

**FINAL
ENVIRONMENTAL ASSESSMENT**

**Alternative Sand Source Utilization for the
Pinellas County Beach Erosion Control Project**

May 16, 2002

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1.0 PROJECT PURPOSE AND NEED

Shoreline erosion and a lowered beach profile caused by storms, wave action, and currents have become a serious concern along Pinellas County barrier island beaches. As a means of controlling shoreline erosion and providing storm protection to these barrier islands, fill material has been placed along the shorelines. The Pinellas County Beach Erosion Control Project (Project) has historically obtained beach quality fill from inlet borrow areas and the Egmont Channel Shoal for nourishment of Pinellas County beaches. Offshore and ebb tidal shoal borrow areas have been identified for future use. This Environmental Assessment evaluates the alternatives that were proposed for this project.

1.1 Project Authority

The Rivers and Harbors Act of 1966 and the subsequent Water Resources Development Act of 1986 (Public Law 99-662) authorized the beach erosion control project for Pinellas County, Florida. This Environmental Assessment (EA) has been prepared to comply with the National Environmental Policy Act (NEPA).

1.1.1 Initial Authorization

The Pinellas County Beach Erosion Control Project was authorized by Section 101 of Public Law (PL) 89-789, Rivers and Harbors Act of 1966, passed November 1966. The authorized project is described in HD 519/89/2.

1.1.2 Supplemental Appropriation

Supplemental appropriation of the Pinellas County Beach Erosion Control Project has occurred many times in the past. The *Beach Erosion Control Project Review Study and Environmental Impact Statement for Pinellas County, Florida* (1984), with revisions in December 1984, was the first re-examination of the program since its inception and was prepared in compliance with resolutions adopted 4 March 1976 by the Committee on Public Works of the United States Senate and 23 September 1976 by the Committee on Public Works and Transportation of the House of Representatives, United States. A supplemental *Limited Reevaluation Report (LRR) to the Beach Erosion Control Project Review Study* (1984) was prepared in April 1994. This LRR summarizes the results of the authorized project. Federal cost sharing of the periodic nourishment of the Treasure Island segment of the project expired in 1985. Subsequently, the Water Resources Development Act of 1986 reauthorized the project for construction and periodic nourishment for the 50-year economic life. The final document filed for the project was the *Pinellas County, Florida Beach Erosion Control Project 1st Renourishment Sand Key Segment Design Memorandum With Environmental Assessment* dated November 1996, Revised March 1997.

1.2 Project Location

The project area is located in Pinellas County on the West coast of Florida, near the central portion of the Florida peninsula, approximately 25 miles west of Tampa. The sites evaluated in this document include the nearshore and offshore areas of Sand Key, Long Key, and Treasure Island (Figure 1).

1.3 Project Need or Opportunity

Shoreline erosion and a lowered beach profile caused by storms, wave action, and currents have become a serious concern along Pinellas County barrier island beaches. As a means of controlling shoreline erosion and providing storm protection to these barrier islands fill material has been placed along the shorelines. The Pinellas County Beach Erosion Control Project has historically obtained beach quality fill from inlet borrow areas and the Egmont Channel Shoal for nourishment of Pinellas County beaches. Nine offshore borrow areas have been identified for future use. Bathymetry and side-scan sonar of nearshore marine habitats have also been performed. Marine habitats within these nearshore areas have been evaluated for occurrence and quality to facilitate minimization of impacts to these resources through beach nourishment activities utilizing the offshore and ebb tidal shoal borrow areas.

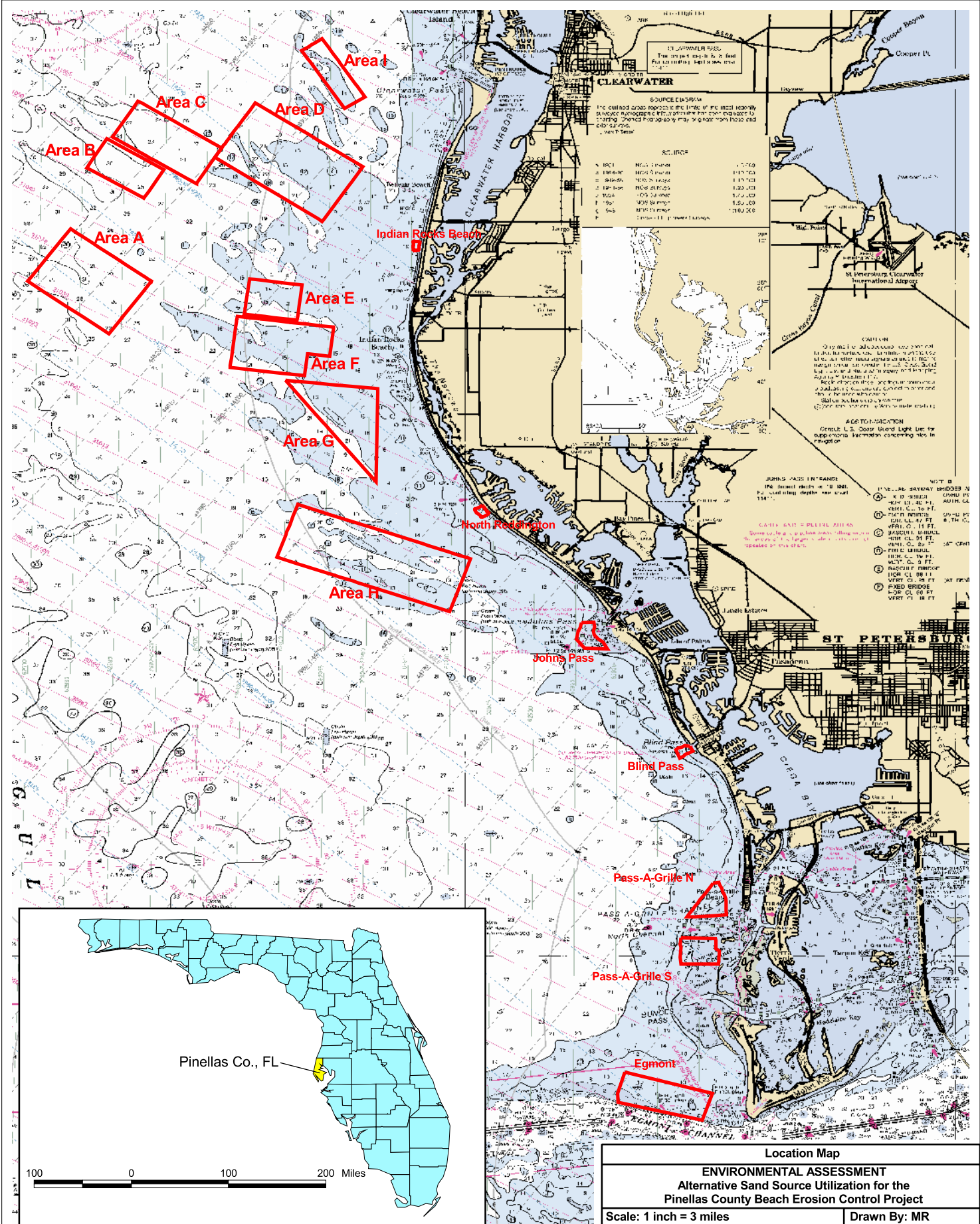
1.4 Agency Goal or Objective

1.4.1 Objective

The objective of the Preferred Alternative is to utilize sand sources closer to the project areas previously authorized for maintenance renourishment activity. The currently authorized borrow area of Egmont Channel Shoal is more than 20 miles away from the beaches authorized for renourishment. This is not always a cost effective alternative for small nourishment events. Borrow areas closer to the project areas, such as ebb tidal shoals, would significantly reduce the hauling distance, thus offering more cost effective construction options.

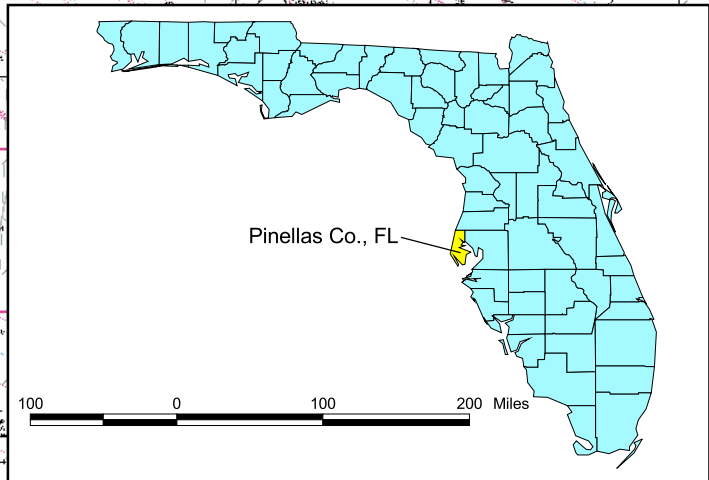
1.4.2 Preferred Alternative

The Preferred Alternative would allow the U.S. Army Corps of Engineers (Corps) to utilize the nine offshore areas and four ebb tidal shoals as potential borrow areas for future beach nourishment/renourishment activities. These borrow areas would be utilized in lieu of/in addition to the authorized Egmont Channel Shoal borrow area.



SOURCE DATA
The outlined areas represent the limits of the actual sounding survey hydrographic information that was equivalent to charting. Sounding photographs may be taken from these and other areas.

SOUNDING		
1	1981	NOI - 1981
2	1982-84	NOI - 1982-84
3	1985-86	NOI - 1985-86
4	1987-88	NOI - 1987-88
5	1989-90	NOI - 1989-90
6	1991-92	NOI - 1991-92
7	1993-94	NOI - 1993-94
8	1995-96	NOI - 1995-96
9	1997-98	NOI - 1997-98
10	1999-00	NOI - 1999-00
11	2001-02	NOI - 2001-02
12	2003-04	NOI - 2003-04
13	2005-06	NOI - 2005-06
14	2007-08	NOI - 2007-08
15	2009-10	NOI - 2009-10
16	2011-12	NOI - 2011-12
17	2013-14	NOI - 2013-14
18	2015-16	NOI - 2015-16
19	2017-18	NOI - 2017-18
20	2019-20	NOI - 2019-20
21	2021-22	NOI - 2021-22
22	2023-24	NOI - 2023-24



Pinellas County Marine Biological Survey Areas

Location Map
ENVIRONMENTAL ASSESSMENT
Alternative Sand Source Utilization for the
Pinellas County Beach Erosion Control Project

Scale: 1 inch = 3 miles	Drawn By: MR
Date: January, 2003	
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J02-582	

Figure 1



1.5 Related Environmental Documents

The following is a list of related environmental documents:

- a. *Beach Erosion Control Project Review Study and Environmental Impact Statement for Pinellas County, Florida*. USACE. July 1984 (Revised December 1984).
- b. *Limited Re-evaluation Report and Environmental Summary for Pinellas County, Florida Beach Erosion Control Project*. USACE. April 1994 (Revised August 1994).
- c. *Pinellas County, Florida Beach Erosion Control Project Feature Design Memorandum Northern Treasure Island*. USACE. April 1995.
- d. *Pinellas County, Florida Beach Erosion Control Project 1st Renourishment Sand Key Segment Design Memorandum with Environmental Assessment*. USACE. November 1996 (Revised March 1997).
- e. *Marine Biological Survey Pinellas County Shore Protection Project Comprehensive Borrow Area Survey*. Dial Cordy and Associates. February 2002. (Appendix A)
- f. *Pinellas County Shore Protection Project Comprehensive Borrow Area Study Borrow Area Resource Identification and Impact Assessment*. Dial Cordy and Associates. May 2002. (Appendix A)
- g. *Pinellas County Treasure Island and Long Key Segment Side Scan Sonar Hardbottom Mapping Survey St. Petersburg, Florida Survey No. 01-247*. Sea Systems Corporation. July 2002.
- h. *Pinellas County Sand Key Segment, Side Scan Sonar Hardbottom Mapping Survey, St. Petersburg Beach, Florida, Survey Number 01-149*. Sea Systems Corporation, August 2001. (Appendix A)

1.6 Decisions to be Made

This EA evaluates the use of the offshore areas and ebb tidal shoals to be utilized as borrow areas for the Pinellas County Beach Erosion Control Project. Included in this EA is an evaluation of alternatives associated with use of these borrow areas as compared to the currently authorized borrow area of Egmont Channel Shoal.

1.7 Scoping and Issues

1.7.1 Issues Evaluated in Detail

The following issues were identified during scoping and determined by the preparers of this EA to be relevant to the Preferred Alternative and appropriate for detailed evaluation:

- a) Functions and values of nearshore and offshore hardbottom resources.
- b) Primary, secondary, and cumulative impacts of the Preferred Alternative on hardbottom resources.
- c) Potential impacts of the Project on Essential Fish Habitat.
- d) Turbidity and sedimentation impacts to hardbottom and reef communities in the vicinity of the borrow areas.
- e) Impacts and benefits of the Project on sea turtle nesting and foraging habitat.
- f) Impact of current conditions on future public recreational use.

1.7.2 Impact Measurement

The following provides the means and rationale for measurement and comparison of impacts of the Preferred Alternative and No-Action Alternative.

1.7.2.1 Hardbottom Impacts

Alternatives will be evaluated on the basis of the potential impacts on hardbottom and reef resources in the Project area. Based on extensive experience with beach nourishment and use of offshore borrow areas in Pinellas County and other Florida beaches, impacts to hardbottom can be reasonably predicted based on proximity, currents, nature of borrow material, buffer zones, and other factors.

1.7.2.2 Sea Turtles

Alternatives are also evaluated based upon the extent to which the alternative accomplishes the Project purpose of restoring and maintaining sea turtle nesting habitat and the potential detrimental impacts of that alternative in reducing nesting habitat or interfering with nesting success.

1.7.2.3 Other Impacts

The basis for impact measurement and comparison including coastal barrier resources, offshore borrow area resources, water quality, and air quality are stated more specifically in Section 4.0, Environmental Consequences, and other sections of this document and its appendices.

2.0 ALTERNATIVES

In this section, the analysis will evaluate the Preferred Alternative and the No-Action Alternative. This section, in combination with others, is intended to provide a clear basis for choice among options available. This section provides substantial detail for the two alternatives considered so that reviewers may evaluate the comparative merits of both alternatives.

2.1 Description of Alternatives

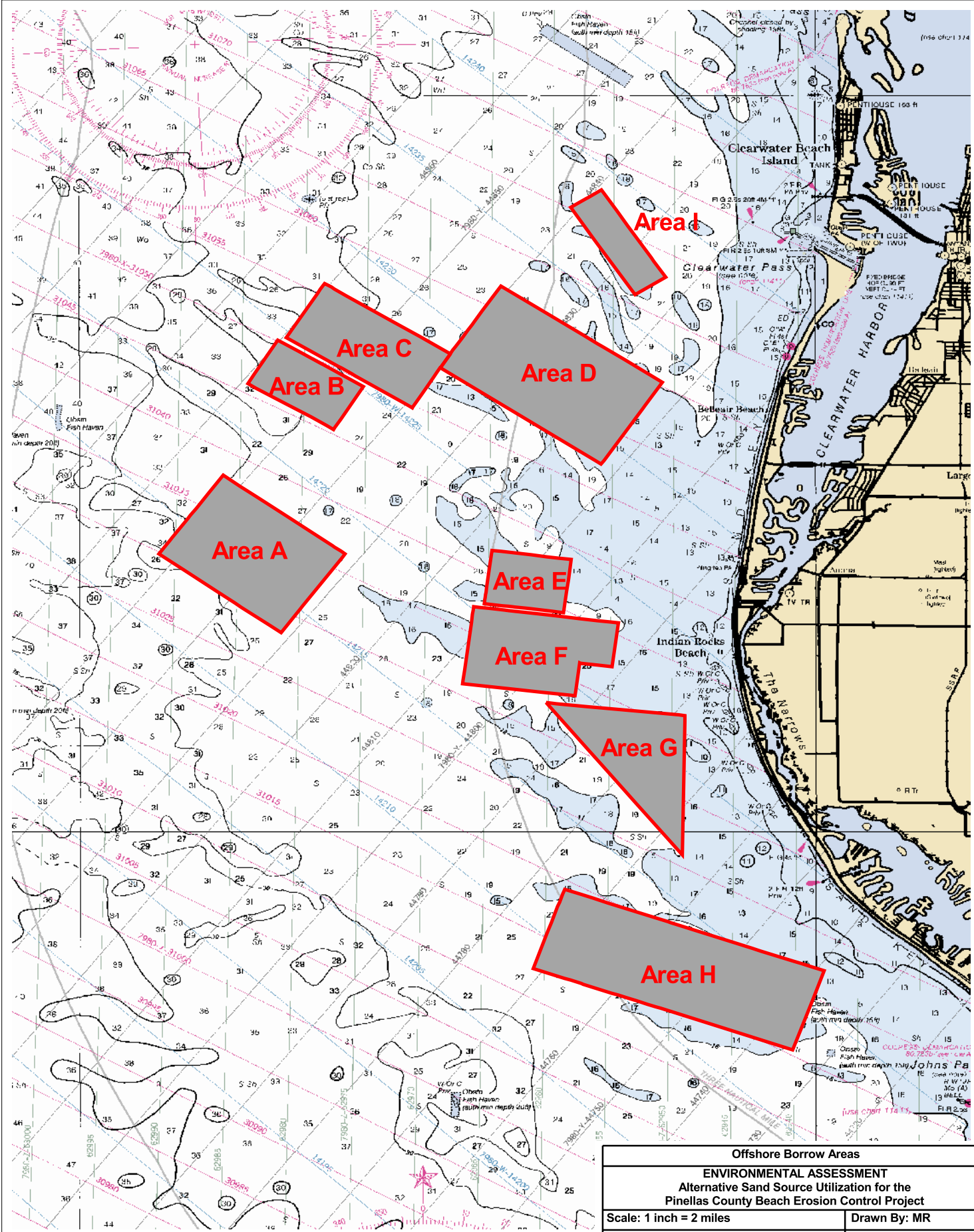
This section describes the two alternatives evaluated in this document.

2.1.1 Use of New Offshore Sand Borrow Areas (Preferred Alternative)

The Preferred Alternative would involve the use of nine offshore borrow areas and four ebb tidal shoals (Figures 2 and 3) as a supply of material for renourishment activities along the shoreline of Pinellas County. The utilization of these offshore borrow areas would allow for sand sources closer to the project areas located on Sand Key, Treasure Island, and Long Key. This would make nourishment and renourishment activities associated with the Pinellas County Beach Erosion Control Project more cost effective by shortening the distance material is moved prior to beach placement and allowing for a variety of dredging methods to be employed. The Pass-a-Grille channel area has also been mapped and beach quality sand from the channel or ebb tidal shoals may also be utilized (Figure 4). Environmental surveys and preliminary impact analysis of the offshore borrow areas, ebb tidal shoals, and nearshore pipeline corridors and staging areas are located in Appendix A.


2.1.2 No-Action Alternative (Status Quo - Continued Use of Egmont Channel Shoal)

The No-Action Alternative would not result in any changes to the current shore protection measures in place within Pinellas County. The authorized borrow area for the current project is the Egmont Channel Shoal. This shoal area has enough material to supply the current needs of the authorized project. However, the distance from Egmont Channel Shoal to the beaches in need of nourishment or renourishment project makes the use of this area cost prohibitive. Projects along the northern reaches of Pinellas County require that contractors move material needed for the project over 20 miles. This limits the methods that contractors can use, and also increases costs because of the long travel distance with fill material.



 Offshore Borrow Areas



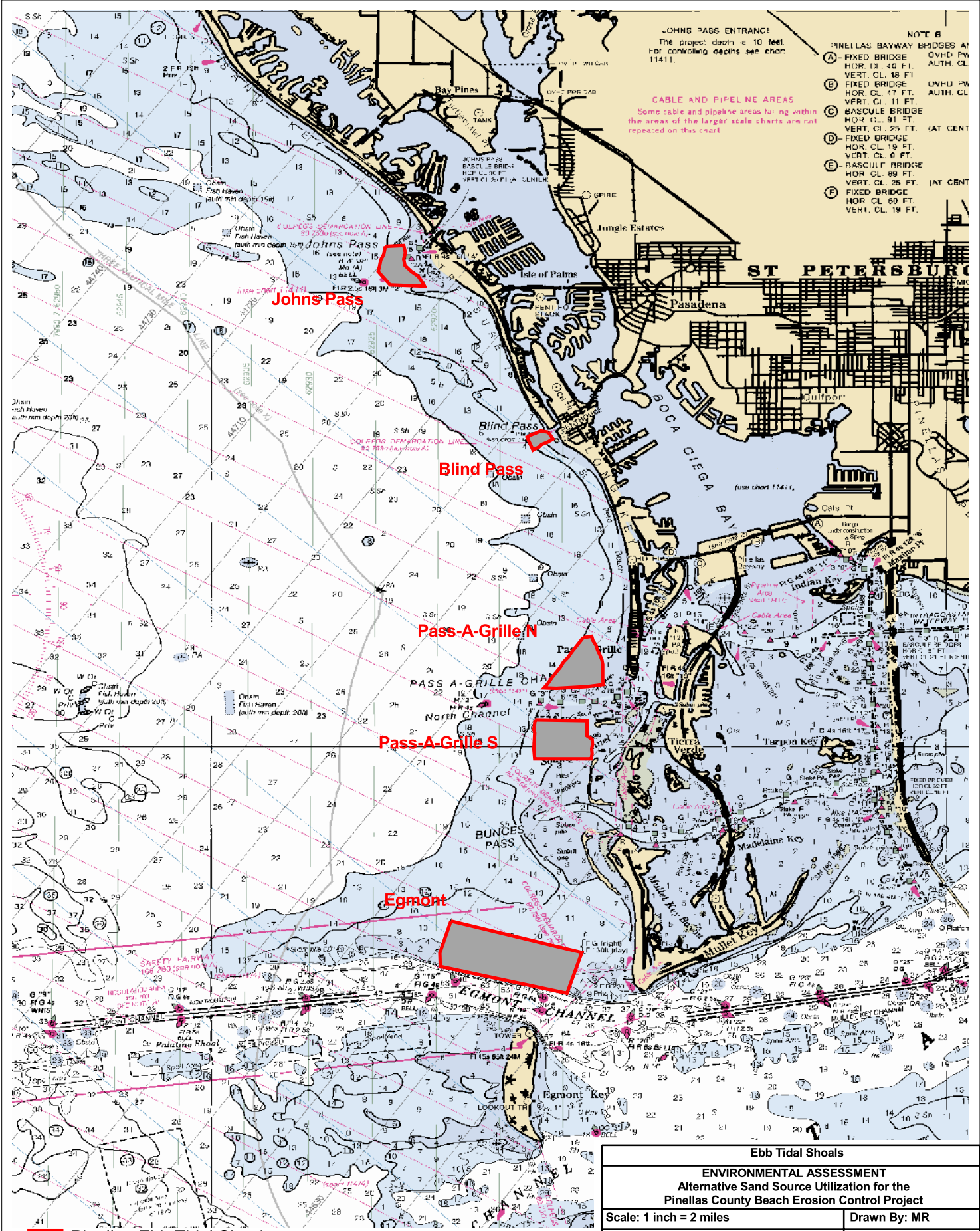
Offshore Borrow Areas ENVIRONMENTAL ASSESSMENT Alternative Sand Source Utilization for the Pinellas County Beach Erosion Control Project	
Scale: 1 inch = 2 miles	Drawn By: MR
Date: January, 2003	
	
Environmental Consultants	
J02-582 Figure 2	

JOHNS PASS ENTRANCE
The project depth is 10 feet.
For controlling depths see chart 11411.

NOTE B

- A) FIXED BRIDGE
HOR. CL. 40 FT.
VERT. CL. 18 FT.
- B) FIXED BRIDGE
HOR. CL. 47 FT.
VERT. CL. 11 FT.
- C) BASCULE BRIDGE
HOR. CL. 91 FT.
VERT. CL. 25 FT. (AT CENT.)
- D) FIXED BRIDGE
HOR. CL. 19 FT.
VERT. CL. 9 FT.
- E) BASCULE BRIDGE
HOR. CL. 89 FT.
VERT. CL. 25 FT. (AT CENT.)
- F) FIXED BRIDGE
HOR. CL. 50 FT.
VERT. CL. 19 FT.

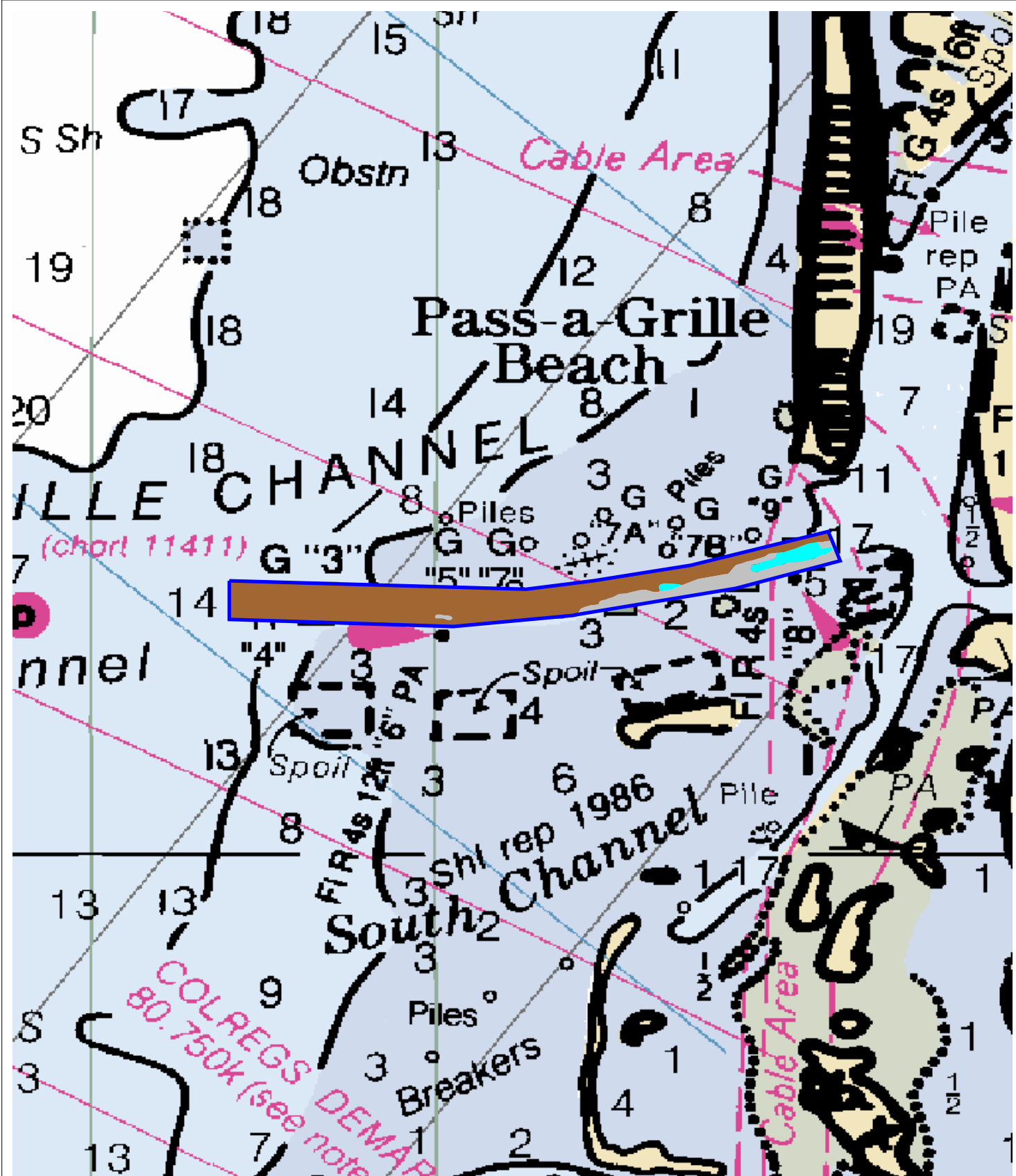
CABLE AND PIPELINE AREAS
Some cable and pipeline areas for lying within the areas of the larger scale charts are not repeated on this chart.



Pinellas Ebb Tidal Shoals


Ebb Tidal Shoals	
ENVIRONMENTAL ASSESSMENT Alternative Sand Source Utilization for the Pinellas County Beach Erosion Control Project	
Scale: 1 inch = 2 miles	Drawn By: MR
Date: January, 2003	
DIAL CORDY AND ASSOCIATES INC. Environmental Consultants	
	J02-582
	Figure 3





Survey Area for Corridors and Nearshore Staging Areas
 Nearshore Resource Map
 Sand
 Shell Hash
 Patchy Hardbottom / Low Relief



Pass-A-Grille ENVIRONMENTAL ASSESSMENT Alternative Sand Source Utilization for the Pinellas County Beach Erosion Control Project	
Scale: 1 inch = 2,000 feet	Drawn By: MR
Date: January, 2003	
 DIAL CORDY AND ASSOCIATES INC. Environmental Consultants	
	J02-582
	Figure 4

2.2 Comparison of Alternatives

A direct comparison of the two alternatives proposed for evaluation in this document is shown in Table 1.

Table 1 Comparison of Alternatives

Resource	No-Action Alternative	Preferred Alternative
Sediment Characteristics	The native sediment characteristics and that of the borrow area will remain unchanged.	The native sediment characteristics will be maintained, with only minor variations in shell content and color.
Protected Species	<p>No impacts to threatened and endangered species are expected as most of the construction activities are scheduled outside of the nesting season of sea turtles.</p> <p>Any construction scheduled during the nesting season will include a program to allow for nest relocation in accordance with state and federal guidelines.</p> <p>The additional beach area will increase sea turtle nesting habitat. The preferred alternative will also enhance the potential nesting and foraging areas of shorebirds.</p>	<p>No impacts to threatened and endangered species are expected as most of the construction activities are scheduled outside of the nesting season of sea turtles.</p> <p>Any construction scheduled during the nesting season will include a program to allow for nest relocation in accordance with state and federal guidelines.</p> <p>The additional beach area will increase sea turtle nesting habitat. The preferred alternative will also enhance the potential nesting and foraging areas of shorebirds.</p>
Hardbottom Resources	No Impact	No impacts to hardbottom resources within the borrow areas will occur. Impact to hardbottom resources within the pipeline corridors only. Impacts to hardbottom resources within the pipeline corridors will be mitigated through the construction of artificial reefs in similar depths to the areas impacted.
Benthic Habitat	Temporary impacts to infaunal communities within the Egmont Channel Shoal borrow area and beach fill area.	Temporary impacts to infaunal communities within the offshore borrow area and beach fill area.

Resource	No-Action Alternative	Preferred Alternative
Essential Fish Habitat	Temporary impacts would include displacement of fishes from nearshore areas during dredging and fill placement, temporary reduction of water quality due to turbidity, and decreased primary productivity until the completion of nourishment.	Temporary impacts would include displacement of fishes from nearshore areas during dredging and fill placement, temporary reduction of water quality due to turbidity, and decreased primary productivity until the completion of nourishment.
Coastal Barrier Resource Units (CBRU)	No impact	No impact
Hazardous, Toxic, and Radioactive Waste	No impact	No impact
Air Quality	No impact	No impact
Noise	A temporary increase in the noise level during construction in the vicinity of the discharge point on the beach will occur.	A temporary increase in the noise level during construction in the vicinity of the discharge point on the beach will occur.
Aesthetic Resources	Construction of the beach fill project will benefit aesthetic resources through increased beach width, vegetated habitat, and dune enhancement.	Construction of the beach fill project will benefit aesthetic resources through increased beach width, vegetated habitat, and dune enhancement.
Recreation	The improved beaches will provide enhanced opportunities for recreational activities. During nourishment activities, the use of the beach in the immediate vicinity of construction would be temporarily restricted for public safety.	The improved beaches will provide enhanced opportunities for recreational activities. During nourishment activities, the use of the beach in the immediate vicinity of construction would be temporarily restricted for public safety.
Navigation	No impact	No impact
Cultural Resources	No impact expected	No impact expected

2.3 Mitigation

Mitigation for any hardbottom impacts associated with construction of projects associated with the Pinellas County Beach Erosion Control Project will be based on surveys conducted to map and assess conditions present in the construction area. New impacts to hardbottom resources within specific areas will be mitigated by the placement of artificial reefs similar to

those used for mitigation in prior projects within Pinellas County. Pinellas County has an organized artificial reef program which uses concrete and limestone boulders for the creation of artificial reefs. The artificial reefs will be created as necessary and placed to provide similar habitat to the habitat that was lost. It is proposed that these reefs will be monitored twice a year (seasonally) for two years for recruitment and their overall success at providing similar habitat. This monitoring will be done in conjunction with the current Pinellas County artificial reef program. The Florida Department of Environmental Protection (DEP), Corps, and Pinellas County will agree upon the details of the monitoring plan prior to implementation.

3.0 AFFECTED ENVIRONMENT

This section describes those environmental resources that are relevant to the decision to be made. It does not describe the entire existing environment, but only those resources that would affect or that would be affected by the alternatives if they were implemented. This section forms the baseline conditions for determining the environmental impacts of the Project.

3.1 Coastal Environment

The project area is the Gulf of Mexico coastline in Pinellas County, Florida. Pinellas County has a subtropical climate and experiences an average annual rainfall of 53 inches per year. Damaging storms with winds up to hurricane strength occur during fall, winter, and spring. Seven elongated, low-profile islands roughly parallel the mainland. The beaches along these barrier islands are subject to very stressful and dynamic conditions. Typically these habitats have very low species diversity because of the harshness of the environment. The beaches of these seven islands provide feeding areas for aquatic animals and potential sea turtle nesting habitat. These beaches are being eroded at varying rates by winds, waves, and currents.

3.2 Sediment Characteristics of Borrow Areas and Beach

Core boring and sampling have been performed for the Pinellas County Beach Erosion Control Project since 1960. A detailed description of the history of the sampling and testing for this project is contained in the project General Design Memorandum, Addendum IV, and also in the 1st Renourishment Sand Key General Design Memorandum (USACE, 1984; 1996).

3.2.1 Grain Size of Borrow Areas Sediment

The U.S. Geological Survey, Center for Coastal Geology, initiated a West-Central Florida Coastal Erosion Study in 1993, to establish a baseline of coastal information to be used in management decisions. During these surveys, the offshore borrow areas and ebb tidal shoals outlined in this EA were investigated. Side-scan sonar, core boring and grain size analysis were performed (USACE, 1996; EMC, 1998; Sea Systems, 2001; Sea Systems, 2002). Grain sizes of sediments within the offshore borrow areas ranged from 0.23 mm to 0.36 mm with a composite grain size of 0.29 mm for all the offshore borrow areas.

3.2.2 Grain Size of Beach sediment

Native beach sediments within the areas scheduled for nourishment and renourishment have been investigated and monitored many times in the past (USACE, 1996). The most current post construction monitoring of nourished beaches in Pinellas County has mean grain sizes ranging from 0.29 mm to 0.32 mm. Beaches that have never undergone any nourishment tend to have mean grain sizes between 0.19 mm to 0.29 mm (USACE, 1996).

3.2.3 Suitability of Sediments

Comparisons of sediments from the offshore borrow areas and ebb tidal shoals has been previously conducted by the Corps (USACE, 1996). Sediments within the offshore borrow areas and ebb tidal shoals have characteristics similar to those of native sediments and from the previously approved borrow area of Egmont Channel Shoal.

3.3 Threatened and Endangered Species

This section describes the biology of protected species potentially affected by the Preferred Alternative.

3.3.1 Sea Turtles

Four species of sea turtle commonly occur within the area around Pinellas County (Meylan, et al., 1999; EPA, 1981). These are the loggerhead (*Caretta caretta*), green (*Chelonia mydas*), Kemp's ridley (*Lepidochelys kempii*), and the hawksbill (*Eretmochelys imbricata*). The loggerhead is listed as threatened and the other three species are listed as endangered. Loggerhead turtles represent most of the sea turtles present in the Tampa Bay area. Data collected on sea turtle nesting in the area shows that the majority of the nests within this area consist of loggerhead nests (Table 2). Of the 279 nests observed on Pinellas County beaches in 2000, 278 were loggerhead nests. The only other nesting activity reported was one green turtle nest. All turtles observed during this survey were loggerhead turtles which were seen with regular consistency while conducting the survey. Stranding records within the Pinellas County area also confirmed that loggerhead turtles are the most numerous species. During this survey, a dead loggerhead was discovered and reported to the Florida Marine Research Institute (FMRI) stranding network.

Table 2 Summary of Loggerhead Sea Turtle Nesting From 1988-2000

Year	Beach Length Surveyed	Number of Nests
1988	69.5	56
1989	63.2	92
1990	62.1	144
1991	67.3	175
1992	63.3	142
1993	42.7	105
1994	52.6	138
1995	58.8	229
1996	49.1	223
1997	58.8	181
1998	52.3	233
1999	62.6	172
2000	62.6	279

Source: Florida Marine Research Institute, 2001

3.3.2 Marine Mammals

The Gulf of Mexico is within the range of the West Indian manatee (*Trichechus manatus*), and up to 28 cetacean species. Marine mammals commonly present within the waters nearshore and offshore the project area include manatee and bottlenose dolphin. Bottlenose dolphins were commonly observed while conducting this survey. As many as 15 dolphins were observed at one time in the areas adjacent to the offshore borrow areas. Weigle (1990) documented that at least three distinct herds of dolphin are common within the Lower Tampa Bay area. This includes as many as 246 individual animals. Many of the dolphins observed by Weigle may have been transient in nature. However, 75 individuals were observed on more than one occasion.

West Indian manatees also utilize habitats within the project area. Manatees inhabit both fresh and saltwater and may be encountered in canals, rivers, estuaries, bays, and on rare occasion have been observed as far as 6 km off the Florida Gulf coast (USFWS, 1996). Aerial surveys indicate that as many as 190 manatees may use Tampa Bay (Ackerman, 1995). Surveys show that over 900 manatees inhabit the west coast of Florida. The highest concentrations of manatees along Florida's Gulf coast exist in Citrus, Levy, Lee, and Collier Counties. Data suggest that of the manatees living in the Tampa Bay area, most occur within the bay where water temperatures are more stable year round. During aerial surveys in 1992, only 15 manatees were surveyed in the eastern portion of Tampa Bay (Ackerman, 1995). Examination of the manatee mortality data for Pinellas and Hillsborough Counties shows that from January 2000-October 2001 a total of 27 manatee deaths were reported. The majority of these deaths involved perinatal, cold stress, or other natural causes.

3.3.3 Other Species

The gulf sturgeon (*Acipenser oxyrinchus desoti*) may also be present in the project area. Current information on the range and distribution of the gulf sturgeon in the areas offshore of Pinellas County is not available, however.

3.4 Fish and Wildlife Resources

3.4.1 Offshore Sand Bottom Communities

Softbottom habitats include areas with little or no rock, limestone, or hard coral structure, and comprise mostly sand, mud, and silt substrates. Where sand is the primary substrate, and vegetation is lacking, the most diverse portion of biota occupying these communities is the benthic infauna. The most consistent fauna within these communities are several taxa of polychaetes, oligochaetes, mollusks, sipunculans, peracarid crustaceans, platyhelminthes, and nemerteans. Other frequent occupants of these habitats include demersal fish (e.g., flounders), bivalves, decapod crustaceans, and certain shrimp.

3.4.2 Hardbottom Communities

The area surveyed included areas offshore of Pinellas County, Florida. These potential borrow areas exist in water depths from seven to ten meters. Lyons and Collard (1974) describe these communities as areas of moderate wave energy with quartz sand and shell fragment sediments extending offshore. Large temperate mollusks and echinoderms tend to be the dominant faunal elements. In areas over 10 meters in depth, exposed rock substrate allows for the establishment of scleractinian, molluscan, crustacean, tunicates, and other species more common to shallower waters of south Florida (Smith, 1974; Lyons and Collard, 1974). Quartz sands, with biologically influenced carbonates present, also dominate the sediments within this area.

3.4.2.1 Marine Algae

The marine algae present within the areas offshore of Pinellas County are extremely diverse. Phillips, et al. (1960) identified 95 taxa of algae within areas of similar depth in this area. Dominant algal species observed during this and other studies include *Caulerpa* sp., *Halimeda* sp., *Udotea flabellum*, *Sargassum* sp., and *Rhizocephalus phoenix* (Phillips, et al., 1960; EPA, 1981; CZR, 1991).

3.4.2.2 Invertebrates

Benthic invertebrates associated with livebottom habitats along the eastern Gulf of Mexico include scleractinian, molluscan, crustacean, tunicates, octocoral, echinoderm, and poriferan species. Many of these species are similar to species found in the more tropical waters of the Caribbean and south Florida reef tract. Lyons and Collard (1974) characterized the shallow shelf habitat offshore of Pinellas County as an area with sediments dominated by quartz sand and biogenically derived carbonates with exposed rock substrate. This substrate provides habitat for scleractinian, molluscan, crustacean and other invertebrate species.

Previous studies have identified species common to habitats offshore of Pinellas County (EPA, 1981; CZR, 1991; Child, 1992; Posey, et. al, 1996). The species listed in these previous studies compares closely to species observed during this survey (Table 3). In total, over 40 dominant invertebrates species were observed from the diver and video surveys. There are many more cryptic and less obvious species present within these complex habitats.

Table 3 Dominant Invertebrate Species Observed During Borrow Area Surveys

Scientific Name	Common Name
Sponges	
<i>Cribrochalina vasculum</i>	Brown Bowl Sponge
<i>Xestospongia muta</i>	Giant Barrel Sponge
<i>Spheciospongia vesparium</i>	Loggerhead Sponge
<i>Ircinia sp.</i>	Ball Sponge
<i>Calyx podatypa</i>	Dark Volcano Sponge
<i>Anthosigmella varians</i>	Brown Variable Sponge
<i>Amphimedon compressa</i>	Erect Rope Sponge
Scleractin Corals	
<i>Cladocora arbuscula</i>	Tube Coral
<i>Stephanocoenia mitchelini</i>	Blushing Star Coral
<i>Isophyllia sinuosa</i>	Cactus Coral
<i>Siderastrea sp.</i>	Starlet Coral
<i>Solenastrea hyades</i>	Knobby Star Coral
<i>Scolymia lacera</i>	Mushroom Coral
<i>Phyllangia americana</i>	Hidden Cup Coral
<i>Manicina aereolata</i>	Rose Coral
<i>Montastrea annularis</i>	Boulder Star Coral
<i>Oculina robusta</i>	Robust Ivory Tree Coral
<i>Millepora alcicornis</i>	Branching Fire Coral
Octocorals	
<i>Eunicea succinea</i>	Shelf-knob Sea rod
<i>Eunicea calyculata</i>	Warty Sea Rod

Scientific Name	Common Name
<i>Plexaurella nutans</i>	Giant Slit-Pore Sea Rod
<i>Muricea laxa</i>	Delicate Spiny Sea Rod
<i>Muricea elongata</i>	Orange Spiny Sea Rod
<i>Pseudoterogorgia sp.</i>	Sea Plume
<i>Pterogorgia citrina</i>	Yellow Sea Whip
<i>Leptogorgia virgulata</i>	Colorful Sea Whip
<i>Pseudoceratina crassa</i>	Branching Tube Sponge
Echinoderms	
<i>Linckia guildingii</i>	Common Comet Star
<i>Astropecten articulatus</i>	Beaded Sea Star
<i>Echinaster spinulosus</i>	Orange-Ridged Sea Star
<i>Luidia clathara</i>	Striped Sea Star
<i>Luidia sp.</i>	Sea Star
<i>Luidia alternata</i>	Banded Sea Star
<i>Echinometra lucunter</i>	Rock-boring Urchin
<i>Lytechinus variegates</i>	Variiegated Urchin
Mollusks	
<i>Pinna carnea</i>	Penshell
<i>Charonia variegata</i>	Tritons Trumpet
<i>Busycon contrarium</i>	Lightning Whelk
<i>Pleuroploca gigantean</i>	Florida Horse Conch
Crustaceans	
<i>Menippe mercenaria</i>	Florida Stone Crab
Tunicates	
<i>Clavelina sp.</i>	Colonial tunicates
Family Didemnidae	Overgrowing Tunicates
<i>Eudistoma sp.</i>	Condiminium Tunciate

The most obvious feature of the hardbottom habitats in the eastern Gulf of Mexico include the octocorals, sponges, and scleractinian corals. Eight species of octocoral were observed (e.g. *Eunicea succinea*, *Eunicea calyculata*, *Pterogorgia citrina*, etc.), as well as, 11 species of scleractinian (hard) corals (e.g. *Cladocora arbuscula*, *Solenastrea hyades*) (Table 3). Poriferian species are also one of the dominant phyla present within the hardbottom habitats. Eight species of sponges were identified within the project area and, of these, the loggerhead (*Spheciospongia vesparium*) and barrel sponges (*Xestospongia muta*) were the most obvious. Other sponges common to these hardbottom habitats included *Ircinia sp.*, *Cribrochalina vasculum*, and *Anthosigmella varians*.

Typical epifaunal species observed during this survey include *Astropecten articulatus*, *Luidia clathara*, *Busycon contrarium*, and *Pleuroploca gigantean*. CZR (1991) and EPA (1981) also found these species to be some of the most common encountered. Sediments within the area consist of sand to shelly sand that support benthic invertebrate communities. In the EPA (1981) study, dominant species in these habitats included sand dollars (*Encope emarginata*),

Luidia sp., and *Enchinocardium cordatum*. Similar species were observed during this study. Benthic sampling conducted during past surveys also shows that polychaetes, oligochaetes, pycnogonids, bivalves, and arthropods are the dominant taxa collected in these habitats (CZR, 1991; Child, 1992; Posey, et al., 1996).

3.4.3 Essential Fish Habitat (EFH)

The Gulf of Mexico Fisheries Management Council (GMFMC) (1998) has designated unvegetated bottom and water column areas within the project area as EFH, in compliance with the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801-1882), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267). A complete EFH assessment is located in Appendix B. A summary of that assessment is included here. Managed species that commonly inhabit the project area are shown in Table 4.

Table 4 Managed Species Commonly Occurring Within the Project Area

Common Name	Scientific Name
Juvenile Red Snapper	<i>Lutjanus campechanus</i>
Cobia	<i>Rachycentron canadum</i>
King mackerel	<i>Scomberomorus cavalla</i>
Bluefish	<i>Pomatomus saltatrix</i>
Dolphin	<i>Coryphaena hippurus</i>
Red Drum	<i>Sciaenops ocellatus</i>
Brown shrimp	<i>Penaeus aztecus</i>
Pink Shrimp	<i>P. duorarum</i>
White Shrimp	<i>P. setiferus</i>

Source: Gulf of Mexico Fisheries Management Council 1999

The Gulf of Mexico in this region also provides essential forage, cover, and nursery habitats for other species that are important commercially and recreationally. These include the blue crab (*Callinectes sapidus*), flounder (*Syacium* sp.), and mullet (*Mugil* sp.), as well as prey species, such as the longspine porgy (*Stenotomus caprinus*) and dwarf goatfish (*Upeneus parvus*) (Hammer, et al., 2000). A summary of managed species and their seasonal occurrence within the area is shown in Table 5.

Table 5 Species Managed by the Gulf of Mexico Fishery Management Council

Species	Seasonal Occurrence	Habitat Affinity
Brown Shrimp (<i>Penaeus aztecus</i>)	Adults- Year Round	Soft Bottom
Pink Shrimp (<i>Penaeus duorarum</i>)	Adults-Year Round	Soft Bottom
White Shrimp (<i>Penaeus setiferus</i>)	Adults-Year Round Spawning -March to October	Soft Bottom
Stone Crab (<i>Menippe mercineria</i>)	Adults-Year Round	Soft Bottom
Gag (<i>Mycteroperca microlepis</i>)	Adults-Year Round	Hard Bottom
Scamp (<i>Mycteroperca phenax</i>)	Adults-Year Round	Hard Bottom
Cobia (<i>Rachycentron canadum</i>)	Adults-Summer	Water Column
Red drum (<i>Sciaenops ocellatus</i>)	Adults-Year Round Spawning-Fall and Winter	Soft Bottom
Greater amberjack (<i>Seriola dumerilli</i>)	Adults-Year Round	Hard Bottom
Red snapper (<i>Lutjanus campechanus</i>)	Juveniles-Year Round	Soft Bottom
Lane snapper (<i>Lutjanus synagris</i>)	Adults-Year Round	Hard Bottom
King Mackerel (<i>Scomberomorous cavalla</i>)	Adults-Year Round	Water Column
Spanish mackerel (<i>Scomberomorous maculatus</i>)	Adults-Year Round	Water Column

Source: Gulf of Mexico Fishery Management Council, 1998.

3.5 Coastal Barrier Resources

Congress passed the Coastal Barrier Resources Act (CBRA) in 1982 to address problems caused by coastal barrier development. This Act defined a list of undeveloped coastal barriers along the Atlantic and Gulf coasts. No designated coastal barrier resources have been identified within the project work area. The proposed borrow sites all lie outside of the adjacent designated Coastal Barrier Resources Areas.

3.6 Water Quality

The waters in the project area are used for swimming, SCUBA diving, fishing, boating, and other recreation. The State of Florida lists the area's waters as Class III, suitable for recreation

and the propagation of fish and wildlife. Section 401 Water Quality Certification will be obtained by the County prior to any construction activities.

3.7 Hazardous, Toxic, and Radioactive Waste

The coastline within the project area is located adjacent to predominately residential, commercial, and recreational areas. The project area contains high energy littoral zones and the material used for nourishment are composed of particles with large grain sizes that do not normally absorb contaminants. No contamination due to hazardous and toxic waste spills is known to be in the project area. Past dredging of the Blind Pass Shoal has produced traces of oil contained within this area. Any dredging of the Blind Pass Shoal would require further geotechnical investigations to insure no contamination is present.

3.8 Air Quality

Air quality in the project area is good due to either on or offshore breezes. Pinellas County is designated as an air quality maintenance zone for the pollutant ozone.

3.9 Noise

Ambient noise levels in the area are low to moderate. The major noise producing sources are breaking surf and the adjacent commercial and residential areas. These sources are expected to remain at their present noise levels.

3.10 Aesthetic Resources

The coastline of Pinellas County possesses visually pleasing attributes including the waters of the Gulf of Mexico and existing beaches. The nourishment of the beach will maintain the natural appearance of the protective beach along the Gulf.

3.11 Recreation Resources

Pinellas County is a heavily populated county on Florida's Gulf Coast, which receives a tremendous volume of tourists, particularly in the winter months. Those beaches, which can be accessed by the general public, are heavily used year round. Those beaches, which are in the proximity of condominiums, apartments, and hotels, have more restricted use. The location of proposed projects includes many miles of beach in Pinellas County. The continued maintenance of these beach resources is important for the economy of the area.

3.12 Cultural Resources

The Pass-A-Grill channel borrow area is being investigated by underwater archeologists. Results of their investigation will be coordinated with the Florida State Historic Preservation Office in accordance with Section 106 of the National Historic Preservation Act, as amended.

4.0 ENVIRONMENTAL EFFECTS

This section summarizes changes that may occur to the existing environment including direct, indirect, and cumulative effects and compares these effects for the No-Action Alternative and Preferred Alternative.

4.1 Coastal Environment

The placement of sand on the beach would restore some of the beach's ability to provide storm protection. No changes in wind, tides, or waves are expected from either the No-Action Alternative or the Preferred Alternative.

4.2 Sediment Characteristics of Borrow Areas and Beach

The physical composition of the material located within the nine offshore borrow areas and the four ebb tidal shoals have similar characteristics. Geotechnical investigations of these potential borrow areas reveals similar grain sizes and composition to material currently in place on Pinellas County's beaches. Full geotechnical analysis for the borrow areas is contained in the *Pinellas County, Florida Beach Erosion Control Project 1st Renourishment Sand Key Segment Design Memorandum*, Appendix A (1996, Revised 1997).

4.3 Threatened and Endangered Species

Potential impacts to threatened and endangered species for each alternative are compared in this section.

4.3.1 Sea Turtles

4.3.1.1 Preferred Alternative

The Preferred Alternative and associated activities may have the potential to impact sea turtles. The utilization of offshore borrow areas may impact sea turtles depending on the methods employed by contractors during construction. The use of hopper dredges within the offshore borrow areas may entrain sea turtles during construction. Deflector dragheads may be used during construction to decrease the likelihood of entrainment should this method be utilized. NMFS has included the borrow areas for this project in their Regional Biological Opinion for Hopper Dredge Use on the Gulf Coast (RBO) (Appendix E).

Beach characteristics following placement of material from the offshore areas may also impact sea turtles. Scarp development, moisture levels, and compaction are all effects that may alter nesting success following construction. Monitoring of the beach characteristics following construction would be necessary to minimize any impacts associated with placement of this material on the beach. Important physical characteristics (grain size, color, silt content etc.) of the material to be placed are similar to those of the native beach and should not adversely affect sea turtle populations.

4.3.1.2 No-Action Alternative

The No-Action Alternative would have similar effects to those described in Section 4.3.1.1. The use of Egmont Channel Shoal would require the use of hopper dredge techniques and shoreline construction equipment would be similar. Precautions and monitoring of beach characteristics (i.e. scarp formation, compaction) would also need to be accomplished following construction.

4.3.2 West Indian Manatee

4.3.2.1 Preferred Alternative

The Preferred Alternative should have no impact on the West Indian manatee. Manatees are infrequent visitors to the offshore areas of Pinellas County. The use of dredges and construction equipment associated with placement with sand on the beach should not directly or indirectly impact manatee populations in the area. Protective measures would be taken during dredging to insure that no manatees will be harmed due to construction activity. Section 5, Environmental Commitments, outlines some of the measures to be taken. Additionally, the contractor would supply the Corps with an Environmental Protection Plan prior to construction.

4.3.2.2 No-Action Alternative

The No-Action Alternative would also not affect manatee populations within the area. Previous environmental documents for beach nourishment projects in Pinellas County determined no impact to the manatee would occur (USACE, 1984; USACE, 1996).

4.3.3 Other Species

4.3.3.1 Preferred Alternative

The gulf sturgeon may be affected by implementation of the Preferred Alternative. No reliable data exists for distribution and abundance of the gulf sturgeon for the areas offshore of Pinellas County. Direct impacts leading to the take of sturgeon during construction are unlikely and should any impacts occur, the NMFS should be contacted immediately. Indirect impact to sturgeon moving from areas where construction is taking place may occur and would be short-term and temporary.

4.3.3.2 No-Action Alternative

Similarly, the No-Action Alternative may affect gulf sturgeon populations in the area. Impacts would be short term and temporary and should have no lasting effects on the gulf sturgeon population of Pinellas County.

4.4 Fish and Wildlife Resources

4.4.1 Sand Bottom Communities

4.4.1.1 Preferred Alternative

Dredging of the offshore borrow areas to construct the beach fill project would have temporary impacts to the benthic infaunal communities. Benthic infauna should be expected to start re-colonizing these areas within days of the end of dredging. Previous studies have shown dredging to have little long-term adverse effects on benthic habitats (Culter and Mahadevan, 1982; Saloman, et al., 1982; Hammer, et al., 2000). Care should be taken not to construct an abrupt pit in the bottom and efforts shall be made to dredge a cut with shallow sloping sides. This would help aid in the re-colonization of benthic organisms. Barry A. Vittor and Associates, Inc. (1999) found that the amount of silt/clay present within sediments and the location offshore can also affect recovery time of benthic infauna. Since very little fine material (silt/clay) is present within the borrow area, recovery should occur rapidly for this project. Infaunal assemblages within the project area should become re-established within one to two years following dredging.

4.4.1.2 No-Action Alternative

The Egmont Channel Shoal borrow area is believed to support organisms similar to the benthic organisms found offshore along the project area. Species of non-motile infaunal invertebrates, as well as, epifaunal invertebrates may inhabit this ebb shoal borrow area. These communities would be impacted during construction and the impacts and recovery of these communities would be similar to the effects described in Section 4.4.1.1 regarding impacts to the proposed offshore borrow areas.

4.4.2 Hardbottom/Livebottom Communities

4.4.2.1 Preferred Alternative

Hardbottom impacts associated with the Preferred Alternative would be limited to impacts associated with pipeline placement in the surveyed pipeline corridors and staging areas (Dial Cordy, 2001a; Dial Cordy, 2001b; Dial Cordy, 2002). No impacts are anticipated within the offshore borrow areas. Exclusionary buffers (200 feet) have been established around all documented hardbottom features within the proposed borrow areas to eliminate any direct or indirect impacts to these features from dredging activities. Any impacts to hardbottom/livebottom resources within the pipeline and staging areas from dredging equipment placement would be determined from surveys conducted during construction and mitigation in the form of artificial reef creation will be performed.

4.4.2.2 No-Action Alternative

The No-Action Alternative would lead to no new hardbottom impacts. Impacts would be limited to those previously discussed in prior environmental documents and mitigated for during previous projects (USACE, 1984; USACE, 1996).

4.4.3 Essential Fish Habitat

4.4.3.1 Preferred Alternative

Impacts to EFH within the project area would be temporary in duration. Most of the direct impacts to EFH within the area would be due to water quality changes during dredging and removal of material from the borrow area. These impacts would be localized and temporary. Localized impacts to the water column would include increased turbidity that would reduce light penetration and affect phytoplankton production and zooplankton activity. Sediments disturbed during dredge and fill activities would settle on adjacent habitats, causing some

stress to these communities. Effects on local biota should be minor because these species are relatively tolerant of periodic water quality fluctuations. Loss of benthic infauna during dredging and increased turbidity during the dredging process would temporarily impact fishes within the area. The complete EFH analysis can be found in Appendix B

Short-term effects of dredging and construction would also affect populations of benthic organisms that serve as prey for EFH species and migratory species traveling through the area. Noise from the dredging activities may also cause fishes to move from the area. These temporary impacts may also alter the paths of migratory fishes and baitfish. Although this foraging and migratory habitat would not be available to these species, this effect would be minimal due to the relatively small size of the area involved in construction when compared to the total area available for foraging in the adjacent areas. These effects should not be significant and fishes should move back into the area shortly following the dredging activity.

Other impacts to EFH species within the area would include impact to larval fishes in the water column. These larval fishes may become entrained in the dredge during construction. The majority of larval fishes encountered would depend on the season and location of suction devices. In particular, those species that occur near the lower portions of the water column may be the most affected (Hammer and Zimmerman, 1979). However, given the very high reproductive capacity of these species, the small area in which the dredge would be used and the relatively short period of time that construction would occur, impacts to larval fishes should be very minor.

4.4.3.2 No-Action Alternative

Construction activities associated with the No-Action Alternative would have similar effects to EFH species as described for the Preferred Alternative. These effects have been previously evaluated by other NEPA documents.

4.5 Coastal Barrier Resources

No Coastal Barrier Resources would be impacted by implementation of the No-Action alternative or utilizing any of the offshore borrow areas or ebb tidal shoals.

4.6 Water Quality

The waters offshore of Pinellas County have been designated by the State as an Outstanding Florida Water (OFW). In accordance with State Water Quality standards for an OFW, turbidity levels generated by the work cannot exceed ambient background turbidity levels. This is not possible based on past experience. Previous experience in conducting beach nourishment activities has shown that it is not possible to maintain ambient levels. The Corps

has requested a standard variance from State Water Quality Standards. Under this variance, monitoring of turbidity levels would assure that levels not exceed 29 NTUs above background within a 150 m mixing zone. Should turbidity levels exceed these standards, as determined by monitoring, the contractor would be required to cease work until conditions return to normal. Turbidity generated by work with either proposed alternative would be short-term and minor. Water Quality Certification would be obtained by the County for associated projects.

4.7 Hazardous, Toxic, and Radioactive Waste

The construction of projects within the project area would take place along well-established recreational beaches that have been nourished and renourished in the past. Neither the beach areas nor the borrow areas have had activities associated with them that would be expected to produce any hazardous or toxic wastes. No evidence of contamination by hazardous or toxic wastes was noted during prior surveys or site visits. All wastes and refuse generated by project construction would be removed and properly disposed. Neither the Preferred Alternative nor the No-Action Alternative would affect HTRW within the project area.

4.8 Air Quality

The short-term impact from emissions by the dredge and other construction equipment associated with the project will not significantly impact air quality in the area. The Florida Department of Environmental Protection does not regulate marine or mobile emission sources within Pinellas County. No air quality permits are required for this project in conjunction with either the No-Action Alternative or Preferred Alternative.

4.9 Noise

There would be a temporary increase in the noise level during construction. The principle noise would originate from the vicinity of the discharge point on the beach and the dredge. Construction equipment would be properly maintained to minimize the effects of noise. Increases to the current levels of noise as a result of this project would be localized and minor, and limited to the time of construction.

4.10 Aesthetic Resources

During construction there would be some impact to the aesthetic value of the beaches. Equipment utilized during the construction activities would be visible on the beaches of Pinellas County. After construction the increased beach width would enhance the aesthetic resources of the County's beaches.

4.11 Recreation Resources

During nourishment activities associated with both alternatives, use of the beaches would decrease or be temporarily restricted. Use of the beach in the immediate area of the discharge pipe and equipment would be restricted for public safety. Noise from the heavy equipment needed to spread and smooth the sand would disturb some users, as well. Many visitors would seek quieter areas for sunbathing or swimming. As portions of the renourished beaches come available, use by the general public would increase.

4.12 Cultural Resources

A number of remote sensing surveys and diver evaluations of targets have been conducted for a number of project borrow areas. Results of their investigations have been coordinated with the Florida State Historic Preservation Office.

4.13 Energy Requirements and Conservation

The energy requirements for this construction activity would be confined to fuel for the dredge, labor transportation, and other construction equipment. The expenditure of energy would be less than using the No-Action Alternative. Moving sand from borrow areas further away from the project areas would expend more energy to transport the material than using the closer offshore borrow areas proposed.

4.14 Natural or Depletable Resources

In this case, sand is the depletable resource. Using sand from the proposed borrow area would deplete the sand source at that site.

4.15 Cumulative Impacts

Cumulative impacts resulting from removal of material from multiple borrow sites are a concern when evaluating potential long-term effects on marine resources in the area offshore Pinellas County. This analysis assumes that a different area or a different shoal would be dredged each replenishment interval. With the replenishment interval expected to be 5 to 7 years, and that the recovery time of the affected benthic community after sand removal anticipated to be within 1-2 years, the potential for significant cumulative benthic biological impacts is remote. No cumulative impacts to the pelagic environment, including zooplankton, fishes, sea turtles, and marine mammals, are expected from multiple beach nourishment borrow site operations from the nine offshore borrow sites.

Impacts to hardbottom areas within the pipeline corridors may occur. These impacts would be isolated to relatively small areas of rock within the area between the offshore borrow areas and the shoreline. Pipeline corridors should be established to minimize impacts; however, some impacts are inevitable. These impacts would require mitigation in the form of in-kind artificial reef creation. Pipeline corridors, once established, should continue to be utilized to avoid impact to areas not previously impacted. While impacts to these hardbottom features within the pipeline corridors would be adverse they should not be significant. The relatively small areas impacted and long renourishment intervals, coupled with artificial reef creation, should result in a very insignificant overall impact to hardbottom features offshore of Pinellas County.

4.16 Irreversible and Irretrievable Commitment of Resources

4.16.1 Irreversible

An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever. One example of an irreversible commitment might be the mining of a resource. The use of sand from the proposed borrow area would (for all practical purposes) irreversibly deplete the suitable sand reserves. The sands would not replenish fast enough to be much value to future nourishment and renourishment projects. There would, however, be sufficient sand remaining in the dredged areas for re-colonization of benthic organisms.

4.16.2 Irretrievable

An irretrievable commitment of resources is one in which, due to decisions to mandate the resource for another purpose opportunities to use or enjoy the source, as they presently exist, are lost for a period of time. An example of an irretrievable loss might be when a type of vegetation is lost due to road construction. Livebottom organisms in the pipeline corridors and benthic organisms within the borrow area and beach fill area that would be eliminated during construction would be irretrievably lost for a period of time. Livebottom organisms lost would re-colonize within the pipeline corridors following construction or on mitigation reef areas. Benthic organisms have a very high rate of repopulation that would reduce significant losses to these communities.

4.17 Unavoidable Adverse Environmental Effects

Species of relatively non-motile infaunal invertebrates that inhabit the borrow area would be unavoidably lost during dredging. Those species that are not able to move from the construction area are expected to re-colonize after project completion. Any impacts to hardbottom from pipeline placement in pipeline corridors would also result in unavoidable

impacts. These impacts would be mitigated for and should not be significant. There would be an unavoidable increase in turbidity levels, limited to the immediate dredging and beach fill areas during construction. This impact would be temporary and should disappear shortly after construction activities cease.

4.18 Local Short-Term Uses and Maintenance/Enhancement of Long-Term Productivity

Species of motile epifauna may inhabit the borrow area and nearshore placement areas. Motile organisms such as fish, crabs, and sand dwelling organisms should be able to escape the area during construction. Many of those species that are not able to leave the area are expected to re-colonize after project completion. Indirect impacts to these epifauna may also occur. Increased turbidity and sedimentation may also occur. These indirect impacts should be short-term in duration and cause minimal temporary impacts.

5.0 ENVIRONMENTAL COMMITMENTS

The U.S. Army Corps of Engineers and contractors commit to avoiding, minimizing, and/or mitigating for adverse effects during construction activities by including the following commitments in the contract specifications:

Protection of Fish and Wildlife Resources

The Contractor shall keep construction activities under surveillance, management, and control to minimize interference with, disturbance to, and damage of fish and wildlife. Species that require specific attention along with measures for their protection shall be listed in the Contractor's Environmental Protection Plan prior to the beginning of construction operation.

Endangered Species Protection

1. The Contractor shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees.
2. All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973, and the Florida Sanctuary Act of 1978. The Contractor may be held responsible for any manatee harmed, harassed, or killed as a result of construction activities.
3. Siltation barriers shall be installed and shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be monitored regularly to avoid manatee entrapment. Barriers shall not block manatee entry to or exit from essential habitat.
4. All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than four feet clearance from the bottom and that vessels shall follow routes of deep water whenever possible.
5. If a manatee is sighted within 100 yards of the project area, all appropriate precautions shall be implemented by the Contractor to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee. If a manatee is closer than 50 feet to moving equipment or the project area, the equipment shall be shut down and all construction activities shall cease. Construction activities shall not resume until the manatee has departed the project area.
6. Collision and or injury to a manatee should be reported to the USFWS.
7. Temporary signs concerning manatees shall be posted prior to and during construction/dredging activities. All signs are to be removed by the Contractor upon completion of the project.

8. If nighttime construction occurs, lights must be in place that illuminates a 100-foot radius around the construction site.

Turbidity (Water Quality)

1. The water quality (turbidity) will be monitored twice daily at least 4 hours apart during all dredging and disposal operations.

2. If turbidity values exceed State water quality standards (29 NTU's above background, or exceeds background in adjacent Outstanding Florida Waters (Cockroach Bay Aquatic Preserve and Terra Ceia Aquatic Preserve), construction activities shall cease immediately and not resume until corrective measures have been taken and turbidity has returned to acceptable levels.

Sea Turtle Protection

During hopper dredging activities, the Corps will implement the following measures to minimize adverse effects to sea turtles and Gulf sturgeon:

1. The rigid sea turtle deflector draghead will be used on all hopper dredges.

2. Hopper dredging activities will be completed, when possible, between December and March when sea turtle abundance is lowest throughout the Gulf coastal and inshore waters.

3. There will be one hundred percent observer coverage of hopper dredging operations by NMFS-approved observers. Observers will monitor the hopper spoil, screening, and dragheads for sea turtles and Gulf sturgeon.

4. Any sea turtle or Gulf sturgeon takes would be reported immediately to the NMFS SERO and the FDEP.

5. The Corps will advise inspectors, operators and vessel captains about the prohibitions on taking, harming, or harassing sea turtles and Gulf sturgeon, and the civil penalties that apply.

6. For hopper dredges, 100 percent inflow and overflow screening will be required whenever possible.

7. When disengaging dredging pumps, the dragheads must be firmly on the bottom to prevent impingement or entrainment of sea turtles within the water column.

8. The borrow areas have been designed in a way to ensure that dredging will not occur within a minimum of 200 feet from any hardground area.

6.0 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

6.1 National Environmental Policy Act of 1969

Environmental information on the project has been compiled and this Environmental Assessment prepared. The project is in compliance with the National Environmental Policy Act.

6.2 Endangered Species Act of 1973

The Corps has initiated discussions with the USFWS regarding impacts to threatened or endangered species under their jurisdiction. The USFWS indicated that Section 7 consultation under ESA will be finalized during the normal NEPA review process. On October 30, 2002, the USACE requested concurrence from National Marine Fisheries Service (NMFS) for a may affect for sea turtles and Gulf sturgeon determination for marine endangered and threatened species under the jurisdiction of NMFS. Consultation with NMFS was initiated on October 30, 2002. NMFS has included the proposed borrow areas in the new Regional Biological Opinion for Hopper Dredge Use on the Gulf Coast (RBO). The draft RBO, dated November 7, 2001 was received on November 11, 2001. Since the Pinellas County beaches have already been coordinated with FWS under Section 7 of the ESA, FWS recommended coordinating this EA through them with a separate cover letter re-initiating consultation. A copy of this letter is included in the Appendix E.

6.3 Fish and Wildlife Coordination Act of 1958

This project has been fully coordinated with the USFWS in accordance with the Fish and Wildlife Coordination Act. Existing CAR's covering the Pinellas County Beaches adequately address the issues regarding the proposed project. No further coordination is necessary under this Act.

6.4 National Historic Preservation Act of 1966 (Inter alia)

Archival research, investigations for historic properties, and coordination with the Florida State Historic Preservation Officer were completed in compliance with this Act and with the Archaeological and Historic Preservation Act and 36 CFR Part 800 Protection of Historic Properties. The proposed beach nourishments are in compliance with federal laws regarding historic properties.

6.5 Clean Water Act of 1972

The study is in compliance and all state water quality standards will be met. A Section 404(b) Evaluation is included in this report as Appendix C.

6.6 Clean Air Act of 1972

No air quality permits will be required for this project.

6.7 Coastal Zone Management Act of 1972

A federal consistency determination in accordance with 15 CFR 930 Subpart C is included in this report as Appendix D. State consistency review has been performed the project was found to be consistent with the FCMP. The study will be in full compliance with the Coastal Zone Management Act.

6.8 Farmland Protection Policy Act of 1981

No prime or unique farmland will be impacted by implementation of the alternatives compared in this document. This act is not applicable.

6.9 Wild and Scenic River Act of 1968

No designated Wild and Scenic river reaches will be affected by project related activities.

6.10 Marine Mammal Protection Act of 1972

Incorporation of safe guards to protect threatened and endangered species during project construction will also protect marine mammals in the area. The Preferred Alternative is in compliance with the Act.

6.11 Estuary Protection Act of 1968

No designated estuary will be affected by project implementation.

6.12 Federal Water Project Recreation Act

There is no cost-shared recreation proposed for this project.

6.13 Fishery Conservation and Management Act of 1976

The project has been coordinated with the NMFS and is in compliance with this Act.

6.14 Submerged Lands Act of 1953

Beach nourishment projects and use of the offshore borrow areas will occur on submerged lands of the State of Florida. These projects have been coordinated with the State and are in compliance with the Act.

6.15 Coastal Barrier Resources Act & Coastal Barrier Improvement Act of 1990

There are no designated coastal barrier resources in the project area that would be affected by this project

6.16 Rivers and Harbors Act of 1899

The proposed work will not obstruct navigable waters of the United States. The Preferred Alternative is in full compliance.

6.17 Anadromous Fish Conservation Act

Anadromous fish species will not be affected. The project has been coordinated with NMFS and is in compliance with this Act.

6.18 Migratory Bird Treaty Act and Migratory Bird Conservation Act

No migratory birds will be affected by project activities. The project is in compliance with these Acts.

6.19 Magnuson-Stevens Fishery Conservation and Management Act

The Preferred Alternative may affect essential fishery habitat as defined by GMFMC (1998). Precautions would be implemented during beach renourishment operations to minimize any potential impacts. In addition, artificial reefs would be constructed to mitigate any reef-related impacts associated with the beach nourishment project. The project has been coordinated with NMFS and is in compliance with the Act (Appendix B).

Coordination of this EA constitutes initial consultation with the National Marine Fisheries Service (NMFS) under provisions of this Act. Based on analysis discussed in this EA, the Corps has determined that the proposed action would not adversely affect the essential habitat of species managed under this Act.

6.20 Marine Protection, Research and Sanctuaries Act

The term “dumping” as defined in the Act (33 U.S.C. 1402) (f) does not apply to the disposal of material for beach nourishment or to the placement of material for a purpose other than disposal (i.e. placement of rock material as an artificial reef or the construction of artificial reefs as mitigation). Therefore, the Marine Protection, Research and Sanctuaries Act does not apply to this project. The disposal activities addressed in this EA have been evaluated under Section 404 of the Clean Water Act.

6.21 E.O. 11990, Protection of Wetlands

No wetlands will be affected by project activities. This project is in compliance with the goals of this Executive Order.

6.22 E.O. 11988, Flood Plain Management

No activities associated with the Preferred Alternative will take place within a floodplain, therefore this project is in compliance with the goals of this Executive Order.

6.23 E.O. 12898, Environmental Justice

The Preferred Alternative would not result in adverse human health or environmental effects, nor would the activity impact subsistence consumption of fish or wildlife. The project is in compliance.

6.24 E.O. 13089, Coral Reef Protection

The Preferred Alternative may affect U.S. coral reef ecosystems as defined in this Executive Order. Precautions would be implemented during construction to minimize impacts. Artificial reefs would be constructed to mitigate for any reef impacts associated with the placement of discharge pipelines. The project is in compliance.

6.25 E.O. 13112, Invasive Species

Invasive species would not be impacted by project activities. The E.O. is not applicable.

7.0 PUBLIC INVOLVEMENT

7.1 Scoping and Draft EA

All correspondence regarding scoping of the Draft EA is located in Appendix E.

7.2 Agency Coordination

The projects evaluated within this document has been coordinated with the following agencies: U.S. Fish and Wildlife Service, National Marine Fisheries Service, U. S. Environmental Protection Agency, Florida State Clearinghouse, Florida State Historic Preservation Officer, and the Florida Department of Environmental Protection.

7.3 List of Recipients

The DEA was circulated to federal, state and local agencies and interested groups for review and comment. A listing of those that were sent copies can be found in Appendix F.

7.4 Comments Received and Response

Copies of comments received during the scoping process and from circulation of the Draft EA can be found in Appendix E, Pertinent Correspondence.

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APPENDICES

APPENDIX A

Marine Biological Survey

Borrow Area Resource Identification and Impact Assessment

Nearshore Marine Biological Survey and Assessment

APPENDIX B

Essential Fish Habitat Assessment

APPENDIX C

Section 404(b)(1) Evaluation

APPENDIX D

Coastal Zone Management Consistency

APPENDIX E

Pertinent Correspondence

APPENDIX F

Mailing List