

ATTACHMENT 2 PROJECT NEED AND JUSTIFICATION

INTRODUCTION

The Project includes providing erosion control and shoreline stabilization measures including beach nourishment, maintenance dredging and bypassing, and stabilizing structures for six miles of eroding gulf and inlet shorelines within the Manasota Barriers, Charlotte County utilizing inlet channel, nearshore, and offshore borrow areas.

This document identifies the necessity and justification of the proposed Erosion Control Project relative to public interests and associated Project impacts. The document addresses compliance with Section 404(b)(1) of the Guidelines of the Clean Water Act and “Public Interest Assessment” criteria cited in Section 373.414 of Florida Statutes.

The proposed Project includes restoration of designated critically eroding beaches and their long-term maintenance and renourishment. Per Section 161.088 of Florida Statutes, *“Because beach erosion is a serious menace to the economy and general welfare of the people of this state and has advanced to emergency proportions... The Legislature declares that ... beach restoration and beach nourishment projects, as approved pursuant to s. 161.161, are in the public interest”*.

REGULATIONS

Chapter 373.414 Florida Statutes requires that activities in surface waters provide reasonable assurance that state water quality standards will not be violated and that the Project is not contrary to the public interest. The public interest criteria include the following.

- Whether the activity will adversely affect the public health, safety, or welfare or the property of others;
- Whether the activity will adversely affect the conservation of fish and wildlife, including endangered or threatened species, or their habitats;
- Whether the activity will adversely affect navigation or flow of water or cause harmful erosion or shoaling;
- Whether the activity will adversely affect the fishing or recreational values or marine productivity in the vicinity of the activity;
- Whether the activity will be of a temporary or permanent nature;
- Whether the activity will adversely affect or will enhance the historical and archaeological resources under provision of s.267.061 and;
- The current condition and relative value of functions being performed by areas affected by the proposed activity

Code of Federal Regulations (CFR) 40 Part 230 Section 404(b)(1) Subpart B Sec. 230.10 of the Clean Water Act provides guidelines and restrictions on specifying disposal sites for dredged materials. The restrictions include the following.

- Violates State Water Quality Standards
- Violates Toxic Effluent Standards
- Jeopardizes Continued Existence of Endangered or Threatened Species, or Results in Destruction or Adverse Modification of Their Habitat
- Violates Requirement to Protect Designated Marine Sanctuaries
- Results in Significantly Adverse Effects from the Discharge of Pollutants on Human Health or Welfare, Life Stages of Aquatic Life and Other Dependent Wildlife, Aquatic Ecosystem Productivity and Stability, and Recreational and Economic Values
- Fails to Minimize Potential Adverse Impacts of the Discharge on Aquatic Ecosystem

PUBLIC INTEREST ASSESSMENT

Project impacts as they relate to the combined Public Interest Criteria from the two regulations are summarized below.

Public Health, Safety, Welfare and Property of Others

This Project features an initial construction phase and future construction with an adaptive management plan. In the initial phase, beach compatible sand excavated from the offshore sand resources will be disposed of on the downdrift critically eroding beaches of Palm and Knight-Don Pedro Islands providing storm protection for the upland properties located on these islands. Sand will also be placed on the updrift beach on Manasota Key providing storm protection for the Stump Pass Beach State Park amenities and environmental habitats. The utilization of the offshore borrow areas in lieu of exclusive use of the inlet will help reduce the erosion rate immediately updrift of the inlet.

The initial phase also includes installation of a stabilizing structure (terminal groin) on the south end of Stump Pass Beach State Park that will help curtail the uncontrolled channel migration of Stump Pass and deflection resulting in beach erosion that adversely affects the property of others.

The Project includes a maintenance dredge component of the Stump Pass navigation channel designed to accommodate 3-foot draft vessels. Stump Pass serves as a safe entry for harbor of refuge in Lemon Bay being located at a midpoint between Gasparilla Pass and Venice Inlet. Maintenance of the channel will provide for this important public safety benefit.

There will be no changes to existing public accesses as a result of the Project.

Endangered or Threatened Species

Please refer to Attachment 17 “Environmental Protection Plans” for further details.

Sea Turtles

Sand excavated from the borrow areas will be placed along 2.3 miles of critically eroding shorelines in the initial Project. The beach fill areas above MHW will consist of approximately 4 acres, 2 acres, and 9 acres for the updrift, north, and south beach fill areas, respectively, equal to 15 acres of new sea turtle habitat that will be created by the initial Project, and sustained through subsequent renourishment and maintenance dredge/bypass events. Further, the placed sand will help protect the existing dune systems along these shorelines. This provides reasonable assurance that habitat will be conserved.

The Project proposes a nesting sea turtle protection plan including the following measures:

- All fill material shall be beach compatible sand
- The beach fill and construction areas will be tilled immediately after and for three years following construction before nesting season begins
- Sea turtle monitoring shall be performed by the permit holder in accordance with state and federal guidelines
- Escarpment surveys shall be performed and if scarps are observed that are 18 inches or greater in height and extend over 100 feet, they shall be leveled before nesting season begins.
- During construction projects, relocate nests in accordance with state and federal guidelines.

Shorebirds

Sand excavated from the borrow areas will be placed along 2.3 miles of critically eroding shorelines in the initial Project. The beach fill areas above MHW will consist of approximately 4 acres, 2 acres, and 9 acres for the updrift, north, and south beach fill areas, respectively, equal to 15 acres of new shorebird habitat that will be created by the initial Project and sustained through subsequent renourishment and maintenance dredge/bypass events. Further, the placed sand will help protect the existing dry beach areas and dune systems along these shorelines. This provides reasonable assurance that habitat will be conserved.

The Project proposes a shorebird protection plan including the following measures:

- All fill material shall be beach compatible sand
- Shorebird monitoring shall be performed by the permit holder in accordance with state and federal guidelines
- Implement predator control measures in accordance with state and federal guidelines
- During construction projects, establish buffer zones and travel corridors in accordance with state and federal guidelines.

Manatees, Swimming Sea Turtles, and Smalltooth Sawfish

The proposed construction method is hydraulic dredge and pipeline. The Project proposes to implement the standard manatee, swimming sea turtle, and smalltooth sawfish protection conditions during construction.

Water Quality

Lemon Bay and the interior reach of the inlet (not within the limits of the proposed dredge and fill activities) are an Aquatic Preserve and designated Outstanding Florida Waters (OFW). The previously permitted dredging projects implemented water quality protection plans and successfully dredged the inlet without any violations to state water quality standards. The Project proposes to implement a similar protection plan. The main component of the plan is that the contractor is not allowed to exceed ambient conditions plus the natural variability within the adjacent Aquatic Preserve during dredging and north beach filling on flood tides. This all but eliminates the possibilities of suspended sediment being carried into Lemon Bay adversely affecting water quality or depositing on sea grass beds.

It is our understanding that FDEP recognizes that it may be necessary to permit limited activities or discharges in the OFW for dredging beach-quality sand from inlets and related channels. As such, the Project proposes to measure turbidity levels at Stump Pass during one tidal cycle prior to construction and report these data to the FDEP. The difference in turbidity levels will indicate the natural variability in turbidity. It is requested that the FDEP permit corresponding background levels at the edge of the mixing zone up to the “natural variability” (rather than 0 NTUs). For example, if prior to construction, turbidity levels range from 5 NTUs to 8 NTUs, the turbidity at the edge of the mixing zone may exceed the corresponding background level by up to 3 NTUs. Please refer to Attachment 17 “Environmental Protection Plans” for further details.

Ecosystem

Seagrass Beds

Seagrasses within Lemon Bay have varied in extent, coverage, and abundance over time since the first monitoring survey conducted in 2003. At one point or another monotypic and mixed beds of *H. wrightii*, *S. filiforme*, and *T. testudinum* have been documented along monitoring transects, though in the most recent seagrass monitoring events, *H. wrightii* has been the predominant or only species documented at prescribed sampling stations along the seven monitoring transects. Geomorphology within Stump Pass has appeared to have undergone very dynamic changes over time. When viewing the study area on aerial photography, it appears that sand has been accumulating within portions of the study area. For example, the shoal along one transect has steadily increased to almost the entire length of the transect. The transect most closely located to Manasota Key has probably had the most dramatic changes over time, as its position relative to the sand spit on the south end has been different each survey event, and it was completely emergent during two survey events. However, it should be noted that these geomorphological changes over time cannot be solely attributed to any one factor or to the project. Possibly related to the geomorphological changes, sediment types along transects have also shifted over time to predominantly sand, with the exception of a transect in the interior, adjacent to mangroves, that has maintained a dominance of muddy sand. This transect is also the most sheltered monitoring transect, in an accessory waterway versus the more open waters of the study area. Human recreation is a huge factor within the study area because of its close

proximity to a state park and beach, its accessibility to boaters, and the shoal features which are often heavily used by recreators even during week days.

As alluded to above, many factors collectively influence seagrass establishment, growth, and proliferation, and seagrasses occurring in areas with no nearby dredge/fill projects are known to change in extent and coverage over time. *H. wrightii*, in particular as a pioneer species, is a seagrass that tends to exhibit variable characteristics with respect to extent and coverage. Data collected over the course of 22 seagrass monitoring events since 2003 indicate no evidence that the initial project or subsequent maintenance events have caused any adverse impacts to seagrasses within Lemon Bay. Further, the Project proposes to utilize offshore sand resources to manage the critically eroding beaches adjacent to the pass reducing the frequency of and / or volumes excavated from dredging Stump Pass. Based on these findings, no further seagrass monitoring is proposed.

Aquatic Life and Wildlife

Temporary impacts and / or disruptions to aquatic life and wildlife occur during construction, e.g. ghost crabs, conch, juvenile fish, and benthic organisms. Monitoring of similar projects and a well-documented body of scientific literature indicates these impacts are short lived and these species quickly recover. Implementation of the water quality and sea grass bed protection plans provides reasonable assurance that marine productivity will not be adversely affected.

Water Flow

Frictional losses to water flows along the elongated channel have reduced the tidal energy allowing increased deposition of sand on the spit and inlet shoals. As the spit grows southward, the channel deflects and erodes Knight Island's interior shoreline along the pass. Dredging the 1980 alignment will shift water flow northward through the new channel away from Knight Island reducing beach erosion. Current measurements taken in the early 1980's were on the order of 5.0 and 3.8 feet per second for ebb and flood conditions respectively. Current measurements taken in 1999 were on the order of 3.8 and 3.4 feet per second for ebb and flood conditions respectively. Annual hydraulic monitoring has demonstrated that the prior projects increased water flow to the levels experienced in the early 1980's. The Project will improve the tidal exchange and flow of water from the bay to the gulf.

Erosion and Shoaling

The Project proposes to place over 1 million cubic yards of sand on the critically eroding beaches of Manasota Key, Palm Island, Knight Island and Don Pedro Island to address storm impacts and natural background erosion of these segments during the duration of the permit. The Project proposes to install a terminal groin at the south end of Manasota Key to help preserve the longevity of the updrift beach fill and reduce shoaling into the channel.

Sediment Quality

The borrow area investigations resulted in the identification of two borrow areas that contain beach compatible sand. The compatibility analysis demonstrates that the grain size distribution of the borrow area falls within the range of the distribution of the native beach samples, and exhibit favorable overfill ratios. The sand proposed to be utilized will be consistent with criteria under 62B-41.007(2)(j) FAC. The fill material shall:

- maintain the general character and functionality of the material occurring on the beach and in the adjacent dune and coastal system;
- be predominately of carbonate, quartz or similar material with a particle size distribution ranging between 0.062 mm and 4.76 mm; and
- be similar in color and grain size distribution to the material in the existing coastal system at the disposal site and shall, in general, not contain:
 - >5%, by weight, silt, clay or colloids passing the #230 sieve;
 - >5% by weight, fine gravel retained on the #4 sieve;
 - coarse gravel, cobbles or material retained on the ¾ inch sieve in a % or size greater than that found on the native beach;
 - construction debris, toxic material or other foreign matter; and
 - not result in cementation of the beach.

Navigation

As stated previously, the Project includes a maintenance dredge component of the Stump Pass navigation channel designed to accommodate 3-foot draft vessels. Stump Pass serves as a safe entry for harbor of refuge in Lemon Bay being located at a midpoint between Gasparilla Pass and Venice Inlet. Maintenance of the channel will provide for this important public safety benefit. The County has installed aids to navigation and the Project proposes to maintain these including relocating the aids after significant storm events corresponding to channel alignment changes.

Fishing, Recreational and Economic Values

Recreational use of the updrift and downdrift beaches will be positively impacted as the beach will be widened for several miles on Manasota Key, Palm Island, Knight Island, and Don Pedro Island.

Economic impacts are expected to be positive as commercial uses of the pass will benefit from improved navigation, upland property will benefit from the storm protection provided by the beach fills, and property values may rise in response to the beach fills resulting in increased property tax benefits for the County.

Historical and Archaeological Resources

There are no significant historical or archaeological resources within the Project limits for dredge and fill activities.

Impact Minimization

Following the guidelines presented in CFR 40 Part 230 Section 404(b)(1) Subpart H Sec. 230.70, Project impacts have been minimized as follows.

- Disposal sites have been previously used for dredged material disposal
- Disposal site sediments are compatible with the dredged material
- Hydraulic dredging with water quality protection monitoring has been selected for its minimal impact to environment compared to other dredging technologies

CONCLUSION

Based upon the results of the prior projects and the improvements incorporated into the Project, the County has provided reasonable assurance that the construction and operation of the Project, considering the direct, secondary and cumulative impacts, is not contrary to the public interest:

- Is “not contrary to the public interest”
- Will help maintain the “quasi-stable” conditions of the beach and inlet system (i.e. prior to 1980)
- Will not cause significant adverse impacts to fish and wildlife resources or will sufficiently mitigate impacts
- Will not cause significant adverse impacts to public recreation or navigation
- Will not cause significant adverse impacts to the sandy beaches or will sufficiently mitigate impacts
- Will not interfere, except during construction, with public use of the beach and inlet
- Will not interfere with riparian rights of adjacent property owners.