



US Army Corps  
of Engineers®  
Jacksonville District

# SAN JUAN METRO AREA, PUERTO RICO

## COASTAL STORM RISK MANAGEMENT STUDY DRAFT INTEGRATED FEASIBILITY STUDY AND ENVIRONMENTAL ASSESSMENT

JULY 2020

### APPENDIX E: REAL ESTATE PLAN



This page intentionally left blank

## TABLE OF CONTENTS

SECTIONS	Page No
1. STATEMENT OF PURPOSE	E-1
2. FEDERAL PROJECTS NEAR THE STUDY AREA	E-1
3. PROJECT AND STUDY AUTHORIZATION	E-1
4. PROJECT LOCATION	E-2
5. PROJECT DESCRIPTION	E-4
6. REAL ESTATE REQUIREMENTS	E-24
7. STANDARD ESTATES	E-26
8. NON STANDARD ESTATES	E-28
9. FEDERALLY GOVERNMENT OWNED LAND	E-28
10. NON-FEDERALLY OWNED LAND	E-28
11.NON FEDERAL OPERATION/MAINTENANCE RESPONSIBILITIES	E-29
12.NON FEDERAL SPONSOR'S AUTHORITY TO PARTICIPATE IN PROJECT	E-29
13.NAVIGATION SERVITUDE	E-29
14. ATTITUDE OF THE LANDOWNERS	E-30
15.MINERALS	E-30
16.HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)	E-30
17.INDUCED FLOODING	E-30
18.ZONING ORDINANCES	E-30
19. RELOCATIONS ASSISTANCE (Public Law 91-646)	E-30
20. RELOCATIONS, ALTERATIONS, VACATIONS AND ABANDONMENTS	E-31
21. STANDING TIMBER AND VEGETATIVE COVER	E-31

22. RECREATION RESOURCES	E-31
23. CULTURAL RESOURCES	E-31
24. OUTSTANDING RIGHTS	E-31
25. MITIGATION	E-31
26. ACQUISITION/ADMINISTRATIVE COSTS	E-31
27. SUMMARY OF PROJECT REAL ESTATE COSTS	E-32
28. ACQUISITION SCHEDULE	E-33
29. REAL ESTATE CHART OF ACCOUNTS	E-33
EXHIBIT A: NONE FEDERAL SPONSOR'S REAL ESTATE ACQUISITION CAPABILITY ASSESSMENT	E-35
EXHIBIT B: RISK LETTER	E-37

## **LIST OF FIGURES**

FIGURE E-1 – Project Location Map	E-2
FIGURE E-2 – Project Study Area Map	E-3
FIGURE E-3 – Project Area Map	E-4
FIGURE E-4 – Condado Lagoon (CL-1)	E-6
FIGURE E-5 – West San Juan Bay (WSJB-1B) Overview	E-8
FIGURE E-6 – West San Juan Bay (WSJB-1B) Segment 1	E-9
FIGURE E-7 – West San Juan Bay (WSJB-1B) Segment 2	E-10
FIGURE E-8 – West San Juan Bay (WSJB-1B) Segment 3	E-11
FIGURE E-9 – West San Juan Bay 2 (WSJB-2) Overview	E-13
FIGURE E-10 – West San Juan Bay 2 (WSJB-2) Segment 1	E-14
FIGURE E-11 – West San Juan Bay 2 (WSJB-2) Segment 2	E-15
FIGURE E-12 – West San Juan Bay 3 (WSJB-3) Overview	E-17
FIGURE E-13 – West San Juan Bay 3 (WSJB-3) Segment 1	E-18
FIGURE E-14 – West San Juan Bay 3 (WSJB-3) Segment 2	E-19
FIGURE E-15 – West San Juan Bay 3 (WSJB-3) Segment 3	E-20
FIGURE E-16 – West San Juan Bay 3 (WSJB-3) Segment 4	E-21
FIGURE E-17 – West San Juan Bay 4 (WSJB-4)	E-23

## **REAL ESTATE PLAN**

### **1. STATEMENT OF PURPOSE**

This Real Estate Plan (REP) supports the San Juan Metro Area (San Juan Back Bay), Puerto Rico Coastal Storm Risk Management (CSRM) Feasibility Study and Environmental Assessment. The purpose of the study is to determine if there is Federal interest in a Federal plan to reduce damages to infrastructure as a result of coastal flooding from storm surge, tide and waves (rather than inland rainfall and storm water runoff) during coastal storms and hurricanes along the back bay areas in the municipality of San Juan and adjacent municipality communities.

This Real Estate Plan is tentative in nature and is intended for planning purposes only. There may be modifications to the plans that occur during Project Engineering and Design Phase (PED), thus changing the final acquisition area or administrative and land cost. The author of this Appendix is familiar with the study area.

### **2. FEDERAL PROJECTS NEAR THE STUDY AREA**

- Caño Martín Peña Ecosystem Restoration Project – This project was approved in 2016 and is scheduled to be constructed. The main purpose of the project is to clear vegetation in the Cano Martin Pena, and restore native vegetation along the fringes, allowing flow to be restored.
- Río Puerto Nuevo Flood Risk Management Project – This project reduces the risk of damages from flooding in the Río Puerto Nuevo channel.
- San Juan Harbor Navigation Project – This project obtained a Chief's Report in 2018 and recommends improvements to the navigation channel to increase transportation cost savings and efficiencies in the harbor.
- La Esperanza CAP 1135 - This project falls under the Continuing Authorities Program (CAP), for ecosystem restoration in the La Esperanza area.
- Condado Lagoon CAP 204 - This project falls under the Continuing Authorities Program (CAP), for ecosystem restoration (raise bottom elevation for SAV) in the lagoon.

### **3. PROJECT AND STUDY AUTHORIZATION**

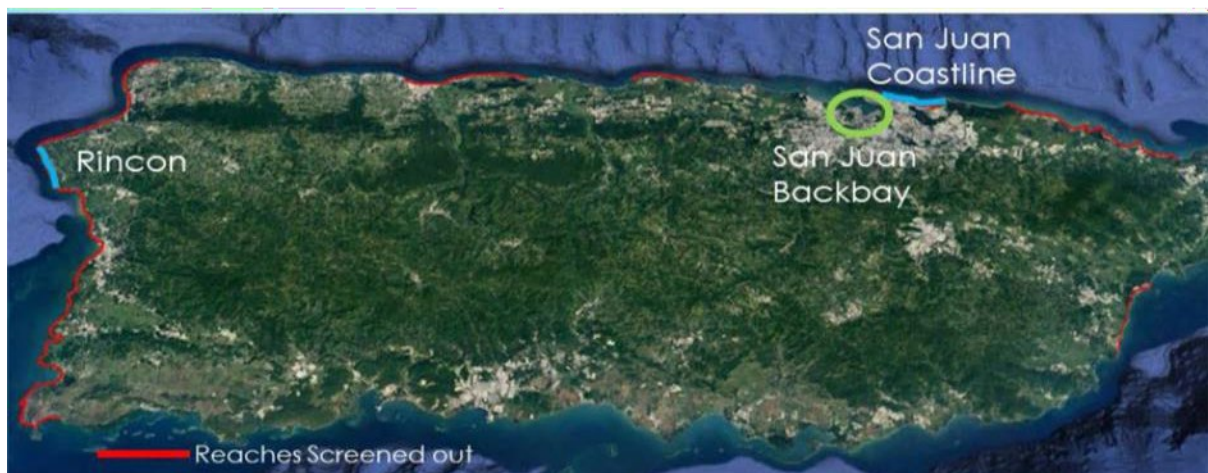
Section 204 of the Flood Control Act of 1970, Public Law 91-611, authorizes the Secretary of the Army, acting through the Chief of Engineers, to prepare plans for the development, utilization and conservation of water and related land resources of drainage basins and coastal areas in the Commonwealth of Puerto Rico.

The Bipartisan Budget Act of 2018 (BBA 2018), Public Law 115-123, signed into law February 9, 2018, authorizes the Government to conduct the study at full

Federal expense. The Puerto Rico Coastal study was identified in the Long Term Disaster Recovery Investment Plan Investigations Account with a current working estimate of \$3,000,000.

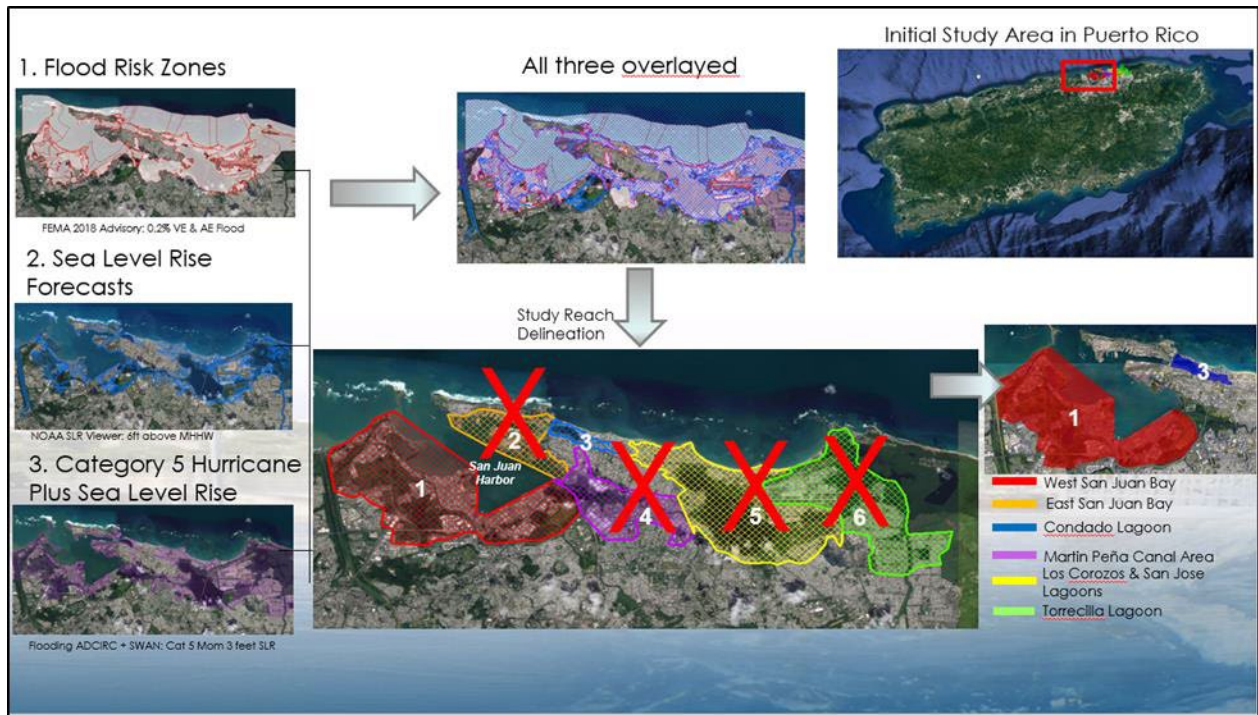
#### 4. PROJECT LOCATION AND STUDY AREA

Puerto Rico is the smallest of the Greater Antilles and is located in the Northeast of the Caribbean shield made up of the Greater Antilles and Minor Antilles. In addition, it is in the 18.5 ° N parallel of the Tropic of Cancer at latitude 65 ° W. This position makes it extremely vulnerable to hurricanes due to the warmer temperatures of the waters in these zones.



**Figure E-1 Project Location**

Areas within this initially defined region were separated into 6 reaches based on their respective watershed basins, and named accordingly: Reach 1 - West San Juan Bay, Reach 2 - East San Juan Bay, Reach 3 - Condado Lagoon, Reach 4 - Cano Martin Pena, Reach 5 - Los Corozos and San Jose Lagoon and Reach 6 - Torrecilla Lagoon. During further investigation, Reaches 1 and 3 were carried forward while Reaches 4-6 and Reach 2 were screened out from further analysis in this study.



**Figure E-2. San Juan Back Bay Study Area**

The study focuses on the areas most likely to experience damages from storm surge within the San Juan Metro Area. The reduced study area includes Reach 1, known throughout this report as the West San Juan Bay (WSJB) reach, and Reach 3, known throughout this report as Condado Lagoon (CL) reach. The combined study area encompasses roughly 9.5 square miles of area and contains approximately 22 structures identified as critical infrastructure, in addition to approximately 14 schools, and major hurricane and tsunami evacuation routes.

The study area has approximately 20,000 assets, including critical infrastructure (roads, hospitals, airports, utilities, etc.) and vehicles, with a combined estimated value of approximately \$3.4 billion. Flooded conditions from storm surge, tide and wave contributions cause major damages to these structures, and will continue to do so with increased risk from sea level rise. Additionally, these flooded conditions are hazardous to the community, affect economic development of stores, hotels and restaurants, and decrease property values.





**Figure E-3 – Project Area Map**

## **5. PROJECT DESCRIPTION**

The Tentative Selected Plan (TSP) for the project consists of a collection of key structural, non-structural and natural and nature based features in strategic locations designed to appropriate elevations which work together to reduce the risk of damages as a result of coastal flooding from storm surge, tide and waves during coastal storms and hurricanes along with the effect of SLC in the San Juan Metro Area.

The TSP includes levees (2 miles), a series of breakwaters over 0.7 miles along the Cataño shoreline, seawalls (6.7 miles), elevated living shoreline (2.3 miles), a storm surge gate/sluice gate on the Malaria Canal, and associated inland hydrology feature (to allow continued rainfall runoff with the TSP constructed features). The TSP also contributes to creation of habitat and incorporates recreational features, which were added after selection of the plan, and discussed in this chapter. Although the TSP was formulated to avoid and minimize impacts to the extent practicable, impacts are expected to occur and would be addressed through mitigation, which is evaluated further in Chapter 5 and in the preliminary mitigation plan in Appendix G, Environmental, Attachment 4, and in Chapter 4.



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.

### **CONDADO LAGOON (CL-1)**

In this reach, an elevated living shoreline will be constructed at the location shown in the graphic executive summary. The elevated living shoreline will consist of three berms, with the first berm set to the specified design elevation and a top width of 5 ft and the slope will be kept at a 1V:4H on both the landward and seaward sides of the living shoreline. A concrete stem wall will be placed within the top berm and will extend from the top of the structure to 2-feet below existing grade. The second berm will be set to an elevation of 2 ft-PRVD02 and maintain a berm width of 1 foot to support various vegetative species like marsh grass. The third berm will be set to an elevation of -1 ft-PRVD02 and contain a berm width of 3 feet. Toe protection will encompass the entire bottom berm width of 3 ft and height of 3 ft with a Dn50 of 1 ft with a unit weight of 147 lb/ft<sup>3</sup>. A 1-ft in diameter sediment tube surrounded by filter fabric will be placed within the center of the toe protection to support red mangrove plantings to help stabilize the toe of the berm.

The design elevation would be from 7- to 9-ft PRVD02, which will be further optimized throughout the feasibility phase and finalized during PED. This design accounts for inland drainage by using both culverts and pumps. The culverts will be placed in various locations throughout the model area and vary in width depending on the measure type. Pumps will be placed within the eastern side of the model area to assist with the outflow of rainfall at the lowest elevation region within the model area. If necessary, a retention basin could also be implemented to support the storage of rainfall runoff on the eastern side of Condado Lagoon.

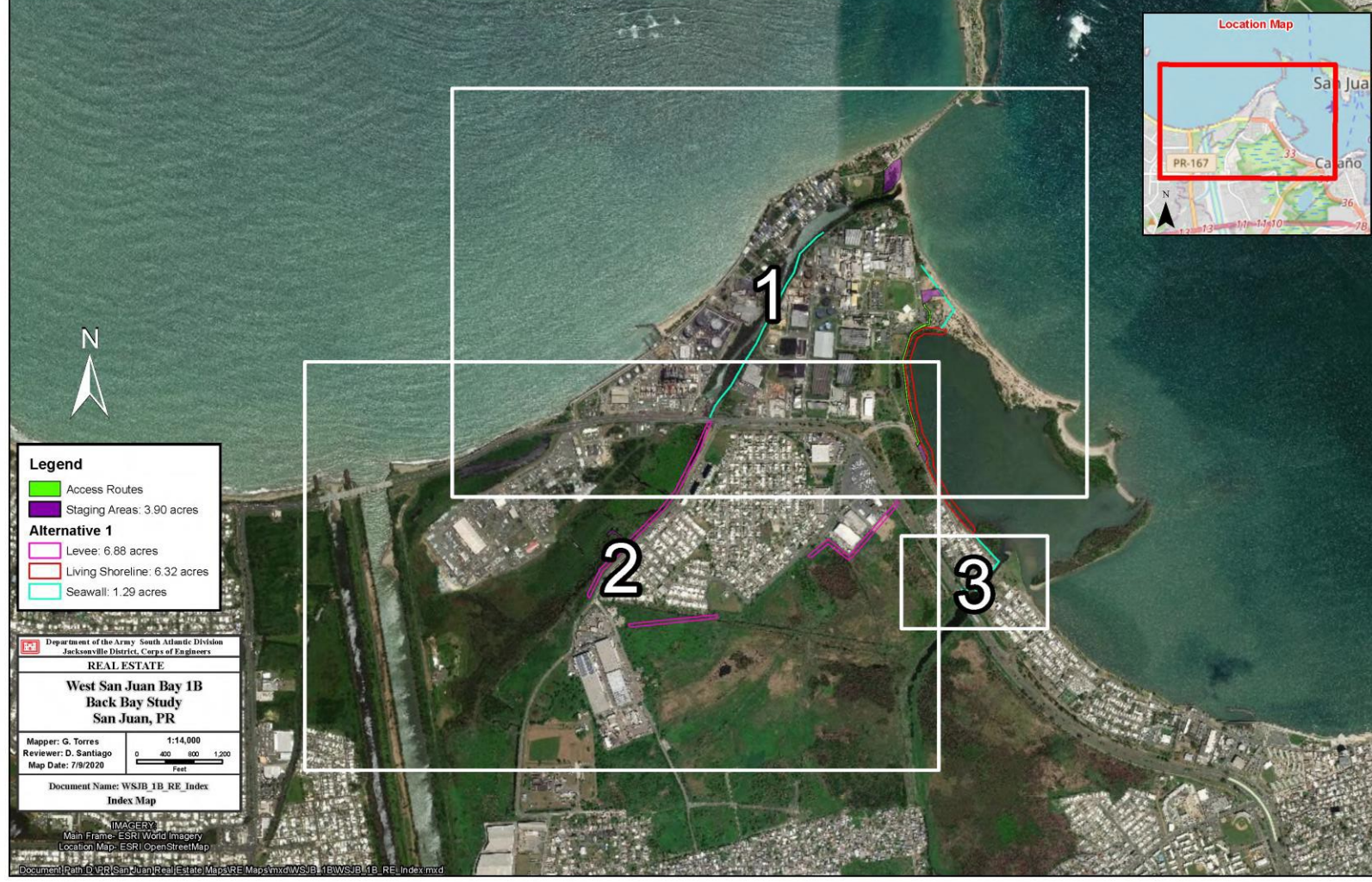


### **WEST SAN JUAN BAY 1B (WSJB-1B)**

In this reach, a floodwall/seawall would be constructed as well as a living shoreline. The floodwall/seawall would be designed to be a steel cantilever sheetpile seawall although some locations of the seawall may transition into a floodwall depending on available room within the model area. The sheetpiles will be driven approximately 25 ft deep and contain backfill up to the design elevation. The seawall will contain a 2-foot by 2-foot concrete cap and the team assumed no toe protection at the seawall location due to the limited wave action around WSJB-1B. If a floodwall is determined to be necessary due to a restriction of space a T-Wall will be used. The T-Wall will consist of 2 piles spaced approximately 7.5 ft along the centerline of the wall with a total pile length of approximately 55 feet. Standard levees are proposed along the western and southern sides of the model area. The exact sediment type is unknown at the levee locations and therefore the engineering team assumed a slope of 1V:3.5H. Additionally, the study assumed a top width of 12-ft to maintain vehicle access to the levees.

The elevated living shoreline located on the eastern side of the model area will consist of three berms, with the first berm set to the specified design elevation and a top width of 5 feet. The slope of the living shoreline will be kept at a 1V:4H on both the landward and seaward sides. A concrete stem wall will be placed within the top berm and will extend from the top of the structure to 2-feet below existing grade. The second berm will be set to an elevation of 2 ft-PRVD02 and maintain a berm width of 1 foot to support various vegetative species like marsh grass. The third berm will be set to an elevation of -1 ft-PRVD02 and contain a berm width of 3 feet. Toe protection will encompass the entire bottom berm width of and height of 3 feet with a Dn50 of 1 ft with a unit weight of 147 lb/ft<sup>3</sup>. A 1-ft in diameter sediment tube surrounded by filter fabric will be placed within the center of the toe protection to support red mangrove plantings to help stabilize the toe of the berm.





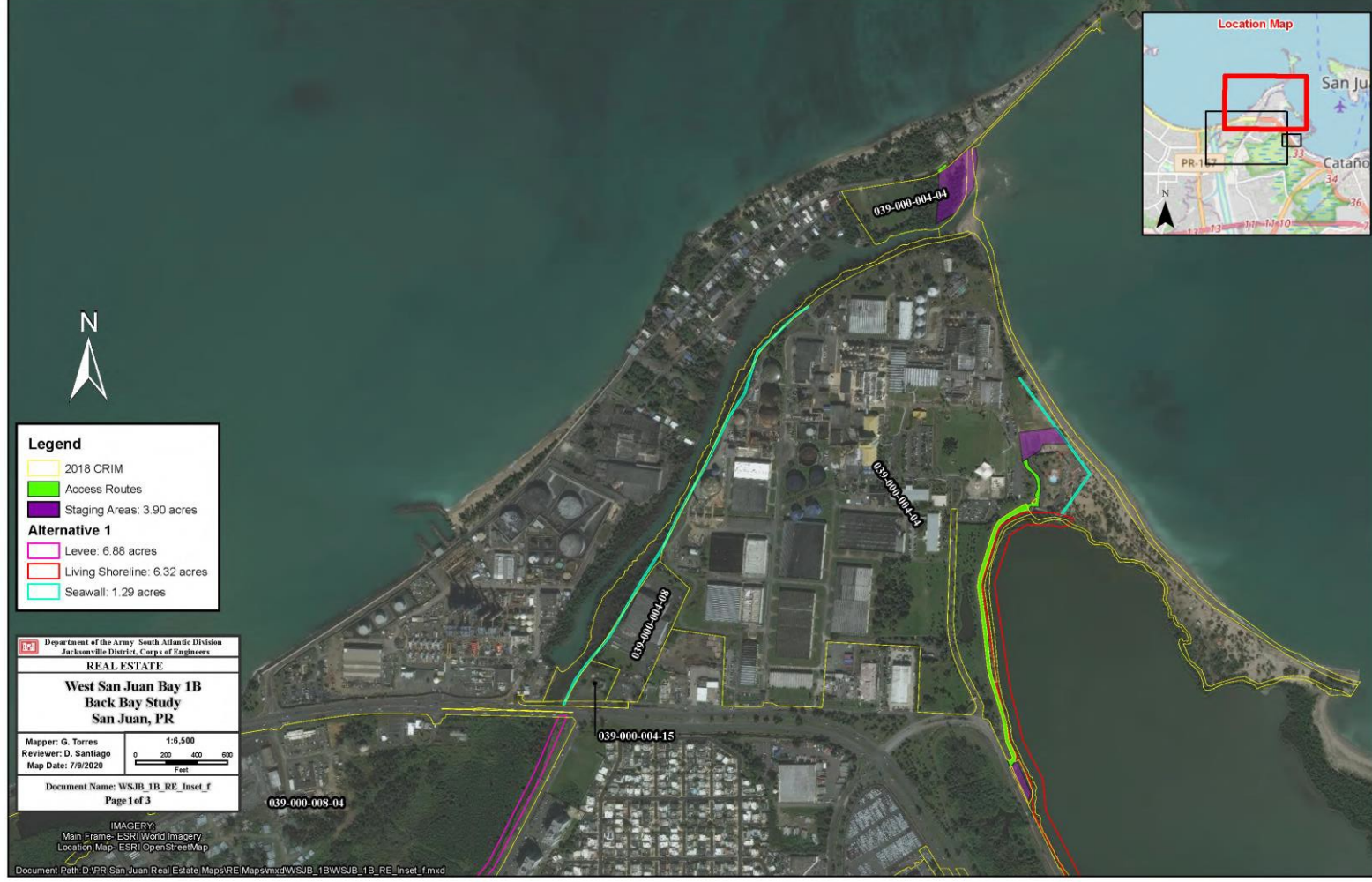


Figure E-6 West San Juan Bay (WSJB-1B) Segment 1





Figure E-7 West San Juan Bay (WSJB-1B) Segment 2





**Figure E-8 West San Juan Bay (WSJB-1B) Segment 3**

## **WEST SAN JUAN BAY 2 (WSJB-2)**

In this reach, a sluice gate that will extend approximately 50-ft across the Malaria Canal. Since the existing sluice gate remains closed pumps are currently installed to pump out the inland rainfall runoff. The engineering team assumed that the existing FEMA pumping capacity at Malaria Canal will have to be maintained, therefore the design includes three 50 CFS pumps and one 100 CFS pump. A floodwall/seawall will tie into high elevations on either side of PR-165 from the sluice gate. The western side of the area will be protected by either a standard or horizontal (tiered) levee.





Figure E-9 WEST SAN JUAN BAY 2 (WSJB-2) Overview





**Figure E-10 WEST SAN JUAN BAY 2 (WSJB-2) Segment 1**



**Figure E-11 WEST SAN JUAN BAY 2 (WSJB-2) Segment 2**



### **WEST SAN JUAN BAY 3 (WJSB-3)**

In this reach, the following would be constructed: rock breakwater and an elevated living shoreline in addition to the floodwall/seawall. The living shoreline will be placed along the northeastern-facing shoreline of WSJB-3A. The elevated living shoreline will consist of three berms, with the first berm set to the specified design elevation and a top width of 5 ft and the slope will be kept at a 1V:4H on both the landward and seaward sides of the living shoreline. A concrete stem wall will be placed within the top berm and will extend from the top of the structure to 2-feet below existing grade. The second berm will be set to an elevation of 2 ft-PRVD02 and maintain a berm width of 1 foot to support various vegetative species like marsh grass. The third berm will be set to an elevation of -1 ft-PRVD02 and contain a berm width of 4 feet. Toe protection will encompass the entire bottom berm width of 4 ft and height of 3 ft with a Dn50 of 2 ft with a unit weight of 147 lb/ft<sup>3</sup>. A 1-ft in diameter sediment tube surrounded by filter fabric will be placed within the center of the toe protection to support red mangrove plantings to help stabilize the toe of the berm.

The design elevation would be from 7- to 9-ft PRVD02, which will be further optimized throughout the feasibility phase and finalized during PED. This design accounts for inland drainage by using both culverts and pumps. The culverts will be placed in various locations throughout the model area and vary in width depending on the measure type. Pumps will be placed within the eastern side of the model area to assist with the outflow of rainfall at the lowest elevation region within the model area.



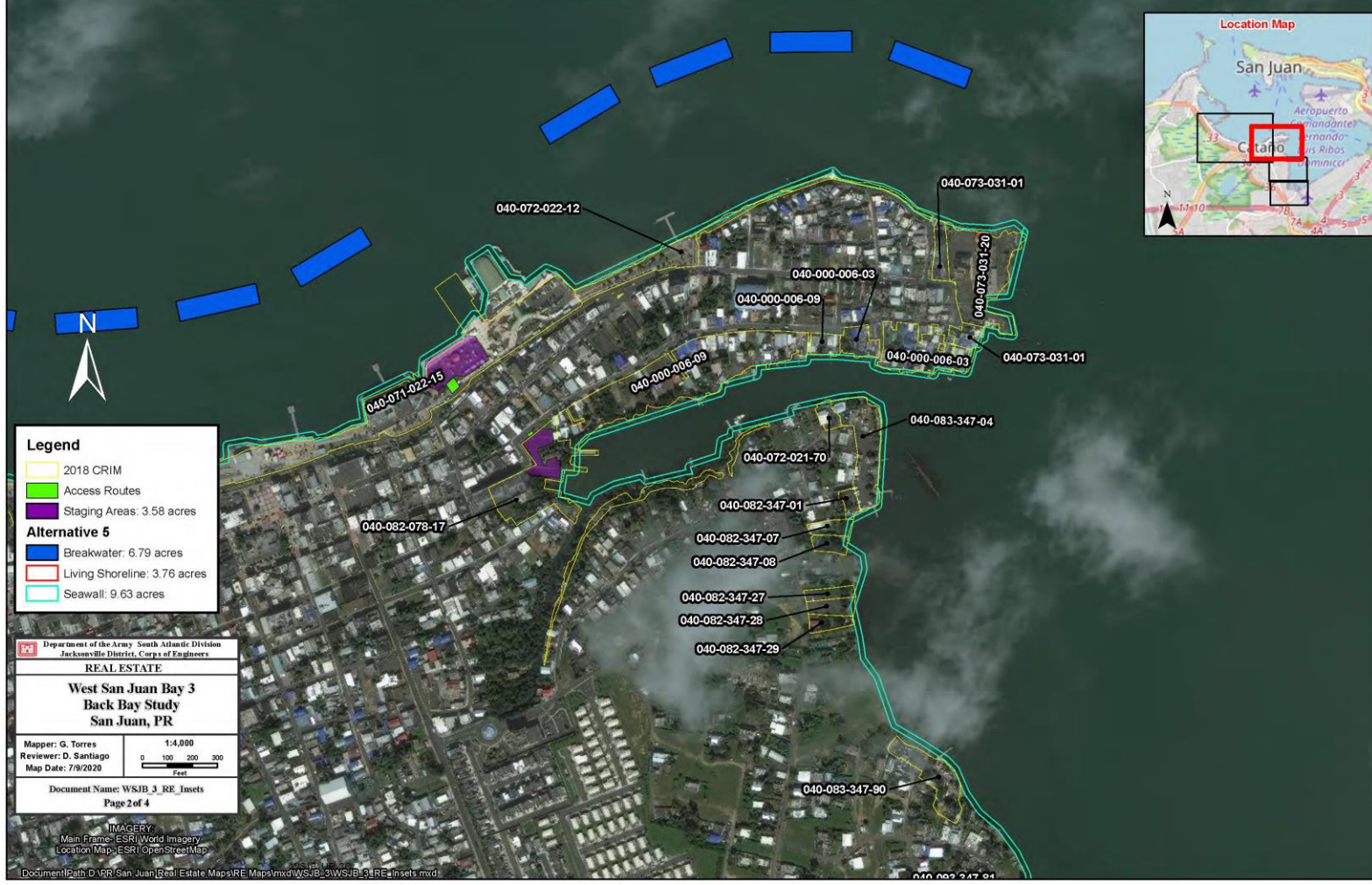


Figure E-12 WEST SAN JUAN BAY 3 (WSJB-3) Overview



**Figure E-13 WEST SAN JUAN BAY 3 (WSJB-3) Segment 1**



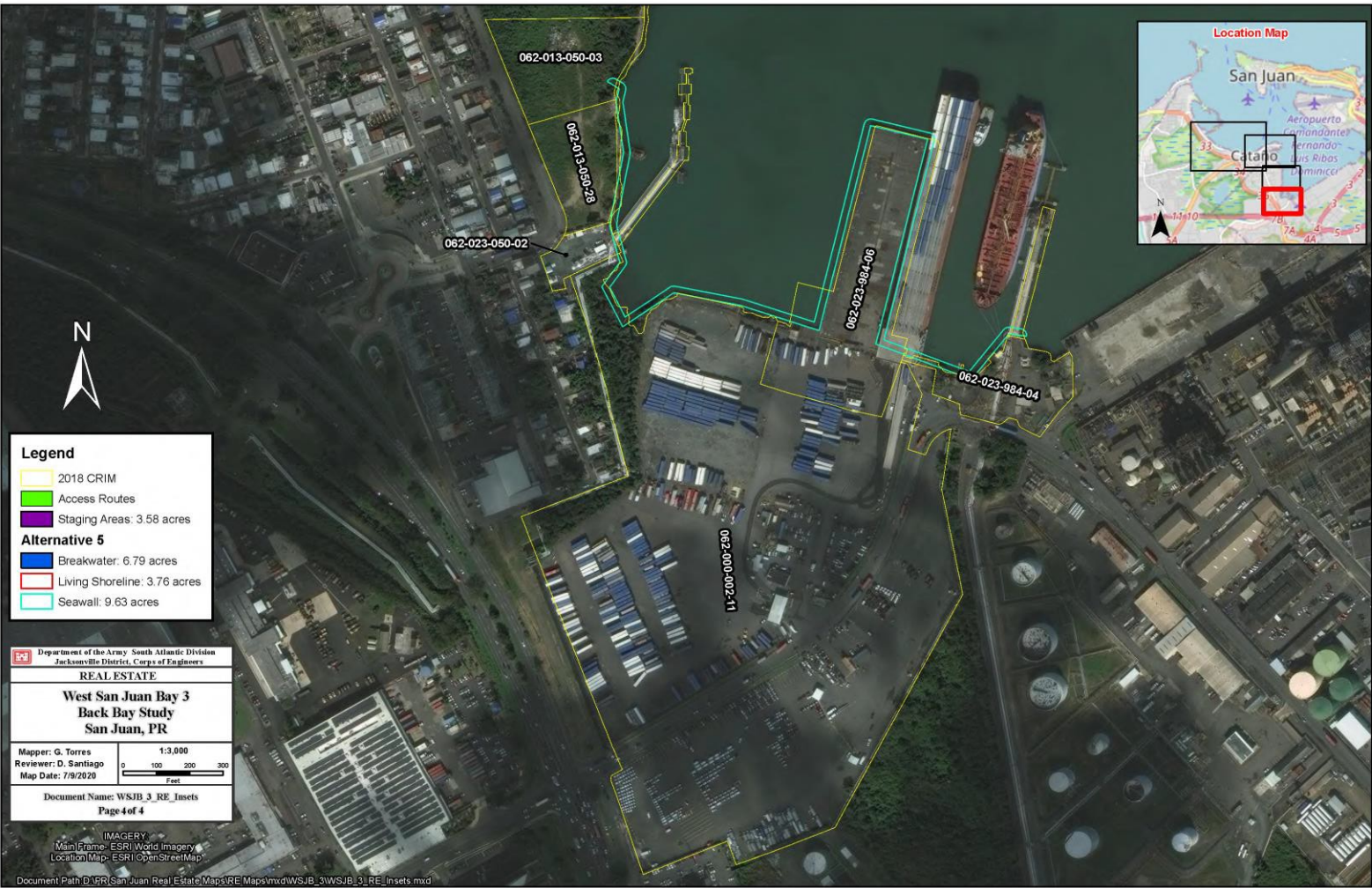


**Figure E-14 WEST SAN JUAN BAY 3 (WSJB-3) Segment 2**



**Figure E-15 WEST SAN JUAN BAY 3 (WSJB-3) Segment 3**





**Figure E-16 WEST SAN JUAN BAY 3 (WSJB-3) Segment 4**

#### **WEST SAN JUAN BAY 4 (WSJB-4)**

In this reach, a floodwall/seawall would be constructed. The team designed the floodwall/seawall to be a steel cantilever sheetpile seawall although some locations of the seawall may transition into a floodwall depending on available room within the canal. The sheetpiles will be driven approximately 25 deep to maintain a depth driven of twice the difference between the design elevation and the seaward elevation. The seawall will contain a 2-foot by 2-foot concrete cap and the team assumed no toe protection since there is no wave action along the model area. If a floodwall is determined to be necessary due to a restriction of space a T-Wall will be used. The T-Wall will consist of 2 piles spaced approximately 7.5 ft along the centerline of the wall with a total pile length of approximately 60 feet.





Figure E-17 WEST SAN JUAN BAY 4 (WSJB-4)

## 6. REAL ESTATE REQUIREMENTS

This Real Estate Plan (REP) is prepared in accordance with applicable Engineering Regulations and presents preliminary and estimated real estate requirements for the San Juan Area Coastal Storm Risk Management Feasibility Study (the project), based on the information and resources available at this time with multiple assumptions. The Puerto Rico Department of Natural and Environmental Resources is the non-Federal sponsor (NFS) for the study.

This REP is an appendix to the Feasibility Study and describes the lands, easements, rights of way, relocation, and disposal areas (LERRD) anticipated, identified or estimated at this time, that appear to be required for construction, operation and maintenance of the proposed project; including estimated acreage, estates, ownerships, and preliminarily and roughly estimated values and identified assumptions. The NFS shall provide lands, easements, and rights-of-way.

The TSP consists of a collection of key structural, non-structural and natural and nature based features in strategic locations designed to appropriate elevations which work together to reduce the risk of damages as a result of coastal flooding from storm surge, tide and waves during coastal storms and hurricanes in the San Juan Metro Area.

The TSP includes levees (1.6 miles), a series of breakwaters over 0.7 miles along the Cataño shoreline, seawall/floodwalls (5.2 miles), elevated living shoreline (2.36 miles), a storm surge gate/sluice gate on the Malaria Canal, and associated inland hydrology features, as well as creation of habitat and recreational features. Although the TSP was formulated to avoid and minimize impacts to every extent possible, impacts are expected to occur and as such the TSP includes mitigation.

The following project features have related real estate requirements that are necessary to provide adequate construction room to build proposed flood risk management features and secure lands needed for Operations and Maintenance (O&M):

**Seawall** - In this study analysis and in the report documentation, seawalls and floodwalls are interchangeable and therefore, the term seawall will be used. Seawalls could be constructed at a position seaward of the structures which they are designed to protect. These structures in general have a smaller bottom width footprint and could be beneficial in areas which do not have a large footprint of available real estate, such as in urban settings which are developed. It is assumed that seawall structures in the study area would be constructed seaward of existing seawalls, to protect historic value as well as to avoid disruption of engineering structural integrity of the existing seawall function. Total area consists of 12.38 acres, located within the maritime terrestrial zone (MTZ), so no lands will need to be acquired by the NFS. (See paragraph 12 below for further information regarding

the MTZ.)

**Levee** - Levees are embankments constructed along a waterfront to reduce the risk of flooding in relatively large areas, with slopes of 1V:3H. They are typically constructed by compacting soil into a large berm that is wide at the base and tapers toward the top. Grass or some other type of non-woody vegetation is usually planted on the levee to add stability to the structure. Levees may be constructed in urban areas; however, large tracts of real estate are usually required due to the levee width and required setbacks. Total area consists of 12.57 acres. The lands required are both submerged lands that are controlled by the NFS and uplands that will need to be acquired as Flood Protection Levee Easements by the NFS. (See paragraph 12 below for further information regarding submerged lands.)

**Storm Surge Gate, Small** - This measure refers to a smaller storm gate, or sluice gate, to close off risk of storm surge in smaller canals. Specifically, this type of gate could be used in the Mosquito Canal/Malaria Canal or Northern Canal. Total area consists of 1.05 acres, which is located within lands owned by the NFS. Therefore, lands will not need to be acquired by the NFS.

**Inland Hydrology/Outflow Structures** - Structural measures, such as seawalls and levees tend to trap rainfall runoff associated with storms on the landward side. Gravity outlets, such as culverts, in some cases can be installed along the length of the structure. In cases where significant runoff may be trapped behind the structure, ponding areas and pump stations may be required. This measure must be combined with other structures such as levees and seawalls to allow outflow of water from behind the landward side of the structure to carry the water to seaward sides, ensuring that functions to meet appropriate rainfall runoff needs are met. While currently undefined, this measure will address the need for adequate rainfall runoff with other measures, and will be developed further and refined as needed for planning purposes. Based on a preliminary hydrology analysis was determined that a total of 50 culverts (24" and 48") and 11 pump stations will be required. Location will be determined on PED phase but are expected to be within the Levee footprint area. Therefore, specific additional lands for these measures will not need to be acquired by the NFS.

**Elevated Living Shoreline** - This measure would be similar to a levee, however it would have a gentler slope as well as two transitional berms at lower elevations. It would include placement of fill, stone, and vegetation, to reduce risk of storm surge flooding depths by providing a more natural raised elevation. It could provide additional benefits to create an effective buffer, provide valuable habitat and improve water quality. This measure is envisioned to be better suited for areas with less space and would be planted with vegetation suited for brackish/salt water habitats/environments. Total area consists of 22.88 acres. Lands will need to be acquired as Flood Protection Levee Easements by the NFS.

**Breakwaters** - Breakwaters is a measure to reduce damages from wave energy as well as reduce the influence of waves to the total water level due to wave setup and wave run-up. Total area consists of 6.79 acres, located within submerged lands managed by the NFS. No lands will need to be acquired by the NFS. (See paragraph 12 below for further information regarding submerged lands.)

**Staging Areas** - Staging and storage areas have been identified for every reach of the project. Total area consists of 16.90 acres. Lands will need to be acquired as Temporary Work Area Easement by the NFS.

**Disposal** – Necessary disposal of ground or marsh material will be required. Total area and location for Disposal will be determined later during PED phase. Land would need to be acquired as Temporary Work Area Easement by the NFS.

**Recreation** – The location and specifications of the recreation features are yet to be determined. The typical standard estate for recreation features is Fee, and to the extent possible, it is greatly expected that the features will be constructed within the project acquired lands. In this case, no additional lands will need to be acquired by the NFS. (If for some reason, sufficient Fee lands are not available for the recreation features, this will need to be resolved through either acquisition by the NFS or the approval of a lesser estate for the recreation features.)

**Mitigation** – Mitigation areas are anticipated to be used as remediation for projects impacts. Location and area needed will be determined later on the design phase. Lands will be needed to be acquired in Fee by the NFS.

**Road Access** – Road access would be mainly over public roads and highways. However, in WSJB 4 access to a staging area will be needed over private land. Total area consists of 1.96 acres. Land will be needed to be acquired as a temporary Road Easement by the NFS.

**Operation and Maintenance** – After construction is completed, operation and maintenance of the project features will be done within the project acquired lands.

## **7. STANDARD ESTATES**

If a property must be acquired for the project, the NFS will need to acquire all needed property rights and interest up to and including fee acquisitions. Most of the structural measures for the storm surge wall will require perpetual and temporary construction easements. For some of the perpetual easement requirements, an assumption has been made that fee acquisitions will be required due to the reduced value remaining in the land after the taking, leaving an uneconomic remnant.

The Standard Estates that have been identified for this project are provided below. This is a preliminary list due to the feasibility stage of the project. Sufficient information is not available to provide more accurate identification of potential property rights, interest and estates that may be required or the value of such property rights, interest and estates.

The following standard estates are required:

### **FFF**

The fee simple title to (the land described in \_\_\_\_\_ Schedule A) (Tracts Nos. \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_), Subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

### **FLOOD PROTECTION LEVEE EASEMENT**

A perpetual and assignable right and easement in (the land described in Schedule A) (Tracts No's, \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_) to construct, maintain, repair, operate, patrol and replace a flood protection (levee) (floodwall) (gate closure) (sandbag closure), including all appurtenances thereto; reserving, however, to the owners, their heirs and assigns, all such rights and privileges in the land as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

### **TEMPORARY WORK AREA EASEMENT**

A temporary easement and right of way in, on, over and across (the land described in Schedule A) (Tracts Nos. \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_), for a period not to exceed \_\_\_\_\_, beginning with date possession of the land is granted to the (Project Sponsor), for use by the United States, its representatives, agents, and contractors as a (borrow area) (work area), including the right to (borrow and/or deposit fill, spoil and waste material thereon) (move, store and remove equipment and supplies, and erect and remove temporary structures on the land and to perform any other work necessary and incident to the construction of the \_\_\_\_\_ Project, together with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the limits of the right of way; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

## **ROAD EASEMENT**

A (perpetual [exclusive] [non-exclusive] and assignable) (temporary) easement and right-of-way in, on, over and across (the land described in Schedule A) (Tracts Nos. \_\_\_\_\_, \_\_\_ and \_\_\_) for the location, construction, operation, maintenance, alteration replacement of (a) road(s) and appurtenances thereto; together with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions and other vegetation, structures, or obstacles within the limits of the right-of-way; (reserving, however, to the owners, their heirs and assigns, the right to cross over or under the right-of-way as access to their adjoining land at the locations indicated in Schedule ); subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

## **8. NON-STANDARD ESTATES**

Based on preliminary information, no non-standard estates will be needed for the project. If it is determined that a non-standard estate is needed during the planning and design phase, the District Real Estate Office will seek waiver of standard estates and approval for non-standard estates or measures from HQ USACE through the USACE South Atlantic Division (SAD).

## **9. FEDERALLY GOVERNMENT-OWNED LAND**

There are no Federal Government known lands in the project area.

## **10. NON-FEDERALLY OWNED LAND**

The non-Federal lands are owned by the NFS, private landowners and commercial landowners.

## **11. NON-FEDERAL OPERATION AND MAINTAINANCE RESPONSIBILITIES**

The NFS will be responsible for all costs of operation, maintenance, repair, rehabilitation, and replacement of project features.

## **12. NON-FEDERAL SPONSOR'S AUTHORITY TO PARTICIPATE IN PROJECT**

The Puerto Rico Department of Natural and Environmental Resources (DNER) is responsible for the administration of Puerto Rico's coastal trust lands, the maritime terrestrial zone (MTZ), territorial waters and submerged lands thereunder through PR Law 23, Art.5(h). DNER also serves as the lead agency for the implementation of the Puerto Rico Coastal Zone Management Program (PRCZMP). The PRCZMP was adopted in 1978 as the coastal element of the Island-wide Land Use Plan.

This plan is a partnership between the United States Federal Government through the National Oceanic and Atmospheric Administration (NOAA) and the



Government of Puerto Rico (DNER and PR Planning Board). Authorized by the Coastal Zone Management Act (CZMA) of 1972 to address national coastal issues, this act provides the basis for protecting, restoring, and responsibly developing the United States' diverse coastal communities and resources. The principles of the PRCZMP include developing guidance for public and private development within the coastal zone, active management of coastal and marine resources, promoting scientific research, education and public participation, as well as coordinating state and federal actions.

The DNER, through regulation 4860, as amended in 1992, has jurisdiction over the coastal maritime zone out to its jurisdictional limit. This regulation also establishes that privately developed projects within the coastal maritime zone pay an annual concession proportional to the extent and use of the area affected by the project. Not many projects in Puerto Rico, other than privately owned marinas, pay the appropriate annual fees for these concessions. All projects within the MTZ must apply for a concession for the use of the MTZ, or submerged lands and territorial waters of PR. In certain cases where the integrity or stability of an existing structure is under imminent risk of an ongoing or forecasted threat, the property owner may solicit an emergency permit under the Regulation 4860, Article 16. (Coastal Engineering Handbook, Tetra Tech 2019)

### **13. NAVIGATION SERVITUDE**

In accordance with CECC-R Bulletin 14-05, Availability of the Navigation Servitude for Coastal Storm Damage Reduction Projects dated April 9, 2014, navigation servitude is not applicable to this project.

### **14. ATTITUDE OF THE LANDOWNERS**

Stakeholders consist of communities in the municipalities of San Juan, Cataño, Guaynabo, and Toa Baja; Department of Natural and Environmental Resources (DNER), Puerto Rico Ports Authority (PRPA), Department of Public Works, San Juan Bay Estuary, as well as Federal environmental agencies, state and local agencies, and NGO's. The study team has met with the communities and has bi-weekly meetings with DNER, NMFS, and FWS. Stakeholders have shown support for the project and no opposition is expected. The team is in the process of coordinating a webinar meeting with representatives of the municipalities, DNER, PRPA, and the Department of Public Works to brief these entities on the TSP and understand perspectives and views of those agencies.

### **15. MINERALS**

Preliminary assessment indicates no known present or anticipated mineral or sub-surface mineral extraction activities within the vicinity of the proposed area which may affect construction, operation, or maintenance of the project. In Puerto Rico,

the Commonwealth owns all subsurface mineral rights.

## **16. HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)**

San Juan Harbor is highly developed. All of the major port storage facilities have confinement areas sufficient to contain any spills and no hazardous or toxic materials or waste have been identified within the project footprint. Based on current design level, no hazardous, toxic, or radioactive waste has been encountered or released within the project area.

## **17. INDUCED FLOODING**

There will be no anticipated induced flooding directly associated with this project, subject to design flood modeling in PED.

## **18. ZONING ORDINANCES**

Preliminary investigations indicate that no enactments of zoning ordinances are proposed in lieu of, or to facilitate, acquisition in connection with the project.

## **19. RELOCATION ASSISTANCE (Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, “The Uniform Relocation Act”, (formerly known as Public Law 91-646, as amended))**

The purpose of the Uniform Act is to ensure that owners of real property to be acquired for Federal and federally assisted projects are treated fairly and consistently and that persons displaced as a direct result of such acquisition will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. The TSP for this project does not currently involve any real property acquisition or displacement of property owners or tenants.

## **20. RELOCATIONS, ALTERATIONS, VACATIONS, AND ABANDONMENTS (UTILITIES, STRUCTURES AND FACILITIES, CEMETERIES, AND TOWNS).**

After reviewing the Engineering Appendix, at this phase of design there are no utility or facility relocations required by the project.

## **21. STANDING TIMBER AND VEGETATIVE COVER**

Based on current design level, there are no future mineral/timber activities or other subsurface minerals identified within the scope of the study area.

## **22. RECREATION RESOURCES**

Recreation features are expected to be constructed within the project footprint.

(See discussion under “Recreation” in paragraph 6.) Location of recreational features will be included in a later design phase.

## **23. CULTURAL RESOURCES**

The Study falls in an area with a variety of cultural resources. Within the approximate footprints of the alternatives examined by the Study, the Puerto Rico site files and National Register of Historic Places databases identify historic structures, districts, and archaeological sites within the proposed project footprint. These include the remains of a historic hacienda (Ruinas Hacienda Palmas), the Bacardi Distillery Historic District, and archaeological sites recorded along the waterways. The exact locations will be surveyed by an Archaeologist.

## **24. OUTSTANDING RIGHTS**

There are no known outstanding rights in the Project Area.

## **25. MITIGATION**

The project will require environmental mitigation measures which will probably require the perpetual acquisition of lands. The actual location, acreage, and mitigation methodology will vary depending on the final development of the project and mitigation site designs that will occur during the PED Phase of the project.

## **26. ACQUISITION/ADMINISTRATIVE COSTS**

Acquisition for the project will involve an estimated 70 tracts. The acquisition includes approximately 68.50 acres for a total cost, including contingency (30%), of **\$36,286,987**. That includes a combined Federal/Non-Federal administration cost to acquire these lands estimated at \$500,000.

The purpose of this preliminary cost estimate is to estimate the real estate values for the alternatives associated with the subject project. The scope of work for this estimate is commensurate with that of a reconnaissance level study. It does not comply with USPAP and should not be construed to be an appraisal. This estimate is made in accordance with USACE Real Estate Policy Guidance Letter No. 31- Real Estate Support to Civil Works Planning Paradigm (3x3x3) dated January 10, 2013.

Due to short suspense, physical inspection of sites was not possible. Inspection of the project areas was made using aerial photography with project alignments; Google Earth and PDF project maps are on file and available for review. It is assumed that project features will be altered such that only vacant land, and no improvements, will be acquired for construction of the subject project. Further, it is assumed that only 10' along waterfront properties will be used, and that additional

width will be obtained from the water side. Temporary staging and access areas are valued for an assumed term of 4.5 years. It is further assumed that all submerged lands, water bottoms, etc, will be made available to the project at no cost.

## 27. SUMMARY OF PROJECT REAL ESTATE COSTS

The following cost figures are subject to change prior to construction.

### a. Lands and Damages

Condado Lagoon	\$ 8,321,118
WSJB 1B	\$ 9,131,192
WSJB 2	\$ 439,427
WSJB 3	\$ 3,958,854
WSJB 4	\$ 5,562,476

Total:	\$27,413,067
--------	--------------

### b. Acquisition Administrative costs

Federal*	\$150,000.00
Non-Federal	\$350,000.00

Total:	\$500,000
--------	-----------

c. PL 91-646 Relocations:	\$ 0
---------------------------	------

d. Contingency (30%)	\$ 8,373,920
----------------------	--------------

<b>e. Total Estimated Real Estate Cost with Contingency</b>	<b>\$36,286,987</b>
---	---------------------

\* Includes Corps Real Estate planning, monitoring, oversight, and coordination with the NFS.

## 28. ACQUISITION SCHEDULE

It is anticipated that project phases will be preliminarily determined and revised as the design progresses. The NFS is responsible for acquiring real estate interests required for all phases the project. After execution of the Project Partnership Agreement PPA, the Government will provide the NFS with a written notice (or notices) to proceed with acquisition. The NFS' acquisition of all property rights and



interests, including acquisition through condemnation, is expected to be accomplished within 24 months of the Government's written notice with the acquisitions required for each respective phase to be completed in advance of contracting for construction of that phase.

For use of the submerged lands, USACE and DNER will be required to obtain a Joint Application Permit. The Joint Application Permit will take approximately 18-24 months to acquire once final plans and specifications have been completed and the PPA has been executed. The application process will occur concurrently with the NFS' acquisition of the other real estate interests. The NFS, Project Manager and Real Estate Technical Lead will formulate the milestone schedule upon project approval to meet dates for advertisement and award of the construction contract.

## 29. REAL ESTATE CHART OF ACCOUNTS

Codes for Chart of Accounts	Lands and Damages	Federal	Non-Federal	Totals
01b20	<b>Acquisition:</b> By NFS	\$0	\$350,000	\$350,000
01b40	<b>Acquisition:</b> Review of NFS	\$150,000	\$0	\$150,000
01c20	<b>Condemnations:</b> By Sponsor	\$0	\$0	\$0
01c40	<b>Condemnations:</b> Review of NFS	\$0	\$0	\$0
01F20	<b>PL 91-646 Relocation Assistance:</b> By NFS	\$0	\$0	\$0
01R1	<b>Real Estate Payments:</b> Land Payments	\$0	\$27,413,067	\$27,413,067
N/A	<b>Total Real Estate Cost Excluding Contingency</b>	<b>\$150,000</b>	<b>\$27,763,067</b>	<b>\$27,913,067</b>
N/A	<b>Contingency (30%)</b>	\$45,000	\$8,328,920	\$8,373,920
N/A	<b>Total Project Real Estate Cost Estimate</b>			<b>\$36,286,987</b>

## EXHIBIT A

### ASSESSMENT OF NON-FEDERAL SPONSOR'S REAL ESTATE ACQUISITION CAPABILITY FOR SAN JUAN METRO AREA (BACK BAY) PUERTO RICO COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY AND ENVIRONMENTAL ASSESSMENT

#### I. Legal Authority:

- a. Does the sponsor have legal authority to acquire and hold title to real property for project purposes? **YES**
- b. Does the sponsor have the power of eminent domain for this project? **YES**
- c. Does the sponsor have "quick-take" authority for this project? **No, imminent domain must be exercised through a sister Commonwealth agency.**
- d. Are any of the lands/interests in land required for the project located outside the sponsor's political boundary? **NO**
- e. Are any of the lands/interests in land required for the project owned by an entity whose property the sponsor cannot condemn? **NO**

#### II. Human Resource Requirements:

- a. Will the sponsor's in-house staff require technical training to become familiar with the real estate requirements of Federal projects including P.L. 91-646, as amended? **NO**
- b. If the answer to IIa. is "yes," has a reasonable plan been developed to provide such training? **N/A**
- c. Does the sponsor's in-house staff have sufficient real estate acquisition experience to meet its responsibilities for the project? **YES**
- d. Is the sponsor's projected in-house staffing level sufficient considering its other workload, if any, and the project schedule? **No, acquisition work is outsourced to a contractor.**
- e. Can the sponsor obtain contractor support, if required in a timely fashion? **YES**
- f. Will the sponsor likely request USACE assistance in acquiring real estate? **NO**

#### III. Other Project Variables:

- a. Will the sponsor's staff be located within reasonable proximity to the project site? **YES**
- b. Has the sponsor approved the project/real estate schedule/milestones? **YES**

#### IV. Overall Assessment:

- a. Has the sponsor performed satisfactorily on other USACE projects? **YES**
- b. With regard to this project, the sponsor is anticipated to be: highly capable/fully

capable/moderately capable marginally capable/insufficiently capable. **Moderately capable due to limited budget and staff**

V. Coordination:

- a. Has this assessment been coordinated with the sponsor? **Assessment based on past experience with working with NFS and currently known information.**
- b. Does the sponsor concur with this assessment? **Concurrence is in process.**

Date: **27 July 2020**

Prepared by:

---

Alexis Alejandro  
Realty Specialist  
Real Estate Division  
Jacksonville District

Reviewed by:

GULIHUR.THOMAS.HAR  
MAS.HART.1174007620  
74007620

Digitally signed by  
GULIHUR.THOMAS.HAR  
T.1174007620  
Date: 2020.07.27  
17:57:36 -04'00'

---

Thomas H. Gulihur  
Chief, Supplemental Branch  
Real Estate Division  
Jacksonville District

Reviewed and approved by:

MCQUILLEN.TIMOTHY.HAR  
OTHY.HART.1050583305  
0583305

Digitally signed by  
MCQUILLEN.TIMOTHY.HAR  
T.1050583305  
Date: 2020.07.27 17:31:05  
-04'00'

---

Timothy H. McQuillen  
Chief, Real Estate Division  
Jacksonville District



## Exhibit B

Hon. Rafael Machargo Maldonado  
Secretary  
Government of Puerto Rico  
Department of Natural and Environmental Resources  
P. O. Box 366147  
San Juan, Puerto Rico 00936

Dear Secretary Maldonado:

The intent of this letter is to formally advise the Department of Natural and Environmental Resources as the non-Federal sponsor for the San Juan Metro Back Bay Storm Risk Management Feasibility Project, of the risks associated with land acquisition prior to the execution of the Project Partnership Agreement (PPA) or prior to the Government's formal notice to proceed with acquisition. If a non-Federal sponsor deems it necessary to commence acquisition prior to an executed PPA for whatever reason, the non-Federal sponsor assumes full and sole responsibility for any and all costs, responsibility, or liability arising out of the acquisition effort.

Generally, these risks include, but may not be limited to, the following:

- a. Congress may not appropriate funds to construct the proposed project;
- b. The proposed project may otherwise not be funded or approved for construction;
- c. A PPA mutually agreeable to the non-Federal sponsor and the Government may not be executed and implemented;
- d. The non-Federal sponsor may incur liability and expense by virtue of its ownership of contaminated lands, or interests therein, whether such liability should arise out of local, state, or Federal laws or regulations including liability arising out of CERCLA, as amended;
- e. The non-Federal sponsor may acquire interests or estates that are later determined by the Government to be inappropriate, insufficient, or otherwise not required for the project;
- f. The non-Federal sponsor may initially acquire insufficient or excessive real property acreage which may result in additional negotiations and/or benefit payments under P.L. 91-646 as well as the payment of additional fair market value to affected landowners which could have been avoided by delaying acquisition

until after PPA execution and the Government's notice to commence acquisition and performance of LERRD; and

g. The non-Federal sponsor may incur costs or expenses in connection with its decision to acquire or perform LERRD in advance of the executed PPA and the Government's notice to proceed which may not be creditable under the provisions of Public Law 99-662 or the PPA.

We appreciate the Government of Puerto Rico participation in this project. Should you have questions or concerns pertaining to this letter please feel free to contact Mr. Hansler Bealyer at (904) 232-1178.

Sincerely,

Timothy H. McQuillen  
Chief, Real Estate Division

## Signatures

Appendix E prepared by:

---

Edgardo Carrasquillo  
Realty Specialist  
Real Estate Division  
Jacksonville District

---

Alexis Alejandro  
Realty Specialist  
Real Estate Division  
Jacksonville District

Appendix E reviewed by:

---

Thomas H. Gulihur  
Chief, Supplemental Branch  
Real Estate Division  
Jacksonville District

Appendix E approved by

MCQUILLEN.T  
IMOTHY.HAR  
T.1050583305

Digitally signed by  
MCQUILLEN.TIMOTH  
Y.HART.1050583305  
Date: 2020.07.27  
17:32:08 -04'00'

---

Timothy H. McQuillen  
Chief, Real Estate Division  
Jacksonville District

This page intentionally left blank