



Environmental Assessment

Construct Everglades City Replacement Housing Hardened to Resist Storms and Flooding

Everglades National Park

Big Cypress National Preserve

March 2020

US DEPARTMENT OF THE INTERIOR, NATIONAL PARK SERVICE
EVERGLADES NATIONAL PARK, BIG CYPRESS NATIONAL PRESERVE

Construct Everglades City Replacement Housing Hardened to Resist Storms and Flooding
Environmental Assessment

The National Park Service (NPS) has prepared this Environmental Assessment (EA) to evaluate the impacts of demolishing hurricane-damaged housing at Everglades National Park and constructing new housing within Big Cypress National Preserve.

This EA evaluates two alternatives for the construction of new housing; describes the environment that would be impacted by the alternatives; and assesses the environmental consequences of implementing the alternatives. Under the no-action alternative, the current housing would not be demolished. Under the proposed action, which has been identified as the preferred alternative, the existing housing would be demolished and replaced in an established housing area in Ochopee, Florida, within Big Cypress National Preserve.

Upon conclusion of the decision-making process, one of the alternatives would be selected and documented in a Finding of No Significant Impact, if appropriate.

How to Comment on this Environmental Assessment

This EA has been prepared in compliance with the National Environmental Policy Act to provide the decision-making framework that (1) analyzes a reasonable range of alternatives to meet objectives of the proposal, (2) evaluates potential issues and impacts on resources and values, and (3) identifies mitigation measures to lessen the degree or extent of these impacts.

We invite you to comment on this EA during the 30-day public review period. The preferred method of providing comments is through the NPS's Planning, Environment, and Public Comment (PEPC) website at: <http://parkplanning.nps.gov/ever>, under the title "Construct Everglades City Replacement Housing Hardened to Resist Storms and Flooding (86254)." You may also submit written comments to:

National Park Service
Interior Region 2, South Atlantic Gulf
Planning and Compliance Division
Attention: Philip P. Alimia
100 Alabama Street, 1924 Building
Atlanta, Georgia, 30303

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be aware that your entire comment – including your personal

identifying information – may be made publicly available at any time. You can ask us to withhold your personal identifying information from public review, but we cannot guarantee that we will be able to do so.

CHAPTER 1: PURPOSE AND NEED FOR ACTION

Everglades National Park (EVER) preserves the largest subtropical wilderness in the nation, a vast natural area in the southern Everglades and Florida Bay known throughout the world for its unparalleled ecological values, natural hydrologic conditions, vibrant cultural heritage, and unique recreational and educational opportunities.

Big Cypress National Preserve (BICY) encompasses 729,000 acres of a largely freshwater wetland ecosystem offering refuge to a wide variety of plants and animals. The preserve was established for the preservation, conservation, and protection of the natural, scenic, hydrologic, floral and faunal, and recreational values of the Big Cypress watershed, and to provide for the enhancement of public enjoyment. Established as one of the first national preserves, Big Cypress represents a unique management concept where resource protection, public recreation, and specific uses stipulated within its enabling legislation are managed concurrently.

Hurricane Irma became the ninth named storm of the 2017 hurricane season. Extensive damage was caused to EVER staff housing facilities located at Everglades City by high winds, storm surge and the displacement of inanimate objects.

EVER manages three staff housing facilities, units 601, 602, and 603, located on the 400 block of Copeland Avenue in Everglades City. Historic aerial imagery suggests that the lots were cleared for development in the 1950s, and the houses are visible in 1964 imagery. The houses are elevated above grade (approximately 10 feet) on wood columns set in concrete. The building footprints, driveways, and a portion of the adjacent yards appear to have been built atop a packed lime rock pad. These pads may have been above grade at the time of construction but have since sunk or subsided and are now at grade or partially buried. Each structure has a wastewater lift station connecting to the sanitary sewer in the back yard. The entire site occurs within the Federal Emergency Management Agency (FEMA) floodplain, Zone AE (1% annual chance flood hazard), with a base flood elevation of 9 feet.

The existing employee housing units were significantly damaged during Hurricane Irma. Each housing unit sustained structural damages due to flooding and storm surge, interior damage due to water infiltration from windows and the roof membranes, mold infestation, and damages to plumbing and electrical systems. This Environmental Assessment (EA) has been prepared to analyze the potential environmental impacts of two alternatives, including the Proposed Action and the No Action alternative. This document has been prepared in compliance with the guidance issued under NPS Director's Order 12 to implement the National Environmental Policy Act (NEPA) of 1969 and regulations of the Council of Environmental Quality (40 CFR 1508.9).

The purpose of this project is to provide safe, efficient, and adequate housing for EVER staff. This project is needed in order to replace three single family employee housing units which incurred structural, plumbing, electrical, and mold damage due to Hurricane Irma. The construction and relocation of the Everglades City housing to BICY would provide housing that is safe for both seasonal and permanent staff, and also provide a structure that is built to current Florida building codes and capable of resisting hurricane winds and flooding. Providing hardened housing also ensures NPS ability to rapidly establish occupancy after a storm event.

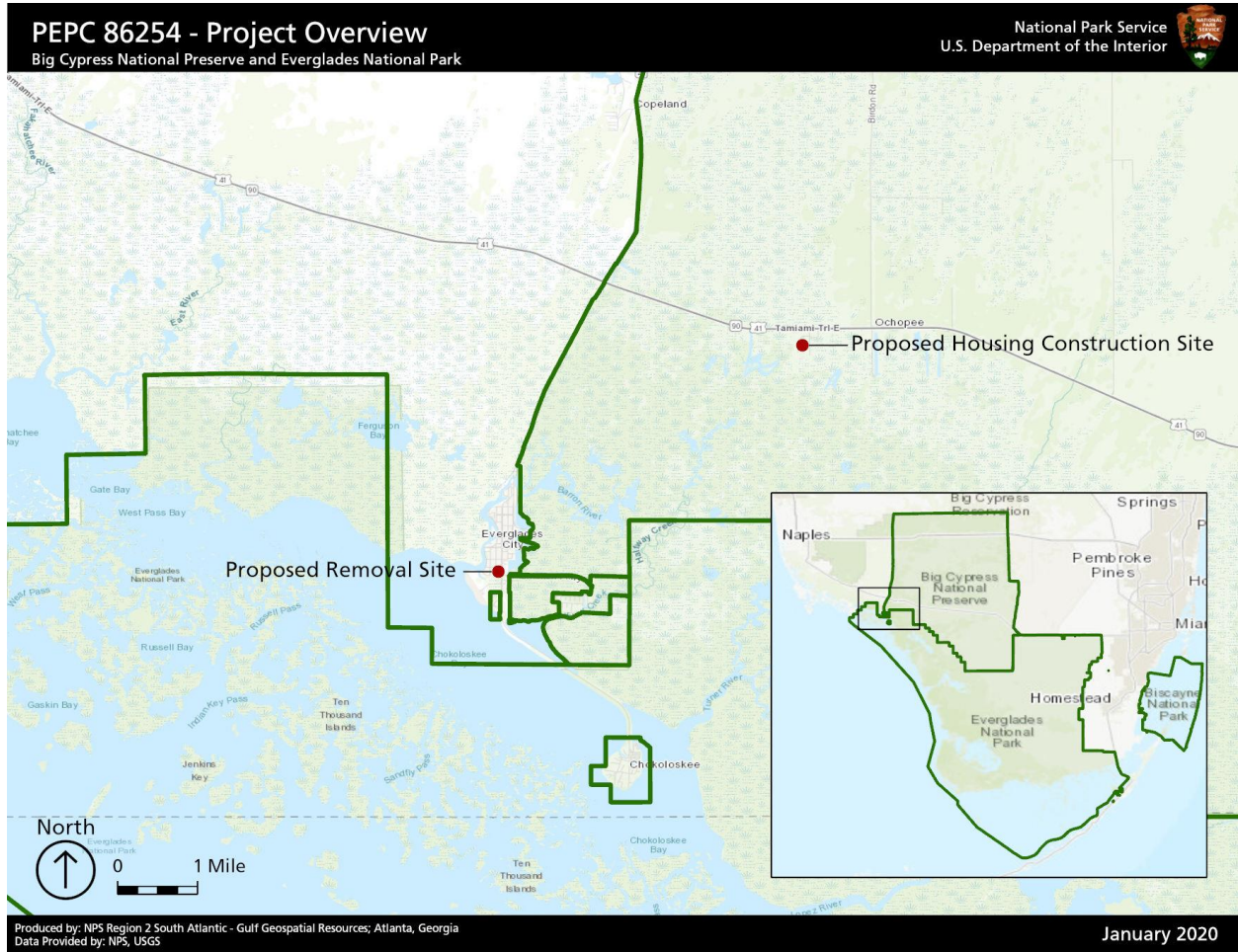


Figure 1. Project Location Overview Map

Issues

Issues selected for detailed analysis

The following issues will be evaluated for each alternative:

Soils

At the construction site of the new BICY housing units, approximately 3000 cubic feet of soil would be transported in to raise the ground level by approximately five feet. The concrete foundation slab will be poured on top of it. Because soils will be brought into BICY, soils are retained as an impact topic.

Vegetation and Wetlands

A diverse mix of saltmarsh grasses and forbs as well as an early-successional stand of white mangroves were present in the emergent estuarine salt marsh wetland located behind the three residential units at Everglades City. This wetland complex is a jurisdictional Water of the U.S. under Section 404 of the Clean Water Act and is subject to protection under NPS Director's Order (DO) #77-1: Wetland Protection, and Executive Order (EO) 11990 "Protection of Wetlands." Because wetlands are located in the area where construction and demolition would occur, and vegetation will be removed as part of construction, vegetation and wetlands was retained as an impact topic.

Wildlife

Because localized direct disturbance to wildlife may occur as a result of construction activities, wildlife was retained as an impact topic.

Cultural Resources

Compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (36 CFR Part 800), is being completed separately from and concurrent to the NEPA process and is not included in this EA. Applicable cultural resource information, including potential impacts associated with proposed alternatives, is documented in this EA, but does not constitute Section 106 compliance.

No archeological resources are located within the area of effect at the proposed BICY housing construction site. The Big Cypress Housing Area was not previously surveyed for historic properties that could be eligible for listing in the National Register of Historic Places (NRHP). Therefore, impacts to cultural resources have been included in this EA.

Threatened and Endangered Species

The Endangered Species Act of 1973 recognizes that the numbers of some species of animals and plants are so depleted that they are endangered or threatened with extinction. It established the policy of Congress that all federal departments and agencies would seek to preserve threatened

and endangered species and provide a means through which these species and the habits on which they depend would be conserved. Section 7 of the Act requires federal agencies to use their authorities to conserve listed species and to consult on actions that may affect these species. This section also prohibits federal agencies from authorizing, funding, or carrying out any action that would likely jeopardize a listed species or destroy or modify its critical habitat.

Both of the project locations occur within potential Eastern Indigo snake habitat as well as potential habitat for the Florida Bonnetted bat, and therefore impacts to both species and their habitat are retained for analysis.

Coastal Zone Management

Both of the sites of the proposed demolition of housing at Everglades City and of the construction of the housing unit in the Ochopee community in BICY are located within the Florida Coastal Zone. Activities proposed within the coastal zone by a Federal agency, such as NPS, which affect the land or water uses or natural resources of its coastal zone must be reviewed by the state for consistency with its Coastal Management Program. Therefore, impacts to Coastal Zone management have been included in this EA.

Issues Considered and Dismissed

The following issues were identified, considered, and dismissed from further analysis:

Air Quality

Air quality may be temporarily affected during construction and demolition, but because the effect would be temporary and localized, within footprints of only a few thousand square feet from the construction area, air quality has been dismissed from further analysis.

Soundscape

Because the effect to soundscapes would be temporary during construction and demolition and limited to the developed areas near roads and other housing, soundscape was dismissed from further analysis.

Environmental Justice

Federal agencies are required to analyze the impacts of their proposed actions and policies on minority and low-income communities and populations, to assess the possibility of any disproportionate adverse effects to human health or the environment. Because the project is limited to areas within the two parks and the project does not affect minority and low-income communities and populations, Environmental Justice was dismissed from further analysis.

Visitor Experience

Visitor experience would be mostly unchanged by this project, although it is possible that low-level construction noise could be heard at or near the BICY visitor center approximately 1,030 feet (315 meters) away. However, this potential low-level noise is not expected to be louder than the current car and truck noise from the Tamiami Trail Highway, which passes in front of the visitor center. Therefore, the visitor experience was not considered further.

Wilderness

The proposed project area is sited in a developed Area, not adjacent to or in close proximity to any wilderness area, therefore Wilderness is not considered further.

Viewshed

The viewshed would not be adversely affected by this project. The proposed new housing would occur in a residential area where other housing is located, and the temporary visual disturbance of construction would be limited to a small area out of view of visitors except in the winter months. Because construction would be a temporary impact to the viewshed and most visitors would not view or be aware of the construction, viewshed was dismissed from further consideration.

CHAPTER 2: ALTERNATIVES

Two alternatives were considered for detailed evaluation in this EA: the no-action alternative and the proposed action/preferred alternative. This chapter also describes other alternatives that were initially considered but dismissed from detailed analysis.

No Action Alternative

Under this alternative, the existing structures in Everglades City would not be demolished and replacement housing would not be constructed in BICY. The purpose and need for the project would not be addressed; safe, efficient, and adequate housing for park staff would not be developed in the proposed project area. The existing housing in Everglades City would not be demolished and would continue to be lived in by park staff.

Proposed Action and Preferred Alternative – Construct new housing units in BICY and demolish existing damaged structures in EVER.

Under this alternative, the NPS would construct a new, approximately 5,036-square-foot employee housing structure within the Big Cypress National Preserve to replace three hurricane-damaged employee houses located at Everglades City within Everglades National Park. The proposed new housing would consist of a two-story, four-unit housing structure. Each unit would have two bedrooms and two bathrooms. The construction and relocation of the housing to BICY would

provide housing that is safe for both seasonal and permanent staff and provide a structure that is built to current Florida building codes and capable of resisting hurricane winds and flooding. Providing hardened housing also ensures NPS ability to rapidly establish occupancy after a storm event.

Housing was included for consideration in the 1991 General Management Plan (GMP) for BICY, which included a Development Concept Plan for Ochopee. The proposed actions at Ochopee in the Development Concept Plan included new construction of houses in the Everglades Shores subdivision. The Development Concept Plan map showed a future housing location specifically where the presently proposed replacement housing would be constructed.

The new employee housing structure would be located on Mahogany Drive in the Ochopee community (Figure 2). 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. The new quarters would be constructed on the vacant lots located in the BICY housing area which has established roads, curb and gutter, and all utility hook ups. The building would be constructed on a concrete pad on imported fill, above the FEMA flood elevation. The design would be based upon the NPS Housing Catalog, model 4.

Upon completion of the housing units, the Everglades City units 601, 602, and 603 would be demolished with the use of an excavator and dump trucks. In addition to the demolition of the housing units, wooden pilings, sidewalks, driveways and lift stations would also be removed, which would require soil excavation. The demolition work would be expected to span 8 to 10 months.

Alternatives Considered but Dismissed

No other construction alternatives were carried forward for further consideration 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 would not be financially feasible. Alternative housing locations and designs near the BICY site were considered and rejected for further consideration because the proposed site is located in a current residential development, with utilities and infrastructure in place.



Figure 2. Location of New Housing Construction



Figure 3. Everglades City units to be demolished



Figure 4. Proposed Housing drawings



Figure 5. Location of Existing Everglades City Housing to be Demolished

CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES I

No Action Alternative

Under the No Action Alternative, a replacement for the existing Everglades City park staff housing would not be constructed. The units were constructed in the early 1960s and are currently occupied but in various states of disrepair. Due to the age of the structures, they are not energy efficient compared to modern housing, nor do they meet existing construction standards for storm and flood resistance. The existing condition of soils, vegetation and wildlife, threatened and endangered species, floodplains, cultural resources, and soundscape would be unchanged. The purpose and need for the project would not be addressed; safe, efficient, and adequate housing for park staff would not be developed in the proposed project area. The existing damaged housing would not be demolished. Park staff would continue to live in the housing units, and maintenance would be conducted as needed.

Preferred Alternative (Proposed Action)

Construct new housing unit in BICY and demolish existing damaged structures in EVER

Soils

At the BICY proposed construction site, soils consist of hard-packed lime rock fill. Based on historic aerial imagery, the Mahogany Drive lots were under construction in 1969, with the canals being dredged to supply borrow fill to build up the adjacent land areas. Modern utility hookups were installed in 2003 or 2004.

No impacts are expected as a result of the approximately 3000 cubic feet of soil that would be transported in to raise the ground level by approximately five feet, as the existing soil consists of fill mentioned above.

At the Everglades City housing units, except where artificially manipulated, the soils underlying this wetland are generally sandy and typical of this region. However, most of the soil surrounding the three housing units consists of 1-3 inches of sandy loam topsoil over hard-packed lime rock fill. It is assumed that this fill was placed during construction to serve as a foundation for building construction. The depth of fill could not be determined due to soil probe refusal, but current building codes require 18 inches of packed fill. Immediately adjacent to the buildings and driveways, this fill is perched several inches above the surrounding grade, although the topographic relief is visually very subtle. Farther from the buildings, portions of this fill area have subsided to varying degrees and support wetland vegetation and development of hydric soils. These wetland areas are readily identifiable by surface saturation and notably darker soils (low-value and low-chroma on the Munsell soil chart) compared to adjacent upland areas.

The septic lift stations associated with units 602 and 603 are located within the wetland surrounding the structures.

No impacts are anticipated as a result of the demolition of the existing housing units. Minimal soil disturbance would occur as the sewerage lift stations, wooden pilings, driveways and sidewalks are removed. Over time, the entire area of the demolished housing would naturally convert to the adjacent wetland. Removal of the septic lift stations associated with units 602 and 603 from the wetland would require disturbance to soil and saltmarsh vegetation. Following excavation and removal of the lift stations, it is recommended that the resulting void should be filled with a locally sourced soil to promote natural hydrology and vegetation comparable to the adjacent saltmarsh wetland.

Vegetation and Wetlands

Vegetation at the proposed BICY site is primarily mowed turf grass growing on hard-packed lime rock fill. The construction site is located on a street with residential development. No wetlands are

present within the proposed construction limits. Therefore, no impacts are anticipated to vegetation and wetlands as a result of construction of the new housing structure.

An emergent estuarine salt marsh complex surrounds the Everglades City housing units (601, 602, 603). This wetland occupies most of the NPS property at this site (tract ID EVER 89 105), and at the time of survey featured several areas of standing water and a diverse mix of saltmarsh grasses and forbs as well as an early-successional stand of white mangroves (*Laguncularia racemosa*). Dominant species include saltwort (*Batis maritima*), saltgrass (*Distichlis spicata*), and bigleaf sumpweed (*Iva frutescens*).

This area is mowed several times per year, and at the time of survey, the entire wetland was cut to a uniform low stature except for emerging mangrove shrubs. This frequent disturbance maintains the saltmarsh vegetation in an early-successional plant community which resembles lawn, though a patchy mosaic of salt grass and succulent forbs is still evident. Some areas of the wetland (most notably to the west, immediately outside of the survey limits) are bare sand. This may be due to die-back because of mowing, or it may be due to naturally occurring salt flats in topographic depressions. The southern edge of the survey area is dominated by a dense stand of invasive Brazilian peppertree (*Schinus terebinthifolius*) and other woody vegetation. This wooded area is assumed to be a degraded extension of the salt marsh wetland that has become dominated by woody growth in the absence of natural disturbances such as fire. Upland areas adjacent to the houses and in the back yard of Unit 601 and front yard of Unit 603 are distinguishable by dominant St. Augustine grass in lieu of salt marsh vegetation.

Removal of EVER housing units 601, 602, and 603 would not result in adverse impacts to saltmarsh vegetation. However, additional precautions are recommended to avoid impacts associated with staging areas, equipment storage, and construction access. It is recommended that all demolition and waste disposal occur exclusively within the upland turf grass areas along the driveways and immediately adjacent to the buildings.

The septic lift stations associated with units 602 and 603 are located within the wetland. Removal of these structures from the wetland would require disturbance to soil and saltmarsh vegetation but would not result in an adverse impact. This would be an excepted action as described in Procedural Manual 77-1, § 4.2.9 “Actions designed to restore degraded (or completely lost) wetland, stream, riparian, or other aquatic habitats or ecological processes.” Following excavation and removal of the lift stations, the resulting void would be filled with an appropriate soil to promote natural hydrology and vegetation comparable to the adjacent saltmarsh wetland, which would be a beneficial effect. Given the well-established wetland plant community in the immediate vicinity, wetland vegetation would be expected to naturally recruit within the disturbed areas quickly.

Removal of the lift stations also requires a permit under Section 404 of the Clean Water Act. This action is covered under Nationwide Permit 3 “Maintenance” which “authorizes the removal of previously authorized structures or fills” from wetlands, as well as “removal of accumulated

sediment and debris within, and in the immediate vicinity of, the structure or fill.” This permit is a “non-reporting” permit type and does not require submission of a Pre-Construction Notification to the US Army Corps of Engineers (USACE).

Note that NPS wetland definitions differ from USACE definitions for Section 404 compliance, and NPS-protected wetland areas may exist outside of the USACE-jurisdictional wetland boundary. Equipment staging and debris removal is recommended to be located outside of wetland areas to the greatest extent possible. If work in wetland areas cannot be avoided, it is preferred that demolition work be conducted during the dry season when soil conditions are firm and stable to avoid wetland soil disturbance. If work must occur when wetland soils are wet and prone to mechanical disturbance, construction matting would be used to spread ground pressure and reduce soil impacts.

Wildlife

The warm, wet climate and unique habitats found within EVER and BICY support over 40 species of mammals, approximately 352 species of birds, 50 species of reptiles (including 27 snakes and 16 turtles), 15 species of amphibians, a multitude of freshwater and marine aquatic species, and potentially over 60 species of butterflies. Distribution of species within the parks varies by season, dominant vegetation community, and successional status of vegetation communities. Both the construction and demolition areas lie within maintained landscapes immediately adjacent to other developments. Best management practices would be implemented to avoid and minimize potential impacts to wildlife and listed species.

Localized direct disturbance to wildlife may occur as a result of construction activities such as noise and the presence of people and equipment. This could include avoidance of the area during construction. Given the scale and location of proposed construction activity, non-threatened or endangered species in the area are not at risk of being extirpated from the area, and habitat for all species would remain functional.

Threatened and Endangered Species

Both federal and state regulations protect threatened and endangered species. The primary regulation is the Endangered Species Act, 16 United States Code 1531–1543. The state of Florida also has regulations to protect threatened and endangered species. The Florida Endangered and Threatened Species Act (Title 28, Florida Statutes, Natural Resources Conservation, Reclamation, and Use, Chapter 372, Wildlife, Section 372.072) sets the policy to conserve and manage these resources.

Both of the project locations occur within potential Eastern Indigo snake (*Drymarchon couperi*) habitat and therefore applicable Standard Protection Measures for the Eastern Indigo snake (dated August 12, 2013) would be implemented. The Eastern Indigo snake is listed as Threatened under the Endangered Species act. The Everglades City housing demolition project would revert a developed area back to a non-developed area where plant succession would be allowed to occur

naturally resulting in more available habitat. The four-unit construction project in the BICY housing area would be constructed on cleared vacant lots that are currently maintained as a mowed turf lawn. Minimal cover/shade that an Indigo snake can potentially use will be removed. However, the operation of equipment in brushy and/or grassy areas has the potential to disturb, injure, or kill snakes that are not readily visible above ground or beneath the surface. During demolition and construction, heavy machinery would be utilized in areas that may be occupied by Indigo snakes. Therefore, the determination has been made that this project *may affect but is not likely to adversely affect* the Eastern Indigo snake.

The Florida Bonneted bat (*Eumops floridanus*) is listed as Endangered under the Endangered Species Act, as well as by the Florida Fish and Wildlife Conservation Commission. This bat occurs within both EVER and BICY. However, at the residences slated for demolition, there is no observed evidence that they are currently utilized for roosting. The structures would be inspected for bat occupancy a minimum of one month prior to demolition. Several trees would need to be removed during construction or demolition. However, it is not expected that the project will affect the bat's ability to forage or their prey base. Therefore, the determination has been made that this project *may affect but is not likely to adversely affect* the Florida Bonneted bat.

Because both areas where work would occur lie within developed and maintained landscapes that do not contain open wetlands, it has been determined that the project would have no effect on other species that may occur in the region, including the Florida panther, Wood stork, Snail kite, American crocodile, Manatee, Black rail (Proposed) and listed rockland plants. It has also been determined that no designated critical habitat in EVER or BICY would be impacted by the proposed project activities.

A consultation letter was sent to the U.S. Fish and Wildlife Service, South Florida Field Office on January 2, 2020 requesting concurrence of may affect, not likely to adversely affect regarding the Eastern Indigo snake and the Florida Bonneted Bat.

Cultural Resources

Compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (36 CFR Part 800), is being completed separately from and concurrent to the NEPA process and is not included in this EA. Applicable cultural resource information, including potential impacts associated with proposed alternatives, is documented in this EA, but does not constitute Section 106 compliance.

The project is located within the Big Cypress National Preserve housing area, adjacent to the Big Cypress National Preserve Headquarters in Ochopee, Florida. An archeological and historic resources survey was conducted within the BICY housing area on November 18, 2019. The survey was conducted to identify any potential archaeological sites or cultural resources in anticipation of the proposed construction of employee housing. The area of potential effect (APE) was limited to

the footprint of the proposed construction of new housing units at BICY. The proposed construction will take place on vacant lots within the BICY housing area.

No archeological sites were identified during the survey within the project area. One historic resource, the NPS Big Cypress Housing resource group, was identified and recorded as a result of the historic resources survey. The project area is located within the boundaries of the larger resource group and the proposed construction would occur within vacant lots. The resource group was recorded to allow for a complete understanding of the historic resources adjacent to the limited project area, and to evaluate their potential National Register of Historic Places NRHP eligibility. Only four resources within the resource group are considered to be historic and were known to be constructed before 1973. All of the resources are considered to be non-contributing to the resource group. Additionally, the resource group is considered to be ineligible for inclusion in the National Register.

The three Everglades City housing units (601, 602, 603) are located at 404, 406 and 408 Copeland Avenue. Historic aerial imagery suggests that the lots were cleared for development in the 1950s, and the houses are visible in 1964 imagery. All three housing units are considered to be ineligible for listing in the NRHP. No impacts are anticipated from the demolition of the housing units.

Floodplains

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 entirety of BICY occurs within the FEMA 1% (zone AE) 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 four-unit 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 NPS 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 substantially 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. 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.

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 mound platform to raise the structure above the base flood elevation. A concrete foundation pad will be poured on top of this earthen platform. By elevating the structure in this way, flood risks and potential for damage would be minimized.

No impacts to the existing floodplain would occur as a result of construction of the new housing structure.

The Everglades City housing is located within the FEMA 1% Annual Flood Hazard Area (zone AE), with a base flood elevation of 9 feet. The ground elevation is approximately 3 feet as indicated on the U.S. Geological Survey's (USGS) topographic map for the area.

Demolition of the existing housing units would not affect the current ground elevation. Therefore, no impacts to the floodplain are anticipated.

A Statement of Findings is included with this EA as an appendix. The purpose is to present the rationale for the location of the proposed action in the floodplain, the continued use of existing park infrastructure and development within the floodplain, and to document the anticipated effects on floodplain values.

Coastal Zone Management

Both of the sites of the proposed demolition of housing at Everglades City and of the construction of the housing unit in the Ochopee community in BICY are located within the Florida Coastal Zone. Activities proposed within the coastal zone by a Federal agency, such as NPS, which affect the land or water uses or natural resources of its coastal zone must be reviewed by the state for consistency with its coastal management program.

The 1991 General Management Plan (GMP) for BICY included a Development Concept Plan for Ochopee. The proposed actions at Ochopee included new construction of houses in the Everglades Shores subdivision. The GMP stated that up to four additional lots in the subdivision would be available for future residential construction to serve EVER staff stationed at nearby Everglades City, and the Development Concept Plan map showed a future housing location specifically where the presently proposed replacement housing would be constructed.

For the Final General Management Plan/Environmental Impact Statement, NPS submitted a formal Coastal Zone Management (CZM) consistency determination to the State of Florida. The consistency determination stated that NPS had determined that the final GMP for Big Cypress National Preserve is consistent with the Florida Coastal Management Program (FCMP). The proposed construction of the housing area at Ochopee was part of the Development Concept Plan, and was determined to be consistent with the CZM in the GMP/EIS process.

This EA will be sent to the Florida State Clearinghouse at the Florida Department of Environmental Protection for review and comment. The NPS initiated preliminary consultation with the Florida State Clearinghouse in the form of an email on January 7, 2020 describing the current housing project and the prior GMP/EIS consultation described above. The email requested direction as to whether NPS would need to coordinate with the state regarding CZM consistency prior to sending the EA to the state clearinghouse. A response was received on January 15, 2020 stating that no coordination would be needed before sending the EA to the Florida State Clearinghouse.

Construction in the current housing area at Ochopee was previously determined to be consistent with the Florida Coastal Management Program during the GMP/EIS process. NPS has determined that the current project to construct a four-unit employee housing structure at Ochopee is consistent with the Florida Coastal Management Program and would not cause any effects that would alter this previous determination. The NPS will submit a transmittal letter with the EA to the Florida State Clearinghouse requesting state agency review and comments, including a CZM consistency determination for the current project. During their review, the state will determine if the project is in compliance with the Florida Coastal Management Program, and other applicable state and local laws, regulations and policies. If the project is in compliance, a notice of agreement will be provided, thus completing all relevant CZM requirements.

Cumulative Impacts

At both the housing construction location in BICY, and the existing housing demolition in Everglades City, no cumulative impacts are anticipated for any of the issues investigated.

The new housing unit in BICY would be located on a vacant lot in a residential area, upon which new construction was anticipated since neighborhood development began in the 1970s. No future development outside of this neighborhood is planned.

The current housing units in Everglades City to be demolished would not be rebuilt by the NPS, which would not add to the existing housing stock of the neighborhood in which they are located.

CHAPTER 4: CONSULTATION AND COORDINATION

Internal Scoping

Internal Scoping discussions for the proposed housing project began in September 2019 among staff from EVER, BICY, and the NPS Southeast Regional Office. Internal scoping included determining the purpose and need for the project and developing alternatives.

AGENCIES CONSULTED

- Florida State Historic Preservation Officer, Florida Division of Historical Resources
- U.S. Fish and Wildlife Service, South Florida Field Office
- Florida State Clearing House, Florida Department of Environmental Protection

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APPENDIX

Statement of Findings for Executive Order 11988 Floodplain Management

STATEMENT OF FINDINGS
FOR
EXECUTIVE ORDER 11988 FLOODPLAIN MANAGEMENT

CONSTRUCT REPLACEMENT HOUSING-HARDENED TO RESIST STORMS AND FLOODING

PMIS # 240181
PEPC # 86254

EVERGLADES NATIONAL PARK
AND
BIG CYPRESS NATIONAL PRESERVE
FLORIDA

Recommended: _____ Date _____
Superintendent, Everglades National Park

Recommended: _____ Date _____
Superintendent, Big Cypress National Preserve

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

Approved: _____ Date _____
Director, Southeast Region

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 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' 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.

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