

## **APPENDIX D: FLOODPLAIN STATEMENT OF FINDINGS**



**Statement of Findings for  
Executive Order 11988, “Floodplain Management”  
Fort Pulaski National Monument  
General Management Plan**

Recommended:

\_\_\_\_\_  
Superintendent, Fort Pulaski National Monument Date

Concurred:

\_\_\_\_\_  
Chief, Water Resources Division Date

Approved:

\_\_\_\_\_  
Director, Southeast Region Date

## INTRODUCTION

In accordance with Executive Order 11988, “Floodplain Management” and National Park Service guidelines for implementing the order, the National Park Service has reviewed the flood hazards in Fort Pulaski National Monument (Monument) and has prepared this “Statement of Findings” (SOF).

In examining the Monument, the structures at the following sites were identified as being within a regulatory 100-year floodplain:

1) National Park Service Sites

Twenty-nine existing structures, including Fort Pulaski, historic dike system, visitor center, detached restrooms, parking area, historic residence, Cockspur Island Lighthouse, maintenance facility, road system. One proposed new structure: the visitor center annex.

2) U.S. Coast Guard Site

Miscellaneous structures: administrative building, parking area, communications structures, fueling facility, and dock

3) Savannah Bar Pilots Site

Miscellaneous structures: administrative building, parking area, fueling facility, and dock

There are no other occupied structures within a regulatory floodplain at these sites

that warrant inclusion in this flood hazard assessment.

This “Statement of Findings” focuses on evaluating the flood hazards for the aforementioned structures in the 100-year floodplain. As a part of the effort to develop a general management plan (GMP) for the Monument, the “Statement of Findings” describes the flood hazard, alternatives, and possible mitigation measures for the continued use of this area. Additional detail regarding the Monument lands and resources, future actions to be taken in the area, and environmental impacts may be found in the *Draft General Management Plan / Wilderness Study / Environmental Impact Statement* (GMP/EIS).

## DESCRIPTION OF THE SITES AND USES

### National Park Service Sites

The following inventory of structures in the floodplain at Fort Pulaski is taken in large part from the monument’s list of classified structures. The list of classified structures is an evaluated inventory of all historic and prehistoric structures within the National Monument boundary that have historical, architectural, and/or engineering significance. The various structures on the list of classified structures are described in the following table, sorted by significance level.

## List of Classified Structures

Catalog Number	Name	Significance Level
HS-09	Dike	Contributing
HS-10	Canal Lock	Contributing
HS-11	Feeder Canal	Contributing
HS-2A1	Cistern No. 5 (Ruin)	Contributing
HS-2A2	Cistern No. 4	Contributing
HS-2A4	Cistern No. 1	Contributing
HS-2A6	Cistern No. 2	Contributing
HS-2A7	Cistern No. 3	Contributing
HS2B3	Cistern No. 6	Contributing
HS2B5	Stones from Cistern (ruin)	Contributing
HS-03	North Pier (Ruin)	Local
HS-06	Residence	Local
HS-2A3	Brick Foundation Ruin at Cistern No. 4	Local
HS-2A5	Brick Foundation Ruin at Cistern No. 3	Local
HS2B4	Cistern No. 7	Local
HS-01	Fort Pulaski	National
HS-07	Moat	National
HS-08	Demilune	National
CS-01	John Wesley Memorial	Not Significant
HS-13	Lieutenant Robert Rowan Grave Stone	Not Significant
HS-14	Sellmer, Charles Howard, Grave Marker	Not Significant
HS-04	Cockspur Island Lighthouse	State
HS-05	Battery Horace Hambricht	State

1 **Dike.** The dike, which allowed the island to  
2 be drained, was essential to the construction  
3 of Fort Pulaski. This historic engineering  
4 structure is directly associated with Robert E.  
5 Lee, who designed it. The dike is an earthen  
6 structure approximately 4-5 feet above grade  
7 with an irregular circumference of 2 miles.

8 **Canal Lock.** The canal lock controls water  
9 flow between the moat and the feeder canal  
10 and kept tidal flooding out. This is also part  
11 of the water control system designed by  
12 Robert E. Lee. Water from the canal enters  
13 this arched brick tunnel, containing a tide  
14 gate, just before it enters the moat. The  
15 tunnel is flanked by brick retaining walls; the  
16 dimensions are 51 feet by 77 feet. A metal

17 valve handle that controls the gate lies just  
18 north.

19 **Feeder Canal.** The feeder canal is an  
20 engineering structure that provides water to  
21 the fort's moat and is part of the water  
22 control system designed by Robert E. Lee.  
23 The canal is approximately 2,000 feet long  
24 and runs south from the moat to the South  
25 Channel Savannah River. The canal banks are  
26 earthen except near the moat, where there  
27 are brick retaining walls.

28 **Cistern No. 5 (Ruin).** This cistern, one of  
29 several that supplied water to laborers living  
30 onsite during the construction of Fort  
31 Pulaski, is significant as an example of early  
32 19th century utilitarian structure. These are

1 the remains of a 15 feet diameter round  
2 cistern. Visible on the ground surface are  
3 pieces of the stone cistern cover.

4 **Cistern No. 4.** This cistern, associated with  
5 the post-construction history of Fort Pulaski  
6 is significant as a 19th century utilitarian  
7 structure. The 14.67 feet diameter brick  
8 cistern has been filled with sand. No trace of  
9 cistern cover is visible.

10 **Cistern No. 1.** This cistern, one of several  
11 that supplied water to laborers living onsite  
12 during the construction of Fort Pulaski, is  
13 significant as an example of early 19th  
14 century utilitarian structure. The structure is  
15 a 9 feet diameter circular brick cistern with a  
16 cement coating on the brick and a sandstone  
17 cap. The cistern rises approximately 4 feet  
18 above grade.

19 **Cistern No. 2.** This cistern, one of several  
20 that supplied water to laborers living onsite  
21 during the construction of Fort Pulaski, is  
22 significant as an example of early 19th  
23 century utilitarian structure. The structure is  
24 a circular brick cistern 9 feet in diameter with  
25 a sandstone cap. The cistern rises  
26 approximately 3 feet above grade, is filled  
27 with sand, and exhibits the remains of a  
28 cement coating over the brick.

29 **Cistern No. 3.** This cistern, one of several  
30 that supplied water to laborers living onsite  
31 during the construction of Fort Pulaski, is  
32 significant as an example of early 19th  
33 century utilitarian structure. The structure is  
34 a circular brick cistern, 13 feet in diameter,  
35 with a smaller, square opening set into the  
36 top. Portions of the stone cap remain along  
37 with remnants of a cement coating on the  
38 brick.

39 **Cistern No. 6.** This cistern, one of several  
40 that supplied water to laborers living onsite  
41 during the construction of Fort Pulaski, is  
42 locally significant as an example of early 19th  
43 century utility structure. The structure is a  
44 large brick, stone, and mortar cistern  
45 approximately 12 feet in diameter and 2 feet  
46 high. The cistern head is a rectangular brick

47 box (5 feet by 5 feet) with a 3 feet square  
48 opening.

49 **Stones from Cistern (Ruin).** Apparently  
50 pieces of the cover of a cistern.

51 **North Pier (Ruin).** This was the first  
52 structure built in association with Fort  
53 Pulaski and was the receiving point for  
54 materials used in the fort's construction. The  
55 ruins consist of approximately 20 feet by 10  
56 feet of a 200 feet long, L-shaped granite pier.  
57 Portions of the side walls, with some iron  
58 hardware, end in the remains of a tabby end  
59 wall. Granite pavers that once supported iron  
60 tracks for cannon carriages at the fort have  
61 been relocated to the end of the pier.

62 **Residence.** Locally significant for  
63 architecture and its association with the U.S.  
64 Public Health Service Quarantine Station on  
65 Cockspur Island. Remodeled and used by the  
66 Navy as officer's quarters during World War  
67 II, the interior contains many historic  
68 features and materials from that period. In  
69 1998, the building underwent numerous  
70 alterations that together gave the building an  
71 appearance that it never had. These included  
72 the addition of double-hung windows to part  
73 of the porch and construction of a wide,  
74 straight flight of stairs to the east porch that  
75 never existed during the historic period. In  
76 addition, the exterior siding and porthole  
77 windows installed by the Navy to enclose the  
78 elevated foundation were removed and  
79 replaced with plywood and lattice, another  
80 feature that was never present during the  
81 historic period. The structure has been  
82 adapted for monument headquarters offices,  
83 which is the current use (2009).

84 **Brick Foundation Ruin at Cistern No. 4.**  
85 This ruin, associated with a cistern for  
86 workers on Fort Pulaski, is significant as an  
87 example of an early 19th century utilitarian  
88 structure. The ruin is a rectangular brick  
89 platform 51 inches by 63 inches and rising  
90 approximately 12 inches above grade.  
91 **Brick Foundation Ruin at Cistern No. 3.**  
92 This ruin, which is associated with a cistern  
93 that supplied water to the construction  
94 village during the construction of Fort

Pulaski, is significant as an early 19th century example of a utilitarian structure. The structure is a rectangular brick platform (85 inches by 76 inches) rising 24 inches above grade at its highest point and filled with sand. It may have supported a pump or other equipment associated with the cistern.

**Cistern No. 7.** This cistern, one of several that supplied water to the laborers who lived onsite during the construction of Fort Pulaski, is locally significant as an intact example of a 19th century utility structure. The structure is a large stone, brick, and mortar cistern with pedestal and head. The pedestal is comprised of large stones and is approximately 5 feet by 10 feet. The cistern head is an open, rectangular box made of mortared brick and measures approximately 4 feet by 3 feet and 1-foot high.

**Fort Pulaski.** Fort Pulaski was a pivotal link in the Third System of U.S. coastal defenses. The fort's reduction by new rifled artillery during the Civil War in April 1862 ended the era of impregnable masonry forts. The completed two tier structure is an irregular pentagon that faces east. The circumference of the fort is 1508 feet and sides of approximately 350 feet surrounded by a wet moat. The walls are 32 feet high and 7 feet to 11 feet thick. The fort contains 64 vaulted casemates and 54 gun mounts on the terreplein. The fort includes two powder magazines and a parade ground about the size of a football field. Local brownish "Savannah Gray" brick is found in the lower walls. The rose red brick is from Baltimore, Maryland, and Alexandria, Virginia. The latter is harder than the "Savannah Grays" so is used in the arches and embrasures.

**Moat.** The wet moat was part of the original system of fortifications at Fort Pulaski, an important masonry fort of the Third System of U.S. coastal defenses. The moat is 32 feet to 48 feet wide and 7 feet deep surrounding Fort Pulaski and its demilune. The moat walls are brick.

**Demilune.** Part of the original system of fortifications at Fort Pulaski, the demilune

was substantially redesigned in 1872 from a flat walled ground to a system of earthen mounds containing magazines. The triangular demilune consists of a network of four magazines, gun emplacements, and connecting passages with oyster shell-imbedded concrete walls protected by the earthen mounds.

**John Wesley Memorial.** The memorial marks the traditional site of the first American religious service conducted by John Wesley, founder of Methodism. It was erected by the Georgia Society of the Colonial Dames, an important historic preservation group. The memorial is a 15-foot high square column with a limestone base, a brick shaft in Flemish bond, and a limestone cap surmounted by a limestone cross, all set on a square of slate tiles. The base, cap, and a limestone plaque on the shaft carry inscriptions.

**Lieutenant Robert Rowan Grave Stone.** This is the grave of an officer stationed at Fort Greene, an early 19th century fort on the island that is no longer extant. The marker was moved from the site of Fort Greene to its present location. The marker consists of a marble monument (18" wide by 26" high) with an inscription and a cut top.

**Sellmer, Charles Howard, Grave Marker.** This is the grave of the infant son of Lieutenant Charles Sellmer and Marion Sellmer, stationed at Fort Pulaski in 1872. The grave has no significant association with the history of Fort Pulaski. The marker consists of a marble monument (10" wide by 2" deep by 24" high) with an inscription.

**Cockspur Island Lighthouse.** The Cockspur Island Lighthouse sits on an islet at the mouth of the South Channel Savannah River. It is significant for its association with an era of coastal navigation and its embodiment of a specialized architectural type. The structure originally housed a whale oil lamp; it was converted to a harbor beacon in 1909. Its use was discontinued in 1949. The lighthouse is a tapered brick tube, 16 feet in diameter and 46 feet high, with corbelled brick cornice. There

1 is an exterior brick stair fanlight door at the  
2 first landing. An interior spiral brick stair  
3 leads to the second landing. A wooden stair  
4 leads to the third landing, which supports the  
5 iron lantern house. The lighthouse  
6 foundation is threatened by years of erosion  
7 from storms and the active shipping channel  
8 that have lowered the height of the island and  
9 removed previous revetment causing the  
10 island to be underwater at all times except  
11 low tide. This exposes the wooden platform  
12 that supports the masonry foundation sits on  
13 to shipworm infestation that can compromise  
14 and eventually destroy the platform. This  
15 threat is current and loss could occur within a  
16 matter of years.

17 **Battery Horace Hambricht.** This 1895  
18 battery was part of the Endicott or Fourth  
19 Seacoast Defense System and was manned  
20 during the Spanish-American War. Named  
21 for Lt. Horace Hambricht, it is representative  
22 of U.S. defensive architecture of the period.  
23 The battery is a steel-reinforced concrete  
24 structure with overall dimensions of 100 feet  
25 by 50 feet by 15 feet high. At ground level are  
26 three magazines with two gun emplacements  
27 above. The battery's north face is covered by  
28 a grassed earth berm.

29 In addition to the foregoing structures from  
30 the LCS, the following NPS structures are  
31 located in the floodplain:

32 **Visitor Center and Associated Structures.**  
33 The Fort Pulaski visitor center is a circular  
34 brick structure completed in 1964 under the  
35 NPS Mission 66 program. Adjoining  
36 structures include detached comfort stations,  
37 concrete walkways, and a large asphalt  
38 parking area.

39 **Maintenance Facility.** This facility is  
40 associated with the Civilian Conservation  
41 Corps era at the monument, though it has  
42 since been altered and adapted. Adjoining  
43 structures include staff parking and the main  
44 monument road.

45 **Tybee Knoll Lighthouse Oil Shed.** This  
46 historic structure is now a mere brick shell,  
47 with roof. It was formerly associated with a

48 lighthouse on the northwest part of Cockspur  
49 Island that has long since disappeared. This  
50 structure would be stabilized under  
51 alternative C of the draft general  
52 management plan for Fort Pulaski National  
53 Monument.

54 **Visitor Center Annex.** This proposed new  
55 structure would be designed for park visitors,  
56 school groups, and staff. The specific  
57 dimensions, footprint, and other design  
58 parameters would be determined in a future  
59 planning project. The entire structure would  
60 be elevated on pilings above the 100-year  
61 flood plain. The annex would be located in  
62 close proximity to the existing visitor center.

## U.S. Coast Guard Site

63 The whole of Cockspur Island is federally  
64 owned and used by the National Park Service  
65 with special use permits for the Savannah Bar  
66 Pilots and the U.S. Coast Guard. A western  
67 portion of Cockspur Island was formerly  
68 used by the United States Navy and is off  
69 limits to visitors having been a munitions site.  
70 The U.S. Coast Guard currently occupies this  
71 site.

72 The U.S. Coast Guard established a Search  
73 and Rescue Station on Cockspur Island on  
74 November 17, 1965. The NPS issued a special  
75 long-term use permit that allowed the U.S.  
76 Coast Guard to occupy a 400-foot by 450-  
77 foot tract of land upon which permanent  
78 buildings, concrete-moorings, and  
79 communication equipment and antennas  
80 were constructed. In 1980, an interagency  
81 agreement between the National Park Service  
82 and the U.S. Coast Guard authorized  
83 administrative jurisdiction over an additional  
84 1.85 acres of land for the Search and Rescue  
85 Station as long as it did not jeopardize or  
86 interfere with the area's natural and historic  
87 resources. In 1993, the U.S. Coast Guard  
88 reconstructed a 75-foot tall steel aid-to-  
89 navigation structure destroyed in a recent  
90 storm and originally built in 1978. The U.S.  
91 Coast Guard continues these operations at  
92 Fort Pulaski National Monument to this day.  
93 Generally, the National Park Service views



- 1 U.S. Coast Guard activities as compatible  
2 with park policy.

### **Savannah Bar Pilots Site**

3 The Savannah Bar Pilots and their collective,  
4 the Savannah Pilots Association, have roots  
5 that trace to the early days of the Colony of  
6 Georgia. The State Board of Commissioners  
7 of Pilotage at the Port of Savannah currently  
8 regulates the Bar Pilots, who earn their keep  
9 by facilitating safe passage to and from the  
10 port through the difficult-to-navigate waters  
11 of the Savannah River. Individual ships or  
12 shipping companies pay the pilots for these  
13 services. Cockspur Island provides a  
14 convenient location for the Bar Pilots dock  
15 and facilities because every commercial vessel  
16 entering or leaving the Savannah River must  
17 have a pilot on board.

18 In 1973, the National Park Service issued a  
19 20-year special use permit to the Bar Pilots to  
20 construct, maintain, and use living quarters, a  
21 dock, and fuel supply system, and a parking  
22 area on its .67-acre lot. With a long-term lease  
23 in place, the Bar Pilots completed  
24 renovations. The new dormitory they built  
25 stands at the location of the previous Bar  
26 Pilots building. NPS renewed the  
27 Association's special use permit in 1993 and  
28 again in 1998.

29 The Savannah Bar Pilots wish to continue  
30 operating their business out of Fort Pulaski.  
31 There are no other known locations that  
32 would allow the Savannah Bar Pilots to  
33 operate more efficiently because of the deep  
34 water accessibility and the distance to  
35 embarking and disembarking ships that are  
36 entering and leaving the Savannah Harbor.  
37 The Bar Pilots have been operating at the  
38 current location for nearly 70 years with  
39 virtually no adverse impact on monument  
40 resources, visitor experience, or monument  
41 operations. The monument also derives  
42 substantial revenue from this operation.

### **DESCRIPTION OF THE NATURE OF FLOODING AND FLOODPLAIN PROCESSES IN THE AREA**

43 Fort Pulaski and all the structures within the  
44 system of dikes and drainage ditches that  
45 were constructed between 1830 and 1847  
46 exist within an area that was formerly salt  
47 marsh or wetlands for the most part. Prior to  
48 being drained and reclaimed with spoil, these  
49 areas were subject to regular inundation from  
50 tidal action and storm events. Other parts of  
51 Cockspur Island have likewise been  
52 reclaimed with dredge spoil over the years. It  
53 is in these reclaimed areas where structures  
54 have been built to serve the National Park  
55 Service, the U.S. Coast Guard, and the  
56 Savannah Pilots Association.

57 For the past 100 years, flooding at Cockspur  
58 Island has been infrequent. When it has  
59 occurred, flooding has been mainly  
60 characterized and driven by rising waters in  
61 the adjacent Savannah River and in onsite  
62 drainage features. Long periods of heavy  
63 precipitation as well as storm surge from the  
64 Atlantic Ocean associated with hurricanes  
65 and tropical storms can cause rising water to  
66 overtop the banks of the Savannah River and  
67 enter drainage features on the site. During  
68 periods of heavy precipitation, some ponding  
69 also occurs in low-lying areas and swales  
70 around the site due to the flat terrain and  
71 drainage constraints of the site.

72 The last hurricane to hit the area was  
73 Hurricane David in 1979. Prior to that time,  
74 the only hurricanes to strike the Savannah  
75 area in the past century or so were major  
76 storms in 1940 and 1898. So far as is known,  
77 flooding of structures on Cockspur Island as  
78 a result of these storms was relatively minor.  
79 However, Cockspur Island has historically  
80 been subject to intense hurricanes of  
81 incredible destructive power. In fact, Fort  
82 Pulaski is built on the site of a fort — Fort  
83 Green — that was destroyed by the great  
84 hurricane of 1824. Cockspur Island will  
85 always be subject to major storm surge and  
86 flooding if hit by a major hurricane.

In the event of a hurricane, warning times would be adequate for park visitors and staff to evacuate the island. U.S Highway 80 traverses the park and provides a readily accessible evacuation route.

## JUSTIFICATION FOR USE OF THE FLOODPLAIN

### Description of Preferred Alternative and Why Facilities Would Be Retained / Constructed in the Floodplain

Under the preferred alternative in the general management plan, all of the structures currently maintained by the National Park Service, the U.S. Coast Guard, and the Savannah Harbor Pilots would be retained in their existing locations. The justification for retaining these structures in their existing locations in the 100-year floodplain is as follows:

- The National Park Service is required by law and policy to maintain all historic structures in their present locations. Existing administrative structures (e.g., monument offices, maintenance facility, and visitor center) must remain on the island in order to manage resources effectively and serve visitors. The nearest nonfloodplain site is miles away.
- The emergency services provided at this site by the U.S. Coast Guard Search and Rescue Station are dependent on the station's being located on the Savannah River. The Cockspur Island site provides automobile access to the river that is not otherwise available to U.S. Coast Guard staff.
- The piloting services provided by the Savannah Bar Pilots operations facility are essential services, are required by law, and need to originate from a riverside location. The Cockspur Island site provides automobile access to the river that is not otherwise available to Bar Pilots staff.

- Relocating the facilities and services at both sites may be infeasible and very costly, from both a financial cost perspective and from a level/quality of service perspective.
- All sites are located on disturbed ground. Moving the facilities would likely result in adverse impacts and the loss of other natural resource values in the area.
- Both sites have direct access to a major highway (U.S. Highway 80) that provides a quick evacuation route to higher, inland areas.

The preferred alternative also calls for the construction of a visitor center annex in the 100-year floodplain. Since all of Cockspur Island lies within the 100-year floodplain, no alternate locations exist for this facility. The only alternative is not to build the facility at all; however, the park has a pressing need for a facility of this type in order to provide adequate space for modern exhibits, visitor education, interpretive programs and to accomplish various administrative functions, such as all-employee meetings and training sessions.

## DESCRIPTION OF SITE-SPECIFIC FLOOD RISK

The potential for storm surge associated with hurricanes and tropical storms is the primary flood risk for the structures on Cockspur Island. Cockspur Island lies between the north and south branches of the Savannah River. Therefore, if the banks of the Savannah River are overtopped by storm surge, the structures at the site might be flooded from several directions.

The timing and duration of potential flooding at Cockspur Island would vary depending on the intensity of the storm causing water levels to rise. Typically, tropical storms would arise with sufficient advance warning to give persons working on the island hours or days to evacuate.

Because of the site's location at the mouth of the Savannah River, there are notable issues related to surface erosion and sediment deposition that could result from flooding. There could be some sediment and debris deposition at this site as a result of storm surge, and storm surge would likely have the energy to produce detectable erosion or channelization. Hydrologic changes resulting from geomorphic and erosion processes could occur, particularly in the form of channel changes to the north and south branches of the Savannah River.

## FLOOD MITIGATION MEASURES

### Existing Structures

The highest level of flood mitigation for Cockspur Island would be to relocate the facilities and/or services out of the floodplain, i.e. off of the island. This option is not currently feasible and has several costs associated with it. Thus, this option has not been chosen by the National Park Service. If or when any nonhistoric structures reach their usable lifespan, or if a future flood results in severe damage, then the National Park Service should assess possibilities for relocating the facilities.

The continued use of Cockspur Island, would necessitate the development (and future implementation) of an evacuation plan for the site. Given the nature of the flood risks associated with use of the island, the primary flood mitigation measure available to the National Park Service is the early, prompt, and safe evacuation of people working on the site. An evacuation plan would include strategies that ensure proper storm monitoring, emergency communication methods, effective evacuation routes, and timely emergency evacuation notification for staff and visitors.

Because the island is connected by bridge to U.S Highway 80, a convenient evacuation routes is available to staff or visitors on the island. Evacuees could seek higher ground by

driving west along U.S. Highway 80 toward Savannah.

The plan would be developed in concert with the protocol and strategy of the existing Chatham County emergency management system and the National Weather Service. This Chatham County emergency management system is already well developed and has proven to be very successful at providing people in the area with advanced warning of potential floods. During past floods, this emergency management system has given warning well in advance of storm activity, leaving ample time for evacuation.

Once the plan is developed, all staff of the monument, the U.S. Coast Guard Search and Rescue Station, and the Savannah bar Pilots operations facility would be informed of the plan's details and their respective implementation responsibilities. Staff at all facilities would also be informed on how to appropriately disseminate evacuation information to visitors who may be at any of the facilities when a flood occurs.

### New Structure

The mitigation measures applicable to existing structures on Cockspur Island would also apply to the proposed new visitor center annex. However, the principal mitigation measure for the annex would be to build it above the 100-year flood plain on pilings. Building on pilings would allow storm surge to flow beneath the main structure and minimize impacts to floodplain processes. Furthermore, building on pilings would also serve to limit as much as possible structural damage to the annex.

## SUMMARY

The National Park Service has determined that there is no practicable alternative to maintaining the historic and administrative structures currently in use at Fort Pulaski National Monument. Similarly, there is no practicable alternative to the current location

1 of the U.S. Coast Guard Search and Rescue  
2 Station or the Savannah Bar Pilots operations  
3 facility. This determination is primarily based  
4 on: (1) the necessity of these facilities  
5 remaining in place to fulfill their essential  
6 functions, (2) the lack of alternative locations  
7 to house the U.S. Coast Guard Search and  
8 Rescue Station or the Savannah Bar Pilots  
9 operations facility; and (3) the notable costs  
10 and impacts that would be incurred by  
11 moving and/or constructing these facilities in  
12 new locations outside the floodplain.

13 There is no practicable alternative to the  
14 proposed location of the visitor center annex.  
15 The primary flood mitigation measure for the  
16 U.S. Coast Guard Search and Rescue Station

17 and the Savannah Bar Pilots operations  
18 facility is to develop an evacuation plan for all  
19 facilities at these sites and keep all NPS staff,  
20 U.S. Coast Guard staff, and Savannah Bar  
21 Pilots staff informed of the plan. Although  
22 the sites are within areas subject to flooding,  
23 there would be ample time to warn staff and  
24 visitors using the facilities to evacuate the  
25 area. If a flood occurs, visitors and staff could  
26 evacuate to higher ground via U.S. Highway  
27 80. These mitigation measures would also  
28 apply to the proposed annex. In addition, the  
29 new annex would be built on pilings in order  
30 to minimally impede water flows and prevent  
31 property damage as much as possible.

## APPENDIX E: IMPAIRMENT DETERMINATION

1 The National Park Service Organic Act of  
2 1916 requires the Service to “promote and  
3 regulate the use of” areas managed by it in  
4 such a manner as to leave them “unimpaired  
5 for the enjoyment of future generations”. The  
6 *National Park Service Management Policies*  
7 *2006* spells out the definition of impairment  
8 and the criteria for evaluating whether or not  
9 proposed actions and management strategies  
10 in planning documents such as this general  
11 management plan would result in impairment  
12 to monument resources. A summary of the  
13 definition and evaluation criteria can be  
14 found at the end of chapter 1 of this  
15 document and again in chapter 4 following  
16 the section on Cumulative Impact Analysis.  
17 This section presents the impairment analysis  
18 and determination for the NPS preferred  
19 alternative which is alternative B.

### CULTURAL RESOURCES

#### Archeological

20 **Impairment.** Impacts from actions contained  
21 alternative B would not result in impairment  
22 because there would not be any significant  
23 loss or damage to archeological resources  
24 under this alternative. Impacts would be  
25 negligible.

#### Museum Collections

26 **Impairment.** Impacts from actions under  
27 alternative B would not result in impairment  
28 for museum collections because there would  
29 not be any significant loss or damage to  
30 museum collections under this alternative.  
31 Rather, this alternative would augment the  
32 monument’s museum collection. It would  
33 also improve long-term protection for  
34 museum collections by moving them out of  
35 harm’s way, thus avoiding a major source of  
36 potential impairment for these resources.

#### Historic Structures

37 **Impairment.** Impacts from alternative B  
38 would not result in impairment to historic  
39 structures because historic structures from  
40 the principal period of significance would be  
41 preserved in place and their historic fabric  
42 maintained. The fort complex would be  
43 improved by relocating the existing parking  
44 lot. Only negligible adverse impacts on the  
45 fort complex would result from this  
46 alternative, primarily from normal wear and  
47 tear. On the other hand, moving the existing  
48 parking area to a less obtrusive location  
49 would result in an adverse effect to a historic  
50 property (i.e. the Mission 66 visitor center  
51 complex). Despite this adverse effect, moving  
52 the parking area would not result in  
53 impairment of monument resources.  
54 Maintaining the parking area and visitor  
55 center in their current alignment is not key to  
56 the natural or cultural integrity of the  
57 monument or to opportunities for enjoyment  
58 of the monument. It is also not necessary to  
59 fulfill the specific purposes identified in the  
60 proclamation establishing the monument. As  
61 a result, the adverse effect would not result in  
62 impairment of monument resources.

#### Cultural Landscapes

63 **Impairment.** Impacts from alternative B  
64 would not result in impairment to cultural  
65 landscapes because the condition of the  
66 cultural landscape would improve over time  
67 due to the restoration of historic site  
68 conditions and views. Although moving the  
69 existing parking area to a less obtrusive  
70 location would result in an adverse effect to a  
71 historic property, maintaining the parking  
72 area and visitor center in their current  
73 alignment is not key to the natural or cultural  
74 integrity of the monument or to  
75 opportunities for enjoyment of the  
76 monument. It is also not necessary to fulfill  
77 the specific purposes identified in the  
78 proclamation establishing the monument. As

1 a result, the adverse effect would not result in  
2 impairment of monument resources.  
3 Ethnographic Resources

4 **Impairment.** This alternative would not  
5 result in impairment of ethnographic  
6 resources of the monument because the  
7 National Park Service would continue to  
8 provide long-term protection to the fort and  
9 its historic context and as a result impacts on  
10 ethnographic resources, if any, would be  
11 negligible.

## NATURAL RESOURCES

### Geology and Soils

12 **Impairment.** This alternative would not  
13 result in impairment of soils and geologic  
14 resources because the proposed clearing to  
15 partially restore historic views, together with  
16 the construction of a new parking area,  
17 would result in only minor to moderate loss  
18 or damage to these resources.

### Plant Communities and Vegetation

19 **Impairment.** This alternative would not  
20 result in impairment of plant communities  
21 and vegetation because the proposed clearing  
22 to partially restore historic views and create a  
23 new parking area would result in only minor  
24 to moderate loss or damage to these  
25 resources.

### Exotic/Nonnative Plants

26 **Impairment.** This alternative would not  
27 result in impairment of monument resources.  
28 Impacts from the existence or spread of  
29 nonnative vegetation would be concentrated  
30 on Cockspur Island and would not affect the  
31 historic fort or any other resource necessary  
32 to fulfill specific purposes for which the  
33 monument was established. Exotic vegetation  
34 would be reduced to a limited extent by  
35 restoration activities.

### Fish and Wildlife

36 **Impairment.** Impacts from actions under  
37 this alternative would not result in  
38 impairment of fish and wildlife resources  
39 because fundamental ecological processes  
40 would remain intact and population  
41 dynamics would not experience appreciable  
42 change.

### Water Quality

43 **Impairment.** Impacts from actions under this  
44 alternative would not result in impairment of  
45 water quality in the park. Impacts on  
46 ecological processes would be negligible to  
47 minor and water chemistry would not  
48 experience appreciable change.

### Floodplains

49 **Impairment.** Impacts from actions under  
50 this alternative would not result in  
51 impairment of floodplain functions because  
52 no new structures would be built that would  
53 impede the flow of floodwaters, and impacts  
54 from existing structures would be negligible  
55 to minor. Nothing in this alternative would  
56 increase the risk posed by flooding to the  
57 historic fort or other key monument  
58 resources.

### Wetlands

59 **Impairment.** Impacts from actions under  
60 this alternative would not result in  
61 impairment of wetlands because such actions  
62 would entail, at most, only minor filling of  
63 wetlands in the park.

## WILDERNESS RESOURCES AND VALUES

64 **Impairment.** Impacts from actions under  
65 this alternative would not result in  
66 impairment of wilderness resources and  
67 values in the monument. Designation of  
68 approximately 4,500 acres of wilderness in  
69 the salt marsh would serve to permanently  
70 preserve wilderness character by protecting

## APPENDIXES

- 1 natural processes, preventing development,
- 2 and maintaining opportunities for solitude
- 3 and unconfined recreation.

## CONCLUSION

- 4 Alternative B, the NPS preferred alternative,
- 5 will not result in impairment of any
- 6 monument resources.

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