

**STATEMENT OF FINDINGS**  
**FOR**  
**EXECUTIVE ORDER 11988 FLOODPLAIN MANAGEMENT**

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CONSTRUCT REPLACEMENT HOUSING-HARDENED TO RESIST STORMS AND FLOODING

PMIS # 240181

PEPC # 86254

EVERGLADES NATIONAL PARK  
AND  
BIG CYPRESS NATIONAL PRESERVE  
FLORIDA

Recommended: \_\_\_\_\_  
Superintendent, Everglades National Park Date

Recommended: \_\_\_\_\_  
Superintendent, Big Cypress National Preserve Date

Concurred: \_\_\_\_\_  
Chief, Water Resources Division Date  
(Certification of technical adequacy and servicewide consistency)

Approved: \_\_\_\_\_  
Regional Director, Interior Region 2, South Atlantic - Gulf Date

## INTRODUCTION

Executive Order 11988, "Floodplain Management" requires the National Park Service (NPS) and other federal agencies to evaluate the likely impacts of actions in floodplains. The objectives of the executive order are: (1) to avoid to the extent possible long-term and short-term adverse impacts associated with occupancy, modification, or destruction of floodplains and (2) to avoid indirect support of development and new construction in such areas wherever there is a practicable alternative.

Director's Order (DO) #77-2: Floodplain Management and Procedural Manual (PM) #77-2: Floodplain Management establish NPS guidelines for compliance with Executive Order 11988. These guidelines allow construction within a 100-year floodplain for recreational facilities such as parking and trails. The guidelines also state that in coastal areas structures can only be placed in the coastal high hazard area when the structures or facilities are for management and legislated use of the affected area. The guidelines go on to state that "their placement and construction shall be at locations least likely to be affected by the actions of coastal storms and flooding." The purpose of this Statement of Findings is to present the rationale for the location of a proposed action (building a new residential 4-plex staff housing facility, see Proposed Action, below) in the floodplain, the continued use of existing park infrastructure and development within the floodplain, and to document the anticipated effects on floodplain values.

## PROPOSED ACTION

The proposed project would consist of the construction of one 5,036 square foot, two story, four unit employee housing structure. Each unit would have two bedrooms and two bathrooms. The structure would be of reinforced concrete construction with impact resistant windows, steel roof and appropriately hardened to resist the impacts from hurricanes and flooding to meet current Florida building codes. The new quarters would be constructed on the vacant lots located in Big Cypress National Preserve (BICY) on mahogany Drive in Ochopee, Florida. The proposed site is in the BICY staff housing area and has established roads and all utility hook ups. The structure would be constructed on a concrete pad atop an earthen mound of imported fill, graded such that the structure would be above the Federal Emergency Management Agency (FEMA) flood elevation. The design follows the NPS Housing Catalog Model 4. Modifications to the model will be evaluated to reduce the habitable and non-habitable areas. Upon completion of the housing units, Everglades National Park (EVER) housing units 601, 602, and 603 in Everglades City, Florida would be demolished.

The existing employee housing structures in Everglades City are in grave disrepair due to structural deficiencies, water infiltration from windows and roof membranes, mold and rodent infestation, and plumbing and electrical deficiencies. The three houses are within the FEMA 1% Annual Flood Hazard Area (zone AE) and standing salt water has persisted on the grounds since 2016. The driveways have been raised using asphalt millings so residents would not have to drive through saltwater on a regular basis. The persistent flooding over the decades has deteriorated the creosote-treated wood supports, degrading the structural stability of the houses. Recent estimates of repair cost exceed the replacement value of the current housing units. A new housing facility would provide safe and clean housing for park employees, and will also help attract and retain highly skilled employees.

Similar flooding conditions are regularly experienced in the visitor and operations areas of the EVER Gulf Coast Visitor Center in Everglades City. Because of these hazards, the park is pursuing the relocation of

maintenance facilities from the waterfront to BICY, approximately six miles away. The resulting increased visitation to BICY would require additional support staff to protect and provide services to park patrons. The relocation of staff housing to BICY will not only provide housing that is safe for both seasonal and permanent staff, but will also provide a structure that is built to current Florida Building Codes and is capable of resisting hurricane winds and flooding.

No other construction alternatives have been carried forward for this project. The no-action alternative is not practicable, due to the need to provide safe, storm-resilient housing for park staff. Similarly, repair and rehabilitation of the existing EVER housing structures is not financially feasible. Alternative housing locations and designs near the BICY site were considered and rejected because they would not be as cost-effective or operationally efficient as the proposed 4-Plex.

## **FLOODPLAINS WITHIN THE PROJECT AREA**

As stated in its foundation document, the purpose of BICY is to “assure the preservation, conservation, and protection of the natural, scenic, hydrologic, floral and faunal, and recreational values of the Big Cypress watershed in the State of Florida and to provide for the enhancement and public enjoyment thereof.” The entirety of BICY occurs within the FEMA 1% Annual Flood Hazard Area, and it is this floodplain that constitutes the Big Cypress watershed. This floodplain protects the flow of fresh water from the Big Cypress Swamp into estuaries of neighboring EVER and the Ten Thousand Islands National Wildlife Refuge.

The proposed 4-plex site along Mahogany Drive at BICY is located in a former residential development area southwest of the BICY park headquarters. The property was purchased by the National Park Service in 1978 for the development of park administrative and visitor use facilities. Modern utility hookups (electricity, sewer, water, etc.) were installed in the early 2000s. Other staff housing facilities are located adjacent to the project location. The site is composed primarily of filled land built up from material borrowed from the adjacent canal system, and is maintained as a mowed turf lawn. The soils underlying the site are hard-packed lime rock and are not expected to contribute significantly to flood storage or storm water management. Surface water flows directly into the adjacent canals which convey water out toward the coast through the Big Cypress watershed. In contrast to the expansive wetland complex that makes up most of BICY, this developed area with altered soils and vegetation does not support significant biological diversity, and does not contribute substantially to the ecological and floodplain values and function of surrounding Big Cypress watershed.

This project site is within the FEMA 1% Annual Flood Hazard Area (zone AE), with a base flood elevation of 6 feet. The ground elevation is approximately 3 feet as indicated on the U.S. Geological Survey's (USGS) topographic map for the area. Similar to the nearby EVER facilities in Everglades City, BICY is subject to flooding from storm surge and extreme rain events. In recent years several storms (hurricanes or tropical depressions) have required personnel and equipment evacuation and closure of the facilities.

## **JUSTIFICATION FOR CONTINUED USE OF THE FLOODPLAIN**

The purpose of this project would be to replace existing structurally deficient EVER staff housing in Everglades City. The current Everglades City housing site is within the FEMA coastal high hazard area, and is subject to floodwater elevations as deep as 13 feet—a substantially higher flood elevation and expected flood frequency than the proposed BICY housing site. The Gulf Coast site at EVER is the only land-based

access to the park on the west coast of Florida, providing access for the public and park staff to Ten Thousand Islands, Wilderness Waterway, Gulf of Mexico, and Florida Bay. These facilities are historically and functionally dependent on their locations. Moving the entire administrative and visitor services site out of the coastal floodplains would be cost-prohibitive and may not meet the will of Congress.

Some employees must be housed near the EVER Gulf Coast site and BICY because their jobs require rapid response time to emergencies. While EVER and BICY have been successful in attracting a talented and dedicated staff, they face the challenge of the remote location, the high cost of fuel, and the lack of affordable housing nearby. Because the housing market in surrounding communities is expensive, many of these employees would be unable to work at this location because they could not find appropriate short-term housing within a reasonable distance.

As previously noted, estimates of repair cost exceed the replacement value of the current housing units. Due to the high coastal flood hazard in Everglades City, the park seeks to relocate staff housing to BICY, which is approximately 6 miles farther inland. Because the entirety of BICY occurs within the floodplain, avoidance of floodplain impacts through alternative site selection is not possible. All existing infrastructure and development within BICY is located on disturbed ground. Moving and attempting to relocate the proposed housing facility within or outside of the park would result in adverse impacts and the loss of other natural or cultural resource values in the area. The proposed 4-plex site on Mahogany Drive is already developed and contributes relatively little to the natural resource and floodplain values of the area. Therefore, construction at this location would yield minimal impacts to floodplain values while still meeting the need to provide adequate and safe housing to park staff.

## **SPECIFIC FLOOD RISKS**

In recent years, several severe storms (hurricanes or tropical depressions) have required the evacuation of personnel and equipment and facility closures. These storms, coupled with high tides and westerly winds, have caused flooding throughout the preserve. As noted above, the proposed housing site has a base flood elevation of 6 feet, approximately 3 feet above the existing grade.

During past hurricane events, flood-related damage to facilities included utility outages, potable water contamination requiring a boil water advisory, structural undermining of building foundations, and mildew and mold damage from lingering moisture. During flood events, roadways and utility systems may become inundated with surface water. Roadways may be closed to prevent vehicle damage to asphalt surfaces and safety impacts to the public. The proposed project does not include additional storage facilities for fuels or toxic materials or museum collections in a floodplain.

## **MITIGATION**

The weather and storm conditions that lead to high water events, and the scope and duration of these events, are known by park staff. Ample notice of severe weather is provided by the National Weather Service and other agencies, making warning and evacuation a practical option for protection of human life. EVER and BICY continue to maintain active hurricane evacuation plans. The plans detail responsibilities of individual park employees for advanced preparedness measures at the onset of the hurricane season. The hurricane plans have proven effective in maintaining safety and reducing property damage during storms, and reviewed and updated regularly.

The design of the proposed housing structure would incorporate methods for minimizing storm damage as contained in the National Flood Insurance Program's Floodplain Management Criteria for Flood Prone Areas (44 CFR section 60.3) and in accordance with local, county or state requirements for flood prone areas. The plans propose a graded fill platform to raise the structure above the base flood elevation. By elevating the structure in this way, flood risks and potential for damage are minimized. Because the site has been developed and other park housing facilities already exist at this site, floodplain values have already been impacted prior to construction and additional adverse impacts are negligible. Construction of a comparable facility in an alternative undeveloped part of the park would require substantially greater adverse impacts to floodplain values as well as natural and cultural resources.

The floodplain impacts analysis contained in this Statement of Findings and the Environmental Assessment with which this report is associated constitute the environmental compliance necessary to implement the proposed project "Construct Replacement Housing-Hardened to Resist Storms and Flooding" should the NPS choose to do so.

## **SUMMARY**

The National Park Service has determined that implementing the proposed project would not result in any additional disruption of floodplains. Risk to life from storms and high water can be mitigated. NPS would allow the existing housing facilities in Everglades City to be replaced with a single 4-unit structure at BICY, approximately 6 miles away.

The replacement of housing facilities and infrastructure would not expand beyond currently disturbed areas. The design of the new structure would incorporate methods for minimizing storm damage as contained in the National Flood Insurance Program's Floodplain Management Criteria for Flood-Prone Areas (44 CFR section 60.3) and in accordance with local, county or state requirements for flood-prone areas. The proposed structure would be designed for resilience against future severe storm and flooding events.

Therefore, the National Park Service finds that the proposed action would not have any additional adverse impacts on floodplains and their associated values.

## **REFERENCES**

Federal Emergency Management Agency, National Flood Hazard Layer. Digital elevation data accessed December, 2019. <https://www.fema.gov/national-flood-hazard-layer-nfhl>

National Park Service, 2002. Procedural Manual 77-2: Floodplain Management. Washington Office, Washington, D.C.

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US Geological Survey. The National Map: 3DEP Elevation Program. Digital elevation data accessed December, 2019. <https://www.usgs.gov/core-science-systems/national-geospatial-program/national-map>