect and shall automatically expire and have no further force or effect at the end of this period unless it is terminated prior to that time. No later than 90 calendar days prior to the expiration date of the Agreement, the Corps shall initiate consultation to determine if the Agreement should be allowed to expire automatically or whether it should be extended, with or without amendments, as the Signatories may determine. Unless the Signatories unanimously agree through such consultation on an alternative to automatic expiration of this Agreement, this Agreement shall automatically expire and have no further force or effect in accordance with the timetable stipulated herein.

XI. ANNUAL REVIEW

During the period this agreement is in effect, the Corps will prepare an annual review of the status of the Project. This review will document actions carried out pursuant to this Agreement. The reporting period shall be the fiscal year from October 1 to September 30. This annual review will include progress in define refinements, results of any identification efforts, implementation of Project features, projected actions for the coming year, and any potential issues that may prevent

the Corps from meeting the terms of the agreement. This review will be distributed to SHPO and any additional consulting parties.

XI. EFFECTIVE DATE

This Agreement shall take effect on the date that it has been fully executed by the Corps, the SHPO, and the ACHP if participating.

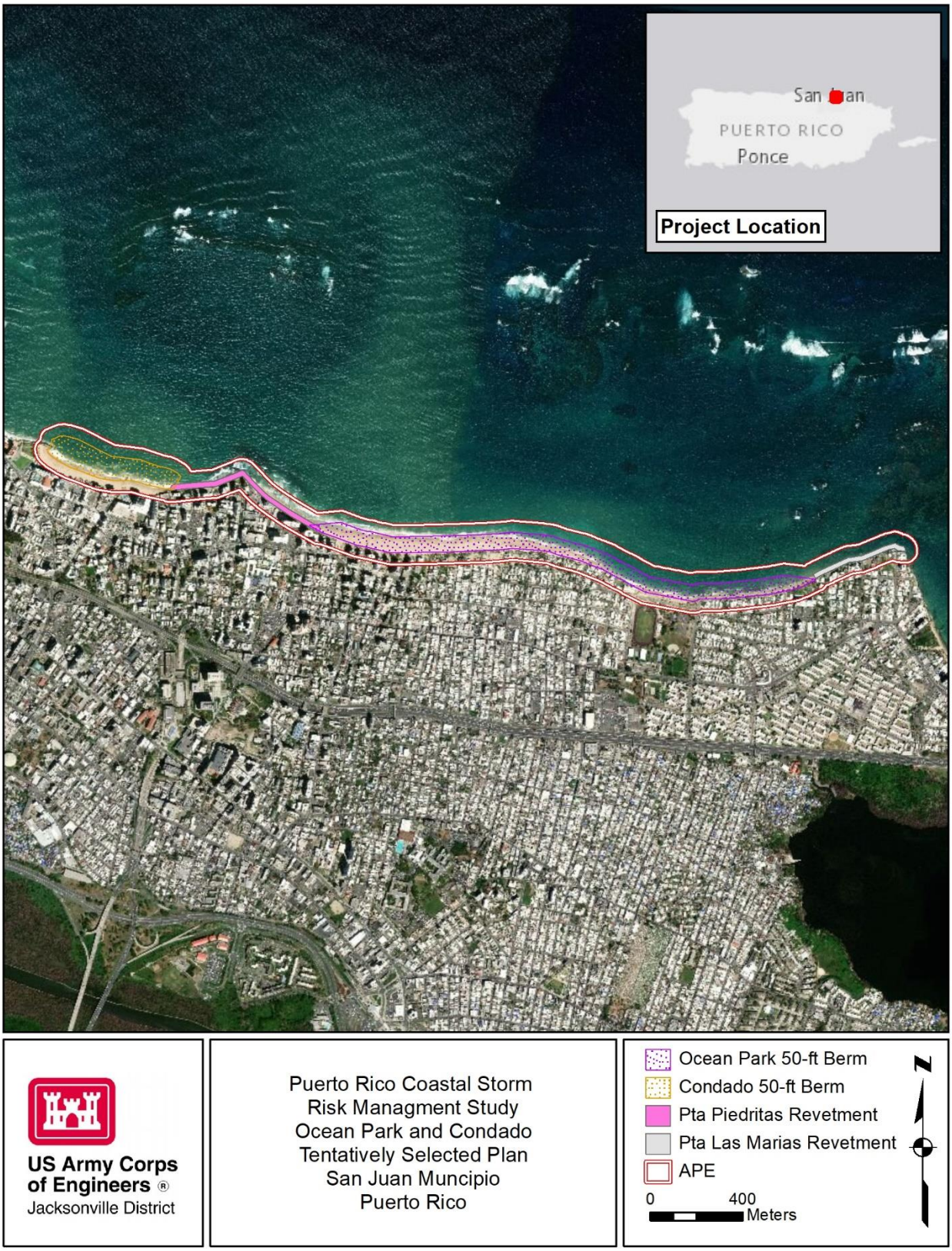
XII. EXECUTION

Execution of this Agreement by the Corps, the SHPO, and the ACHP (if participating), and the implementation of its terms evidence that the Corps has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

Appendix A

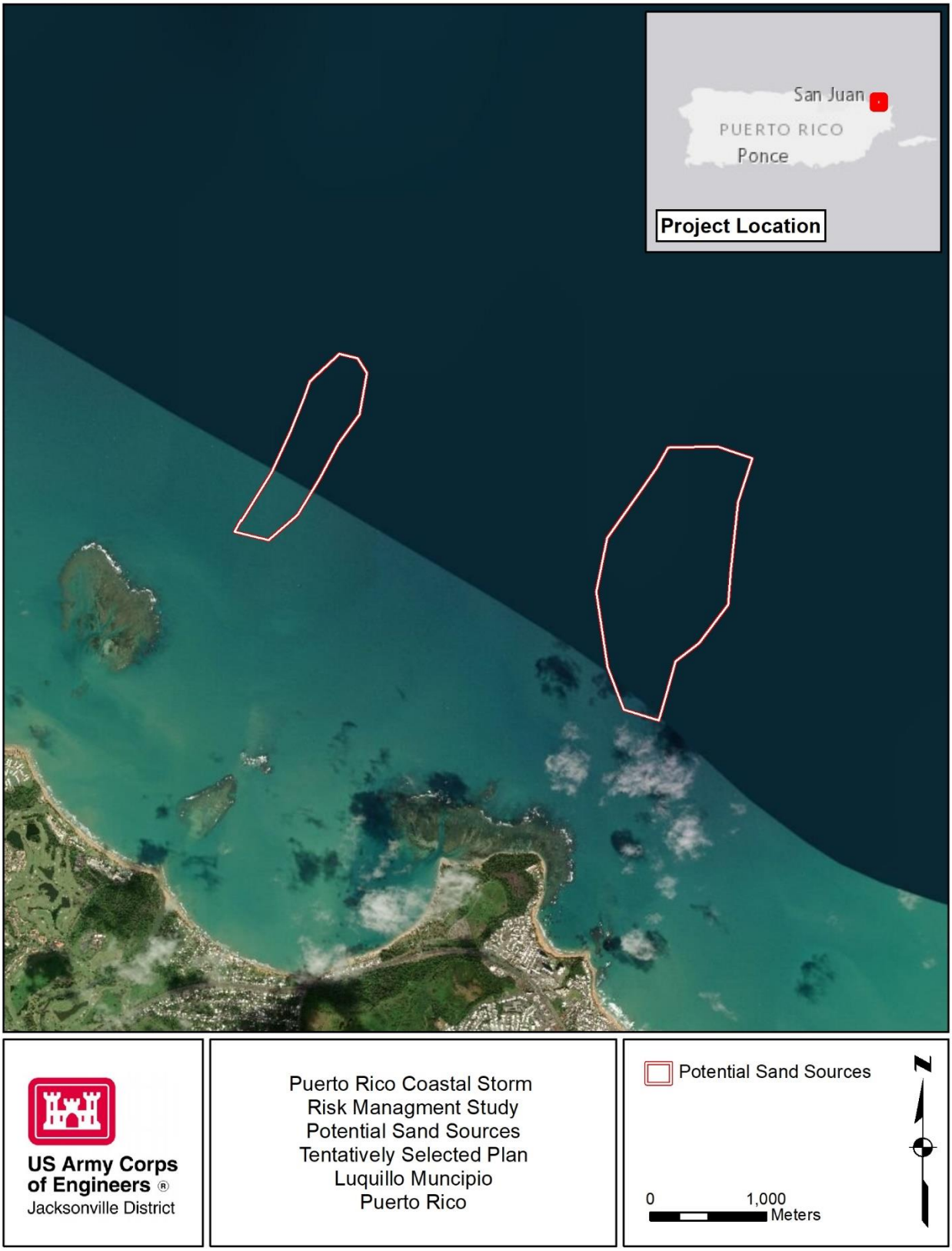
Area of Potential Effects for Project Alternatives

Proposed features and APE for the Puerto Rico Coastal Storm Risk Management Project in San Juan Municipio



Proposed features and APE for the Puerto Rico Coastal Storm Risk Management Project in Rincon Municipio

Offshore sand sources studied in the Puerto Rico Coastal Storm Risk Management Project in Luquillo and Rio Grande Municipios



SIGNATORIES TO THE PROGRAMMATIC AGREEMENT BETWEEN THE U.S. ARMY CORPS OF ENGINEERS, THE PUERTO RICO STATE HISTORIC PRESERVATION OFFICER, AND THE ADVISORY COUNCIL ON HISTORIC PROPERTIES (IF PARTICIPATING) REGARDING THE PUERTO RICO COASTAL STORM RISK MANAGEMENT PROJECT FEASIBILITY STUDY, LUQUILLO, RINCON, RÍO GRANDE, AND SAN JUAN, PUERTO RICO

U.S. ARMY CORPS OF ENGINEERS, JACKSONVILLE DISTRICT

BY: _____ DATE: _____

Andrew Kelly
Colonel, U.S. Army
District Commander

SIGNATORIES TO THE PROGRAMMATIC AGREEMENT BETWEEN THE U.S. ARMY CORPS OF ENGINEERS, THE PUERTO RICO STATE HISTORIC PRESERVATION OFFICER, AND THE ADIVSORY COUNCIL ON HISTORIC PROPERTIES (IF PARTICIPATING) REGARDING THE PUERTO RICO COASTAL STORM RISK MANAGEMENT PROJECT FEASIBILITY STUDY, LUQUILLO, RINCON, RÍO GRANDE, AND SAN JUAN, PUERTO RICO

PUERTO RICO STATE HISTORIC PRESERVATION OFFICER

BY: _____ DATE: _____

Carlos A. Rubio-Cancela

State Historic Preservation Officer

SIGNATORIES TO THE PROGRAMMATIC AGREEMENT BETWEEN THE U.S. ARMY CORPS OF ENGINEERS, THE PUERTO RICO STATE HISTORIC PRESERVATION OFFICER, AND THE ADIVSORY COUNCIL ON HISTORIC PROPERTIES (IF PARTICIPATING) REGARDING THE PUERTO RICO COASTAL STORM RISK MANAGEMENT PROJECT FEASIBILITY STUDY, LUQUILLO, RINCON, RÍO GRANDE, AND SAN JUAN, PUERTO RICO

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY: _____ DATE: _____

John Fowler

Executive Director

CONCURRING PARTY TO THE PROGRAMMATIC AGREEMENT BETWEEN THE U.S. ARMY CORPS OF ENGINEERS, THE PUERTO RICO STATE HISTORIC PRESERVATION OFFICER, AND THE ADIVSORY COUNCIL ON HISTORIC PROPERTIES (IF PARTICIPATING) REGARDING THE PUERTO RICO COASTAL STORM RISK MANAGEMENT PROJECT FEASIBILITY STUDY, LUQUILLO, RINCON, RÍO GRANDE, AND SAN JUAN, PUERTO RICO

Institute of Puerto Rican Culture

BY: _____ DATE: _____

Prof. Carlos R. Ruiz Cortés

Executive Director