

DESIGN MEMORANDUM FOR THE FIRST RENOURISHMENT
PROJECT, CAPTIVA ISLAND SEGMENT
LEE COUNTY, FLORIDA
BEACH EROSION CONTROL PROJECT

ENVIRONMENTAL ASSESSMENT

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ENVIRONMENTAL ASSESSMENT

1.00 INTRODUCTION

1.01 Purpose of Report. This Environmental Assessment (EA) has been prepared to comply with the National Environmental Policy Act (NEPA).

2.00 NEED FOR AND OBJECTIVES OF ACTION

2.01 Project Location. Captiva and Sanibel Islands are located in southwest Florida within Lee County. They are the barrier island shoreline separating Pine Island Sound from the Gulf of Mexico. The proposed project includes renourishment of 3.1 miles along Captiva Island, between R-93 and R-109 (Figure EA-1). The project also includes initial restoration of 0.74 miles along Sanibel Island between R-110 and R-114. The Captiva and Sanibel segments are separated by Blind Pass. The proposed primary borrow area (Borrow Area III) is located approximately 4 nautical miles offshore of Captiva Island (Figure EA-1). The secondary borrow areas (III-A & III-B) are located approximately 5 to 6 nautical miles off of Sanibel Island.

2.02 Study Authority.

2.02.01. The beach erosion control project for Lee County, Florida was authorized in accordance with recommendations of the Chief of Engineers in House Document number 91-393, under the provisions of Section 201 of the Flood Control Act of 1965 enacted by House and Senate Resolutions (December 15, 1970 and December 17, 1970, respectively). The authorization provides for Federal participation in beach restoration and periodic nourishment along portions of the Gulf shore of Lee County. The northern end of the Captiva Island segment at South Seas Plantation was nourished in 1981 by placement of 665,000 cubic yards of dredged material. The entire Captiva Island segment was nourished in 1988-89 by placement of 1,594,000 cubic yards of sand.

2.02.02. The Captiva Erosion Prevention District (CEPD), established by Chapter 59-1496, Laws of Florida 1959, will act as the local sponsor for the proposed project. The CEPD is a political subdivision of the State of Florida and as such will act as liaison between all interested agencies, groups or individuals for this portion of Lee County's Federal Shore Protection project.

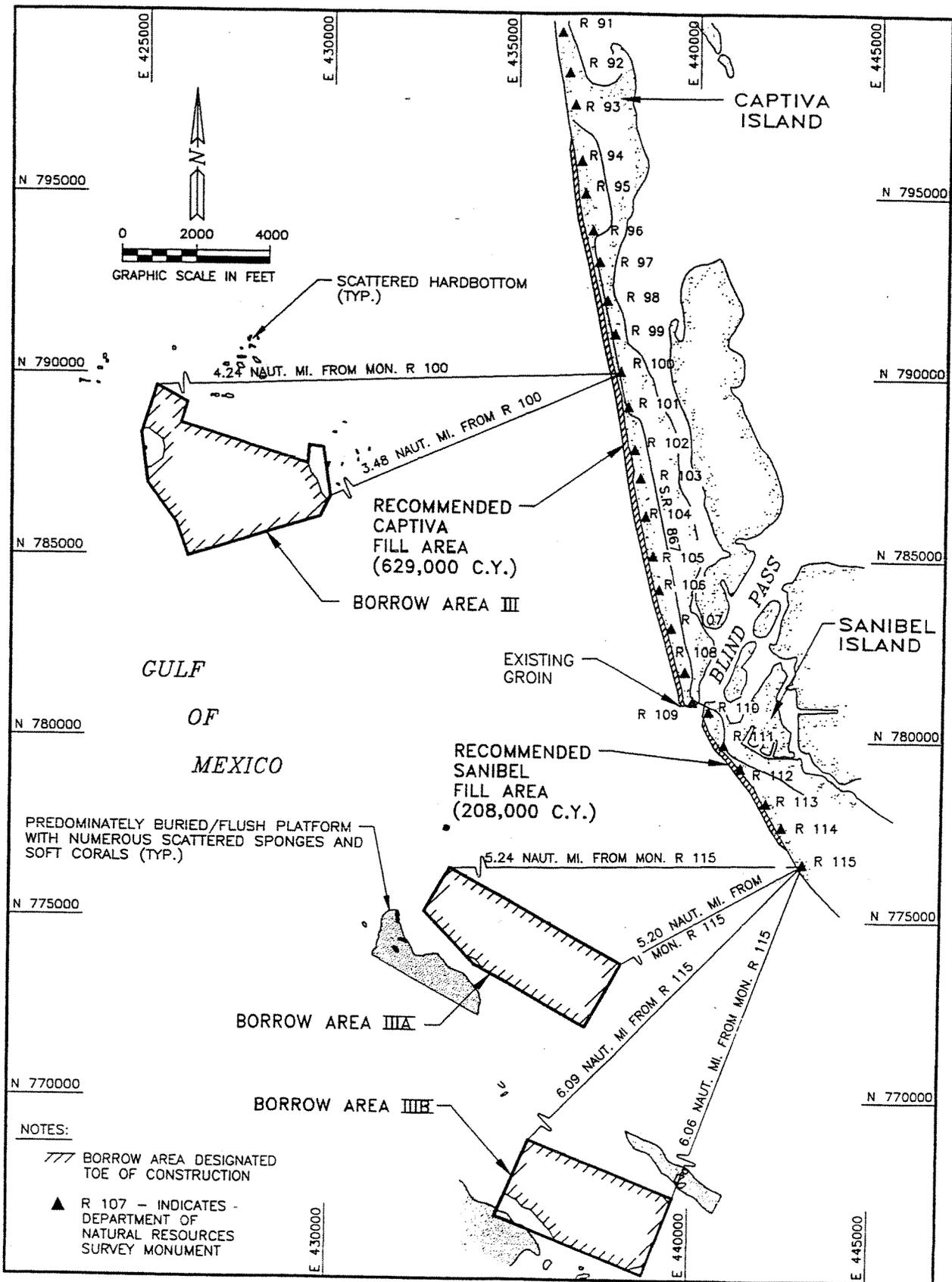


FIGURE EA-1

BEACH EROSION CONTROL
 LEE COUNTY, FLORIDA
 CAPTIVA / SANIBEL SEGMENT
 RECOMMENDED PLAN

- 2.03 Public Concerns about Erosion. The majority of the beach fronting the Gulf shore of Captiva Island and the northern one mile of Sanibel Island has a history of erosion. As a result of this erosion, upland property is vulnerable to severe damage during relatively minor storm events. Captiva Island residents, Sanibel Island residents and Lee County are concerned about potential storm damages. The maintenance of the beach protects life and property. In addition to providing protection, a maintained beach attracts tourists to the area and is vital to the economy of the area.
- 2.04 Borrow Area Concerns. Concern about borrow area selection has been expressed. The City of Sanibel has concerns regarding increases in wave height resulting from use of Borrow Areas III-A and III-B, proposed as the source of sand for the Sanibel Island portion of the project. An analysis of waves travelling over Borrow Areas III-A and III-B was performed using the wave refraction program within the Corps' ACES coastal analysis software package (USACE, 1992). The results of the analysis showed that average wave height would not increase nor would wave angle be affected as a result of dredging to the maximum proposed dredge depth in Borrow Areas III-A and III-B.
- 3.00 **ALTERNATIVES TO THE PROPOSED ACTION.** The alternative actions which may be taken to reduce the rate of existing beach erosion, protect property from storm damage and maintain the aesthetic and recreational appeal of the shoreline were examined, and are described below.
- 3.01 No Action Alternative. The no action alternative would allow existing conditions to continue. The beach would continue to erode, property would become more vulnerable to damage from coastal storms and a valuable recreational resource would be lost.
- 3.02 Nonstructural Alternatives
- 3.02.01 Rezoning of Beach Areas. Structures built in areas adjacent to the project area after the plan was implemented would be less vulnerable to storm damage because rezoning would require construction in relatively safer areas. This alternative would not provide erosion control or protection from tidal flooding.
- 3.02.02 Modification of Building Codes. This alternative would require hurricane proofing of new structures. Building code modifications would incorporate limited provisions which require, under certain circumstances, that existing structures comply with these regulations. This alternative would not provide erosion control or protection from tidal flooding.
- 3.02.03 Construction Setback Line. This alternative requires that all new structures be placed landward of a line determined to border a relatively storm-safe area. In the event of substantial damage, existing structures would be required to comply with the setback line requirements. This alternative has been implemented by

the State of Florida but does not provide erosion control or protection from tidal flooding.

3.02.04 Flood Insurance. This alternative provides an early warning system in the event of approaching storms and establishing an evacuation route for the area's inhabitants. This option protects human life but does not reduce or prevent structural damage. This alternative does not provide erosion control or protection from tidal flooding.

3.02.05 Evacuation Planning This alternative would provide an early warning system in the event of approaching storms and would allow establishment of an evacuation route for the area's inhabitants. This option would protect human life but would not reduce or prevent structural damage. This alternative would not provide erosion control or protection from tidal flooding.

3.02.06 Various Nonstructural Combinations. All of the considered nonstructural alternatives would be beneficial to the project area either singly or in any possible combination, but they would not address the beach erosion problem or consequences of this erosion.

3.03 Structural Alternatives The following structural alternatives were also considered: groin fields, revetments, vertical seawalls, beach nourishment using upland sand sources, and beach nourishment using offshore borrow material from several sites near the project area. Four of these alternatives were eliminated from further consideration. The reasons for elimination of each alternative are summarized below:

3.03.01 Groin fields were eliminated due to documented effects of groin fields in the area. Groin fields which were constructed between 1961 and 1963 did not control erosion, and were removed in 1988.

3.03.02 Revetments are a temporary solution which transfers the erosion problem further down the beach. The cost and the potential for loss of recreational beach were also considered as negative effects.

3.03.03 Vertical seawalls were rejected due to high initial costs and expected loss of recreational beach if constructed.

3.03.04 Beach nourishment using sand from upland sources was rejected due to the exorbitant cost of trucking sand from sand mines.

3.03.05 Extensive sand searches were performed in offshore areas near the project site. Figure EA-2 identifies the location of each site. The areas investigated included the Captiva Pass ebb shoal, the Redfish Pass ebb shoal, Redfish Pass flood shoals, Blind Pass shoals, and the area offshore of Captiva and Sanibel Islands extending approximately five to

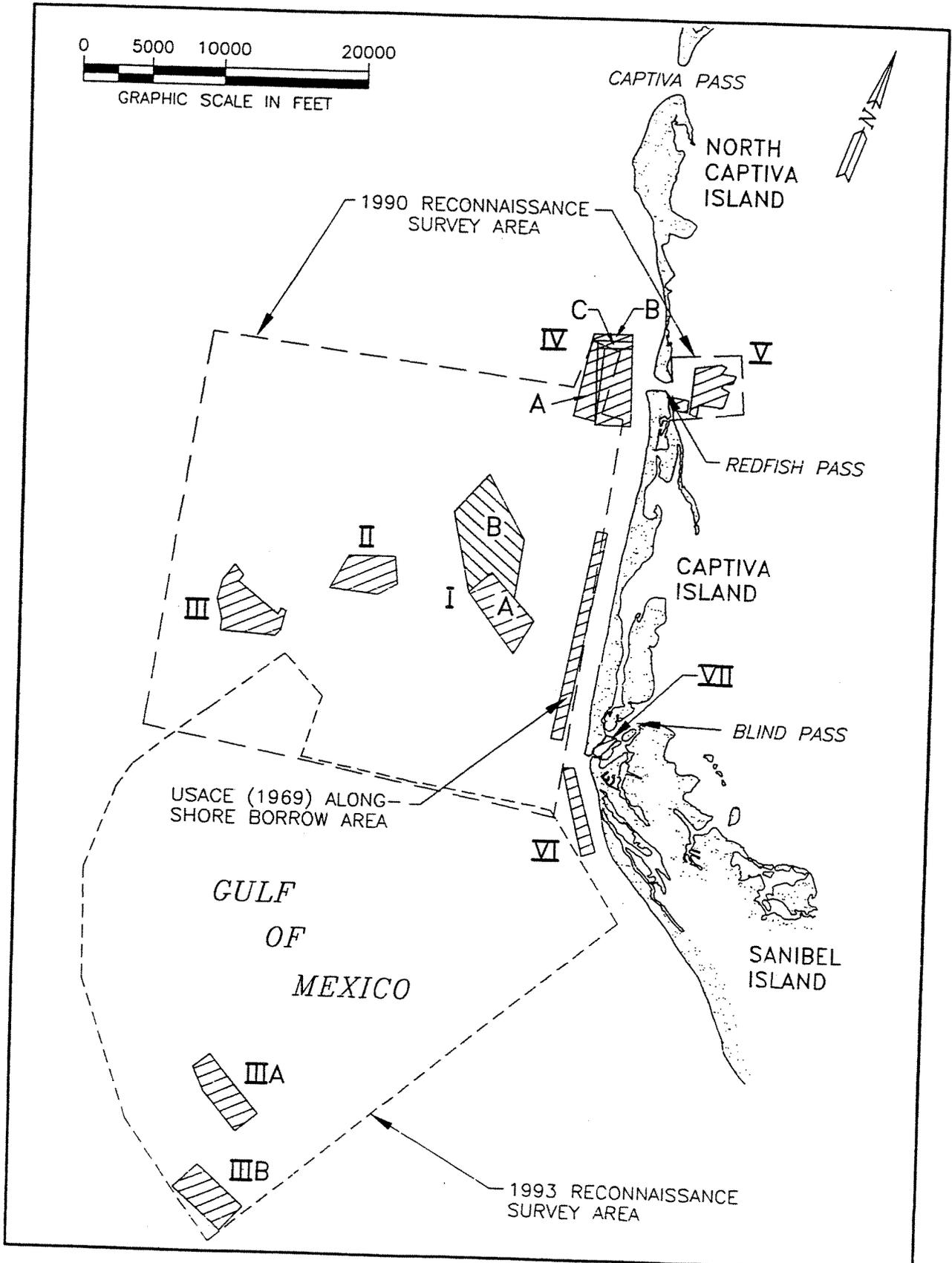


FIGURE EA-2

CAPTIVA ISLAND
SAND SEARCH POTENTIAL BORROW AREAS

six miles offshore. The geotechnical appendix of the DM describes the findings of the sand investigations. The reasons for rejection of each non-selected area are summarized in Table EA-1.

Table EA-1

Summary of Sand Source Investigations

Sand Source	Figure EA Designation	Accepted/Rejected	Reason for Rejection
Captiva Pass Ebb Shoal	-	Rejected	High cost
Redfish Pass Ebb Shoal	IVA	Rejected	High silt/clay content
	IVB	Rejected	High silt/clay content
	IVC	Rejected	Insufficient volume
Redfish Pass Flood Shoal	V	Rejected	Insufficient volume
Blind Pass Ebb Shoal	VI	-	Not investigated
Blind Pass Flood Shoal	VII	Rejected	Insufficient volume/ environmental concerns
Offshore Sand Sources			
Alongshore Borrow Area	-	Rejected	High silt/clay content
IA	IA	Rejected	High silt/clay content
IB	IB	Rejected	High silt/clay content
II	II	Rejected	High silt/clay content
III	III	Accepted	-
IIIA	IIIA	Accepted	-
IIIB	IIIB	Accepted	-

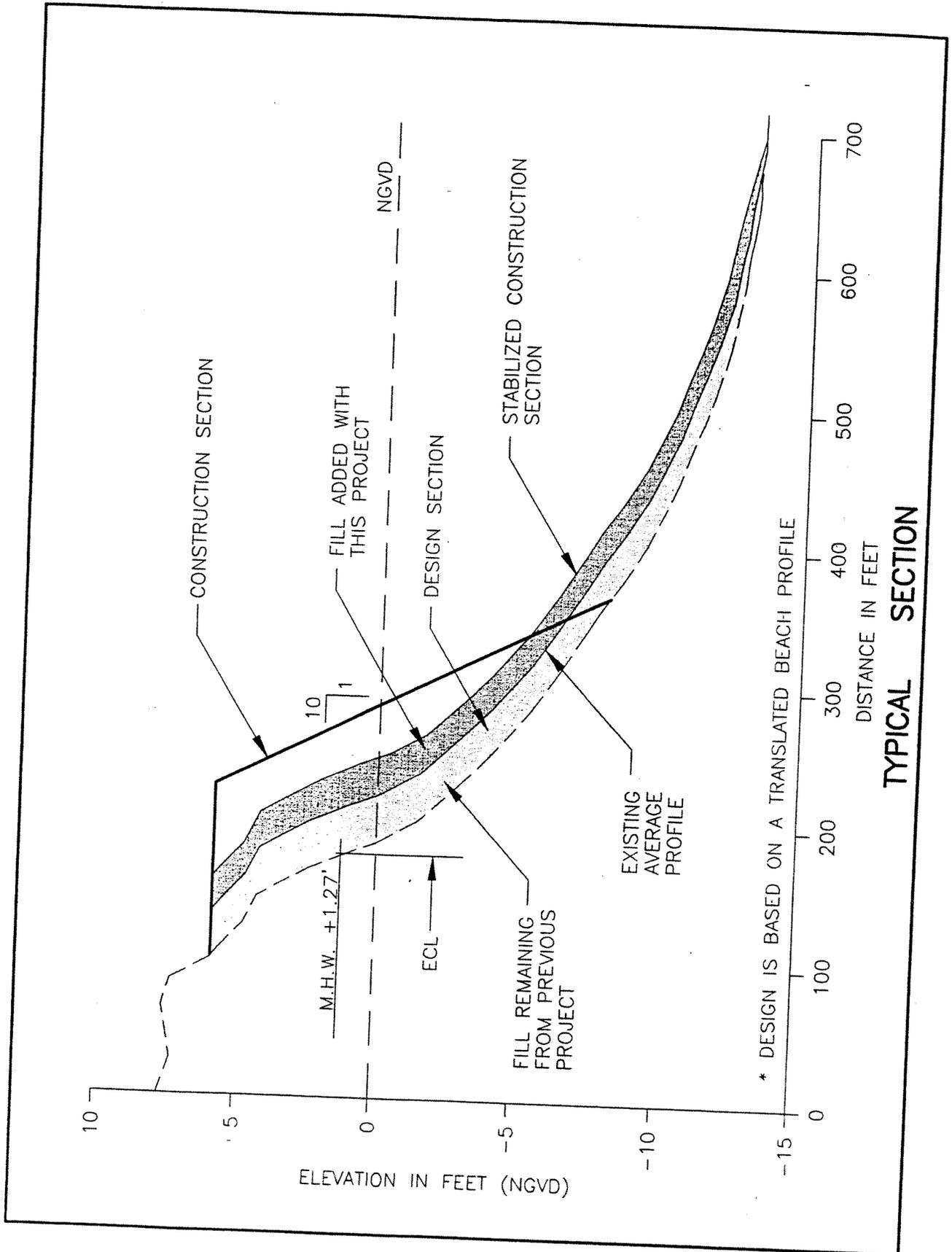
3.04 Proposed Action. The proposed work would consist of the placement of 629,400 cubic yards of dredged material along the Gulf shore of Captiva Island, and 208,200 cubic yards of fill along the northern one mile of Sanibel Island. The beach fill would extend along 3.1 miles of the Gulf shoreline of Captiva Island, from R-93 to R-109. The fill on Sanibel Island would extend from R-110 in the north to R-114 in the south (0.74 miles). The proposed project would provide protection against a 10 year return frequency storm. Table EA-2 presents a comparison of alternatives and their effects on environmental factors.

Table EA-2

Summary of Direct and Indirect Impacts for Alternatives Considered

ENVIRONMENTAL FACTOR	PROPOSED BORROW AREA	OTHER OFFSHORE SAND SOURCES	OTHER SHORE PROT. MEASURES	UPLAND SAND SOURCES	NO ACTION
VEGETATION	no vegetation at borrow site	some borrow sites could have sea grasses	could also protect shore vegetation	sand hill vegetation, or other	continued erosion of beach and dune
PROTECTED SPECIES	minor impact on manatee and sea turtle	possible impacts to manatee, sea turtle, sea grass	could fail to protect sea turtle nesting beach	depends on sand source (i.e., scrub jay in sand hills)	loss of sea turtle nesting beach
HARD GROUND	none in borrow site	other sites could have hardground	probably not impact hardground	0	0
COASTAL BARRIER RESOURCES	borrow area not within a CBR unit, no impact	depends on site	probably no impact on CBR	depends on location of sand source	0
WATER QUALITY	increased turbidity from dredging & discharge	increased turbidity from dredging & discharge	depends on measure, shore hardening no impact	depends on sand source location and character	0
WILDLIFE	beach habitat improved	depends on wildlife at sand source, beach habitat improved	depends on whether beach protected	depends on wildlife use at borrow site	continued loss of beach area
FISH	borrow site not very productive	borrow site may have sea grass, hard bottom, or reef	groins or breakwater may attract fish	possible fish on aquatic sand sources	0
CULTURAL RESOURCES	no effects	investigation required; possible adverse effects	investigation required; possible adverse effects	investigation required; possible adverse effects	potential adverse effects on shoreline resources
ECONOMICS	uses nearby economic sand source, beach enhanced	no other suitable nearby sources	could cost less but less beach enhancement	higher hauling or bulk costs (1½-2 times more)	continued beach degradation
ENERGY REQUIREMENTS AND CONSERVATION	small energy use in comparison	impact would be similar to alt. 1	depends on measure	higher in comparison, greater hauling distance	0

- 3.05 Typical Cross-Section. The typical cross-section on Captiva Island would have a constructed berm height of 6 feet NGVD, and would extend the existing 6 foot contour an average of 128 feet toward the Gulf of Mexico (Figure EA-3). The constructed beach would have a 1 vertical to 10 horizontal slope from the seaward 6 foot contour to an intercept of the existing bottom. The constructed beach will adjust over time to an equilibrium shape, with a 1 vertical to 12 horizontal slope from the 6 foot NGVD contour to the mean water line, and then a slope of 1 vertical to 25 horizontal from the mean water line to an intercept with the existing bottom. The constructed and adjusted beach profile on northern Sanibel Island would have similar characteristics, except that the constructed berm would extend the natural berm an average of 155 feet towards the Gulf of Mexico.
- 3.06 Departure from Authorized Plan. The local sponsor (CEPD) plans to place 118,000 cubic yards of sand on Captiva Island in addition to the 629,000 recommended in this plan. The majority of this additional sand will be placed between DNR survey monuments R85 and R94 (Figure EA-3).
- 4.00 **EXISTING CONDITIONS.**
- 4.01 General. The entire project area has been developed. Resort and beach recreation development is prevalent in the northern segment of Captiva Island with the remainder being primarily single family residences. State Road 867 parallels the shoreline for a distance of approximately one mile and a rubble revetment was constructed to protect this roadway. Vegetation was planted on the dune along the entire island following completion of the 1988-1989 construction. This project enhanced the sea oat community that exists on the northern end of the island which was established as part of the South Seas Plantation restoration project in 1981. Northern Sanibel is a mix of single family residences and resort motels.
- 4.02 Environmental Setting. The project is in an area of overlap between subtropical marine species and temperate marine species. Many of the sessile tropical species are at the northern limit of their range and are under some natural stress during the winter months because of lowered temperatures and the increased turbidities brought on by storms. Many motile forms, such as fish, migrate in and out of the area with the seasons. During the warmer summer months, tropical species predominate, while during the cooler winter months, temperate species are relatively more abundant.
- 4.03 Threatened and Endangered Species. Construction would take place in habitat which may be utilized by the species listed in Table EA-3. The dredged material would be deposited on habitat utilized for turtle nesting. The project site is not critical habitat for any of these species.



BEACH EROSION CONTROL
 LEE COUNTY, FLORIDA
 CAPTIVA ISLAND SEGMENT
 RECOMMENDED PLAN

FIGURE EA-3

Table EA-3

Threatened, Endangered, and Rare Species Which May Exist
Near the Captiva Island Project Area

Species Name (Scientific Name)	Agency Listing ⁽¹⁾		
	USFWS	State of FL (FGFWFC)	NMFS
West Indian manatee (<i>Trichechus manatus latirostris</i>)	E	E	NL
Right whale (<i>Balaena glacialis</i>)	E	E	E
Sei whale (<i>Balaenoptera borealis</i>)	E	E	E
Finback whale (<i>Balaenoptera physalus</i>)	E	E	E
Humpback whale (<i>Megaptera novaeanglia</i>)	E	E	E
Sperm whale (<i>Physeter catodon</i>)	E	E	E
Atlantic green turtle (<i>Chelonia mydas</i>)	E	E	T
Atlantic hawksbill turtle (<i>Eretmochelys imbricata imbricata</i>)	E	E	E
Kemp's Ridley turtle (<i>Lepidochelys kempii</i>)	E	E	E
Atlantic loggerhead turtle (<i>Caretta caretta</i>)	T	T	T
Atlantic leatherback turtle (<i>Dermochelys coriacea</i>)	E	E	E
Common snook (<i>Centropomus undecimalis</i>)	NL	SSC	NL
Gulf sturgeon (<i>Acipenser oxyrhynchus desotoi</i>)	T	SSC	T

⁽¹⁾ E=Endangered; T=Threatened; SSC=Species Special Concern; NL=Not Listed

Compiled From: Florida Game and Fresh Water Fish Commission. Official Lists of Endangered and Potentially Endangered Fauna & Flora in Florida. 1 June 1994. D. A. Woods, compiler. 23 pg.

J. N. "Ding" Darling National Wildlife Refuge - Mammal List. 1 pg.

Endangered and Threatened Species and Critical Habitats under NMFS Jurisdiction, Florida Gulf Coast, National Marine Fisheries Service, July 23, 1993, 1 page.

4.04 Fish and Wildlife Resources. The project area may, conceivably, be used by a number of species of reptiles: Atlantic green turtle (*Chelonia mydas*), Atlantic hawksbill turtle (*Eretmochelys imbricata*), Atlantic Ridley turtle (*Lepidochelys kempi*), Atlantic loggerhead turtle (*Caretta caretta*), and Atlantic leatherback turtle (*Dermochelys coriacea*), from March to September.

4.04.01 Sea turtle nesting surveys are performed annually on Captiva and Sanibel Islands. Table EA-4A presents nesting data for Captiva Island for the years 1975 through 1994. Table EA-4B presents nesting data for Sanibel Island for the years 1979 through 1994.

Table EA-4A

Sea Turtle Nesting Data
For
Captiva Island
(5 Miles)

	1975 ⁽¹⁾		1976 ⁽¹⁾		Nourished 1988 ⁽¹⁾		1989 ^{*(1)}		1990 ⁽¹⁾		1991 ⁽²⁾		1992 ⁽³⁾		1993 ⁽³⁾		1994 ⁽³⁾	
											<i>in situ</i>	relocated						
Nests	26	12	44	39	73	47	24	75	112	108								
False Crawls	45	21	67	Not Available	85	86	99	125	104									
% Nesting Success	36.6	36.4	39.6	Not Available	46.2	83.1	71.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

* incomplete data (only July 1 - August 31)

Sources: ⁽¹⁾ "Sea Turtle Conservation - Captiva Style" by Mr. Charles R. LeBuff, Jr., of Caretta Research, Inc. 1990.

⁽²⁾ Erick Lindblad, Sanibel Captiva Conservation Foundation, personal communication. 1992.

⁽³⁾ Erick Lindblad, Sanibel Captiva Conservation Foundation, personal communication. 1995.

Table EA-4B

Sea Turtle Nesting Data
For Sanibel Island
(11.5 miles)

	1979 ⁽¹⁾	1980 ⁽¹⁾	1981 ⁽¹⁾	1982 ⁽¹⁾	1983 ⁽¹⁾	1984 ⁽¹⁾	1985 ⁽¹⁾	1991 ⁽²⁾			1992 ⁽³⁾	1993 ⁽³⁾	1994 ⁽³⁾	
	Nests	65	72	70	92	134	128	East	West		2	N/A	N/A	0
									<i>in situ</i>	relocated				
Nests	86	65	72	70	92	134	128	32	125	2	2	6	0	
False Crawl	Not Available	15	32	30	28	Not Available	58	50	132		N/A	N/A	0	
% Nesting Success	Not Available	81.3	69.2	70	76.7	Not Available	68.8	86.3	79.2*	91.5	N/A	N/A	0	

* 110 nests were evaluated.

Sources: ⁽¹⁾ "Lee County Beach Management Plan Environmental Analysis" by Continental Shelf Associates, Inc., March 30, 1987. p. 14.

⁽²⁾ Erick Lindblad, Sanibel Captiva Conservation Foundation, personal communication. 1992.

⁽³⁾ Erick Lindblad, Sanibel Captiva Conservation Foundation, personal communication. 1995.

4.05 Borrow Area. Dredging operations to obtain sand for the Captiva Island segment of the beach renourishment would take place in the borrow area located approximately 4 nautical miles directly west of southern Captiva (Borrow Area III) as shown in Figure EA-1. Borrow Areas III-A and III-B, located approximately 5 to 6 nautical miles offshore of Sanibel Island, will be used as sand sources for the Sanibel Island segment. Table EA-5 presents sediment characteristics in the borrow areas.

Table EA-5

Sediment Characteristics for
Borrow Areas III-A, and III-B

Borrow Area	Volume of Material (million cy)	Mean Grain Size	Sorting (ϕ)	Silt (%)
III	1.2	0.39 mm (1.37 ϕ)	1.41	3.6
III-A	1.2	0.41 mm (1.28 ϕ)	.95	3.8
III-B	1.1	0.36 mm (1.46 ϕ)	.90	4.0

4.05.01 Biota.

4.05.01(a) Hardbottom and Seagrass. The area proposed for dredging is characterized by a featureless sandy bottom. A "pseudo" limestone layer was found at or just below the surface in adjacent areas based on a seismic survey and limited side scan sonar survey conducted in 1990 (CPE, 1991). In September 1995, a more detailed side scan sonar survey was performed in each of the three borrow areas proposed for dredging. Diver surveys were performed at each potential hardground location identified by the side scan sonar. Several areas of hardground were located outside of the proposed dredge areas. The borrow areas will be modified as shown in Figure EA-1 to provide a minimum offset of 500 feet from the exposed hardground. The construction plans will be modified to reflect the location of hardgrounds and the modified borrow areas as shown in Figure EA-1. Aerial photographs of the project area shoreline have no indication of nearshore hardbottom.

4.05.01(b) Invertebrates and Fishes. Species of relatively nonmotile infaunal invertebrates, such as mollusks, may inhabit the proposed borrow areas. Motile organisms including fish, crabs, and sand dwelling organisms should be able to escape the area during construction. Many of those species that are not able to escape the construction area are expected to recolonize within 6 months to a year after project completion.

- 4.06 Historic, Cultural, and Archeological Resources. There are no known historic or archeological resources in the beach segment to be renourished. Reports resulting from cultural resource investigations of the proposed borrow areas were prepared by Dr. Robert Baer for Coastal Planning and Engineering, Inc. (CPE) and are titled: "Cultural Resource and Hydrographic Investigations of a Captiva Island Offshore Borrow Area", dated February 1994 and "Cultural Resource and Remote Sensing Magnetometer Surveys of Two Designated Sand Borrow Sites Selected as Sources for Beach Renourishment Offshore of Captiva and Sanibel Islands, Florida", dated May 1995. During these investigations, six magnetic anomalies were identified in the three proposed borrow areas. Only anomaly 4 in Borrow Area IIIB may represent a potentially significant cultural resource. Two anomalies are located outside of the proposed borrow areas and the analysis of the gamma readings for the remaining anomalies indicates that they do not represent significant submerged cultural resources.
- 4.07 Water Quality. The waters fronting the project are classified as Class III by the State of Florida. Class III waters are considered suitable for recreation and the management of fish and wildlife.
- 4.08 Noise. Ambient noise levels in the project area are low to moderate. The major noise producing sources are breaking surf and adjacent residential and resort areas. These sources are expected to continue at their present noise levels.
- 4.09 Air Quality. Air quality along Captiva Island and Sanibel Island is good due to the presence of either on or off shore breezes. Lee County is classified as a non-attainment area for ozone and an attainment area for all other Federal Air Quality Standards.
- 4.10 Hazardous, Toxic and Radioactive Wastes. The waters offshore of the project area have historically been used for fishing and recreation. There are no records indicating use of the waters or the beach which would indicate the possibility of hazardous, toxic, or radioactive wastes. The nature of the work involved with renourishing beaches is such that contamination by hazardous and toxic wastes is very unlikely. The areas under study are high energy littoral zones and the materials used for nourishment are composed of particles with large grain sizes that do not normally have contaminants adsorbing to them. No contamination from hazardous and toxic waste spills is known in the project area.
- 4.11 Aesthetics. Captiva Island and Sanibel Island possess visually pleasing attributes including the waters of the Gulf of Mexico and the existing natural appearing beach. The white sand contains fragments of shells, which tend to give the beach a golden tint. The beaches of Captiva and Sanibel Islands, although eroded, are famous for the shells which are sought by visitors. The islands are developed residentially along the majority of their lengths. Hotels and condominiums are present in some areas of South Seas Plantation and intermittently along the rest of Captiva Island and the

northern end of Sanibel. There is a vegetated dune along the entire length of Captiva Island. The dune height along Captiva and Sanibel Islands averages approximately +7.6 feet NGVD. Vegetation along the dune includes native dune plants such as sea oats. Some sections of the dune are adjacent to the Captiva-Sanibel Road, which is the only route to mainland Florida. The maintenance nourishment project will result in an average berm width of 128 feet on Captiva Island and 155 feet on Sanibel Island. Beachgoers will benefit from the additional available beach area.

5.00 IMPACT OF PROPOSED ACTION.

5.01 Fish and Wildlife Resources. There would be a temporary impact on marine and shore life in the immediate vicinity of construction. Nearshore free-swimming organisms would temporarily leave the construction area due to an increase in turbidity and construction related activities. A study of the nearshore fish populations of Captiva Island was conducted in conjunction with the 1988-89 nourishment project to determine the effects, if any, of the nourishment project on the resident nearshore fishes of the area. The study concluded that the impact of the nourishment process was minimal and limited to the period of dredging. No long term adverse impacts could be detected; the composition of the nearshore fish fauna and related seasonal distribution of the various species was found to be similar to that of other Gulf of Mexico beaches (Mote Marine Laboratory, December 1991). Free-swimming organisms would avoid the vicinity of the dredging due to the dredge related noise, vibration and turbidity. They would return to the area when dredging stopped.

5.01.01 Littoral and sublittoral invertebrates in the stretches receiving fill would be buried and lost, but many species inhabiting the high energy surf zone are well suited for burrowing, and some of these organisms could burrow up through the fill material and survive. Those areas covered by fill would become repopulated by organisms similar to those destroyed. Benthic monitoring studies conducted along the beach before, during and after the 1988-89 restoration project showed that biological community patterns and abundant species recovered to pre-project levels within six months to one year after project completion (CSA, 1992).

5.01.02 Infauna would be destroyed during dredging of the borrow area. The borrow areas would quickly be repopulated by marine animals of the same type as those destroyed by dredging. Monitoring of the borrow area used in the South Seas Plantation Project showed repopulation occurred within one year. Benthic monitoring studies conducted before, during and after the 1988-89 restoration project indicated that the beach project had a minimal effect on the borrow area in terms of the biological assemblage summary parameters. Changes in these parameters that may have been related to deposition of sand during the restoration project appeared to last for approximately one year (CSA, 1992).

5.02 Endangered Species Act. The U.S. Army Corps of Engineers/Jacksonville District has initiated consultation with the U.S. Fish and Wildlife Service (FWS) and the

National Marine Fisheries Service (NMFS) by public notices dated 30 September 1994 and 3 March 1995. The purpose of the consultation was to determine the effect of the proposed project on the West Indian manatee, the various species of sea turtles and other endangered species known to inhabit the project area.

The Corps has determined that the project may have an effect on the nesting habitat of the threatened loggerhead sea turtle (Caretta caretta) and the endangered green sea turtle (Chelonia mydas). In a letter dated 25 October 1994, NMFS deferred to the FWS for comments on the Captiva segment of the project. NMFS again deferred comment in a 28 March 1995 letter for the Sanibel segment. The FWS concurred with the Corps' determination and requested the initiation of consultation for these two species of sea turtles in accordance with Section 7 of the Endangered Species Act of 1973, as amended (Johnson, 1995).

The Corps and the FWS have determined that the project is not likely to affect the West Indian manatee (Trichechus manatus latirostris) nor its critical habitat (Johnson, 1995).

5.02.01 Manatees. Construction of the project may potentially result in injuries to manatees during vessel movement or fill material discharge activities. Precautionary measures would be implemented to help prevent boat collision and propeller laceration injuries to manatees. The following two paragraphs will be included in the contract for the project.

"The Contractor will instruct all personnel associated with the construction of the project about the presence of manatees in the area and the need to avoid collisions with manatees. All vessels associated with the project shall operate at "no wake" speeds at all times while in shallow waters or channels where the draft of the boat provides less than three feet clearance of the bottom. Vessels transporting personnel between the landing and dredge shall follow routes of deep water to the greatest extent possible. All personnel should be advised that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected under the Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972, and Section 370.12, Florida Statutes. The Contractor shall be held responsible for any manatees harmed, harassed, or killed as a result of the construction of the project."

"The Contractor shall keep a log detailing all sightings, collisions, damage, or killing of manatees which have occurred during the contract period. Any collision with a manatee resulting in death or injury to the animal shall be reported immediately to the Chief, Environmental Branch (Jacksonville District), and the U.S. Fish and Wildlife Service (Vero Beach Field Office). Following project completion, a report summarizing the above incidents shall be submitted to the Chief, Environmental Branch."

5.02.02 Sea Turtles. Construction of the project could adversely affect nesting sea turtles and/or sea turtle nesting habitat. As a result, the Corps will require the Contractor to comply with all State and Federal permit requirements designed to help minimize potential adverse impacts to nesting sea turtles and sea turtle nesting habitat. Precautionary measures that may be implemented may include the monitoring of sea turtle nesting and hatching activities following construction, the minimization of construction lighting during the nesting season and the monitoring of post-construction beach compaction and scarp formation.

To minimize impacts to nesting and hatching sea turtles, construction of the project is planned for the months of November through February. However, it may be necessary to construct the project between March and October due to planning and cost constraints. Beach restoration and periodic renourishment, if performed from March to October, could cover up sea turtle nests, and could interfere with or prevent the natural hatching process. Construction during the nesting season will occur only if a permit modification is granted by the DEP. In addition, the FWS Biological Opinion permits construction during the nesting season only for the Sanibel segment of the project. If any section of Captiva Island were to be constructed during turtle nesting season, reconsultation with the FWS would be necessary. If beach renourishment is to occur during the sea turtle nesting season, the preventative measures described below will be implemented.

5.02.03 Environmental Protection. Under an agreement with the USFWS, the Florida Department of Environmental Protection (DEP) controls sea turtle egg recovery/relocation operations within the State of Florida. The DEP specifies the qualifications of the recovery personnel and the procedures they are to use. In the event that construction occurs during the sea turtle nesting season (March to October), the Captiva Island Beach Erosion Control Federal Project dredge and fill contract will be specially conditioned by the Corps of Engineers to hold the contractor responsible for meeting all DEP sea turtle nest relocation criteria. The Contractor shall be responsible for daily dawn patrols of the entire beach work area for the purpose of locating, recovering/relocating and incubating sea turtle eggs and for the release of sea turtle hatchlings in accordance with the conditions of accepted DEP sea turtle nest relocation procedures. The FWS Biological Opinion states that "for any beach nourishment activity in the spring, nest survey and relocation activities must begin 65 days prior to the beginning of beach construction activities or by May 1, whichever is later. In the fall, nest surveys and relocations must begin 65 days prior to the initiation of beach construction and continue until September 15." If work is scheduled from March to October, the contractor will be required to abide by the stipulations in the FWS Biological Opinion. Construction during nesting season will be performed only if a permit modification is issued by DEP.

5.03 Historic, Cultural, and Archeological Resources. There are no known historic or archeological resources located on the beach segments proposed for renourishment for this project. During cultural resource magnetometer surveys conducted for this

- project, only one potentially significant magnetic anomaly was identified. A 200-foot radius buffer zone will be established around this anomaly to protect it from dredging activity. In a letter dated December 9, 1994, the Florida State Historic Preservation Officer (SHPO) concurred with the no effect determination for use of Borrow Area III. In a letter dated July 17, 1995, the SHPO concurred with the no effect determination for use of Borrow Areas IIIA and IIIB, conditioned upon the establishment of a 200-foot buffer zone around the anomaly in Borrow Area IIIB.
- 5.04 Water Quality. The waters fronting the project are classified as Class III by the State of Florida. Class III waters are considered suitable for recreation and the management of fish and wildlife. The project would cause temporary increases in turbidity at the dredging and discharge sites. These will be temporary conditions and will not significantly affect the area's water quality. The State of Florida granted a mixing zone variance for the 1988-1989 nourishment project, which allowed state water quality standards to be exceeded for a limited time during spoil placement. The mixing zone extended 300 meters offshore and 1,000 meters downcurrent from the discharge point except within 1,500 meters of Blind Pass or Redfish Pass. A similar variance has been requested for this project, and will be included as an attachment in the final EA.
- 5.05 Noise. There would be a temporary increase in the noise level during construction. The principal noise would stem from the vicinity of the discharge point on the beach and dredge. Construction equipment will be properly maintained in order to minimize the effects of noise. Increases to the current levels of noise as a result of this project will be localized and minor, and will be limited to the time of construction.
- 5.06 Air Quality. The short-term impact from emissions by the dredge and other construction equipment associated with the beach nourishment will not significantly impact air quality. The Florida Department of Environmental Protection does not regulate marine or mobile emission sources (dredge and construction equipment) within Lee County. No air quality permits are required for this project.
- 5.07 Hazardous and Toxic Waste. The waters offshore of the project area have historically been used for fishing and recreation. There are no records which would indicate the possibility of hazardous, toxic, or radioactive wastes along the beach or within the adjacent waters. The nature and composition of the fill material is similar to that of the native beach; there is no indication that hazardous toxic waste is present or would be introduced into the water column or transferred to the project area.
- 5.08 Aesthetics. The renourishment of the beach will maintain the natural appearance of the protective beach along the gulf front of the island. Two sections of dune on Captiva Island will be rebuilt as a part of the project. Native dune vegetation will be planted in both areas. Two sections of dune in the Sanibel Island project area will also be replanted with native dune vegetation. As a result, the construction of coastal structures to protect upland property will not be required. There will only be a

temporary reduction in aesthetics during construction; there is no expectation of adverse affects to the environment as a result of construction.

- 5.09 Beach Appearance. To prevent the formation of a scarp along the new beach fill, during construction the face of the beach will be sloped to reflect a stabilized condition and will be shaped and graded to prevent ponding of water. The elevation of the beach will be set to prevent frequent overtopping.
- 5.10 Relationship of Project to Environmental Protection Statutes and the Florida Coastal Zone Management Plan (CZMP). The effect of this project on the coastal zone would be to enhance the zone's appearance and suitability for beach-type recreation and to restore some of the coastal zone's ability to provide protection against storms and flooding. No lasting adverse effect on water quality is expected. Restoration of the State's beaches is a policy statement within the State CZMP Chapter 161 (Coastal Construction).
- 5.11 Dredge Material Discharge. The project would cause temporary increases in turbidity at the dredging and discharge sites. These are temporary conditions and would not significantly affect the area's water quality. The State of Florida granted a mixing zone variance for the 1988-1989 nourishment project, which allowed state water quality standards to be exceeded for a limited time during spoil placement. The mixing zone extended 300 meters offshore and 1,000 meters downcurrent from the discharge point except within 1,500 meters of Blind Pass or Redfish Pass. A similar variance has been requested for this project, and will be included as an attachment in the final EA.
- 5.12 Coastal Barrier Resources Act. The project area, Captiva Island, is not part of the Coastal Barrier Resources System.
- 6.00 **ENVIRONMENTAL COMMITMENTS.** The Captiva Erosion Prevention District (CEPD) and its contractors commit to avoiding, minimizing or mitigating for adverse effects during construction activities. The CEPD will incorporate FWS conditions, included in its Section 7 review, into the contract specifications, and will incorporate DEP permit conditions into the contract plans and specifications. The CEPD will fulfill the requirements of Federal, State, and Local environmental laws, as described in Section 7.00 of this Environmental Assessment.
- 7.00 **COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS.**
- 7.01 National Environmental Policy Act of 1969, as amended. Environmental information on the borrow and beach fill areas has been compiled and an Environmental Assessment has been prepared. The project is in compliance with the National Environmental Policy Act.

- 7.02 Endangered Species Act of 1973, as amended. This project has been coordinated with the National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (FWS). The NMFS deferred to the FWS. The FWS issued a Biological Opinion dated September 5, 1995 allowing construction of the Sanibel segment during turtle nesting season, with the establishment of a nest monitoring and relocation program. This project is fully coordinated under the Endangered Species Act of 1973, and will be in full compliance with the act.
- 7.03 Fish and Wildlife Coordination Act of 1958, as amended. This project is being coordinated with the FWS, and will be in full compliance with the act.
- 7.04 National Historic Preservation Act of 1966, as amended, and the Archeological and Historic Preservation Act, as amended. Cultural resource investigations and analyses were completed for this project and consultation with the Florida State Historic Preservation Officer has been completed. In a letter dated December 9, 1994, the SHPO concurred with the no effect determination for use of Borrow area III. In a letter dated July 17, 1995, the SHPO concurred with the no effect determination for use of Borrow Areas IIIA and IIIB, conditioned upon the establishment of a 200 foot buffer around the anomaly in Borrow Area IIIB. Therefore the project is in compliance with these Acts and with 36 CFR Part 800.
- 7.05 Clean Water Act of 1972, as amended. Full compliance will be achieved with the issuance of a Section 401 permit from the State. A permit modification will be obtained from the State before turtle nesting season if there is a possibility of construction occurring during nesting season. Application has been made for a mixing zone variance during the project construction. A Section 404(b) Evaluation is included in this report as Appendix EA-I.
- 7.06 Clean Air Act of 1972, as amended. No air quality permits will be required for this project. Full compliance will be achieved with receipt of comments on the final EA from the United States Environmental Protection Agency.
- 7.07 Coastal Zone Management Act of 1972, as amended. The study is in partial compliance at this time. Full compliance will be achieved with receipt of comments from the State Clearinghouse which will be initiated by the U.S. Army Corps of Engineers. A Federal consistency determination in accordance with 15 CFR 930 Subpart C is included in this report as Appendix EA-II.
- 7.08 Farmland Protection Policy Act of 1981. No prime or unique farmland will be impacted by implementation of this project. This act is not applicable.
- 7.09 Wild and Scenic River Act of 1968, as amended. No designated Wild and Scenic river reaches will be affected by project related activities. This act is not applicable.

- 7.10 Marine Mammal Protection Act of 1972, as amended. Incorporation of the safeguards used to protect threatened or endangered species during project implementation will also protect any marine mammals in the area, therefore, this project is in compliance with the Act.
- 7.11 Estuary Protection Act of 1968. No designated estuary will be affected by project activities. This act is not applicable.
- 7.12 Federal Water Project Recreation Act, as amended. There is no cost-shared recreation proposed for this project.
- 7.13 Fishery Conservation and Management Act of 1976. This project is being coordinated with the NMFS, and will be in full compliance with the act.
- 7.14 Submerged Lands Act of 1953. The project will occur in submerged lands of the State of Florida. The project is being coordinated with the State and is in compliance with the Act.
- 7.15 Coastal Barrier Resources Act and Coastal Barrier Improvement Act of 1990. There are no designated coastal barrier resources in the project area that would be affected by this project. These acts are not applicable.
- 7.16 Rivers and Harbors Act of 1899. The proposed work will not obstruct navigable waters of the United States. The project is in full compliance.
- 7.17 Anadromous Fish Conservation Act. Anadromous fish species will not be affected. The project is being coordinated with the National Marine Fisheries Service and will be in full compliance with the act.
- 7.18 Migratory Bird Treaty Act of Migratory Bird Conservation Act. No migratory birds will be affected by project activities. The project is in compliance with these acts.
- 7.19 E.O. 11990, Protection of Wetlands. No wetlands will be affected by project activities. The project is in compliance with the goals of this Executive Order.
- 7.20 E.O. 11988, Flood Plain Management. No activities associated with this project will take place within a floodplain, therefore this project is in compliance with the goals of this Executive Order.
- 8.00 **AGENCY COORDINATION.** This proposed project is being coordinated with the following agencies: the United States Fish and Wildlife Service, the National Marine Fisheries Service, the United States Environmental Protection Agency, the Florida State Clearinghouse, the Southwest Florida Regional Planning Council, the Florida State Historic Preservation Officer, and the Florida Department of Environmental Protection.

8.01 Responsibility of the CEPD. The CEPD is a political subdivision of the State of Florida, and as such will act as liaison between all interested agencies, groups or individuals for this portion of Lee County's Federal Shore Protection project.

9.00 PUBLIC INVOLVEMENT.

9.01 Scoping and Draft EA. A public notice describing the Captiva segment of the project was published October 31, 1994 and November 6, 1994. A revised public notice was mailed to potentially interested parties March 3, 1995, to describe the addition of the Sanibel segment of the project. In response to the public notice, comments have been received from the Fish and Wildlife Service and the Southwest Florida Regional Planning Council.

9.02 Comments Received. Comments below are taken from letters included in Appendix EA-III, Pertinent Correspondence.

Comment # 1. In a December 9, 1994 letter, the State Historic Preservation Officer stated that removal of borrow from Borrow Area III "will have no effect on historic properties listed, or eligible for listing in the National Register of Historic Places".

Comment # 2. In an April 28, 1995 letter, the United States Department of the Interior, Fish and Wildlife Service (FWS) concurred with the Corps' opinion that the project would have no effect on the West Indian manatee or its critical habitat.

Comment # 3. In a letter dated March 14, 1995, the Southwest Florida Regional Planning Council found the project to be "Regionally Significant and Consistent with adopted goals, objectives, and policies of the Regional Comprehensive Policy Plan".

Comment #4. The State Historic Preservation Officer, in a letter dated July 17, 1995, stated that "conditioned upon a 200 foot buffer zone being maintained around the anomaly in Borrow Area III-B, the proposed activities will have no adverse effect on any significant resources listed or eligible for listing in the National Register of Historic Places."

10.00 REFERENCES.

Coastal Planning & Engineering, Inc. and Robert Baer, "Cultural Resource and Hydrographic Investigations of a Captiva Island Offshore Borrow Area," Boca Raton, FL, February 1994.

Coastal Planning & Engineering, Inc. and Robert Baer, "Cultural Resource and Remote Sensing Magnetometer Surveys of Two Designated Sand Borrow Sites Selected as Sources for Beach Renourishment Offshore of Captiva and Sanibel Islands, Florida," Boca Raton, FL, May 1995.

Coastal Planning & Engineering, Inc., "General and Detailed Design Memorandum for Lee County, Florida Beach Erosion Control Project (Captiva Island Segment)," Boca Raton, FL, July 1989.

Coastal Planning & Engineering, Inc., "Captiva Island Beach Maintenance Nourishment Project Phase II - Sand Search," CEPD, April 1991.

Continental Shelf Associates, Inc., "Lee County Beach Management Plan Environmental Analysis," March 30, 1987.

Continental Shelf Associates, Inc., "Captiva Beach Restoration Plan Benthic Monitoring Project," Jupiter, FL, February 1992.

Florida Game and Fresh Water Fish Commission, "Official Lists of Endangered and Potentially Endangered Fauna & Flora in Florida," 1 June 1994, D.A. Woods, compiler, 23 pg.

J. N. "Ding" Darling National Wildlife Refuge - Mammal List, 1 pg.

Johnson, Craig, Letter from Mr. Craig Johnson, Supervisor, South Florida Ecosystem Office, USFWS, to Colonel Terry Rice, District Engineer, Jacksonville District, USACE, April 28, 1995, 2 pg.

LeBuff, Charles R., Jr., "Sea Turtle Conservation - Captiva Style." Caretta Research, Inc. 1990.

Lindblad, Erick, Sanibel-Captiva Conservation Foundation, Personal communication. 1992.

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Mote Marine Laboratory, "Captiva Nearshore Fisheries Study, Final Report," Sarasota, FL, December 1991.

National Marine Fisheries Service, "Endangered and Threatened Species and Critical Habitats under NMFS Jurisdiction, Florida Gulf Coast," NMFS, July 23, 1993, 1 pg.

United States Army Corps of Engineers, "Automated Coastal Engineering System, Version 1.07," Coastal Engineering Research Center, Department of the Army, Waterways Experiment Station, Corps of Engineers, Vicksburg, MS, 1992.

11.00 REPORT PREPARATION.

This report was prepared by Coastal Planning & Engineering, Inc.

APPENDIX EA-I

SECTION 404(b) EVALUATION

SECTION 404(b) EVALUATION

FIRST RENOURISHMENT PROJECT, CAPTIVA ISLAND SEGMENT LEE COUNTY BEACH EROSION CONTROL PROJECT LEE COUNTY, CAPTIVA ISLAND, FLORIDA

I. Project Description

- a. Location. The proposed project area includes 3.1 miles of Captiva Island and 0.74 miles of Sanibel Island. The north project limit is DEP monument R-93 on Captiva Island, and the south project limit is DEP monument R-114 on Sanibel Island. Borrow Area III is proposed for use for the Captiva Island portion of the project. Borrow Area III is located approximately 4 nautical miles offshore of DEP monument R-100. Borrow Areas III-A and III-B are proposed for use for the Sanibel Island portion of the project. Borrow Areas III-A and III-B are located approximately 5 nautical miles from DEP monument R-115. Please refer to the location map, Figure EA-1, in the Environmental Assessment (EA).
- b. General Description. The proposed Federal project consists of dredging approximately 837,200 cubic yards of beach quality material from the proposed borrow area. The maximum depth of excavation for the proposed borrow areas will be no greater than elevation -38 feet NGVD. A volume of 629,000 cubic yards will be placed on the Captiva Island beaches, and 208,200 cubic yards will be placed on the Sanibel Island beaches. The material will be placed on the project beaches to a berm height of 6 feet NGVD, and will extend the existing 6 foot contour an average of 128 feet waterward on Captiva Island, and 155 feet waterward on Sanibel Island.
- c. Authority and Purpose. The proposed action is being performed under the authorization of the Lee County Shore Protection Project. The beach erosion control project for Lee County, Florida was authorized in accordance with recommendations of the Chief of Engineers in House Document number 91-393, under the provisions of Section 201 of the Flood Control Act of 1965 enacted by House and Senate Resolutions (December 15, 1970 and December 17, 1970, respectively). The authorization provides for Federal participation in beach restoration and periodic nourishment along portions of the Gulf shore of Lee County. The northern end of the Captiva Island segment at South Seas Plantation was nourished in 1981 by placement of 665,000 cubic yards of dredged material. The entire Captiva Island segment was nourished in 1988-89 by placement of 1,594,000 cubic yards of sand.
- d. General Description of Dredged and Fill Material.
- (1) General Characteristics of Material. Borrow Area III consists of clean sand over rock. The sand has a mean grain size of 0.39 mm (1.37 phi), a sorting value of 1.41 phi, and a silt-clay content of 3.6%. Borrow Areas III-A and III-B consist of clean sand over a ± 1.5 foot layer of sandy fine material which overlays the limestone rock.

The mean grain size of material in Borrow Area III-A is 0.41 mm (1.28 phi), with sorting of 0.95 phi and a silt-clay content of 3.8%. The material in Borrow Area III-B has a mean grain size of 0.36 mm (1.46 phi), sorting of 0.90 phi, and silt-clay content of 4.0%.

(2) Quantity of Material. The quantities of material available in Borrow Areas III, III-A, and III-B are 1.2, 1.2, and 1.1 million cubic yards, respectively.

(3) Source of Material. Three offshore borrow areas have been proposed for the project, as described in the following section.

e. Description of the Proposed Borrow Area.

(1) Location. Borrow Area III, proposed for use for the Captiva Island portion of the project, is located approximately 4 nautical miles waterward of Captiva Island. Water depths in Borrow Area III range from 27 feet to 34 feet. Borrow Areas III-A and III-B are proposed for use for the Sanibel Island portion of the project. Borrow Area III-A is located approximately 5.2 nautical miles waterward of Sanibel Island. Water depths in Borrow Area III-A range from 31 feet to 37 feet. Borrow Area III-B is located approximately 6.1 nautical miles waterward of Sanibel Island in water depths of 32 feet to 39 feet.

(2) Size. Borrow Area III consists of approximately 13,047,000 square feet of ocean floor. Borrow Areas III-A and III-B consist of approximately 10,230,000 and 10,107,032 square feet, respectively.

(3) Type of Site. The borrow sites are located offshore of Lee County, Florida, in the open Gulf of Mexico. The submerged terrain in the borrow area vicinity consists of the floor of the Gulf of Mexico. The sea floor at this location is characterized by a large sandy area with no hardground or seagrasses.

(4) Type of Habitat. The borrow area is characterized by a sandy bottom. There are no known seagrass beds or hardgrounds in the borrow area.

(5) Timing and Duration of Dredging. The dredging is expected to begin in November, 1995, and will require approximately 16 weeks for completion.

f. Description of the Proposed Fill Site.

(1) Size and Location. The beach renourishment area includes 3.1 miles of shoreline along Captiva Island and 0.74 mile along Sanibel Island.

(2) Type of Site. The discharge site is an oceanic, high-energy beach.

(3) Type of Habitat. The habitat of the fill site includes supratidal dry beach, intertidal swash zone, and subtidal sandy areas. A vegetated dune exists along the project area, as well.

(4) Timing and Duration of Discharge. The project is presently planned for the months of November through February to avoid peak sea turtle nesting season. However, it may be necessary to construct the project between March and October due to planning and cost constraints. Beach restoration and periodic nourishment, if performed from March to September, could cover up nests and interfere with or prevent the natural hatching process. A turtle nest monitoring and relocation program will be established and implemented in the event that construction is performed during nesting season. The duration of discharge is expected to be about 4 months.

g. Description of Dredging and Disposal Methods. Dredging methodology will be determined by the selected contractor. It is predicted that the fill sand will be dredged using a hopper dredge and barged to the beach fill site. The sand will be shaped (and tilled, if necessary) by conventional earth-moving equipment.

h. Access to Construction Site. The borrow area is located in the open ocean and work will be done by an ocean going vessel (with dredge). Equipment used on the beach will be delivered on the beach using public accesses, as shown on plates in the main text of the GDM.

II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. Top elevation of the construction beach fill will be 6.0 feet NGVD. The slope will be 1V:10H from the berm to where it intersects with the existing bottom. The equilibrium profile will have a slope of 1 vertical to 12 horizontal from the berm to 0' NGVD, and 1 vertical to 25 horizontal from 0' NGVD to the existing bottom.

(2) Type of Fill Material. The material to be dredged from the proposed borrow area and used for fill in the beach erosion control project is beach compatible and contains 5% or less silt/clay. The composite mean grain size of the samples from the proposed borrow site III is 0.39 mm (1.37 phi). The material located in III-A has a mean grain size of 0.41 mm (1.28 phi), and the material located in III-B has a mean grain size of 0.36 mm (1.46 phi).

(3) Dredge/Fill Material Movement. The fill material will be subject to erosion by waves with the net movement of fill material to the south.

(4) Physical Effects on Benthos. Some benthic organisms that are not mobile may be lost during dredging. Recolonization soon after project completion is expected to

replace those organisms which do not survive project construction. It is anticipated that no long-term adverse impacts will occur.

b. Water Circulation, Fluctuation and Salinity Determination.

(1) Water Column Effects. During dredging, turbidity will increase temporarily in the water column. The increased turbidity will be short-term; therefore fill placement will have no long-term or significant impacts, if any, on salinity, water chemistry, clarity, color, odor, taste, dissolved gas levels, nutrients or eutrophication.

(2) Current Patterns and Circulation. Net movement of water is from the north to the south. The project will have no significant effect on existing current patterns, current flow, velocity, stratification, or the hydrologic regime in the area.

(3) Normal Water Level Fluctuations and Salinity Gradients. Mean high water in the project area is located at an elevation of approximately 1.1 feet NGVD. Salinity is that of normal ocean water.

c. Suspended Particulate/Turbidity Determinations.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site. There may be a temporary increase in turbidity levels in the project area during discharge. Turbidity will be short-term and localized and no significant adverse impacts are expected. A mixing zone will be applied for so that state standards for turbidity will not be exceeded.

(2) Effects on the Chemical and Physical Properties of the Water Column. The sea floor at this location is characterized by a large area of sand. There would be little, if any adverse effects to chemical and physical properties of the water as a result of the use of the proposed borrow area.

(a) Light Penetration. Some decrease in light penetration may occur in the immediate vicinity of the dredging area. This effect will be temporary, limited to the immediate area of construction, and will have no adverse impact on the environment.

(b) Dissolved Oxygen. Dissolved oxygen levels will not be altered by this project.

(c) Toxic Metals, Organics, and Pathogens. No toxic metals, organics, or pathogens are expected to be released by the project.

(d) Aesthetics. The aesthetic quality of the water in the immediate area of the project will be reduced during construction due to increased turbidity. This will be a short-term and localized condition.

(3) Effects on Biota.

(a) Primary Productivity and Photosynthesis. The proposed borrow and fill areas are characterized by a sandy, featureless bottom. There is no attached algae and the effects on phytoplankton, if any, will be minimal and short-term.

(b) Suspension/Filter Feeders. An increase in turbidity could adversely impact burrowing invertebrate filter feeders within and adjacent to the immediate construction area. It is not expected that a short-term, temporary increase in turbidity will have any long-term negative impact on these highly prolific organisms.

(c) Sight Feeders. No significant impacts on these organisms are expected as the majority of sight feeders are highly motile and can move outside the project area.

d. Contaminant Determinations. Material which will be dredged from the proposed borrow site will not introduce, relocate, or increase contaminants at the fill area.

e. Aquatic Ecosystem and Organism Determinations. The fill material that will be dredged from the proposed borrow area and used in the beach erosion control project is similar enough to the existing substrate so that no impacts are expected. The materials meet the exclusion criteria, therefore, no additional chemical-biological interactive testing will be required.

(1) Effects on Plankton. No adverse impacts on autotrophic or heterotrophic organisms are anticipated.

(2) Effects on Benthos. No adverse long-term impacts to non-motile or motile benthic invertebrates are anticipated.

(3) Effects on Nekton. No adverse impacts to nektonic species are anticipated.

(4) Effects on Aquatic Food Web. No adverse long-term impact to any trophic group in the food web is anticipated.

(5) Effects on Special Aquatic Sites.

(a) Hardground and Coral Reef Communities. There are no hardbottom or coral reef communities located near the borrow area or the beach fill area.

(6) Endangered and Threatened Species. There will be no significant adverse impacts on any threatened or endangered species or on critical habitat of any threatened or endangered species. Refer to section 6.00 in the environmental assessment for measures that will be implemented to protect endangered and threatened species.

(7) Other Wildlife. No adverse impacts to small foraging mammals, reptiles, or wading birds, or wildlife in general are expected.

(8) Actions to Minimize Impacts. All practical safeguards will be taken during construction to preserve and enhance environmental, aesthetic, recreational, and economic values in the project area. Specific precautions are discussed elsewhere in this 404(b) evaluation and in the environmental assessment for this project.

f. Proposed Disposal Site Determinations.

(1) Mixing Zone Determination. A mixing zone variance application has been submitted to the Florida Department of Environmental Protection, because the dredged material is expected to cause a temporary increase in turbidity at the beach disposal site. No adverse impacts related to depth, current velocity, direction and variability, degree of turbulence, stratification, or ambient concentrations of constituents are expected from implementation of the project.

(2) Determination of Compliance with Applicable Water Quality Standards. Because of the inert nature of the material to be dredged, Class III water quality standards will not be violated.

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and Private Water Supplies. No municipal or private water supplies will be impacted by the implementation of the project.

(b) Recreational and Commercial Fisheries. Fishing in the immediate construction area will be prohibited during construction. Otherwise, recreational and commercial fisheries will not be impacted by the implementation of the project.

(c) Water-Related Recreation. Beach/water related recreation in the immediate vicinity of construction will be prohibited during construction activities. This will be a short-term impact.

(d) Aesthetics. The existing environmental setting will not be adversely impacted. Construction activities will cause a temporary increase in noise and air pollution caused by equipment as well as some temporary increase in turbidity. These impacts are not expected to adversely affect the aesthetic resources over the long term and once construction ends, conditions will return to pre-project levels.

(e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas Research Sites, and Similar Preserves. No such designated sites are located within the project area.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. There will be no cumulative impacts that result in a major impairment of water quality of the existing aquatic ecosystem as a result of the placement of fill at the project site.

h. Determination of Secondary Effects on the Aquatic Ecosystem. There will be no secondary impacts on the aquatic ecosystem as a result of the dredging.

III. Findings of Compliance or Non-compliance with the Restrictions on Discharge.

- a. No significant adaptations of the guidelines were made relative to this evaluation.
- b. No practicable alternative exists which meets the study objectives that does not involve discharge of fill into waters of the United States. Further, no less environmentally damaging practical alternatives to the proposed actions (use of the proposed borrow site) exist. The use of upland and or other sand sources would cause the cost of hauling and/or bulk purchase price to be significantly higher than the use of the proposed borrow site. In addition, the impacts of using other sources on cultural resources, protected species, and other environmental factors would likely be equal to or greater than the impacts of the proposed action. Other local sand sources did not have adequate material or they were too close to the existing shore. The no action alternative would allow the present condition of the Captiva Island and Sanibel Island shorelines to continue and would not provide the benefits needed for storm damage protection.
- c. After consideration of disposal site dilution and dispersion, the discharge of fill materials will not cause or contribute to, violations of any applicable State water quality standards for Class III waters. The discharge operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.
- d. The dredging of and disposal of dredged materials for beach construction will not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended.
- e. The dredging and placement of fill material will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic species and other wildlife will not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values will not occur.

f. Appropriate steps have been taken to minimize the adverse environmental impact of the proposed action. The proposed borrow area has low silt content, therefore, turbidity due to silt will be low when dredging and discharging. Turbidity will be monitored so that if levels exceed State water quality standards of 29 NTU's above background in the proposed mixing zone, the contractor will be required to cease work until conditions return to normal.

g. On the basis of the guidelines, the proposed dredging and disposal sites are specified as complying with the requirements of these guidelines.

APPENDIX EA-II

**FLORIDA COASTAL ZONE MANAGEMENT PROGRAM
FEDERAL CONSISTENCY DETERMINATION**

FLORIDA COASTAL ZONE MANAGEMENT PROGRAM
FEDERAL CONSISTENCY EVALUATION PROCEDURES

FIRST RENOURISHMENT PROJECT, CAPTIVA ISLAND SEGMENT
LEE COUNTY BEACH EROSION CONTROL PROJECT
LEE COUNTY, CAPTIVA ISLAND, FLORIDA

1. Chapter 161, Beach and Shore Protection. The intent of the coastal construction permit program established by this chapter is to regulate construction projects located seaward of the line of mean high water and which might have an effect on natural shoreline processes.

Response: The proposed plans and information will be submitted to the state in compliance with this chapter.

2. Chapters 186 and 187, State and Regional Planning. These chapters establish the State Comprehensive Plan which sets goals that articulate a strategic vision of the State's future. Its purpose is to define in a broad sense, goals and policies that provide decision-makers directions for the future and provide long-range guidance for an orderly social, economic and physical growth.

Response: The proposed borrow and fill areas for the beach erosion control project are being coordinated with various Federal, State and local agencies. The use of the borrow areas for this shore protection project meets the primary goal of the State Comprehensive Plan through preservation and protection of the shorefront development and infrastructure.

3. Chapter 252, Disaster Preparation, Response and Mitigation. This chapter creates a state emergency management agency, with the authority to provide for the common defense; to protect the public peace, health and safety; and to preserve the lives and property of the people of Florida.

Response: The use of the proposed borrow area for beach fill will help protect the beach from erosion and reduce damage resulting from storms. Therefore, this project is consistent with the efforts of Division of Emergency Management.

4. Chapter 253, State Lands. This chapter governs the management of submerged state lands and resources within state lands. This includes archeological and historical resources; water resources; fish and wildlife resources; beaches and dunes; submerged grass beds and other benthic communities; swamps, marshes and other wetlands; mineral resources; unique natural features; submerged lands; spoil islands; and artificial reefs.

Response: No seagrass beds or reef communities are located within the proposed borrow area. The proposed work will not affect any archeological or historical resources. The project complies with the intent of this chapter.

5. Chapters 253, 259, 260, and 375, Land Acquisition. This chapter authorizes the state to acquire land to protect environmentally sensitive areas.

Response: Easements have been obtained, and an ECL established, for the Captiva Island portion of this project. Upland easements will be obtained, and an ECL established, for the Sanibel Island portion of this project.

6. Chapter 258, State Parks and Aquatic Preserves. This chapter authorizes the state to manage state parks and preserves. Consistency with this statute would include consideration of projects that would directly or indirectly adversely impact park property, natural resources, park programs, management or operations.

Response: Use of the proposed borrow area and beach fill areas would not adversely impact aquatic preserves. The project is consistent with this chapter.

7. Chapter 267, Historic Preservation. This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities.

Response: Cultural resource magnetometer surveys have been conducted for each of the three borrow areas. The report resulting from investigation of Borrow Area III was coordinated with the Florida State Historic Preservation Officer (SHPO), and in a letter dated December 9, 1994, the SHPO concurred with the no effect determination for use of that borrow area. The report resulting from investigation of Borrow Areas IIIA and IIIB was also coordinated with the SHPO. In a letter dated July 17, 1995, the SHPO concurred with the no effect determination for use of Borrow Areas IIIA and IIIB, conditioned upon establishment of a 200-foot buffer zone around the anomaly in Borrow Area IIIB. The project is in compliance with this chapter.

8. Chapter 288, Economic Development and Tourism. This chapter directs the state to provide guidance and promotion of beneficial development through encouraging economic diversification and promoting tourism.

Response: Use of sand from the proposed borrow area for beach fill would provide more space for a recreational beach and the protection of recreational facilities along the beach. This would be compatible with tourism for this area and therefore, is consistent with the goals of this chapter.

9. Chapters 334 and 339, Public Transportation. This chapter authorizes the planning and development of a safe balanced and efficient transportation system.

Response: There would be no effect to public transportation as a result of the use of the proposed borrow area or the renourishment of the proposed project area.

10. Chapter 370, Saltwater Living Resources. This chapter directs the state to preserve, manage and protect the marine, crustacean, shell and anadromous fishery resources in state

waters; to protect and enhance the marine and estuarine environment; to regulate fishermen and vessels of the state engaged in the taking of such resources within or without state waters; to issue licenses for the taking and processing products of fisheries; to secure and maintain statistical records of the catch of each such species; and to conduct scientific, economic, and other studies and research.

Response: Use of the proposed borrow area may cause a temporary short-term impact to filter feeders due to increased turbidity. However, these organisms are highly prolific and are expected to return to pre-construction levels within 6 months to one year after construction, based on studies performed after the initial nourishment of the Captiva segment of this project. No adverse impacts to marine fishery resources are expected. Based on the overall impacts of the project, the project is consistent with the goals of this chapter.

11. Chapter 372, Living Land and Freshwater Resources. This chapter establishes the Game and Freshwater Fish Commission and directs it to manage freshwater aquatic life and wild animal life and their habitat to perpetuate a diversity of species with densities and distributions which provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: The project will have no effect on freshwater aquatic life or wild animal life.

12. Chapter 373, Water Resources. This chapter provides the authority to regulate the withdrawal, diversion, storage, and consumption of water.

Response: This project does not involve water resources as described by this chapter.

13. Chapter 376, Pollutant Spill Prevention and Control. This chapter regulates the transfer, storage, and transportation of pollutants and the cleanup of pollutant discharges.

Response: This project does not involve the transportation or discharging of pollutants.

14. Chapter 377, Oil and Gas Exploration and Production. This chapter authorizes the regulation of all phases of exploration, drilling, and production of oil, gas, and other petroleum products.

Response: This project does not involve the exploration, drilling or production of gas, oil or petroleum product and therefore, this chapter does not apply.

15. Chapter 380, Environmental Land and Water Management. This chapter establishes criteria and procedures to assure that local land development decisions consider the regional impact nature of proposed large-scale development.

Response: Renourishment in the proposed fill area will not have any regional impact on resources in the area, nor will use of the proposed borrow area. Therefore, the project is consistent with the goals of this chapter.

16. Chapter 388, Arthropod Control. This chapter provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the state.

Response: The project will not further the propagation of mosquitoes or other pest arthropods.

17. Chapter 403, Environmental Control. This chapter authorizes the regulation of pollution of the air and waters of the state by the Florida Department of Environmental Regulation (now a part of the Florida Department of Environmental Protection).

Response: Water Quality Certification will be obtained for dredging and beach disposal operations. An environmental assessment of the project impacts has been prepared and will be reviewed by the appropriate resource agencies including DEP. Environmental protection measures will be implemented to ensure that no lasting adverse effects on water quality, air quality, or other environmental resources will occur. Therefore, the project complies with the intent of this chapter.

18. Chapter 582, Soil and Water Conservation. This chapter establishes policy for the conservation of the state soil and water through the Department of Agriculture. Land use policies will be evaluated in terms of their tendency to cause or contribute to soil erosion or to conserve, develop, and utilize soil and water resources both onsite or in adjoining properties affected by the project. Particular attention will be given to projects on or near agricultural lands.

Response: The proposed project is not located near or on agricultural lands; therefore, this chapter does not apply.

APPENDIX EA-III
PERTINENT CORRESPONDENCE



United States Department of the Interior

FISH AND WILDLIFE SERVICE

P.O. Box 2676

Vero Beach, Florida 32961-2676

IN REPLY REFER TO:

April 28, 1995

Colonel Terry Rice
District Engineer
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

FWS Log No.: 4-1-95-304
Application No.: 199403952 (LP-MN)
Dated: March 9, 1995
Applicant: Captiva Erosion Prevention District
County: Lee County

Dear Colonel Rice:

The U.S. Fish and Wildlife Service (FWS) is in receipt of the Department of the Army (DA) permit modification referenced above. The FWS has reviewed the information presented in the public notice and other information available to us concerning the project site. The applicant proposes to add the north end of Sanibel Island to the beach nourishment proposed for the south end of Captiva Island.

The project will result in the deposition of sand in an area where threatened loggerhead sea turtles (*Caretta caretta*) and endangered green sea turtles (*Chelonia mydas*) are known to nest. If the project is constructed during the nesting season, sea turtle nests could be buried.

The Public Notice states "we have determined that the proposed project will not affect the West Indian (Florida) manatee but may affect nesting sea turtles." Based on our recent review of unpublished sea turtle nest survey data made available to us by the Florida Department of Environmental Protection (FDEP), we concur with your determination of "may effect" for the threatened and endangered sea turtles listed above. The FWS requests you initiate consultation for these species in accordance with section 7 of the Endangered Species Act of 1973, as amended (ESA)(16 U.S.C. 1531 et. seq.).

Currently, there is no critical habitat listed for marine turtles within the continental United States; therefore, we are able to determine that the project will not affect critical habitat for threatened and endangered sea turtles. The FWS is able to concur that the project is not likely to affect the endangered West Indian manatee (*Trichechus manatus latirostris*). Manatees are present in the area but do not use the habitats which would be affected by this project. The FWS finds that the project is not likely to adversely affect designated critical habitat for the manatee.

Upon initiation of consultation for threatened and endangered sea turtles, the FWS will complete the consultation process on the action within 135 days. A Biological Opinion will be issued at that time.

We recommend that the U.S. Army Corps of Engineers (COE) postpone final action on this permit application until the consultation is complete. The FWS also requests that copies of all documents submitted to the COE concerning the action and its effects on fish and wildlife resources, such as engineering surveys or consultants' reports, be forwarded to this office for inclusion in the consultation process.

Thank you for the opportunity to comment on the proposed project. If you have any questions, please contact Chuck Sultzman of my staff at (407)562-3909.

Sincerely yours,

Kalani D. Cairns

for Craig Johnson
Supervisor, South Florida Ecosystem Office

cc:

EPA, Atlanta, GA

FWS, Jacksonville, FL (Attn: Sandy MacPherson, Robert Turner)

NMFS, St. Petersburg, FL

DEP (OPSM), Tallahassee, FL

FGFWFC, Punta Gorda, FL



IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE

P.O. Box 2676

Vero Beach, Florida 32961-2676

September 5, 1995

Colonel Terrence C. Salt
District Engineer:
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, FL 32232-0019

Attn: Regulatory Division

FWS Log No: 4-1-95-304
Public Notice: 199403952(IP-MN)
Applicant: Captiva Erosion
Prevention District
County: Lee
Date: March 9, 1995

Dear Colonel Salt:

The U.S. Fish and Wildlife Service (FWS) reviewed the project plans for the proposed nourishment of 3,900 foot-long segment of shoreline located on the Gulf of Mexico. The project would be located at Sanibel Island, Lee County, Florida. This document represents the FWS Biological Opinion on the effects of that action on two species of sea turtles: the loggerhead (*Caretta caretta*) and green (*Chelonia mydas*) in accordance with the provisions of the Endangered Species Act of 1973, as amended, (16 U.S.C. 1531 et seq.).

This biological opinion is based on information provided in the public notice, telephone conversations with the applicant's representative (Coastal Planning and Engineering) field investigations, and other information available to us. A complete administrative record of this consultation is on file in the South Florida Ecosystem Office in Vero Beach, Florida.

BIOLOGICAL OPINION

This represents the biological opinion of the Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act.

Consultation History

On March 3, 1995, the Corps of Engineers (COE) issued a public notice for the project. The public notice stated that the COE had determined that the project "may affect" nesting sea turtles. On April 28, 1995, the FWS notified the COE that we concurred with the COE determination of may affect for nesting sea turtles. The FWS informed the COE at that time that a biological opinion would be issued regarding these impacts. On May 16, 1995, the FWS visited the site of the proposed project to determine whether or not suitable habitat for nesting sea turtles was present.

Environmental Baseline

A. Action Area

For the purpose of this consultation, we have defined the action area of this proposal as the fill area of the project shoreline which extends 3900 feet south of Blind Pass which is located at 26° 31' 00" North latitude and 82° 11' 30" West longitude, Lee County, Florida.

B. Status of the Species

Four species of sea turtles are known to nest in Florida: the loggerhead (*Caretta caretta*), green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), and hawksbill (*Eretmochelys imbricata*). The loggerhead turtle is expected to be by far the most common nesting species at the project site. Nesting by hawksbill turtles and leatherback turtles has not been documented along Florida's west coast. Nesting by these species has not been reported along the stretch of beach considered in this opinion. Hawksbill turtles are rarely found nesting on Florida's beaches and have not yet been documented as nesting in Lee County.

The loggerhead sea turtle was listed as threatened on July 28, 1978. The nesting population of loggerheads in the United States is one of the two most significant nesting populations in the world, representing up to 30 percent of the worldwide loggerhead nesting population (Ross 1982). This is in contrast to all other species of sea turtles, which nest primarily outside the U.S. Within the U.S., the loggerhead sea turtle nests primarily on beaches from North Carolina to Florida. Approximately 90 percent of loggerhead nesting within the U.S. occurs in Florida (Murphy and Hopkins 1984). The highest density nesting beaches in Florida occur from Canaveral National Seashore, Volusia County, south to John U. Lloyd State Recreation Area in Broward County (Conley and Hoffman 1986). Nesting densities vary from one nest per kilometer (km) on the average for some beaches in the northeast, southeast, and panhandle of Florida to 660 nests per km on some stretches of beach in southern Brevard County (Conley and Hoffman 1986; Ehrhart and Witherington 1986). The most recent estimates for total annual nesting effort for the southeastern U.S. is 50,000 nests for 1989 and 68,000 in 1990 (Florida DEP, unpublished data; Georgia DEP, unpublished data; South Carolina WMRC, unpublished data; North Carolina WC, unpublished data).

The loggerhead nesting season is from late April to August or early September, with most nesting occurring in June and July, and occasional nesting during September. The incubation period is temperature-dependent, and most nests hatch within 60 days, although 70 days may be required for some nests, particularly in the northern periphery of the nesting range.

Green sea turtle nesting within the U.S. occurs principally along the east-central and southeast Florida beaches. Nesting densities are much lower than for the loggerhead and range from 1-5 nests per km on most beaches within its major nesting range to 13-22 nests per km on high density green turtle nesting beaches in southern Brevard County and south Jupiter Island in Palm Beach County (Conley and Hoffman 1986; Ehrhart and Witherington 1986; Florida DEP, unpublished data). Overall green turtle nesting in Florida has shown an increasing trend, with the highest recorded total of 2182 nests in 1990 (Florida DEP, unpublished data). Nesting occurs from May to September, with the peak nesting occurring in July and August. The hatching period is similar to that of the loggerhead. Green sea turtle nesting has not been documented in Lee County; however, the increase in green sea turtle nests throughout the State warrants their consideration in this biological opinion.

According to data provided to us by Coastal Planning and Engineering, there have been an average of 2.7 nests per mile deposited in the vicinity of the proposed project. As green sea turtles have not been documented to nest in Lee County it is reasonable to assume that all of the documented nests were laid by loggerhead sea turtles.

C. Effects of the Action

The FWS is concerned about the timing of the beach renourishment. We believe that if project construction is undertaken during the sea turtle nesting season, some sea turtle nests could be crushed by heavy equipment operating on the beach. Even with a relocation program, some nests could remain undetected and would be crushed by the equipment. In spite of the best intentions and efforts by persons relocating nests, wind, rain, and tides can quickly obscure turtle tracks and prevent workers from finding nests. In addition, turtles' activities can often obscure nest locations, making interpretation of the site difficult; depending on the experience and motivation of workers, some nests will remain undetected. Also, if construction activity continues until after dark, the lighting of the construction area and lights and noise from heavy equipment could deter nesting females from crawling onto adjacent beaches.

D. Cumulative affects

Cumulative effects include the effects of future State, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. Numerous other beach renourishment projects are planned to occur on the west coast of Florida. However,

the adverse effects to sea turtles are ephemeral and few such projects are likely to be constructed simultaneously reducing the potential for cumulative affects.

E. Conclusion

After reviewing the current status of aforementioned threatened and endangered sea turtles, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the FWS' biological opinion that the project, as proposed, may adversely affect but is not likely to jeopardize the continued existence of threatened and endangered sea turtles. No critical habitat has been designated within the continental United States for these species, therefore, none will be affected.

INCIDENTAL TAKE

Sections 4(d) and 9 of ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

We have reviewed the biological information and other information relevant to this action, and based on our review, incidental take is anticipated for all nests missed by a nest relocation program within the project boundary. This is inclusive of the direct effects of nest burial and crushing and the indirect effects of aberrant nests and broken eggs which may

result from sand compaction in nesting seasons subsequent to nourishment activities. The FWS estimates that the take resulting from issuance of this permit will be approximately 10 percent of all relocated loggerhead eggs. Since, at most, 2 nest containing about 120 eggs each will be relocated, this should total approximately 24 eggs.

REASONABLE AND PRUDENT MEASURES

The FWS considers the following reasonable and prudent measures necessary and appropriate to minimize take:

1. During periods of nesting activity, relocation of nests will be required.
2. Nourished beaches will be tilled if compaction or escarpment occurs.

TERMS AND CONDITIONS

Section 9 of the ESA prohibits the taking of listed species without a special exemption. In order to be exempt from the prohibitions of Section 9 of the ESA, the following terms and conditions, which implement the reasonable and prudent measures described above, must be complied with:

1. For any beach nourishment activity in the spring, nest survey and relocation activities must begin 65 days prior to the beginning of beach construction activities or by May 1, whichever is later. In the fall, nest surveys and relocation must begin 65 days prior to the initiation of beach construction and continue until September 15.
2. Nest surveys and relocations will be conducted by personnel with prior experience and training in nest survey and relocation procedures, and with a valid Florida Department of Natural Resources permit. This is essential to reduce the number of undetected nests.
3. Nests shall be relocated between sunrise and 10 a.m. each day and the relocation will be to a nearby self-release beach hatchery in a secure setting where artificial lighting will not conflict with hatchling orientation.
4. A report describing the actions taken to implement the terms and conditions will be submitted to this office within 60 days of completion of the proposed work for each year when activity has occurred. This report will include dates of actual construction activities names and qualifications of personnel involved in nest

surveys and relocation activities, description and location of hatcheries, nest survey and relocation results and hatching success of nests.

CONSERVATION RECOMMENDATIONS

The following Conservation Recommendations are provided to further reduce the potential for adverse impacts to nesting sea turtles:

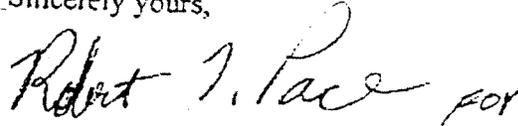
1. Beach renourishment should be planned for and conducted outside the period of May 15 to October 15, whenever possible.
2. When located off the nesting beach, the dredge should minimize lighting by eliminating, screening, or shielding lights where possible. Low pressure sodium lights (shielded) are recommended for those lights which cannot be eliminated.
3. Sea oats or other appropriate dune vegetation should be planted on nourished beaches to enhance dune restoration. The Florida Department of Environmental Protection, Division of Beaches and Shores, can provide technical assistance in the design and implementation of this project.

REINITIATION

This concludes formal consultation on the action outlined in the COE reinitiation request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have further questions on this matter, please contact Charles W. Sultzman of my staff (407-562-3909).

Sincerely yours,

Handwritten signature of Robert J. Pace in cursive, followed by the word "FOR" in all caps.

Craig Johnson
Supervisor, South Florida Ecosystem Office

cc:

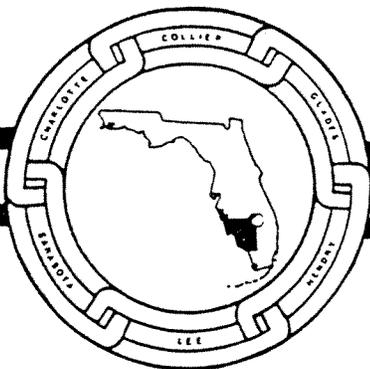
- EPA, Atlanta, GA
- NMFS, St. Petersburg, FL
- DEP OPSM, Tallahassee, FL
- FG&FWFC, Vero Beach, FL
- DEP, Beaches and Shores, Tallahassee, FL
- FWS, Jacksonville, FL

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Southwest Florida Regional Planning Council

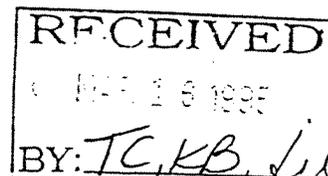
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P.O. Box 3455, N. Ft. Myers, FL 33918-3455 SUNCOM 749-7720

FAX 813-656-7724

March 14, 1995

Mr. Mike Nowicki
West Permits Branch Regulatory Division
Jacksonville District Corps of Engineers
Post Office Box 4970
JACKSONVILLE, FL 32232-0019



RE: IC&R PROJECT #94-312, #95-081
FDEP #362558139
PROJECT NAME: Captiva Erosion Prevention District, Proposed Beach Renourishment Activities, Gulf Of Mexico, Captiva And Sanibel Islands, Lee County.

Dear Mr. Nowicki:

The staff of the Southwest Florida Regional Planning Council reviews various proposals, Notifications of Intent, Preapplications, permit applications, and Environmental Impact Statements for compliance with regional goals, objectives and policies, as determined by the Regional Comprehensive Policy Plan. The staff reviews such items in accordance with the Florida Intergovernmental Coordination and Review Process (Chapter 29I-5, F.A.C.), and adopted regional clearinghouse procedures.

These designations determine Council staff procedure in regards to the reviewed project. The four designations are:

Less Than Regionally Significant and Consistent - no further review of the project can be expected from Council.

Less Than Regionally Significant and Inconsistent - Council does not find the project of regional importance, but will note certain concerns as part of its continued monitoring for cumulative impact within the noted goal areas.

Regionally Significant and Consistent - Project is of regional importance and appears to be consistent with Regional goals, objectives and, policies.

Regionally Significant and Inconsistent - Project is of regional importance and does not appear to be consistent with Regional goals, objectives, and policies. Council will oppose the project as submitted, but is willing to participate in any efforts to modify the project to mitigate the concerns.

TO: Mr. Mike Nowicki
DATE: March 14, 1995
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RE: IC&R PROJECT #94-312, #95-081

The above-referenced permit application has been reviewed by this office, and based upon information contained in the application and on local knowledge, has been found Regionally Significant And Consistent with adopted goals, objectives, and policies of the Regional Comprehensive Policy Plan. Project consistency is based on the following:

1. The revised permit application should be accepted only with the provision that the additional nourishment activities along the Sanibel shoreline be performed.
2. Mean grain size and shell content of sand in the selected borrow areas should be similar to that material naturally occurring in the proposed renourishment areas.
3. Renourishment should not be performed during the nesting or hatching periods for the Green Sea Turtle, Hawksbill Sea Turtle, Kemp's Ridley Sea Turtle, and Loggerhead Sea Turtle, in the project area.
4. If any terrestrial or underwater archaeological/historical sites are uncovered during the proposed activities, work in the immediate vicinity of such sites should cease. The appropriate state and local agencies should be contacted so that a professional archaeologist can determine the significance of the findings and recommend the mitigation actions to be taken.
5. Wherever possible, the renourishment activities should include removal of existing seawalls and bulkheads, and the construction of vegetated dunes between the open shoreline and shorefront properties.
6. Renourishment activities should include an assessment of the effect of the proposed activities on Blind Pass, between Sanibel and Captiva Islands. Renourishment activities should not cause, or lead to closure of the Pass.
7. The project should meet the standard manatee protection conditions, for construction activities, as required by the Florida Department of Environmental Protection.
8. Regional staff requests to be copied on any annual mitigation and/or monitoring reports which are required for this project.

TO: Mr. Mike Nowicki
DATE: March 14, 1995
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Should you or any other party request this finding to be reconsidered, please contact Glenn Heath, IC&R Coordinator, with this request or any questions concerning staff review of this item. This recommendation will be discussed at the next scheduled Council meeting. Should Council action differ from the staff recommendation, you will be notified.

Sincerely,

SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL


Wayne E. Daltry
Executive Director

WED/GEH/nlg

cc: Captiva Erosion Prevention District
Coastal Planning & Engineering, Inc.
Bureau of Beaches & Coastal Systems, FDEP
Mr. Gary A. Price, City Manager, City of Sanibel
Mr. Robert Loflin, Natural Resources Director, City of Sanibel
Mr. Mark R. Miller, Bureau of Submerged Lands & Preserves, FDEP
Mr. Walter Stephens, Director of Natural Resources Management, Lee County
Mr. Louis Hinds, Manager, J.N. 'Ding' Darling National Wildlife Refuge
Ms. Kimberly Dryden, Florida Game and Freshwater Fish Commission
Ms. Karen Johnson, South Florida Water Management District



FLORIDA DEPARTMENT OF STATE

Jim Smith
Secretary of State

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(904) 488-3353

December 9, 1994

Mr. Kim E. Beachler
Coastal Planning and Engineering, Inc.
2481 N. W. Boca Raton Blvd.
Boca Raton, Florida 33431

In Reply Refer To:
Frank J. Keel
Historic Sites
Specialist
(904) 487-2333
Project File No. 942884

RE: Cultural Resource Assessment Review Request
*Cultural Resource and Hydrographic Investigations of a
Captiva Island Offshore Borrow Area.*
Lee County, Florida

Dear Mr. Beachler:

In accordance with the procedures contained in 36 C.F.R., Part 800 ("Protection of Historic Properties"), we have reviewed the results of the referenced magnetometer survey and find them to be complete and sufficient.

We note that no magnetic anomalies were recorded during the course of the survey. Therefore, it is our opinion that the removal of borrow from this area will have no effect on historic properties listed, or eligible for listing in the National Register of Historic Places.

If you have any questions concerning our comments, please do not hesitate to contact us. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

George W. Percy
George W. Percy, Director
Division of Historical Resources
and
State Historic Preservation Officer

GWP/Kfk

xc: A. J. Salem, USACOE



FLORIDA DEPARTMENT OF STATE

Sandra B. Mortham
Secretary of State

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July 17, 1995

Ms. Kim E. Beachler
Coastal Planning & Engineering, Inc.
2481 N.W. Boca Raton Boulevard
Boca Raton, Florida 33431

In Reply Refer To:
Robin D. Jackson
Historic Sites
Specialist
(904) 487-2333
Project File No. 952262

RE: Cultural Resource Assessment Review Request
*Cultural Resource and Remote Sensing Magnetometer Surveys of
Two Designated Sand Borrow Sites Selected as Sources for
Beach Renourishment Offshore of Captiva and Sanibel Islands,
Florida.* By Coastal Planning & Engineering, Inc. May 1995.

Dear Ms. Beachler:

In accordance with the procedures contained in 36 C.F.R., Part 800 ("Protection of Historic Properties"), we have reviewed the results of the magnetometer survey of the referenced project find them to be sufficient. Please fill out and return the enclosed *Survey Log Sheet* in order to make the report complete.

On the basis of the information presented in the above referenced report, we note that two magnetic anomalies and four possible magnetic anomalies were detected during the survey. The four possible anomalies were determined to be probably associated with fish traps. Of the other two anomalies, one falls outside of the proposed dredge area. The remaining anomaly is located in Borrow Area III-B and will be protected from dredging by the establishment of a 200 foot radius buffer zone. We concur with the above evaluations and recommendations. It is the therefore the opinion of this office that conditioned upon a 200 foot buffer zone being maintained around the anomaly in Borrow Area III-B, the proposed activities will have no adverse effect on any significant resources listed or eligible for listing in the National Register of Historic Places.

Ms. Beachler
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If you have any questions concerning our comments, please do not hesitate to contact us. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

Laura A. Kammerer

for

George W. Percy, Director
Division of Historical Resources
and
State Historic Preservation Officer

GWP/Jrj
xc: Janice Adams, ACOE
Enclosures (2)