

4.22.22 E.O. 11988, FLOOD PLAIN MANAGEMENT

The project is in the base flood plain (100-year flood) and has been evaluated in accordance with this Executive Order. Project is in compliance.

4.22.23 E.O. 12898, ENVIRONMENTAL JUSTICE

There is no reason to believe that the proposed activity will substantially impact health or the environment or unfairly impact a minority or low income population

4.22.24 E.O. 13089, CORAL REEF PROTECTION

This EO may apply to coastal projects especially those which might directly or indirectly impact coral reef such as in beach renourishment and off-shore borrow. The EO refers to "those species, habitats, and other natural resources associated with coral reefs." Thus, it does not apply to this project.

4.22.25 E.O. 13112, INVASIVE SPECIES

The eastern half of the TFMCA is dominated by Bahia grass (*Paspalum Notatum*) and non-native pasture grasses. The area is also invaded by wax myrtle (*Myrica cerifera*), saw palmetto (*Serenoa repens*), and saltbush (*Baccharis halimifolia*). Brazilian pepper (*Schinus terebinthifolius*) occurs throughout the TFMCA. The water level elevations will have the added benefit of destroying those extraneous invasive seed sources.

5. ALTERNATIVE SELECTION

5.1 ISSUES AND BASIS FOR CHOICE

The alternatives were evaluated based on predicted flood control and water conveyance impacts and environmental effects. Flood control impacts were evaluated as to whether or not the ability of Structure S-96B to make discharges downstream to the St Johns River was compromised by the tailwater conditions created by flood control discharges through S-96C. Environmental hydrologic criteria, which can be thought of as hydrologic performance measures, were developed to determine the effectiveness of each alternative in meeting environmental goals and objectives. The Upper St. Johns River Basin Hydrologic Model (Suphunvorrnop and Tai 1982) was used to generate simulated long-term water level and flow data for use in this analysis. Environmental criteria were compared to the hydrologic data generated by the model. Primary environmental issues considered were maximizing the number of wetland acres created in the TFMCA and the SJMCA. Other issues considered included the effect of extreme low water events on the aquatic resources (e.g. sport fisheries) that are expected to develop in the deeper flooded portions of the TFMCA and water quality. Structural features, maintenance requirements, and long-term operational costs of each alternative were also considered. Extensive coordination with all involved government agencies (Federal and State) and the public was made to determine the acceptability of the alternatives being considered.

5.2 PREFERRED ALTERNATIVE

Alternative (D) was selected as the Preferred Alternative. In this alternative the additional acreage of land adjacent to the project area purchased by the Water Management District will be added to the project and enclosed by perimeter levee L-74N. The TFMCA will be approximately 320 acres smaller than under the 18.5 ft alternative. This acreage will be added to the C-1 Retention Area. Additional levee construction will be required to separate Structures S-96B and S-96C discharges. A conveyance channel downstream of Structure S-96B connecting to the deep-water habitat will be constructed to provide for appropriate tailwater conditions. A low berm separating this channel from the adjacent marshes will also be needed. The SJMCA and TFMCA will be completely separated except for discharges from the TFMCA into the SJMCA. Discharge from the TFMCA to the SJMCA will occur at River Mile 273 over a 600-ft weir having a crest elevation of 20.0 ft NGVD. Structure S-257 will discharge at its maximum rate to the SJMCA only when stages fall below the crest height of the weir (20 ft NGVD) and equal to or greater than 19.0 ft NGVD. S-257 will consist of two 60-inch culverts capable of discharging up to 250 cfs each. Maximum discharges through S-257 will occur down to a TFMCA stage of 19.0 ft NGVD; each day afterward discharges through S-257 will be reduced by 20% until the structure is closed. To provide low flow augmentation for Lake Washington, (when stages in the TFMCA exceed 14.0 ft NGVD, when discharge from the SJMCA into Lake Washington under U.S 192 is less than 30 cfs, and when the stage in Lake Washington is less than 13.5 ft NGVD) 30 cfs will be released through S-257.

This alternative will eliminate the tailwater conditions that require discharges from Structures S-96B and S-96C to be staggered to meet upstream flood control schedules, ensuring GDM targets for storm water discharges to the Indian River Lagoon will be met. Under this alternative, wetland habitat values of the SJMCA will be maintained and enhanced. Because of the gradient in ground elevations, the entire TFMCA cannot be restored to shallow marsh. Instead, deep, open water habitat, will be created in the northern half of the TFMCA and marsh habitat will be created toward the southern end. Water control operation schedules for S-257 will minimize short-term extreme low-water events that may adversely impact the system while still allowing drydowns of the wetlands at appropriate frequencies. The diversity of aquatic and wetland communities in combination with a naturally fluctuating hydrologic regime will create excellent

for wading birds, waterfowl, and other wildlife. The extensive deep-water area will provide excellent fisheries habitat as well as provide enhanced water quality benefits.

This alternative entails the construction of a berm consisting of 357,012.9 cubic yards of material, and cutting a channel that will displace 257,760.3 cubic yards of material. Material displaced by the cut may be utilized in construction of the berm.

5.3 ALTERNATIVES ELIMINATED FROM DETAILED EVALUATION

One alternative that was proposed by the Florida Fish and Wildlife Conservation Commission was to continue to allow Structure S-96B to discharge into the SJMCA, but construct a separate canal parallel to the existing canal to transport this discharge downstream to the confluence of Canal C-40. This alternative was considered unacceptable because of the significant cost of dredging a new canal nearly two miles long, the numbers of acres of wetlands that would be adversely impacted by construction activities, and the potential negative water quality impacts to existing wetlands in the SJMCA. In addition, this alternative would likely only minimally improve tailwater conditions below S-96B and S-96C.

5.4 ALTERNATIVES NOT WITHIN JURISDICTION OF LEAD AGENCY

The Corps is not aware of any alternatives that are not within the jurisdiction of the lead agency.

5.5 COMPARISON OF ALTERNATIVES

Table 12 lists alternatives considered and summarizes the major features and consequences of the proposed action and alternatives. See section 4.0 Environmental Effects for a more detailed discussion of impacts of alternatives.

5.6 MITIGATION

At this time, mitigation is not known to be required for this project. Coordination with the Florida and tribal SHPOs is ongoing.