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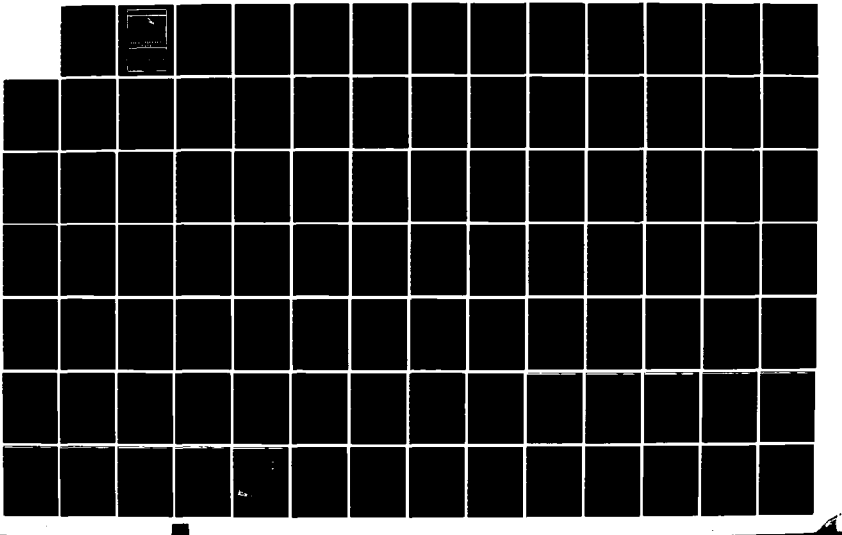

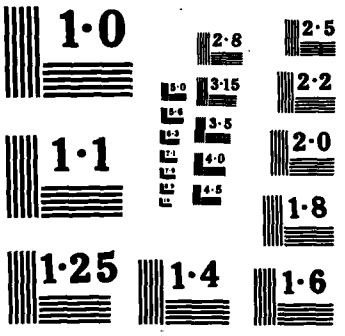

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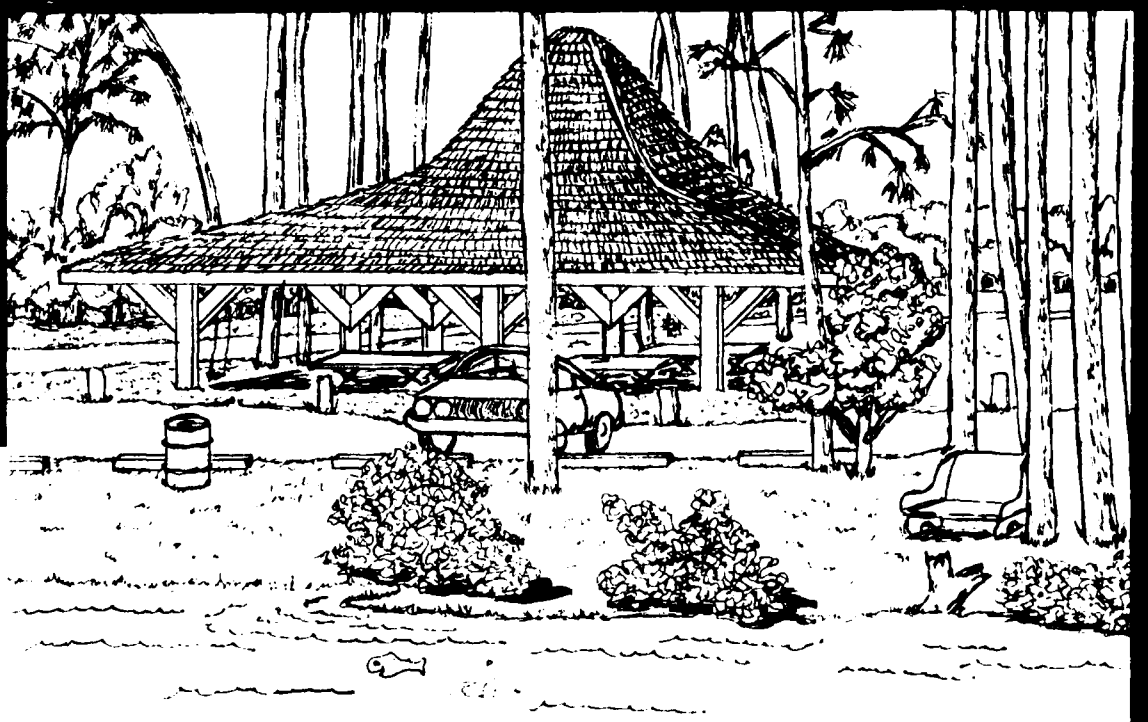

LIZA JACKSON PARK

SHORELINE EROSION CONTROL

AT

Ft. Walton Beach, Fl.

US Army Corps of Engineers
Mobile District

JUNE 1984

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At the request of the City of Fort Walton Beach, Florida, the Corps of Engineers studied shoreline erosion at Liza Jackson Park, a publically-owned park within that city. It was determined that the shoreline is receding at the long-term rate of about 1 foot per year. As the result of a long evolutionary plan formulation process a plan was evolved which address the problems and met with the approval of the resource agencies and the public. The recommended plan provides for a beach about 450 feet long which, with

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periodic nourishment, would offset erosion and provide for water-oriented recreation benefits. Expansion of an existing salt marsh which presently occupies another 450 feet of shoreline would also control erosion while enhancing wildlife habitat. Erosion of the marsh would be prevented by a low rock stabilizing structure. Diversion and piping of an existing drainage ditch would help to nourish the marsh, to improve water quality, and to create safer, more esthetically pleasing, and more useful conditions in the park. The total first cost of the Selected Plan is estimated to be $236,000 and average annual equivalent benefits were estimated to be $358,920 for a benefit/cost ratio of 18 to 1. Keywords: Beach erosion, Wetlands restoration.

SYLLABUS

By a resolution dated 25 March 1975, the City of Fort Walton Beach, Florida requested that the Corps of Engineers undertake a study of shoreline erosion at Liza Jackson Park. A favorable reconnaissance study was completed and submitted in April of 1976 and, subsequently, a detailed project study was initiated.

During the problem identification phase of the study it was determined that the shoreline is receding at the rate of about 1 foot per year. This is consistent with the rate of erosion in other areas along the Gulf Coast and is attributable primarily to sea level rise.

Solving the erosion problem at the park provides several opportunities such as improving the recreation experience, enhancing wildlife habitat, improving water quality, and providing for appropriate water-oriented recreation. However, it was necessary that any plan had to preserve the existing fishing pier and boat launching facility.

The Selected Plan is the result of a long evolutionary plan formulation process. Early plans did not fully address all of the problems and opportunities and there was concern due to their possible adverse effects on the environment. Through several public meetings, workshops, reviews, and negotiations with environmental agencies, the Selected Plan evolved. The plan provides for a beach which, with periodic renourishment would offset erosion and provide water-oriented recreational benefits. Expansion of an existing salt marsh would also control erosion while enhancing wildlife habitat. Diversion and piping of an existing drainage ditch would help to nourish the marsh, to

improve water quality, and to create safer, more aesthetically pleasing, and more useful conditions in the park.

The total first cost of the Selected Plan is estimated to be $236,000 of which $81,000 would be the local sponsor's share. The local sponsor has expressed a willingness to pay this share. With average annual equivalent benefits equal to $358,920, the B/C ratio for the Selected Plan is 18 to 1.

DETAILED PROJECT REPORT
AND ENVIRONMENTAL ASSESSMENT
ON

LIZA JACKSON PARK

FORT WALTON BEACH, FLORIDA

JUNE 1984

DETAILED PROJECT REPORT

ON

LIZA JACKSON PARK

FORT WALTON BEACH, FL

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DETAILED PROJECT REPORT
AND ENVIRONMENTAL ASSESSMENT
ON
LIZA JACKSON PARK, FORT WALTON BEACH, FLORIDA

INTRODUCTION

Liza Jackson Park, Fort Walton Beach, Florida, is located on the shore of Santa Rosa Sound and has been experiencing detrimental erosion of its shoreline. The Corps of Engineers has been requested by the city of Fort Walton Beach to determine if a Federal project can be justified to restore and stabilize the shoreline. This report delineates the findings of the Corps of Engineers' study and makes a recommendation concerning an acceptable plan to solve the erosion problem and provide recreation benefits.

STUDY AUTHORITY

By a resolution dated 25 March 1975, the city of Fort Walton Beach, Florida, requested that the Corps of Engineers undertake a study of shoreline erosion at Liza Jackson Park and make recommendations for corrective measures. On 23 April 1976 a reconnaissance report was submitted which assessed the problems and needs concerning the erosion and which recommended that a detailed project study be initiated. On the basis of the reconnaissance report and under the authority of Section 103a of the River and Harbor Act of 1962, this Detailed Project Report is submitted. The report was prepared following the policies and procedures prescribed by the Chief of Engineers.

SCOPE OF STUDY

The depth and detail of the investigation made during preparation of this report were consistent with the authority cited above. Economic, environmental, and engineering data were obtained in sufficient detail for design of technically sound plans and for the preparation of estimates of costs, annual charges, annual benefits and environmental quality impacts. The principal

udy area was limited to the vicinity of Liza Jackson Park although the onomic analysis considered the tributary area of Okaloosa County.

UDY PARTICIPANTS AND COORDINATION

e Corps of Engineers was responsible for the conduct and coordination of the udy, consolidation of information from other agencies, formulation of a an, and preparation of the report. At the District level, a multidisciplin- y team conducted the study and prepared this report. The city of Fort lton Beach provided assistance in the form of property surveys, statistics d other necessary information. Several Federal and State agencies have viewed portions of the report. A planning workshop was held in February 80 where citizens provided additional comments. A public meeting was held August of 1980. Numerous formal and informal meetings have been held since 80 in efforts to resolve point of conflict. Concerns and ideas expressed ring these meetings were considered in the final report.

UDIES OF OTHERS

ie US Fish and Wildlife Service prepared a Resource Inventory for the park ea. No other studies pertaining to the erosion problems at Liza Jackson e known.

L STUDY AND REPORT PROCESS

is Detailed Project Report (DPR) addresses in detail the tasks of (1) Prob- m Identification, (2) Formulation of Alternatives, (3) Impact Assessment, d (4) Evaluation.

plan formulation report was completed in May 1980 which defined the local oblems identified during the study, identified possible alternative solu- ons for those problems, and suggested alternatives thought to be the most omising. These alternatives were then formulated into different resource nagement plans. Through subsequent public meetings and coordination with

Beach activities (s)
Boating (power, sailing) (f, s) (canoeing) (f)
Camping (tent, recreational, vehicle/trailer) (f)
Fishing (f, s)
Picnicking (f, s)
Swimming (f, s)
Waterskiing (f, s)

following paragraphs contain discussions and assessments of demand and
ply for both freshwater and saltwater based recreation resources in the
nty.

shwater-Based Recreation Resources. Based upon findings in the 1977
ter-Based Recreation Study" performed by Russell and Axon, Inc., under
ntract to the Corps of Engineers, freshwater facilities in Okaloosa County
abundant. The major limiting factor of freshwater activities is boating
ess (transport) to existing water bodies. The number of boat launching
ps is considered more than adequate to meet current demands. Primary
shwater oriented recreation opportunity is provided by the 60,000 acres of
ckwater State Forest lying within the county and approximately 280,000
es in the Eglin Wildlife Management Area. The latter is the largest wild-
e management area in northwest Florida and one of the largest in the State
h water-based recreation dependent upon small streams and lakes.

ltwater-Based Recreation Resources. In the aforementioned study it was
vealed that due in part to the large influx of visitors during the key
rist season (May thru September) Okaloosa does not provide sufficient salt-
er facilities to satisfy existing demand. Based on the latest available
a, of the seven counties in northwest Florida which provide saltwater beach
portunity (Bay, Escambia, Franklin, Gulf, Leon, Okaloosa, Walton, Santa
sa), Okaloosa receives the largest percentage of tourists, 38.1 percent.
is creates a tremendous demand on area beaches since the total visitation
the 7-county area during the 5-month period is over 3-1/2 million. Addi-
nally, according to the 1980 census, approximately 80 percent of Okaloosa's
pulation was located along the coastline which places additional stress on

blends into the Sound along a shoreline that is naturally vegetated, but gradually eroding. The shoreline blends naturally with other shorelines in the immediate area, and is pleasing to view.

Park Facilities & Features. Park facilities consist of picnic shelters and a large pavilion, restrooms including facilities for the handicapped, a 2-lane boat ramp, fishing pier, and parking. Additional picnic shelters are planned by the city in the near future.

The park is a favorite recreation facility for family, group, and company picnics, and is a focal point for political gatherings. At its present level of development, the park can accommodate about 500 people although special events have attracted up to 800 at one time. Development of the park's east side would nearly double the capacity.

At any one time through the week there is an average of about five boat trailers parked near the ramp. On week-ends and holidays that average increases to about 11.

The drainage ditch mentioned earlier is an undesirable feature of the park. It divides the park grounds making it difficult to organize the major facilities to serve the whole park efficiently. The ditch is also a potential safety hazard and would be an eyesore except for the thick trees and shrubs along the banks.

Water-Based Recreation Resources. Okaloosa County offers a wide range of water based recreational opportunities including beach activities, boating, camping, fishing, picnicking, freshwater swimming and water skiing. By connotation and primary usage some of these categories will relate to fresh or saltwater activities, indicated below by (f) or (s), respectively:

There are no Federally endangered or threatened plants in the Liza Jackson Park study area.

Fish and wildlife species occurring, or possibly occurring, in the area and listed by the State of Florida as endangered or threatened which are not on the Federal list, include the green turtle (Chelonia mydas mydas), snowy plover (Charadrius alexandrinus tenuirostris), logger head turtle (Caretta caretta caretta), osprey (Pandion haliaetus carolinensis), southeastern kestrel (Falco sparverius paulus), and the oyster catcher (Maeomotopus palliatus).

Air and Noise Pollution. Air quality within the immediate study area is good. Small amounts of air pollutants originate from boat, plane, and automobile traffic. During the tourist season, pollutants from these sources are elevated; however, due to the coastal wind regime, pollutants disperse rapidly and do not significantly affect the area's air quality.

Noise pollution is limited mainly to aircraft, automobile, and boat traffic as well as construction operations. Liza Jackson Park is located on a main thoroughfare and receives the majority of its noise from automobile traffic. However, none of the major noise sources constitute a health hazard.

Aesthetics. Liza Jackson Park is located in an area that has little undeveloped land since most of the area is zoned residential or commercial. However, most of the area is landscaped and well kept. The park and an area immediately west of the park contain remnants of the area's natural environment. These areas add to the park's scenic beauty, tend to isolate the park from developed areas, and afford a place for visitors to view wildlife.

Recreational facilities at the park are kept in excellent condition and much of the park is mowed. The view of Santa Rosa Sound and beyond to Santa Rosa Island is very pleasing to visitors. To some, the view of condominiums on Santa Rosa Island detract from the natural beauty of the scene. The park

Table 3

BIRD SPECIES TO BE FOUND IN LIZA JACKSON PARK AREA

Common Name	Scientific Name
american coot	*Fulica americana*
belted kingfisher	*Megaceryle alcyon*
black skimmer	*Rynchops niger*
Bonaparte's gull	*Larus philadelphia*
brown pelican	*Pelecanus occidentalis*
canvas back	*Aythya valisineria*
common loon	*Gavia immer*
double-crested cormorant	*Phalacrocorax auritus*
dunlin	*Calidris alpina*
Forster's tern	*Sterna forsteri*
gannet	*Morus bassanus*
great blue heron	*Ardea herodias*
great egret	*Casmerodius albus*
greater scaup	*Aythya marila*
greater yellowlegs	*Tringa melanoleuca*
green heron	*Butorides striatus*
herring gull	*Larus argentatus*
horned grebe	*Podiceps auritus*
laughing gull	*Larus atricilla*
Louisiana heron	*Hydranassa tricolor*
red-breasted merganser	*Mergus serrator*
ring-billed gull	*Larus delawarensis*
snowy egret	*Egretta thula*
white pelican	*Pelecanus erythrorhynchos*
willet	*Catoptrophorus semipalmatus*

Upland wildlife habitat is limited to the eastern one-third of the park since the remainder is developed and maintained. Songbirds may nest in certain areas of the park; however, utilization of the park area by birds is primarily for feeding, resting, and protection. Wading birds, shore birds, and waterfowl that utilize the waters along the park include the herring gull (Larus argentatus), Forster's tern (Sterna forsteri), great blue heron (Ardea herodias) and the greater scaup (Aythya marila). Table 3 contains a listing of bird species expected to utilize the park area.

Wildlife species expected to utilize the park area include the hispid rat (Sigmodon hispidus), rice rat (Oryzomys palustris), oldfield mouse (Peromyscus polionotus), eastern harvest mouse (Reithrodontomys humulis), opossum (Didelphis marsupialis), and raccoon (Procyon lotor). These species mainly utilize the natural areas and shoreline for feeding, primarily at night.

Endangered and Threatened Species. Several species listed in the Department of the Interior's Endangered and Threatened Wildlife and Plants of the United States occur near Fort Walton Beach and Liza Jackson Park. These species include the brown pelican (Pelecanus occidentalis), American alligator (Alligator mississippiensis) and the Atlantic bottlenose dolphin (Tursiops truncatus); however, the brown pelican is the only frequent user of the study area.

Other species listed as occasional visitors to the study area include the southern bald eagle (Haliaeetus leucocephalus), arctic peregrine falcon (Falco peregrinus tundrius) and the American peregrine falcon (Falco peregrinus anatum).

Other endangered species whose range includes the study area, but probably do not occur in the immediate area, include the gray bat (Myotis grisescens), Indiana bat (Myotis sodalis), Florida panther (Felis concolor coryi), Atlantic Ridley turtle (Lepidochelys kempii), and leather back turtle (Dermochelys coriacea).

Table 2 (continued)

Species	Habitat Utilization
Least puffer (Sphoeroides parvus)	F, R, Nu, P
Leatherjacket (Oligoplites saurus)	F, P
Lemon shark (Negaprion brevirostris)	F, Nt
Longnose gar (Lepisosteus osseus)	F, P
Longnose killifish (Fundulus similis)	F, R, B, Nu, P
Lookdown (Selene vomer)	F, R, Nu, P
Mosquitofish (Gambusia affinis)	F, R, B, Nu, P
Naked goby (Gobiosoma bosci)	F, R, Nu, P
Pigfish (Orthopristes chrysoptera)	F, R, Nu, P
Pinfish (Lagodon rhomboides)	F, R, Nu, P
Rainwater killifish (Lucania parva)	F, R, B, Nu, P
Red drum (Sciaenops ocellata)	F, R, Nu, P
Rough silverside (Membras martinica)	F, R, Nu, P
Sand seatrout (Cynoscion arenarius)	F, R, Nu, P
Scaled sardine (Harengula jaguana)	F, N, P
Scalloped hammerhead (Sphyrna lewini)	F, Nt
Scrawled cowfish (Acanthostracion quadriocornis)	F, R, Nu, P
Sea catfish (Arius felis)	F, Nu, R, P
Sheepshead (Archosargus probatocephalus)	F, R, Nu, P
Sheepshead minnow (Cyprinodon variegatus)	F, R, B, Nu, P
Silver jenny (Eucinostomus gula)	F, R, Nu, P
Silver perch (Bairdiella chrysura)	F, R, Nu, P
Skate (Raja texana)	F, R
Southern flounder (Paralichthys lethostigma)	F, R, Nu, P, Nt
Southern kingfish (Menticirrhus americanus)	F, R, Nu, P
Southern puffer (Sphoeroides nephelus)	F, R, N , P
Southern stingray (Dasyatis americana)	F, R
Spot (Leiostomus xanthurus)	F, R, Nu, P
Spotfin mojarra (Eucinostomus argenteus)	F, R, Nu, P
Spotted seatrout (Cynoscion nebulosus)	F, R, Nu, P, B, GR
Striped anchovy (Anchoa hepsetus)	F, N, P
Striped burrfish (Chilomycterus schoepfi)	F, R, Nu, P
Striped mullet (Mugil cephalus)	F, R, Nu, B, P
Threadfin shad (Dorosoma petenense)	F, N, P
Tidewater silverside (Menidia beryllina)	F, R, Nu, P
White mullet (Mugil curema)	F, R, Nu, B, P

Feeding-F; Nursery-Nu; Breeding-B; Resting-R; Protection-P; Utilization primarily nocturnal-NT; Primarily present only in association with seagrass beds-GR (Fish and Wildlife Service, 1978)

Table 2

MARINE FISH SPECIES LIKELY TO BE FOUND IN SHALLOW SHORE ZONES OF LIZA JACKSON PARK

Species	Habitat Utilization
Atlantic bumper (Chloroscombrus chrysurus)	F, R, P
Atlantic croaker (Micropogonias undulatus)	R, R, Nu, P
Atlantic needlefish (Strongylura marina)	F, P
Atlantic sharpnose shark (Rhizoprionodon terraenovae)	F, Nt
Atlantic spadefish (Chaetodipterus faber)	F, R, Nu, P
Atlantic stingray (Dasyatis sabina)	F, R
Atlantic thread herring (Opisthonema oglinum)	F, N, P
Atlantic threadfin (Polydactylus octonemus)	F, R, Nu, P
Bay anchovy (Anchoa mitchilli)	F, N, P
Bay whiff (Citharichthys spilopterus)	F, R, Nu, P, Nt
Black drum (Pogonias cromis)	F, R, Nu, P
Blacknose shark (Carcharhinus acronotus)	F, Nt
Blacktip shark (Carcharhinus limbatus)	F, Nt
Blue runner (Caranx crysos)	F
Bluefish (Pomatomus saltatrix)	F
Bluntnose stingray (Dasyatis sayi)	F, R
Bonnethead (Sphyrna tiburo)	F, Nt
Bull shark (Carcharhinus leucas)	F, Nt
Chain pipefish (Snygnathus louisianae)	F, R, Nu, GR
Channel catfish (Ictalurus punctatus)	F, Nt
Clown goby (Microgobius gulosus)	F, R, Nu, P
Cobia (Rachycentron canadum)	F
Code goby (Gobiosoma robustum)	F, R, Nu, P
Cownose ray (Rhinoptera bonasus)	F
Crevalle jack (Caranx hippos)	F
Florida blenny (Chasmodes saburrae)	F, R, Nu, P
Florida pompano (Trachinotus carolinus)	F, R, Nu, P
Fringed flounder (Etropus crossotus)	F, R, Nu, P, Nt
Gafftopsail catfish (Bagre marinus)	F, Nu, R, P
Gray snapper (Lutjanus griseus)	F, R, Nu, P
Gulf flounder (Paralichthys albigutta)	F, R, Nu, P, Nt
Gulf killifish (Fundulus grandis)	F, R, B, Nu, P
Gulf kingfish (Menticirrhus littoralis)	F, R, Nu, P
Gulf menhaden (Brevoortia patronus)	F, N, P
Gulf pipefish (Syngnathus scovelli)	F, R, Nu, GR
Gulf toadfish (Opsanus beta)	F, R, P
Halfbeak (Hyporhamphus unifasciatus)	F, P
Harvestfish (Peprilus alepidotus)	F, R, Nu, P
Hogchoker (Trinectes maculatus)	F, R, Nu, P
Inshore lizardfish (Synodus foetens)	F, R
Ladyfish (Elops saurus)	F
Largemouth bass (Micropterus salmoides)	F, R, B, Nu, P

Table 1

PARTIAL LISTING OF PLANTS FOUND IN LIZA JACKSON PARK

Common Name	Scientific Name
no common name (a perennial grass)	*Fimbristylis spadicea*
blackberry	*Rubus* sp.
black needlerush	*Juncus roemerianus*
bracken fern	*Pteridium aquilinum*
broom sedge	*Andropogon* sp.
cordgrass	*Spartina alterniflora*
dog fennel	*Eupatorium capillifolium*
forage grasses	*Paspalum* sp.
grasses	Poaceae
grassleaf golden aster	*Heterotheca adenolepis*
green briar	*Smilax bona-nox*
groundsel-tree	*Baccharis glomeruliflora*
Henderson-wood	*Ilex cassine* var. *myrtifolia*
palmetto	*Serenoa repens*
pennywort	*Hydrocotyle bonariensis*
saltmeadow cordgrass	*Spartina patens*
sawgrass	*Cladium jamaicense*
sedge	Cyperaceae
St. Johns wort	*Hypericum* sp.
wax myrtle	*Myrica cerifera*
winged sumac	*Rhus copallina*

The terrestrial plants at Liza Jackson Park include trees such as slash pine (Pinus elliottii), live oak (Quercus virginiana), Chapman oak (Quercus chapmanii), sweet bay (Magnolia virginiana), and Southern magnolia (Magnolia grandiflora), as well as a variety of grasses and sedges. Table 1 contains a partial listing of plants found in the park.

Animal Life. The shallow estuarine areas adjacent to Liza Jackson Park, and throughout Santa Rosa Sound, provide habitat for a variety of marine organisms. Among the fishes occurring in these areas are the striped mullet (Mugil cephalus), Atlantic croaker (Micropagonias undulatus), spotted seatrout (Cynoscion nebulosus), sand seatrout (Cynoscion arenarius), sheepshead (Archosargus probatocephalus), and the southern flounder (Paralichthys lethostigma). A listing of fish species expected to utilize the shallow shore zone areas of Santa Rosa Sound is found in Table 2. The occurrence of many of these fish in the study area varies seasonally and daily.

A sport and commercial fishery exists in the area serving both the local population as well as attracting a large number of tourists. The major fish and shellfish species sought include the spotted seatrout, striped mullet, croaker, southern flounder, shrimp (Penaeus spp.), and blue crab (Callinectes sapidus).

Benthic organisms are important primary consumers within the food chain of the estuarine system. Many species of benthic macroinvertebrates inhabit the shallow shore zone areas around Liza Jackson Park. Olinger et al. (1975) sampled the benthic organisms of Santa Rosa Sound and other similar areas and found that a pelecypod, Mulinia lateralis, and an amphipod, Grandidierella bonnieroides, were the dominant benthic species. Other common species include the amphipod Haustorius sp., the pelecypod Tagelus plebeius, the gastropod Odostomia sp., the nereid polychaete Laeonereis culveri and the cordate Amphioxus sp. The species listed utilize areas similar to those along Liza Jackson Park.

There is no data from which to judge water quality in the drainage ditch. However, with the tidal flushing, it can be assumed to be similar to the quality of nearby water in the sound except during periods of storm water runoff.

Plant Life. Very little organic matter reaches Santa Rosa Sound from inland sources due to the small amount of fresh water entering the sound. Much of the productivity in Santa Rosa Sound is obtained from phytoplankton populations and the seagrass beds which occur in the sound. Seagrass beds are nursery and feeding grounds for young fish and shrimp and are particularly important in Santa Rosa Sound due to its otherwise monotonous sand and mud bottoms. Many small marine animals, upon which other marine animals feed, are attracted to the nutrient rich grass beds. Organic accumulation from leaf decay adds to the substrate in the sound, conditioning the bottoms and making them more susceptible to the further growth of the seagrass beds. This attracts foraging animals, such as fishes, worms, and small crustacea as well as bacteria.

Approximately 4,683 acres of seagrasses occur in scattered patches throughout Santa Rosa Sound in waters less than 7 feet deep. The seagrasses are evenly distributed throughout the sound; however, they are less dense in those areas of the sound which are in proximity to developed areas. The most abundant species occurring in the sound are Cuban shoal weed (Halodule beaudettei) and turtle grass (Thalassia testudinum). Beds of Cuban shoal weed are located approximately a quarter of a mile south of the study area; however, none were observed immediately along the park. Manatee grass (Cymodocea filiforme) and widgeon grass (Ruppia maritima) may also occur in lesser abundance in the sound.

A one-acre wetland area located on the eastern end of the park is composed primarily of saltmeadow cordgrass (Spartina patens), black needlerush (Juncus roemerianus), and sawgrass (Cladium jamaicense). Isolated stands of smooth cordgrass (Spartina alterniflora) occur along the seaward fringe of the marsh.

into the sand and gravel aquifer is restricted, so swamps persist except during extreme dry periods. East Bay Swamp, located in the flatwood area just west of Fort Walton Beach, is an example of one of the larger of these areas. The swampy area in Liza Jackson Park is probably a smaller example.

The park is divided approximately in half by a 16' X 6' X 500' drainage ditch which carries storm runoff from a 48" culvert under US 98 to Santa Rosa Sound. The elevation of the ditch bottom is such that water from the sound partially flushes it with the changing tides. There is salt water in the lower part of the ditch most of the time. The upper end of the ditch is wet even during dry periods due to a constant trickle of water (probably ground water) from the culvert.

Tides. The tides at Liza Jackson Park are diurnal with a mean range of about 0.7 feet. Referenced to NGVD, Santa Rosa Sound has a mean low tide, mean tide, and mean high tide of 0.1, 0.4, and 0.8 feet, respectively. The maximum water surface elevation, 5.7 feet NGVD, near the park was measured in Mary Esther from high water marks after hurricane Eloise, September 1975.

Water Quality. The State of Florida has five use classifications for the State's surface water bodies. These classifications are designated Class I through Class V with Class I generally being for public water supplies. Santa Rosa Sound is classified as Class III water in the vicinity of Liza Jackson Park which means it is intended for recreational use including swimming, boating, fishing, etc.

Extensive water quality monitoring of Santa Rosa Sound in the vicinity of Liza Jackson Park has not been undertaken. However, available data support the Class III classification. Dissolved oxygen ranges from 8.4 to 9.2 mg/l, pH from 6.67 to 8.05, and turbidity is near the 1 JTU level. Fecal coliform levels fluctuate greatly in response to storm runoff and other factors presently unknown. Although the Okaloosa County Health Department posts warnings when the count is high, the park has never actually been closed for bathing.

Climatology. Liza Jackson Park receives the Gulf's moderating effects which temper the winter winds and cause seabreezes during the daytime in summer. The Liza Jackson Park area has a humid subtropical climate. The average normal temperature during the summer months of June, July, and August is 80° F with an average daily range of about 20°. The average normal winter temperature is 52° F with an average daily range of 24°. Based on long-term records at Niceville, Florida, extreme temperatures range from a high of 103° F to a low of 8° F. The frost-free period averages about 270 days beginning in late February and ending in mid-November.

The annual rainfall of 64 inches is usually well distributed throughout the year. Normal monthly rainfall is greatest in July with over 8 inches and the least in October with 3 inches. Most of the rain, 46 percent, occurs in the summer months and results from thundershower activity, while winter rains result from frontal-type storms.

March is the windiest month of the year on the basis of average hourly velocity while August is the calmest month with the lowest average wind velocity and greatest percent of still air.

Most damages from tropical storms and hurricanes are caused by storm waves riding inland on increased water levels resulting from storm surge. The park shoreline is subject to such damages. Appendix A includes a curve which shows tide frequency resulting from hurricanes.

Hydrologic Features. Liza Jackson Park lies in the Coastal Lowlands division of the Gulf Coastal Plain physiographic province. The Coastal Lowlands are divided into two groups: (1) the flatwoods and swamps, and (2) the sand dunes, beach ridges, and wave-cut bluffs. The Liza Jackson Park study area is in the first group.

Swamps and poorly drained flatwoods have formed on the remnants of some marine terraces. In areas underlaid by a hardpan, the downward percolation of water

present, the constraints placed on Corps of Engineer's planning efforts, and the objectives of the study.

EXISTING CONDITIONS (Profile)

Physical Setting. Liza Jackson Park, a 13-1/2-acre city park built in 1970, is located in Okaloosa County, Florida, between US Highway 98 and Santa Rosa Sound, about 1 mile west of downtown Fort Walton Beach and about 5 miles from the eastern end of Santa Rosa Sound. The park has slightly over 1,000 feet of waterfront, varying between 1 and 5-1/2 feet National Geodetic Vertical Datum (NGVD) in elevation. Santa Rosa Island, a narrow sand barrier island extending about 50 miles along the northwest Florida coast between the gulf entrances to Pensacola and Choctawhatchee Bay, protects the park from direct exposure to the Gulf of Mexico. Plate I shows the park location.

Santa Rosa Sound is an estuarine area with 24,500 water surface acres, 309 acres of marsh, and 4,683 acres of productive grass flats. It is an elongated body of water that varies in width from about 0.2 miles at the east end to about 2.0 miles at the west end and is up to 20 feet deep. No significant streams drain into the Sound. The Gulf Intracoastal Waterway (GIWW) passes through the Sound less than a mile from the park.

Geology and Terrain. The study area is relatively flat, which is typical for the mainland Fort Walton Beach area. The north side of Santa Rosa Sound typically has a relatively broken shoreline with small beaches interspersed with marshes. Shore erosion is persistant. The Fort Walton area is covered by sediments of Holocene geologic age. These sediments consist mainly of white or tan beach sand with some gravel and are generally less than 200 feet thick. Sand size particles dominate the bottom sediments where water depths are less than 6 feet. Mud and silt are the predominant sediment types in areas having water depths from 6 to 20 feet.

other interested agencies, two additional alternatives were identified, one of which resulted in the Recommended Plan.

The "Water Resources Council Principles and Standards for Water and Related Land Resources Planning" (P&S) of September 1980 required that Federal and Federally assisted water and land activities be planned toward achievement of National Economic Development (NED) and Environmental Quality (EQ) as co-equal national objectives. NED was to be achieved by increasing the value of the nation's output of goods and services and improving national economic efficiency. EQ was to be achieved by the management, conservation, preservation, creation, restoration, or improvement of the natural and cultural resources and ecological systems. The "Principles and Standards" were superceded by the "Economic and Environmental Principles and Guidelines for Waters and Related Land Resources Implementation Studies" (P&G) of 1983 which require that similar activities be planned to result in a single plan which contributes to the National Economic Development (NED) consistent with protection of Environmental Quality (EQ). This report discusses the evaluation of alternative plans and presents a final plan based on the requirements of the "Principles and Guidelines" even though the alternatives evaluated were formulated on the basis of the earlier requirements of the "Principles and Standards."

This final Detailed Project Report must be reviewed and approved by the South Atlantic Division and the Chief of Engineers. If approved, the authorized project will be placed on a construction funding list to await allocation of funds for preparation of plans and specifications and actual construction. Formal agreements of local cooperation must be obtained in accordance with Section 221 of Public Law 91-611 before plans and specifications are initiated. It is not possible to accurately estimate a schedule for this process but once a project is funded, the construction is usually completed within a year.

PROBLEM IDENTIFICATION

This section describes the existing conditions, the probable conditions if no Federal action is taken, problems of the area, the needs and opportunities

overtaxed saltwater facilities. A common local complaint, according to city of Fort Walton Beach Parks and Recreation personnel, is that the beaches that are available have very poor access due primarily to travel distance and lack of parking facilities.

The 1980 Florida Statewide Comprehensive Outdoor Plan (SCORP) analyzes the existing and projects the future demand and supply for a wide variety of recreation experiences; one, beach activities, is directly applicable to the Liza Jackson study. Several pastimes which necessarily utilize the beach are included in this category; primarily, saltwater swimming, sunbathing, relaxing on a beach, beachcombing, and shell collecting. Since all the above pastimes are closely related and not clearly defined individually, they are considered as a group and, as a composite, distinguished from such major activities as fishing and boating, each of which might use the seashore.

In the 1980 SCORP report, the State was divided into 11 regions. The study area lies within Region 1 which consists of five counties; Escambia, Santa Rosa, Okaloosa, and Bay. The total demand and regional resident per capita participation rate (pcpr) are shown in Table 4.

Table 4

TOTAL DEMAND FOR BEACH ACTIVITIES - REGION I

Item	YEAR 1979	1985	1990
Region 1 - Total Demand: (1,000 User-Occasions)	7,416	8,212	9,040
Region 1 - Resident Participation Rate:	2.57	2.57	2.57

The supply of beach area in Okaloosa County was determined in 1978 site survey and is shown in Table 5. The supply and demand is further analyzed in the economic appendix.

Table 5

OKALOOSA COUNTY SALTWATER BEACH
(Square Footage)

GULF	SQUARE FEET
Public Beach 1	18,750
Public Beach 2	45,000
Public Beach 3	45,000
Public Beach 4	22,500
Public Beach 5	15,000
Public Beach 6	22,500
Brackin Wayside Park	82,500
John Beasley Park	198,000
Highway 98 Roadside Park	422,400
BAYSIDE	
Lincoln Park	14,000
Gainiers Park	16,900
Fort Walton Municipal Park	16,500
Lion's Park	2,000
TOTAL	921,050

921,050 - 100 square feet X 2 turnover rate = 18,421 User occasions/day

Shortage also currently exists in the number of saltwater boat launching ramps. About one-third of the launch sites are on Federal property (Eglin Air Force Base) and cannot be utilized by the general public unless special permits are obtained. Many of the Eglin ramps cannot be reached without use of a 4-wheel drive vehicle. During the 5-month peak season, traffic exceeds capacity at all available sites. Also, the marinas in the Fort Walton Beach-Destin area are fast approaching capacity.

Future Demand. Projections of future demand stemming from both county residents and visitors indicate that the existing shortages of saltwater beach area in Okaloosa County will continue and increase into the future. Also, the supply of both salt and freshwater boat ramps will fail to meet the 1990 demand. However, the supply of freshwater recreation facilities is considered adequate to meet anticipated demand for the next 50 years.

Cultural Resources. No sites, as listed on the National Register of Historic Places, are present in the Liza Jackson Park study area. However, State site number 80 K 23 was located during original clearing operations for the park. Artifacts found at the site include a potential Hardaway projectile point, a gray-green stone celt, and several sherds of Deptford Boid Checked Stamped

Pottery. Presently, this site has very poor locational data but appears to be away from the shoreline under study. Florida's response to the cultural resources survey can be found in the Appendix D.

Existing Land Use. Most land in this region is developed for use for residential, institutional, military, business or agricultural purposes. Less than 1.5 percent of the Coastal Zone within Okaloosa County is presently used for swimming beaches, golf courses, parks or is otherwise considered undeveloped.

Transportation. The principal roadways serving the study area include US 98; State Highways 85, 189, 20, 85A, 285, and John Sims Highways, and many local city streets. The park is located adjacent to US 98 which makes it easily accessible for local picnickers, swimmers, and boaters. The location is almost ideal for boat access. The protected waters of the sound provide safe launching for any trailerable boat. The location is convenient to the GIWW by which it is only about 3 miles to Choctawhatchee Bay and about 7 miles to East Pass and the open waters of the Gulf of Mexico.

CONDITIONS IF NO FEDERAL ACTION TAKEN (Without Condition Profile)

The without condition is a no-action alternative and should be recognized as a possible result of this study. However, without protective measures, the erosion is likely to continue resulting in damage to park land and facilities. Eroded material will continue to accumulate adjacent to the boat ramp necessitating periodic redredging of the boat ramp channel. Improvements will be required to protect the ramp structure from the erosion process. An extension to the fishing pier will become necessary as a result of the continuous landward encroachment of water adjacent to the pier. A shortage of public beaches will continue and probably worsen.

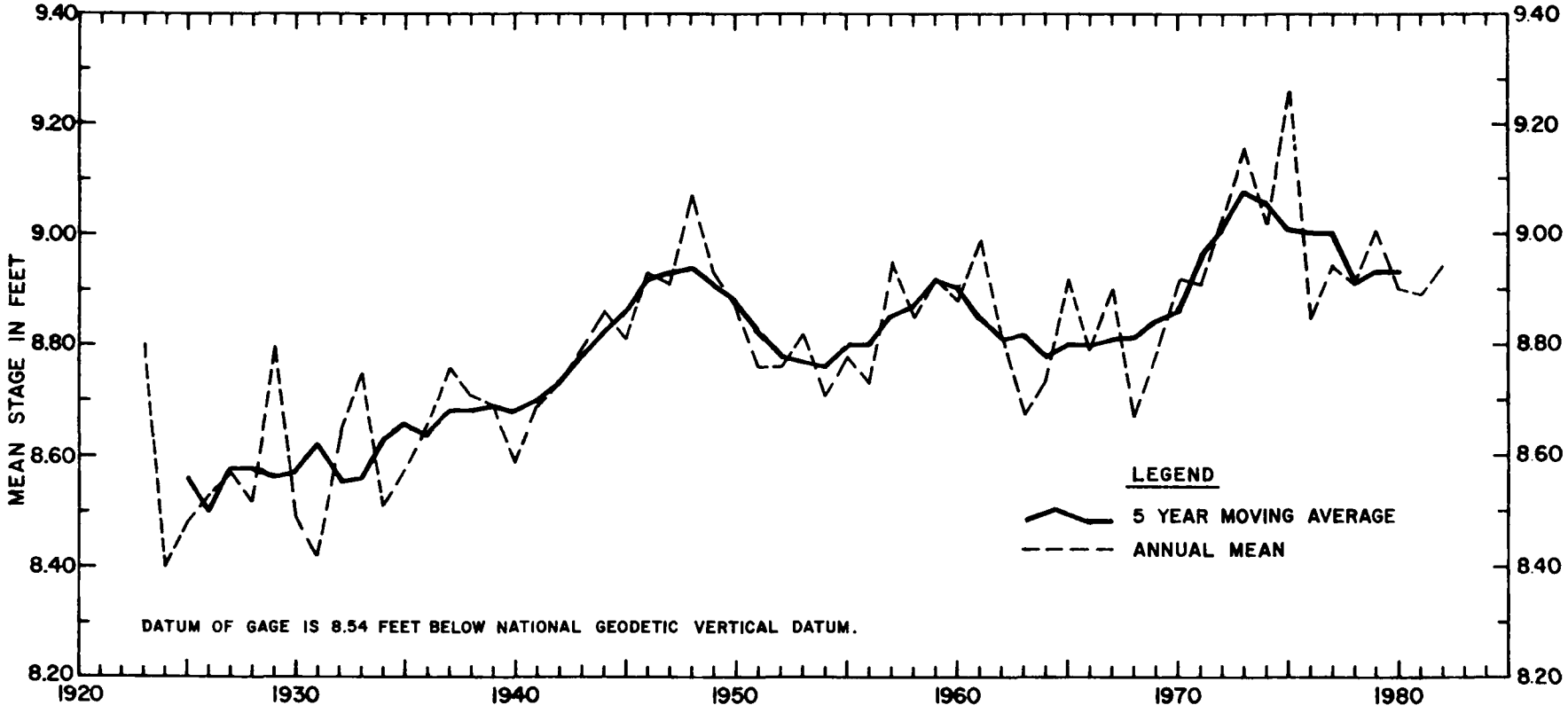
The no-action alternative does not address the erosion problem, however, it avoids both the monetary investment and potential adverse impacts associated with structural improvements. Existing flora and fauna in the project area would be left undisturbed and subject to the natural erosion conditions presently experienced by Liza Jackson Park.

PROBLEMS, NEEDS, AND OPPORTUNITIES

Neighboring landowners have submitted statements which indicate that up to 10 feet of their property has eroded since the early 1970's. A shoreline change map of that area (Plate II) was prepared from data supplied by the US Army Coastal Engineering Center and information from recent surveys of the site. Plate II indicates that erosion amounts ranging from 0 to 80 feet have occurred since 1871, therefore the losses attested to by adjacent property owners over an approximate 10-year period seem reasonable.

The historic shoreline shown on Plate II indicate an erratic history of erosion and accretion, with erosion predominating. Since 1871, the park shoreline overall has eroded at a average rate of 0.4 feet/year. In the eastern half of the park the rate was slightly higher, 0.44 feet/year. However, since 1934 the overall rate has averaged 0.65 feet/year. In the eastern half the average rate was about 0.8 feet/year with a maximum rate of 1.2 feet/year. This data substantiates the observations of the adjacent property owners, especially their contention that erosion has worsened in recent years. An estimate of 1 foot/year for the current rate of erosion seemed reasonable and conservative.

In general, it appears that the primary cause of the experienced erosion is sea level rise which has compounded the effects of wave action generated from other sources. A graph of the sea level rise, Figure 1, indicates three distinct periods of increase in the level of the gulf since 1935 with the most abrupt increase occurring during the 1970's. It may be inferred that the erosion at Liza Jackson was exaggerated during this time. A general trend of increasing sea level can be seen on the graph and can be expected to continue. Since increased erosion is a result of this trend, then it can be assumed to continue also; however, time lag between the rise in water level and the consequent erosion of the shoreline is characteristic of the low energy shorelines in this region. The normal wave climate does not move sufficient sand to attain an equilibrium profile rapidly. The shoreline will erode during storms, but will not rebuild during fair weather since there is not enough energy to return the sand.



CHANGES IN SEA LEVEL

PENSACOLA, FLORIDA

NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION

FIGURE 1

An economical method of offsetting the effects of erosion is needed in order to preserve the park land for public use. The fulfillment of this need, however, provides an opportunity to improve public access to the water and thereby enhance the recreation benefits provided by the park.

Swimming is not currently allowed at the park due to the lack of supervision and poor bottom conditions. The sound bottom in the vicinity of the park consists of a silty sand and is cluttered with oyster shells, bottles, cans, and other trash deposited by careless park patrons and storms. The residents of Fort Walton Beach must travel across the sound to Fort Walton Beach Park to swim. The opportunity exists to provide swimming facilities at Liza Jackson for those who prefer more sheltered conditions closer to home and to help offset the shortage of such facilities.

The drainage ditch through the park along with others in that vicinity presents water quality problems during periods of storm runoff. If swimming were allowed at the park, upland drainage could pose an intermittent health threat. The opportunity exists to partially alleviate this problem by structural measures.

The east end of the park by the shoreline is a wetland area. Federal and State limitations have been placed on activities which encourage the destruction of wetlands. Correction of erosion which is also threatening this area provides the opportunity to enhance this area as a valuable wetland habitat.

PLANNING CONSTRAINTS

The entire planning effort was conducted within the constraints established by Federal law and particularly influenced by the National Environmental Policy Act of 1969 (PL 91-190), Section 122 of the River and Harbor and Flood Control Act 1970 (PL 91-611), Clean Water Act (PL 92-500), and amendments, and Principles and Standards for Planning Water and Related Land Resources established by the Water Resources Planning Act of 1965 (PL 89-80). During the course of the report process, the "Principles and Standards" were superceded by the "Principles and Guidelines for Water and Related Land

Resources Implementation Studies." For the purposes of this final report, the evaluation of alternatives and plan selection is done on the basis of the "Principles and Guidelines" even though the plan formulations were done when the "Principles and Standards" were in effect.

Various other Federal and State laws constrained the formulation of plans by setting standards for plan output, establishing limits on the impact a plan may have certain resources, and establishing responsibilities on implementation and funding. Other pertinent Federal laws of concern to this study are:

(1) PL 93-205, Conservation, Protection, and Propagation of Endangered Species of 1973, restricting developments which would adversely impact the species or their critical habitat.

(2) PL 92-583 Coastal Zone Management Act of 1972 which requires that all Federal actions within the Coastal Zone are consistent with the State's Coastal Zone Management Program to the maximum extent practicable.

(3) The National Historic Preservation Act of 1966 which requires identification and investigation of certain historical and archaeological resources.

(4) Fish and Wildlife Coordination Act of 1958 which requires and sets guidelines on coordination between the Corps of Engineers, the US Fish and Wildlife Service, National Marine Fisheries Service, and the appropriate State Fish and Wildlife agency to insure that fish and wildlife resources receive equal consideration with other features of water resources development.

The major constraints placed on the study by the above laws include: a requirement for consideration of project-caused impacts on all the resource elements listed in Section 122 of the Flood Control Act of 1970; a requirement to follow the planning process prescribed in P&G; a requirement that proposed actions not adversely impact habitat of endangered species; a requirement for any plan to be consistent with the Coastal Zone Management Program of the applicable state; a restriction on impacting Wild and Scenic Rivers and

Historical and Archaeological Sites; a requirement for close coordination with the Fish and Wildlife Service and the Environmental Protection Agency and a requirement for State water quality certification on actions to be taken by the Federal Government involving the discharge of dredged or fill materials into the "Waters of the United States."

Alternatives considered must meet the specific needs and concerns of the public within the study area. These alternatives must also integrate and be complementary to other programs in the area and be implementable with respect to financial and institutional capabilities. Additionally, Florida statutes (Chapter 17-4.28(8)(a, b)) state that it will be the policy of the Department of Environmental Regulation to prohibit dredging or filling in Class III waters (such as these at Liza Jackson Park) except when a plan of procedure is established for protecting the area from significant damage. Further criteria are established by Presidential Executive Orders 11990 and 11988 which direct that all Federal water resource planning minimize destruction, loss or degradation of wetlands, and development in the flood plain.

FORMULATION OF PRELIMINARY PLANS

PLAN FORMULATION RATIONALE

The Water Resources Council's "Principles and Guidelines" establish a framework for a multiobjective planning process which emphasizes National Economic Development (NED) consistent with protection of Environmental Quality (EQ). On the basis of that framework, alternative plans are developed utilizing both structural and nonstructural measures which address the Federal objective and satisfy the problems, needs, and opportunities.

PLANS OF OTHERS

The City of Fort Walton Beach is depending on the Corps of Engineers to resolve the erosion problems at Liza Jackson Park. They have made no known plans to combat the erosion process to date.

Local landowners to the east and west of the park are concerned about similar problems with their shoreline but have not undertaken any significant physical modification of their shoreline. Some have indicated that they have considered using either groins or bulkheads.

The US Fish and Wildlife Service proposed a plan for Liza Jackson Park during preparation of their resource inventory. The suggested plan involves both an artificial beach and vertical sheet pile wall. The objectives of their plan were increased recreational usage of the park, erosion protection, conservation of near shore bottomland, reduced maintenance, elimination of terminal groins and consistency with the State of Florida dredge and fill regulations.

MEASURES

A "measure" is any structural or nonstructural means of resource management. It may be part of a plan or the entire plan. As the basis for formulating alternative plans, a broad range of measures were examined to identify those which address one or more of the needs and opportunities previously identified. (Many of these measures were addressed in more detail in the coordination report.)

A listing of possible measures grouped under the general needs and opportunities categories is shown below:

a. Protection of Shoreline from Erosion.

(1) Artificial Beach Restoration
(2) Gabion
(3) Filter Cloth
(4) Wooden Bulkhead
(5) Concrete Wall
(6) Rock Revetment
(7) Sand Grabber
(8) Longard Tubes
(9) Offshore Breakwater

(10) Floating Tire Breakwater
(11) Artificial Marsh Creation
(12) No Wake Zone

b. Enhancement of Recreational Opportunities for the General Public.

(1) Beach Restoration
(2) Improvement of Water Quality
(3) Maintenance and Protection of Fishing Pier
(4) Maintenance and Protection of Boat Ramp
(5) Elimination of Drainage Ditch
(6) Establishment of Marsh

c. Incidental Protection to Private Property.

(1) Spillover from Artificial Beach
(2) Offshore Breakwater
(3) No Wake Zone

d. Enhancement of Wetland Area.

(1) Establishment of Marsh
(2) Marsh Retainer for Erosion Protection

DESCRIPTION AND COMPARISON OF MEASURES

The artificial beach restoration measure would involve borrowing sand from a suitable borrow area and restoring the beach to a fuller, wider section. Since natural erosion would continue, the beach would require periodic nourishment. It is estimated that renourishment would be required every 10 years. A minimal beach berm elevation of 3 feet above National Geodetic Vertical Datum (NGVD) was determined through stage frequency and design analysis as that necessary to effectively resist normal eroding forces and the effects of frequent storms. Beach restoration has the potential of not only providing material to feed the erosion process but also to provide recreation

benefits that the other measures do not offer. However, the artificial beach restoration would temporarily disrupt ecological functioning, destroy plant/animal communities in both the borrow and beach areas, and could reduce water quality during construction. Subsequent erosion of the beach would necessitate periodic renourishment with similar impacts at those times.

A gabion or caged stone barrier placed in layers along the shoreline to a height of approximately 5 feet above NGVD was determined also through stage frequency and design analysis as that necessary to prevent the eroding forces of small storm waves from acting on park land. Gabions designed for use in a sea water environment consist of coated wire cages filled with rock or other suitable heavy material and act as energy dissipators. Their permeability would result in erosion of backfill if filter cloth or similar material was not employed. In 1980, a 900-foot long gabion revetment was estimated to cost about $39,000. It can be expected that such gabions will require replacement at least once during the 50-year life expectancy of the project due to corrosion of the wire cages.

The placement of gabions along the shoreline would disrupt existing plant communities but have minimal impact on benthic organisms and could actually provide cover and protection. Aesthetics of the park's shoreline would be severely impacted, public use of the shoreline would be hindered and they could provide possible hazards to small children.

Filter cloth by itself is not expected to be desirable or practical for protection of the park land. However, as mentioned above, filter cloth used in conjunction with some other structural measure may produce an acceptable design.

Wooden bulkheads with vertical walls are not as efficient energy dissipators as bulkheads with sloped or curved surfaces. The design curves used to determine wave runup on a vertical wall allow for this phenomenon and as a result the bulkhead would be required to be nearly 7 feet above NGVD to offer similar protection as the first two measures above. Riprap would be required for protection of the toe or area of the bulkhead in contact with the sound

ottom. Concrete sheet pile or a seawall exhibits the same limitations as ooden bulkheads. Both of these measures separate the water from the land and n so doing prevent erosion. Each must be protected at its end by wing walls r tie-ins and each may cause increased erosion at adjacent areas. In 1980 a ooden bulkhead 900 feet long was estimated to cost about $102,000. The oncrete sheet pile was estimated at about $223,000. It can be expected hat the wood bulkhead will need periodic maintenance and total replacement fter each 20 years. Concrete sheet should require very little maintenance nd would probably last the life of the project (50 years).

he construction of a concrete sheet pile or wooden bulkhead in conjunction ith riprap would destroy plant and animal communities. However, the riprap hould serve as cover for many marine species, including larval fish. This easure would restrict utilization of the shoreline for recreation, would not e aesthetically pleasing, and would also provide possible hazards for small hildren.

he rock revetment along the park's waterfront would offer protection from roding waves by dissipating their energy before they reach erodable material. uch a revetment would be required to have a crest height of about 5 feet and tone sizes of about 120 pounds. In 1980, a rock revetment 900 feet long was stimated to cost about $39,000. The revetment can be expected to last the ife of the project (50 years) with only minor maintenance and repair.

he revetment measure would provide a new habitat for many shallow water rganisms. Shore plants would be destroyed during construction but could be xpected to grow back over time. Such a revetment would restrict use of the horeline, would be out of character with the existing shoreline, and would lso be hazardous to small children.

he Sandgrabber is a concrete block structure which allows water to pass hrough it in such a manner as to remove a portion of the wave energy. It is ormally constructed a short distance offshore and functions as a permeable reakwater. In order to be effective it should be of such a height so as to ot be submerged during the design storm which is accompanied by surge. This

would require a height of approximately 4 feet above NGVD for a 1- to 2-year storm. In 1980, a Sandgrabber 900 feet long would cost about $115,000.

The construction of a Sandgrabber along the beach would have minor impacts on the ecosystem during construction. Some benthic and plant communities would be destroyed; however, they should quickly repopulate the area. Plants may become established on the sand trapped behind the sandgrabber. Animal communities utilizing the shoreline area would be minimally affected by the Sandgrabber. The Sandgrabber has the distinct disadvantage of becoming a potential navigational hazard. Also, the structure is likely to become a maintenance problems if reinforcing bars were used in the structure since they are subject to rapid corrosion in salt water. However, more resistant bars are available.

Longard tubes are flexible sandfilled tubes woven of synthetic fibers. They act either as a breakwater or a seawall. Currently available in 10", 40", or 70" diameters it would appear the largest size would be required and could be best utilized as a seawall being placed adjacent to the existing scarp at the park. Filter cloth would be required to prevent undermining. In 1980, a longard tube 900 feet long was estimated to cost about $92,000.

The placement of the Longard tube into the sound would have minimal impacts on the plant and animal communities. The Longard tube would be utilized by larval fish and benthic organisms for cover and protection. Birds may use the longard tube as a resting area. The Longard tube could, however, be subject to vandalism, and would not be in keeping with the character of the existing shoreline.

An offshore breakwater dissipates wave energy before it reaches the shore. A breakwater normally constructed of heavy material such as rock or broken concrete would have to be at least 3 feet above NGVD to offer protection comparable to the other measures consilered. In 1980, a breakwater made of rock to a length necessary to protect 900 feet of shoreline (about 1,000 feet) was estimated to cost about $253,000. Such a stone breakwater can be expected

: the life of the project (50 years) with only minor maintenance and

ıhore breakwater would act as a site of attachment for many marine
ıms. Fish and other life, especially larval stages, would utilize the
ıter for cover and protection. Some benthos would be lost during
ent of the breakwater, but it would have few detrimental impacts on
: organisms. A breakwater would represent a navigation hazard to
re craft utilizing the park's boat launching facilities. This method
provide short-term preservation of the natural appearance of the park's
ine but over the long-term the shoreline would accrete and build a
o. Also it would not provide recreation benefits or improved public
to the shoreline.

ng tire breakwaters act similarly to an offshore breakwater by causing
to expend portions of their energy and reform. The breakwater is made
ng together used tires in such a manner that they act as a unit or mat
ividual bundles. The tires float vertically just below the water sur-
ınd must be anchored in place and filled with flotation material to
t sinking as marine growth weights them down. In 1980, a breakwater
to protect 900 feet of shoreline was estimated to cost about $68,000.
be expected that the floating tire breakwater water will require
ement about every 10 years.

ıting tire breakwater would have minimal impacts on the plant and animal
ıities of the area. Birds and larval fish should utilize the breakwater
sting and cover, respectively. Plant communities along the shoreline
be enhanced as the erosion begins to stabilize. Such a breakwater
however, become a potential navigation hazard. Also, it would provide
reation benefits nor improve public access to the shoreline.

establishment would provide shore protection by the action of the marsh
lining the shore absorbing small wave energy and helping to hold the
n place. Marsh grass from a commercial source would be planted after
ıoreline had been shaped and graded.

carry enough poor quality water to result in closure of large portions of sound, including that portion adjacent to Liza Jackson Park.

Selected Plan includes diversion of the existing drainage through the park diffusion pond upland of the marsh. The pond is designed so that run-off d be temporarily impounded and allowed to gradually enter the Sound after g cleansed by the natural filtering of the marsh. The open drainage ditch been a fact of life in the park for many years and it has always presented fety hazard and a hindrance to full use and development of the park. The h has been tolerable due in large measure to tidal flushing which keeps the h reasonably clean in appearance. However, if the tidal flushing is inated, only polluted fresh water run-off would enter and perhaps stand in ditch. This would worsen an already undesirable feature of the park. sequently, the Selected Plan includes a 48-inch equivalent reinforced crete arch pipe to be laid in the present ditch to a point near the lower where it would turn to the diffusion pond via a new trench. Installation the pipe would allow the existing ditch to be filled with borrow material led in from an offsite commercial source. This would create safer ditions for park users, particularly small children, and allow the park to more fully utilized and easily developed.

diffusion pond is intended to spread the culvert discharge and gently fuse it through the marsh. It will have gently sloping sides and a maximum th of about 1-1/2 feet. Most of the water which ponds during a storm should ily disappear from evaporation and percolation through the porous sandy l. In addition, the pond area should soon be filled with marsh grass and edges overgrown with the native grass. This should make the pond area less iting to small children and more difficult for them to approach. The pond l certainly be less hazardous than the existing ditch. However, if the pond marsh should unexpectedly become a problem, the area can easily be fenced the city with no adverse effect on other park functions.

is very likely that families with small children avoid visiting Liza Jackson k due to the hazards and poor aesthetic qualities of the open drainage ch. It can be expected that a new beach as provided in the Selected Plan

historic shorelines as shown on Plate II with a smooth transition curve at their point of crossing.

The beach construction would require a total of about 3,000 cubic yards of sand. About 250 cubic yards of sand would be required once every 10 years for renourishment to replace material lost to erosion. This construction would provide about 41,000 square feet of recreational beach area above NGVD and about 30,000 square feet below.

Liza Jackson Park is a popular, well-used, family oriented park. Its location and facilities are well-suited and attractive to families with young children and all the features of the Selected Plan would compliment this type of use. The proposed beach would provide a physical and visual linkage with the water that does not now exist. Such a beach on the relatively quiet waters of Santa Rosa Sound would be ideal for small children whose activities are generally oriented toward water familiarity and learn-to-swim. The availability of such a facility would be very attractive to local residents particularly during the peak summer season when the larger beaches and roadways to them are crowded with tourists.

The second component concerns the drainage ditch through the center of the park which, with others in the area carries storm run-off from Highway 98 to Santa Rosa Sound. No long term measurements of water quality have been made at regular intervals in the vicinity of the ditch outfall. However, it is known from the measurements that have been taken, that water quality is poor during and immediately after periods of storm run-off. This is due primarily to overland flow transporting various pollutants to the Sound via the highway drains. It is certain that if the ditch outfall were to remain adjacent to the beach, the beach would have to be closed to swimming activities for 2 to 3 days following a rainstorm. After that period of time, it can be expected that pollutants would be adequately dispersed by tidal action and bacteria would be killed by the salinity of the sea water. It can be expected that the water quality would improve in the immediate vicinity with the removal of the park ditch and reductions in both frequency and duration of beach closures would result. Under extreme runoff conditions, other ditches draining into the sound

ECTED PLAN/NED PLAN (PLATE V)

n Description. The selected plan has three major components.

a. A 41,000 square-foot sand beach retained at each end by stone rubble ins.

b. Diversion via pipeline of the existing drainage ditch to a diffusion d upland of the marsh.

c. A 30,000 square-foot salt marsh retained by a low stone rubble wall.

sand beach would be constructed using sand hauled about 35 miles from an and disposal site at Point Washington along the Gulf Intracoastal Waterway WW). The site is along a major GIWW land cut between Choctawhatchee Bay and t Bay of St. Andrew Bay. This material is very similar in color and idation to material existing at the beach site. The St. Joe Paper Company, ier of the disposal site, has granted permission for the government to remove needed sand from their land (see Coordination and Documentation appendix).

beach would be retained at each end by groins constructed from commercially ilable stone rubble placed on filter cloth. The western groin would be ced adjacent to the existing park boat ramps and is intended to prevent the t ramp area from rapidly shoaling in due to littoral drift. The eastern in would be of similar construction and was used to separate the beach from salt marsh at about the location of the present drainage ditch and to vide an anchor point for the marsh retainer.

beach profile would have a berm height of 3 feet above NGVD. The cost red berm width would vary from 0 to about 25 feet in width. An additional feet of sand berm, retained on the upland side by railroad cross-ties, would added at local expense. The beach slope would be 1 on 20 and would be figured so that the mean high water line (0.8 NGVD) would conform to the t seaward historic shoreline. This is a combination of the 1871 and 1934

b. Conditions for swimming at the park would not be improved.

c. Erosion of the adjacent shorelines would be accentuated by the breakwater.

The process by which the offshore breakwater provides erosion control of the shoreline would cause undesirable conditions between the breakwater and shoreline. The breakwater, by design, is a shield which causes a near zero wave energy condition between the breakwater and the shore. This condition would reduce the rate of dispersion of the drainage ditch effluent and thereby worsen the water quality in the vicinity of the park. In addition, the near zero wave energy condition will cause material in littoral transport to be deposited just inside the ends of the breakwater. Over a period of time, these deposits would effectively close off the ends of the breakwater area and create a stagnant area where the drainage ditch effluent enters. Further, because the shoaling in the breakwater will not be reversible, the net result would be erosion of the shoreline of adjacent property.

Benefit/Cost Analysis of Plan C. The first cost of Plan C is estimated in Appendix A to be $395,200 at 1983 price levels. Total annual costs for an assumed 50-year economic life and 8-1/8% interest rate are computed as follows:

Interest and Amortization of First Cost:		
$395,200 x .082919 =		$32,000
Assume no Annual Maintenance.		
Annual Benefits:		
Damage prevention =	$ 1,920	
Assumed fishing benefits:		
(21.5 aver./day @ $4.00) =	31,390	
Total Benefits	$ 33,310	

$$\text{Benefit/Cost Ratio} = \frac{\text{Average Annual Equivalent Benefits: } \$33,310}{\text{Total Annual Cost: } = \$32,800} = 1$$

discussed earlier in the section titled SCREENING OF MEASURES, the offshore reakwater alone has a benefit/cost ratio of .06/1 and is considered uneconom-al. The Fish and Wildlife Service favored this alternative and believed at it had compensating benefits, including recreation.

ie attributes of this plan, in addition to protecting the shoreline from rosion, include:

a. Increased diversity of marine habitat in the area.

b. Shoreline protection without covering shallow estuarine bottoms.

c. Increased recreational exploitation of marine life attracted by the reakwater.

n order to be cost effective, the offshore breakwater would depend heavily pon recreation benefits derived from increased fishing. In order for the reakwater plan to have a benefit/cost ratio of 1/1, nearly $32,000 of annual enefits would have to be derived from recreational fishing. There is no ata available with regard to pier fishing demand in the area. However, a udgement can be made as to whether it is possible to generate the necessary enefits.

n the basis of the Unit Day Value Method, a dollar value per fishing visit ould be about $4.00. It is theoretically possible that the breakwater would enerate 21.5 fishing visits per day. At $4.00 per visit, this would result n over $31,000 in annual benefits which, in turn, will result in a Benefit/ ost Ratio of 1:1 (see Benefit/Cost Analysis of Plan C).

ther than cost effectiveness, the breakwater plan would require unacceptable rade-offs and would fail to realize potential opportunities.

a. Water quality in the vicinity of the drainage ditch would worsen due o the breakwater.

d. The aesthetics of the bulkhead/beach plan would not be in keeping with the character of the existing shoreline in the area.

The bulkhead/beach plan has been reviewed by other agencies and was discussed during a workshop held in 1980. The plan was generally not well received and should not be further considered.

Benefit/Cost Analysis of Plan B. The first cost of Plan B is estimated in Appendix A to be $303,000 at 1983 price levels. Total annual costs for an assumed 50-year economic life and 8-1/8% interest rate are computed as follows:

Interest and Amortization of First Cost: $347,200 x .082919 =	$28,800
Replacement Cost @ 25-year intervals is estimated in Appendix A to be	$228,700
Present Worth Factor: (50 years @ 25-year intervals) = .16743	
Present Worth/Annual Cost of Replacement: $228,700 x .167341 x .082919 =	$ 3,200
Total Annual Cost: =	$32,000

$$\text{Benefit/Cost Ratio} = \frac{\text{Average Annual Equivalent Benefits (Appendix C): } \$489,000}{\text{Total Annual Cost: } \$\ 32,000} = 15$$

PLAN C - OFFSHORE BREAKWATER (PLATE IV)

Plan Description. The offshore breakwater plan would consist of a rock revetment about 7 feet high with a 7-foot wide crest and 1.5 to 1 side slopes. The breakwater would be located about 200 feet offshore in water averaging about 5 feet deep. The structure to protect 960 feet of shoreline would contain about 4,500 cubic yards of material.

about 6 feet NGVD providing protection from overtopping of storms of a 1 to 2 year intensity. There would be a culvert at the drainage ditch under the sandy area. Stairways would be constructed to provide access to the water. The bulkhead/beach plan is an adaptation of a plan proposed by the Fish and Wildlife Service and is an attempt to make the bulkhead measure cost effective by adding recreation benefits. As was discussed earlier in the section titled SCREENING OF MEASURES, it was determined that the bulkhead measure alone, with a benefit/cost ratio of .07/1, is uneconomical. However, by assigning recreation values to the sand bulkhead backfill, the benefit/cost ratio increases to about 5/1 (based on 80% of the recreational value of a typical beach of comparable size). The bulkhead would be effective in control of the erosion problem identified at the site and would cover less area of shallow bottoms compared to the beach restoration plan). However, even with the sand recreation area behind the bulkhead, the plan would require unacceptable trade-offs and would fail to realize potential opportunities.

a. The bulkhead/beach plan would require filling the salt marsh area which has been identified as significant, and hence would negate the possibility of enhancing or preserving the marsh as an environmental resource.

b. The bulkhead/beach plan would not be effective or efficient as a water orientation facility as would a typical beach. Even with steps from the sand area to the water, the bulkhead would act as a visual and physical barrier with severely limited access. Access for the handicapped would be especially difficult. In addition, the vertical wall of the bulkhead combined with the riprap toe protection would be a hazard to small children.

c. The bulkhead/beach plan entails the installation of a culvert for storm runoff from the drainage ditch to reach the sound. This perpetuates the adverse effect that this effluent presently has on water quality in the area and could require intermittent restrictions on water recreation during periods following storm runoff.

benefits, but it does not meet the acceptability criterion. Coordination with the State of Florida indicated that the destruction of these wetlands was totally unacceptable and therefore not mitigatible. For this reason a mitigation plan was not developed. Similar views were held by Federal environmental agencies. Since the plan is unacceptable and cannot be implemented, it does not qualify as the NED plan.

Benefit/Cost Analysis of Plan A. The total first cost of Plan A is estimated in Appendix A to be $168,000 at 1983 price levels. Total annual cost for an assumed 50-year economic life and 8-1/8% interest rate are computed as follows:

Interest and Amortization of First Cost: $168,000 x .082919 =	$14,000
Renourishment First Cost: (Appendix A) = $67,000.	
Present Worth Factor: (50 years @ 10 year intervals) = .827572.	
Present Worth/Annual Cost of Renourishment: $67,000 x .827572 x .082919 =	$ 4,600
Total Annual Cost =	$18,600

$$\text{Benefit/Cost Ratio} = \frac{\text{Average Annual Equivalent Benefits (Appendix C): } \$671,000}{\text{Total Annual Cost: } \$\ 18,600} = 36$$

PLAN B - BULKHEAD PLAN (Plate III)

Plan Description. The bulkhead plan would consist of a concrete sheet pile wall approximately 20 feet from the shore with riprap toe protection. An "artificial beach" behind the bulkhead would be created by hauling sand from a suitable borrow area. The useful size of the sand area created is limited by the tree line at the park and would therefore be about 40,000 square feet. Assuming 100 square feet per person with a turnover rate of 2, the "beach" would accommodate 800 people. The sheet pile bulkhead would have a height of

be placed on the shoreline would be about 16,700 cubic yards. Periodic renourishment of the beach with approximately 2,100 cubic yards is estimated to be required at 10-year intervals.

The artificial beach restoration alternative would provide the needed erosion control and significant recreational benefits. As a result of the recreation benefits, the plan would have a very favorable benefit-cost ratio of about 36 to 1. However, there are a number of unacceptable trade-offs associated with the plan and there are opportunities previously described which would not be realized if the plan were implemented.

a. The process of beach nourishment by dredging would cause some material to drift into adjacent areas with a temporary effect of unknown magnitude.

b. Removal of the material from a site adjacent to the GIWW would temporarily disrupt the benthos at that location, however, it could be expected to reestablish in 6 to 12 months. Nevertheless, since Santa Rosa Sound is classified as Class II waters in that vicinity, the Florida DNR is opposed to dredging as a source of material.

c. The beach restoration would cover a significant amount of shallow-bottom habitat.

d. The beach restoration would require covering the existing salt marsh at the east end of the park which would destroy this valuable resource rather than enhance it.

e. The beach restoration plan alone would do nothing to improve the water quality in the area. The drainage ditch would remain and its effluent would cause intermittent water quality problems which could require closing the beach during periods following storm runoff.

The plan is complete, effective, and efficient in terms of solving the erosion problems cited. It may also appear to be the plan that maximizes net

In January of 1983, a revised plan was presented to all interested agencies which included the beach with groins at each end and a new man-made marsh adjacent to the existing marsh. The plan also included diversion of the drainage ditch through the marsh as was suggested earlier by the Northwest Florida Water Management District. All except Florida DER agreed that the new marsh would lessen the impact of the beach restoration on the Santa Rosa Sound ecosystem and, with minor reservations concerning construction details, that the plan was acceptable and implementable.

Subsequent meetings between February and August of 1983 with DER representatives and the city of Fort Walton Beach representatives resolved all differences and resulted in the plan designated as the Selected Plan. This plan slightly reduces the amount of shallow bottoms covered by the beach and includes piping storm drainage to the marsh area allowing the drainage ditch to be filled. The Selected Plan is acceptable to the local sponsor and to all concerned agencies and is complete, effective, and efficient in the way in which it addresses the problems and opportunities identified during this study.

ASSESSMENT AND EVALUATION OF PLANS

PLAN A - ARTIFICIAL BEACH RESTORATION (Plate III)

Plan Description. Creation of an artificial beach by pumping material approximately 1,500 feet from a borrow area adjacent to the Gulf Intracoastal Waterway would involve a hydraulic dredge and use of equipment to shape the beach. Also to prevent sand from filling in the boat launching area and to minimize the loss of sand by littoral drift, a groin would be constructed on the western edge of the beach fill. A culvert would be necessary for the drainage ditch in the midsection of the park.

The beach profile would have a berm height of 4 feet above NGVD and a berm width of about 20 feet. A back slope of 1 on 10 and a foreshore slope of 1 on 20 would be provided. The available beach area upon completion would be approximately 62,000 square feet. Initially, the amount of fill required to

habitat. These plans all centered around the concept of beach establishment west of the drainage ditch and marsh enhancement east of the drainage ditch. Each measure would provide the needed erosion control while the beach would provide considerable recreation benefits. In February of 1980, a workshop was held during which the need for additional recreation facilities such as an additional boat ramp, additional fishing facilities, and a nature trail were identified. Subsequent to the workshop, however, these items were dropped from further consideration as features of a possible Federal project.

Upon review of the preliminary coordination report in late May 1980, two additional alternatives were developed. Recognizing the water quality problems caused by the drainage ditch, the Environmental Protection Agency suggested the use of a second groin on the eastern edge of the beach thereby requiring runoff water in the drainage ditch to travel a greater distance before mixing with water used by swimmers. The US Fish and Wildlife Service, while favoring the beach/marsh alternative, strongly recommended the use of an offshore breakwater together with a fishing pier extension. Although this alternative had been investigated earlier in the study and not carried forward because of its poor economics, it was considered further.

In July of 1980, the draft Detailed Project Report recommended a plan which included beach restoration between the existing boat ramp and drainage ditch with groins at each end and new marsh establishment in the area of the existing marsh east of the ditch. All reviewing agencies with the exception of the National Marine Fisheries Service and the Florida Department of Environmental Regulation (DER) found this plan to be acceptable. However, the Fish and Wildlife Service still favored further consideration of the offshore breakwater plan. In addition, the Northwest Florida Water Management District suggested that the drainage ditch be routed to the marsh area to take advantage of its filtering capabilities and thereby improve water quality in the sound. In January of 1981, the Florida Department of Environmental Regulation recommended a reduced scope alternative that would have been neither adequate for erosion control nor suitable for recreation.

Table 6

Summary of Alternative Economics
Based on 1980 Economic Data

Alternative	First Cost	Annual Cost	Benefits	B/C
Gabions	$ 39,000	$ 3,400	$1,260	0.37
Wooden bulkhead	102,000	9,800	1,260	0.12
Concrete sheet pile wall	223,000	16,400	1,260	0.07
Rubble mound revetment	39,000	2,900	1,260	0.43
Sandgrabber	115,000	16,400	1,260	0.07
Longard tube	92,000	8,800	1,260	0.14
Offshore breakwater	253,000	18,600	1,260	0.06
Floating tire breakwater	68,000	9,800	1,260	0.12

PLAN FORMULATION

Formulation of Plan A was a result of applying the traditional beach erosion control methods of the Gulf Coast to solve the problems at the park. Plan B was adapted from a suggestion by the US Fish and Wildlife Service with the intent to obtain recreational benefits with the use of an otherwise uneconomical erosion control measures. As the planning process progressed it became obvious that these plans, while providing a solution to the erosion problem, were not completely sympathetic to environmental concerns and did not fully address the identified problems and opportunities.

In the spring of 1979, the marsh area at the east end of the park was identified as significant and it was determined that it should be preserved. Subsequently, plans were formulated which provided for erosion control while also enhancing the marsh to mitigate for expected losses of shallow-bottom

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SCREENING OF MEASURES

The value of the 13.5-acre park, as estimated by the Mobile District Real Estate Appraisal Branch in 1981, was about $1.60 per square foot. In July of 1982 it was estimated that property values had increased in that area by a factor of between 12% and 15%. Using the higher factor of 15% would establish a 1982 value of about $1.85 per square foot. Likewise, the 1983 value was determined to be about $2.00 per square foot on the basis of a 10% increase between 1982 and 1983. Utilizing an intermediate factor of 12% for property value increases between 1980 and 1981 and working backwards from 1981, a value of $1.40 per square foot can be assumed for 1980. This figure will be used for comparison purposes in evaluating the economics of various measures.

If the erosion rate is assumed to be 1 foot each year over about 960 feet of frontage, the total value of the land lost at 1980 price levels is about $1,344 yearly. Therefore, if a plan is designed to protect the shoreline, it should not have an average equivalent annual charge greater than $1,344. At a 7-1/8% interest rate (1980), if the first cost of any measure is greater than about $18,000 and it does not generate benefits other than erosion protection, the measure will not pass the economic test of generating greater annual benefits than cost.

It is apparent that some measures are more expensive than others. Before proceeding with a detailed evaluation of alternative plans, it is prudent to eliminate those measures which appear to be blatantly uneconomical. Thus, the use of measures such as gabions, a wooden or concrete sheet pile bulkhead, rubble mound revetment sandgrabber, longard tubes, offshore breakwater, and floating tire breakwater are considered uneconomical at this point. Table 6 provides an economic summary of these measures.

Considering the economic criteria, all of the measures listed in Table 6 are eliminated as methods of providing shoreline protection. However, the US Fish and Wildlife Service recommended further consideration of an offshore breakwater. Their recommendation is designated as Plan C and is in the next section.

Planting marsh along the shoreline would protect the natural appearance of the area as well as the shoreline itself. The marsh would serve as habitat for many marine organisms such as benthos, crabs, and larval fish. Detritus from the marsh would enrich the productivity of the area. The impacts to shallow water bottoms associated with construction of the marsh would be lessened by construction of the marsh.

A no-wake zone restriction in the vicinity of the park would somewhat reduce the wave energy striking the shoreline and to that extent would reduce shoreline erosion. Plant communities on the shoreline could benefit from a reduction in erosion and their growth could further stabilize the shoreline. Although not a complete solution to the erosion problem, a no-wake zone is a minimum cost measure that could contribute to any selected plan. In order to be effective, local enforcement would be required.

Elimination of the drainage ditch is a measure which would benefit the public by allowing the park land and shoreline to be used more freely, more efficiently, and more safely. Elimination could be accomplished by piping the storm runoff, using the existing ditch as a pipe trench, and backfilling the ditch with earth fill.

In combination with the artificial marsh measure, the storm runoff could be directed into the marsh. This would utilize the marsh as a natural filter to cleanse the runoff before entering the sound thereby improving the water quality in the sound. This is particularly important in connection with measures that provide for increased water oriented activities.

The existing fishing pier and boat ramp are very important park features. Although there are no measures recommended specifically for their protection or enhancement, their continued use and well being will be a major consideration in the formulation and selection of any plan.

will increase the visitations to the park. Were the open ditch to remain, its inherent hazards may tend to offset some of the visitation benefits for the beach. Filling of the ditch would complement the beach visitation benefits by removing the aforementioned hazards. It is probable that the two measures together may generate more visitation benefits than those cited for the beach alone. No attempt has been made, however, to quantify these additional benefits. Bathing may occasionally be prohibited for short periods because of water quality deterioration due to rainfall runoff or other factors, but this should have no significant effect on benefits since heretofore bathing has not been prohibited.

The third component of the Selected Plan is the establishment of a salt marsh adjacent to the existing marsh area at a total cost of about $45,500. Marsh planting will be in accordance with accepted procedures as outlined in the following publications:

a. Coastal Engineering Technical Aid 77-3, "Planting Guidelines for Marsh Development and Bank Stabilization." (Available from Coastal Engineering Research Center, WES Post Office Box 631, Vicksburg, MS 39180.)

b. Technical Report DS-78-19, "An Introduction to Habitat Development on Dredged Material." (Available from WES)

c. Technical Report DS-78 5, "Upland and Wetland Development with Dredged Material: Ecological Considerations." (Available from WES)

d. Technical Report DS-78-16, "Wetland Habitat Development with Dredged Material: Engineering and Plant Propagation." (Available from WES)

The marsh would extend from the east groin to the east park property line, a distance of about 430 feet, and cover about 30,000 square feet at an elevation of 0.3 feet NGVD. A low stone rubble wall would stabilize the marsh and control erosion until the marsh is fully established. The retainer wall would allow free movement of water and motile organisms (such as crabs, shrimp, and fin fish) via four intertidal sills which would be at the same elevation as the marsh. The marsh, in addition to providing the needed erosion control along

the shoreline, will increase the amount of productive habitat which provides a supply of food in the form of detritus along the shoreline and will help to offset the loss of shallow bottom to beach construction.

The proposed new marsh, existing marsh, and the proposed diffusion pond would provide great opportunities to the city to develop a learning area which could be totally complementary to the local family oriented park concept. Development of a boardwalk through and around the marsh and pond areas by the city would provide a means of showing children, close-up, the diversity of organisms which inhabit marshes. This, too, may generate additional benefits which have not been quantified.

Benefit/Cost Analysis of the Selected Plan. The total first cost of the Selected Plan is estimated to be $236,000 at 1983 price levels. Total annual costs for an assumed 50-year economic life and 8/1/8% interest rate are computed as follows:

Interest and Amortization of first cost $236,000 X .082919 =	$ 19,600

Renourishment at 10-year intervals is estimated in the Design and Cost Estimates Appendix at 3,500

Present worth factor (50 years @ 10-year Intervals)= .827572

Annual Renourishment Cost .827572 X $3,500 X .082919 = about	200
Annual Groin & Marsh Retainer Maintenance = about	200
Total Annual Cost	$ 20,000

$$\text{Benefit/Cost Ratio} = \frac{\text{Average Annual Equivalent Benefits (Benefits Appendix): } \$358,920}{\text{Total Annual Cost: } \$ 20,000} = 18$$

Cost-Sharing Requirements. The City of Fort Walton Beach will be required to cost share 30% of those items related to shore erosion. A 20-foot strip of

beach retained by railroad cross-ties along the shoreward edge of the cost-shared beach is not required for shore protection. The cost of this beach extension is estimated to be $15,000 and would be a 100% local cost.

The total cost sharing breakdown is as follows:

Federal Cost (236,000 - 15,000) X .70 =	$ 155,000
Local Cost ((236,000 - 15,000) X .30) + 15,000 =	$ 81,000

The Selected Plan/NED Plan provides the greatest net economic benefit consistent with protecting the nation's environment. As stated in the Plan Formulation section, "The Selected Plan is acceptable to the local sponsor and to all concerned agencies and is complete, effective, and efficient in the way in which it addresses the problems and opportunities identified during this study."

Effects on Natural and Cultural Resources. Table 7 displays the effects that the Selected Plan will have on natural and cultural resources with respect to the appropriate authorities involved.

Implementation Responsibilities. The local sponsor, the city of Fort Walton Beach, Florida, has, as authorized by State law, provided assurance of financial capability and willingness to fulfill the following requirements of local cooperation:

a. Provide without cost to the United States all necessary lands, easements, rights-of-way and relocations required for construction of the project, including that required for periodic nourishment.

b. Hold and save the United States free from claims for damages which may result from construction and subsequent maintenance of the project, except damages due to the fault or negligence of the United States or its contractors.

Table 7
Effects of the Selected Plan on
Natural and Cultural Resources

Types of Resources	Authorities	Measurement of Effects
Air Quality	Clean Air Act, as amended (42 U.S.C. 1857h-7 et seq)	Temporary and insignificant effects during construction.
Areas of particular concern within the coastal zone	Coastal Zone Management Act of 1972, as amended (16 U.S.C. 1451 et seq)	No effect on regions designated as areas of particular concern in Florida's Coastal Management Program.
Endangered and threatened species	Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq)	No effect.
Fish and wildlife habitat	Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq)	1.1 acres of shallow bottom and 0.2 acres of shoreline filled for beach. 0.7 acres of shallow bottom converted to marsh habitat.
Floodplains	Executive Order 11988, Floodplain Management	About 1.0 acres gained.
Historic and cultural properties	National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 et seq)	Not present in planning area.
Prime and unique farmland	CEQ Memorandum of Aug 1, 1980: Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing the National Environmental Policy Act	Not present in planning area.
Water quality	Clean Water Act of 1977, as amended (42 U.S.C. 1857h-7 et seq)	No effect on State water quality classification.
Wetlands	Executive Order 11990, Protection of Wetlands; Clean Water Act of 1977, as amended (42 U.S.C. 1857h-7 et seq)	Gain 0.7 acres of salt marsh.
Wild and scenic rivers	Wild and Scenic Rivers Act, as amended (16 U.S.C. 1271 et seq).	Not present in planning area.

c. Assure continued conditions of public ownership and use of the shore upon which the amount of Federal participation is based during the economic life of the project (normally 50 years).

d. Assure maintenance and repair, and local share of periodic beach nourishment, where applicable, during the economic life of the project as required to serve the intended purposes, and in accordance with regulations prescribed by the Secretary of the Army.

e. Provide and maintain necessary access roads, parking areas, and other public use facilities, open and available to all on equal terms.

f. Provide a cash contribution for the local share of construction costs determined in accordance with existing law and based on the extent of share in public ownership or use at the time of construction, or subsequent nourishment.

g. Comply with any applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-464).

h. Comply with Title VI of the Civil Rights Act of 1964 (PL 88-352).

i. Assume responsibility for all project costs in excess of $1,000,000.

CONCLUSION & RECOMMENDATION

The Selected Plan consists of a sand beach flanked by two stone groins, expansion of an existing salt marsh by more than 1/2 acre, and diversion of an existing drainage ditch via pipeline to the marsh. Of the alternatives considered, the Selected Plan has the highest net economic development benefits consistant with protection of the environment and is, therefore, designated as the NED Plan. The plan is complete and effective in solving the stated problems and in realizing the available opportunities. It is also acceptable to the local sponsor, the public, and all reviewing agencies. Water quality

certification has been received from the State of Florida. It has been concluded that the adverse environmental effects of the proposed action are minor and that preparation of an environmental impact statement is not required. An environmental assessment follows this report.

The first cost of the Selected Plan is $236,000. The local sponsor's share would be $81,000. The Benefit/Cost ratio is 18 to 1.

The Selected Plan is recommended for funding and construction contingent upon the local sponsor entering into a written agreement fulfilling the requirements listed in the Implementation Responsibilities section on page 48.

PATRICK J. KELLY
Colonel, CE
District Engineer

ENVIRONMENTAL ASSESSMENT

AND

F.O.N.S.I.

ENVIRONMENTAL ASSESSMENT

DESCRIPTION OF PROPOSED ACTION

The purpose of this environmental assessment is to discuss the impacts associated with providing a 500-foot artificial beach from the boat launching area east to the drainage ditch at Liza Jackson Park at Fort Walton Beach, Florida. The beach would be retained at each end by groins constructed from commercially available stone. A 0.7-acre salt marsh would be established in the area east of the beach to the property line, a distance of approximately 430 feet. A low stone rubble wall would be constructed soundward of the marsh to stabilize the marsh and control erosion until it is fully established. The wall would be constructed in such a manner that free exchange would occur between the developing marsh and the sound. The drainage ditch would be rerouted so that all runoff would filter through the marsh prior to entering the sound. A more detailed description of the proposed plan is given in the main report.

The proposed project is being studied under the authority provided by Section 103a of the 1962 River and Harbor Act, as amended. The study was initiated in response to a resolution adopted 25 March 1975 by the City Council of the City of Fort Walton Beach, Florida. The local sponsor of the project is the City Council of Fort Walton Beach, Florida.

The proposed beach would create approximately 41,000 square feet of additional recreational area for the residents of Okaloosa County and surrounding areas. Water quality in the area of the park would be improved.

The eroding rate of the beach is projected to be 1.0 feet per year; therefore, the artificial beach at Liza Jackson Park would be renourished every ten years by adding additional fill material. The sand would be trucked from the GIWW

disposal area at Point Washington, Florida. Approximately 250 cubic yards of sand would be required during each beach renourishment.

An economic analysis of the proposed artificial beach gave a benefit-to-cost ratio of 30 to 1 over the 50-year economic life of the project. Pertinent economic data for the project are presented in an appendix to the report.

EXISTING ENVIRONMENTAL SETTING WITHOUT THE PROJECT

This section of the assessment describes only those aspects of the existing environmental conditions which may be altered as a result of construction and maintenance of the proposed beach/marsh at Liza Jackson Park. The main report contains a description of the overall environmental setting and elaborates on many of the topics that are only summarized in this statement.

Liza Jackson Park is a 13.5-acre park located on the northern shore of Santa Rosa Sound. The Sound is an estuarine area located between Santa Rosa Island and the mainland between Pensacola and Destin, Florida. There are no streams of a significant size draining into the Sound. However, the Sound is highly productive as a spawning, nursery, feeding, and resting area for many marine and some freshwater fish species.

The shallow shore zone area at Liza Jackson Park provides valuable habitat for fish and wildlife. Fish and wildlife species utilizing the shallow shore zone include the striped mullet (Mugil cephalus), Atlantic croaker (Micropagonias undulatus), spotted seatrout (Cynoscion nebulosus), herring gull (Larus argentatus), Forster's tern (Sterna forsteri), greater scaup (Aythya marila), hispid rat, (Sigmodon hispidus), opossum (Didelphis marsupialis), and eastern glass lizard (Ophisaurus ventralis). A more complete listing of species utilizing the Liza Jackson Park area can be found in the main report.

Benthic organisms and shellfish utilizing the shallow shore zone area include polychaetes, pelecypods, amphipods, gastropods, shrimp, and blue crabs.

The shoreline of the park has an average beach width of approximately eight feet at low tide. Isolated tree stumps and stands of smooth cordgrass (Spartina alterniflora) and saltmeadow cordgrass (Spartina patens) are present along the shoreline. The beach is narrowest at the eastern end of the park where a small one acre marsh is located. The marsh is composed primarily of saltmeadow cordgrass, black needlerush (Juncus roemerianus) and sawgrass (Cladium jamaicense). The shoreline in the vicinity of the marsh appears to be eroding at a very slow rate compared the remainder of the park's shoreline.

The park's eroding shoreline varies between 1.0 and 5.5 feet in elevation. Above the erosion scarp the shoreline is well vegetated with plants including slash pine (Pinus elliottii), Chapman oak (Quercus chapmanii), saltmeadow cordgrass, palmetto (Serenoa repens), groundsel-tree (Baccharis halimifolia), wax myrtle (Myrica cerifera), sweet bay (Magnolia virginiana), and various sedges and grasses. There are no grass beds in the Liza Jackson Park area of Santa Rosa Sound.

A drainage ditch bisects the park and water flows across the existing shore creating a small sand bar. Small minnow-like fish inhabit the pools of the drainage ditch.

Air quality in the area is good. The coastal wind regime rapidly disperses air pollutants from construction sites and along highways.

The aesthetic quality of the Liza Jackson Park area is good. The park grounds are well kept, and the view of the Sound is pleasant. The shoreline blends in with adjacent properties and is of natural aesthetic quality.

No archeological or cultural sites of national significance are found at Liza Jackson Park.

The borrow area at Point Washington is sparsely vegetated with scrub pine (Pinus spp.) and other common dune plants. The open sand offers little habitat for wildlife. Vehicular access to the site would be by existing road.

ELATIONSHIP TO ENVIRONMENTAL REQUIREMENTS

ıe compliance of the Selected Plan with applicable environmental statutes is ımmarized in Table EA.1.

ıE PROBABLE ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

ıe major environmental impacts associated with the proposed project at Liza ackson Park may be divided into four major categories. These are: (1) mpacts of initial construction of the artificial beach and groins; (2) impacts f periodic maintenance of the artificial beach; (3) secondary impacts induced / the artificial beach and (4) establishment of the marsh. Each of the four mpact categories will be discussed in the following paragraphs.

onstruction of the Artificial Beach. Initial construction of the artificial each would destroy nonmotile benthic organisms in the littoral zone and plants long the shoreline by the filling activity. Vegetation would not be expected o reestablish on the beach to any significant degree. Benthic organisms ıould repopulate the new littoral area within a few months. Nonmotile benthic rganisms would also be destroyed by the construction of the groins. However, ıe addition of hard substrate would tend to increase the diversity of rganisms within the vicinity of the park.

lacement of the sand into the littoral area along with the grading activity ıd construction of the groins and piers would cause some minor turbidities. owever, due to the fill material used, turbidity would be temporary and would ave an insignificant impact on adjacent biological communities.

o submerged grassbeds would be impacted by the beach construction. A small lump of smooth cordgrass (approximately 0.001 acre) would be removed during each construction and transplanted to the area of marsh establishment.

onstruction of the beach would change the appearance of park shoreline from a ıtural shore to a manmade shore. Natural compatible materials will be used ı construction of the beach. Even though the shore will have a different

TABLE EA-1

Relationship of the Selected Plan to Environmental Requirements, Protection Statutes, and Other Environmental Requirements

Federal Statutes	Compliance
Archeological and Historic Preservation Act, as amended, 16 USC 469, et sec	FC
Clean Air Act, as amended, 42 USC 1857h-7, et sec	FC
Clean Water Act, as amended, (Federal Water Pollution Control Act) 33 USC 1251, et sec	FC
Coastal Zone Management Act, as amended, 17 USC 1451, et sec	FC
Endangered Species Act, as amended, 16 USC 1531, et sec	FC
Estuary Protection Act, 16 USC 1221, et sec	FC
Federal Water Project Recreation Act, as amended, 16 USC 460-1(12), et sec	FC
Fish and Wildlife Coordination Act, as amended, 16 USC 661, et sec	FC
Land and Water Conservation Fund Act, as amended, 16 USC 4601-4601-11, et sec	FC
Marine Protection, Research and Sanctuaries Act, 33 USC 1401, et sec (1)	NA
National Historic Preservation Act, as amended, 16 USC 470a, et sec	FC
National Environment Policy Act, as amended, 42 USC 4321, et sec (1)(2)	FC
Rivers and Harbors Act, 33 USC 401, et seq (3)	NA
Watershed Protection and Flood Prevention Act, 16 USC 1001, et seq (4)	NA
Wild and Scenic Rivers Act, as amended, 16 USC 1271, et seq (5)	NA
Executive Orders, Memoranda, etc.	
Flood Plain Management (E.O. 11988)	FC
Protection of Wetlands (E.O. 11990)	FC
Environmental Effects Abroad of Major Federal Actions (E.O. 12114)(5)	NA
Analysis of Impacts on Prime and Unique Farmlands (CEQ Memorandum, 11 Aug 80)(7)	NA
State and Local Policies	
State Water Quality Criteria	FC
Land Use Plans	
No known land use plans will be affected by any of the alternatives.	
Required Federal Entitlements	
None.	

NOTES - The compliance categories in this table were assigned based on the following definitions:

FC - Full Compliance--All requirements of the statute, E.O., or other policy and related regulations have been met for this stage of planning.

PC - Partial Compliance--Some requirements of the statute, E.O., or other policy and related regulations remain to be met for this stage of planning.

5 (cont)

Noncompliance--None of the requirements of the statute, E.O., or other policy and related regulations have been met for this stage of planning.
Not Applicable--N/A statute, E.O., or other policy not applicable.
Marine Protection Research and Sanctuaries Act of 1972. No provisions of the Marine Protection Research and Sanctuaries Act are applicable to the selected plan.
National Environmental Policy Act (NEPA). An EA and FONSI have been prepared in accordance with NEPA.

River and Harbor Act of 1899. No requirements for the selected plan.

Watershed Protection and Flood Prevention Act. No requirements for the selected plan.

Wild and Scenic Rivers Act. No provisions of the Wild and Scenic Rivers Act are applicable to the selected plan.

The selected plan would have no impact on any foreign country.

No prime and unique farmlands are located within the study area.

appearance, aesthetic quality would not be adversely impacted. Construction of the beach would restore and preserve the natural and beneficial values of the area for recreational use.

Increased air and noise pollution levels during construction activities would be temporary and insignificant.

No endangered or threatened plant or animal species would be affected by the construction of the artificial beach.

The very limited plant and animal communities inhabiting the borrow area would be disrupted by the borrow activities. However, these communities should repopulate the area once borrow activities cease.

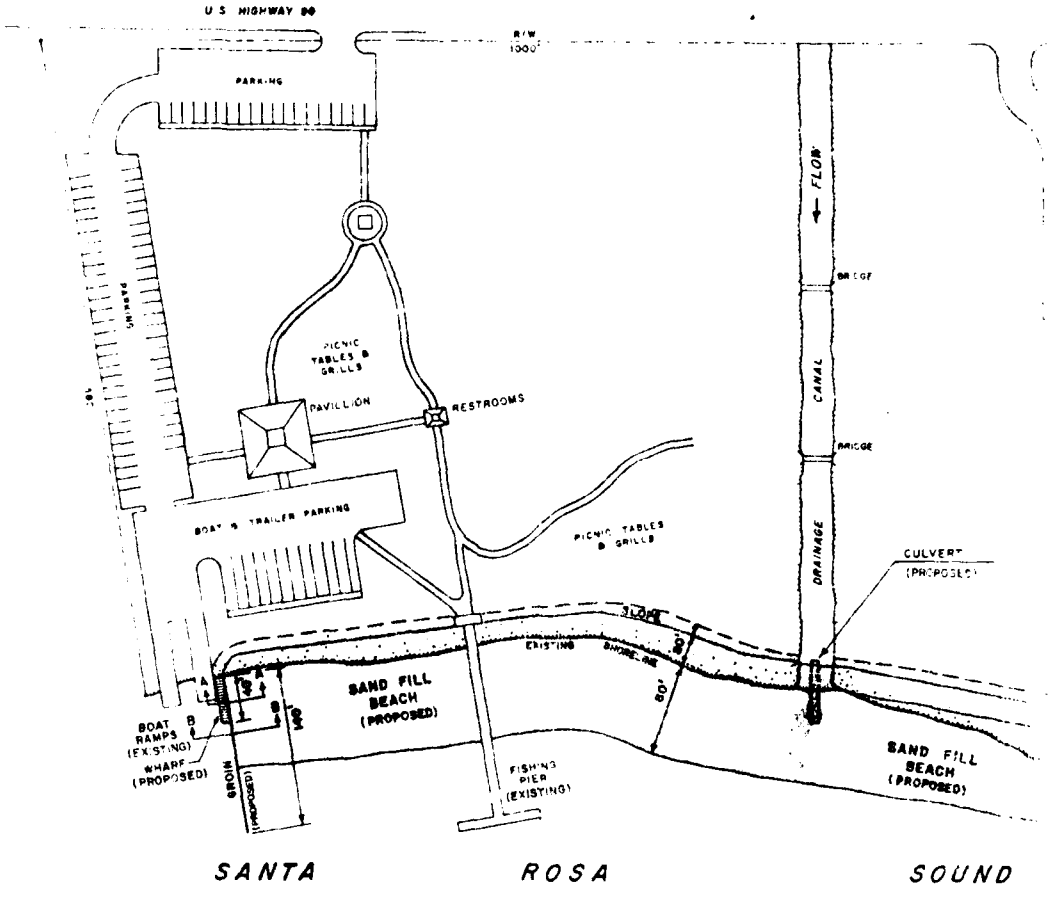
Maintenance of the Artificial Beach. Maintenance of the beach would require approximately 250 cubic yards of sand to be deposited on the beach area about every ten years. The impacts of maintenance activities on the area would be similar to those for the initial construction of the beach. Turbidity produced from trucked sand would be low and of short duration. Nonmotile benthic organisms would be destroyed by the fill activity, but should repopulate the fill material in a few months. Fish and motile shellfish would avoid the area only during the fill activity.

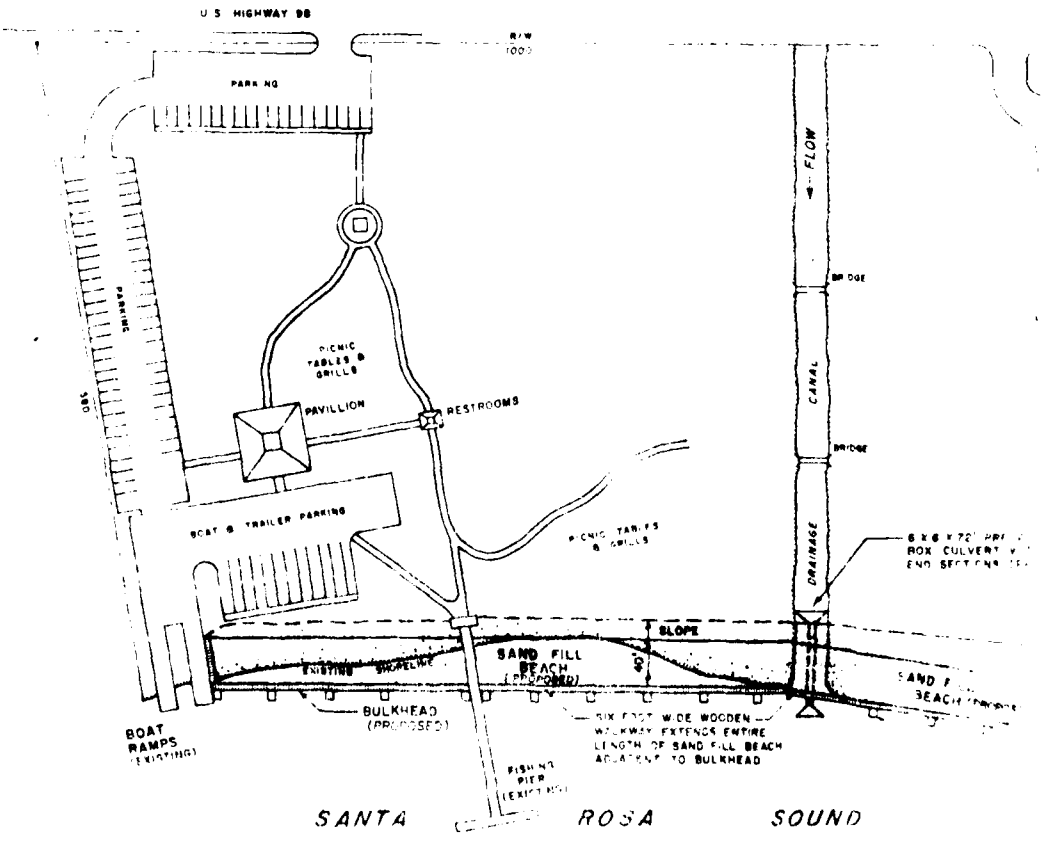
Increased air and noise pollution levels during the maintenance activity would be short-term and insignificant.

No endangered or threatened plant or animal species would be affected by the maintenance activities.

The borrow of maintenance material from the area at Point Washington would disrupt the very limited plant and animal communities established on the area. However, these communities should repopulate the area once borrow activities cease.

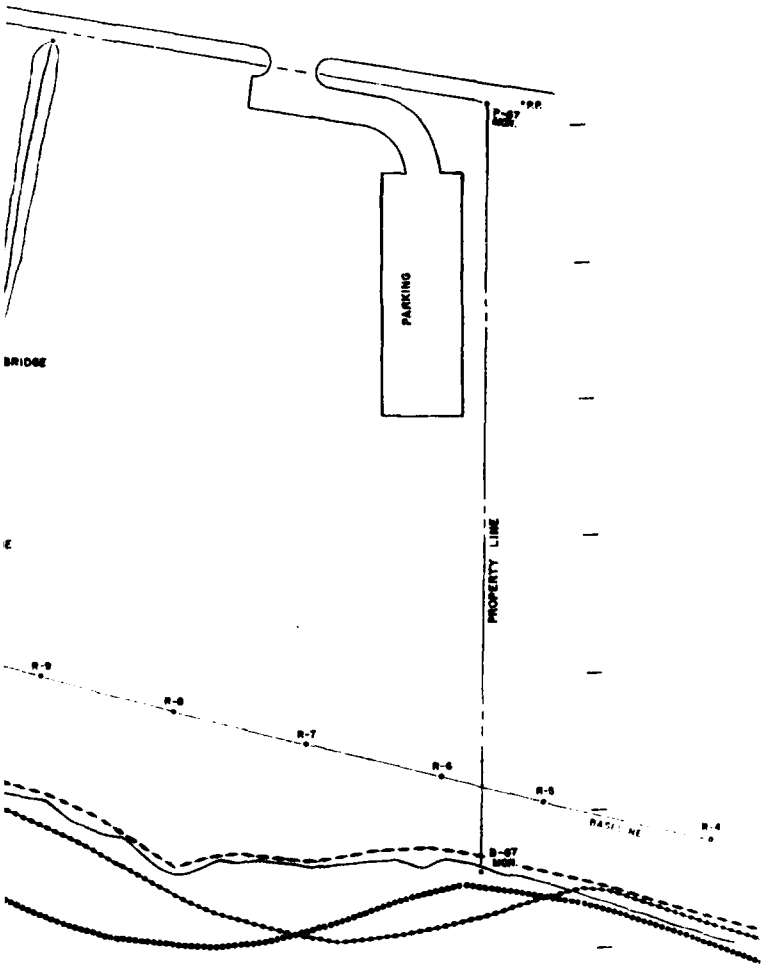
ERS	4	3


U S HIGHWAY 98
R/W 100'
PARKING
N
PICNIC TABLES & GRILLS
PAVILLION
RESTROOMS
BOAT & TRAILER PARKING
PICNIC TABLES & GRILLS
FLOW
BRIDGE
CANAL
BRIDGE
DRAINAGE
CULVERT (PROPOSED)
SLOPE
EXISTING SHORELINE
80'
SAND FILL BEACH (PROPOSED)
BOAT RAMPS (EXISTING)
WHARF (PROPOSED)
BULKHEAD (PROPOSED)
FISHING PIER (EXISTING)
SAND FILL BEACH (PROPOSED)
SANTA ROSA SOUND


U S HIGHWAY 98
R/W 100'
PARKING
N
PICNIC TABLES & GRILLS
PAVILLION
RESTROOMS
BOAT & TRAILER PARKING
PICNIC TABLES & GRILLS
FLOW
BRIDGE
CANAL
BRIDGE
DRAINAGE
SLOPE
EXISTING SHORELINE
SAND FILL BEACH (PROPOSED)
BULKHEAD (PROPOSED)
SIX FOOT WIDE WOODEN WALKWAY EXTENDS ENTIRE LENGTH OF SAND FILL BEACH ADJACENT TO BULKHEAD
BOAT RAMPS (EXISTING)
FISHING PIER (EXISTING)
SANTA ROSA SOUND

REVISIONS

DESCRIPTION DATE APPROVED



LEGEND

SHORELINES

1981 — 0' NGVD

1981 — — — — MHW (+0.8 NGVD)

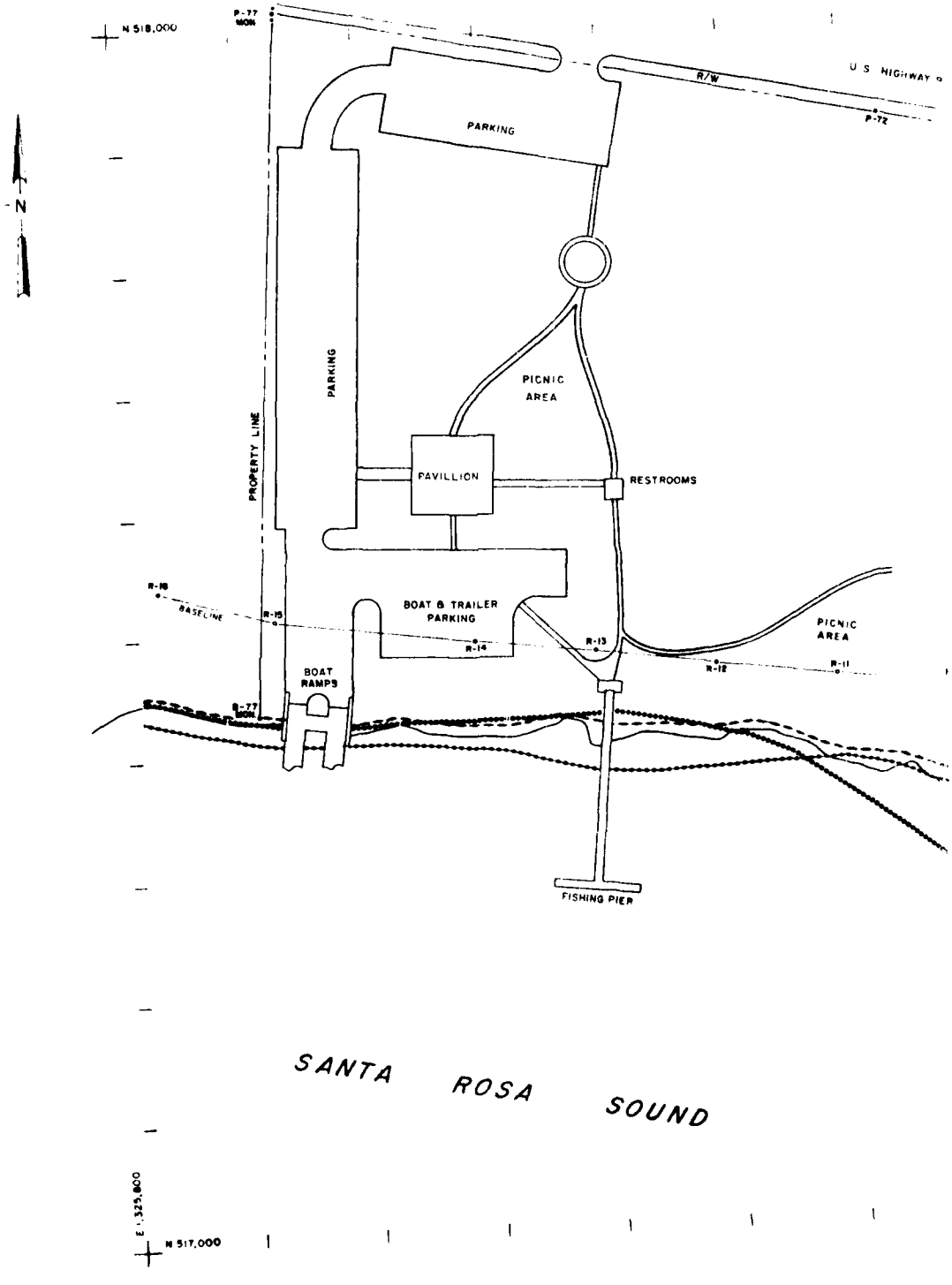
1934 ~~~~~~~~

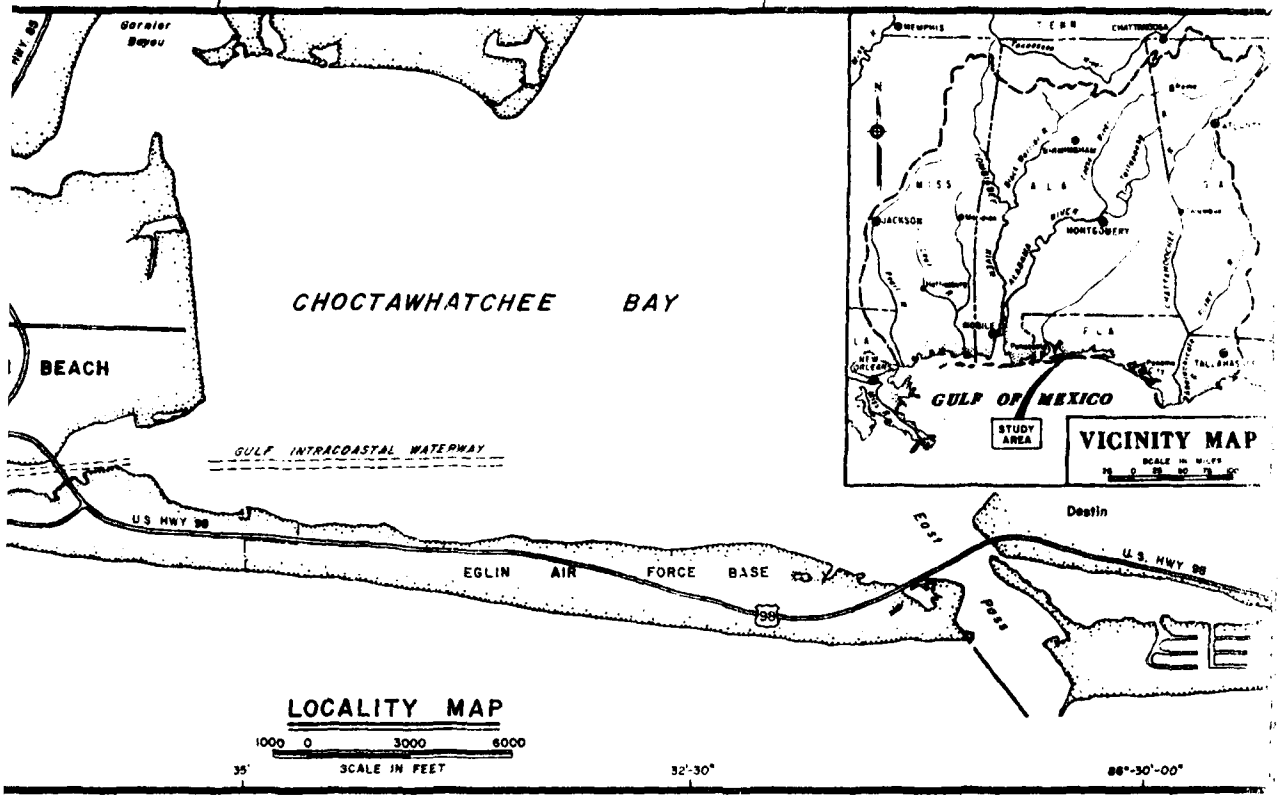
1871 ~~~~~~~~

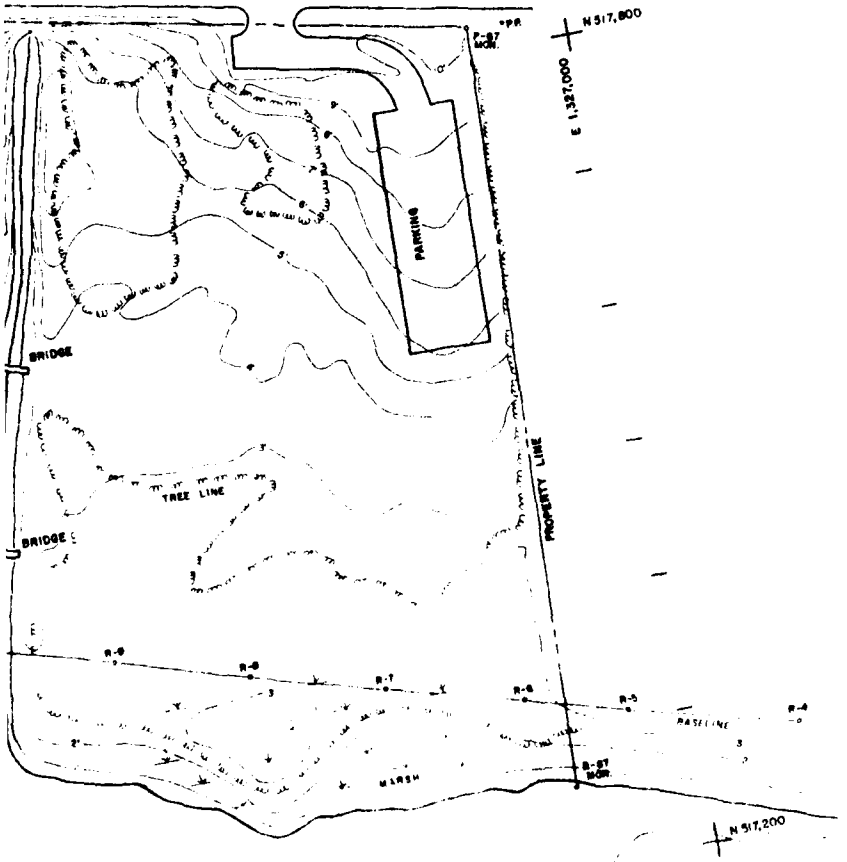
50 0 50 100

SCALE IN FEET

DETAILED PROJECT REPORT
ON
BEACH EROSION CONTROL
LIZA JACKSON PARK
FORT WALTON BEACH, FLORIDA
SHORELINE
CHANGE MAP


N 518,000
P-77
MON
U S HIGHWAY 9
R/W
P-72
PARKING
N
PARKING
PROPERTY LINE
PICNIC
AREA
PAVILLION
RESTROOMS
R-16
BASELINE
R-15
BOAT & TRAILER
PARKING
R-14
R-13
PICNIC
AREA
R-12
R-11
BOAT
RAMPS
P-77
MON
FISHING PIER
SANTA ROSA SOUND
E 1,325,800
N 517,000



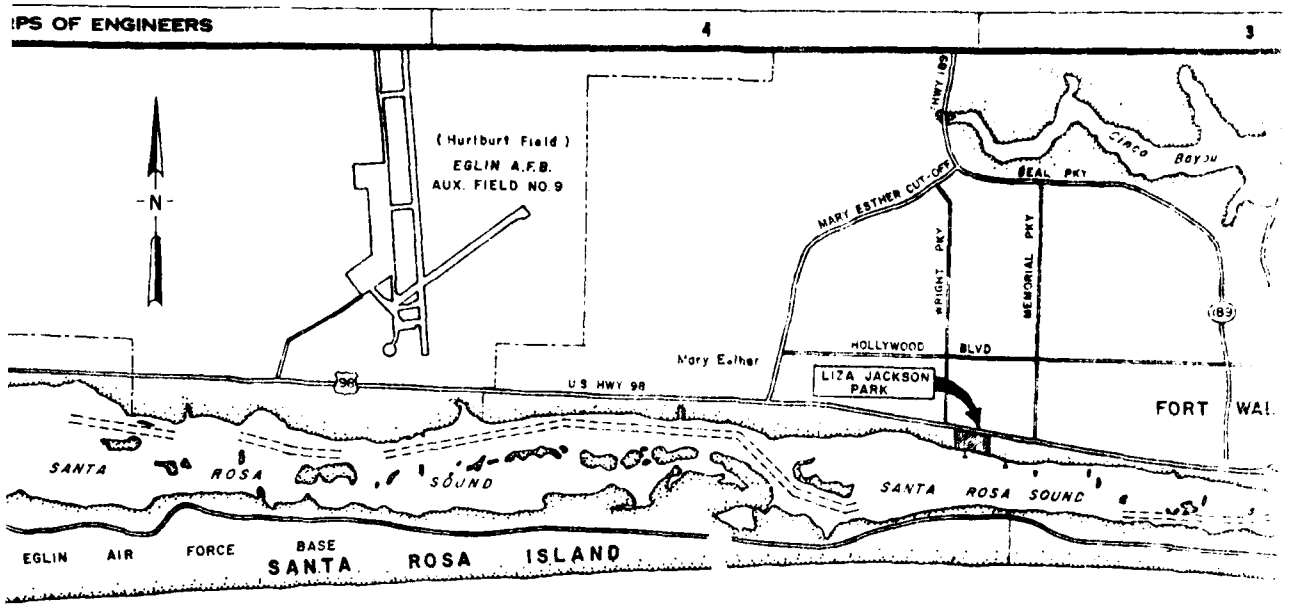


2

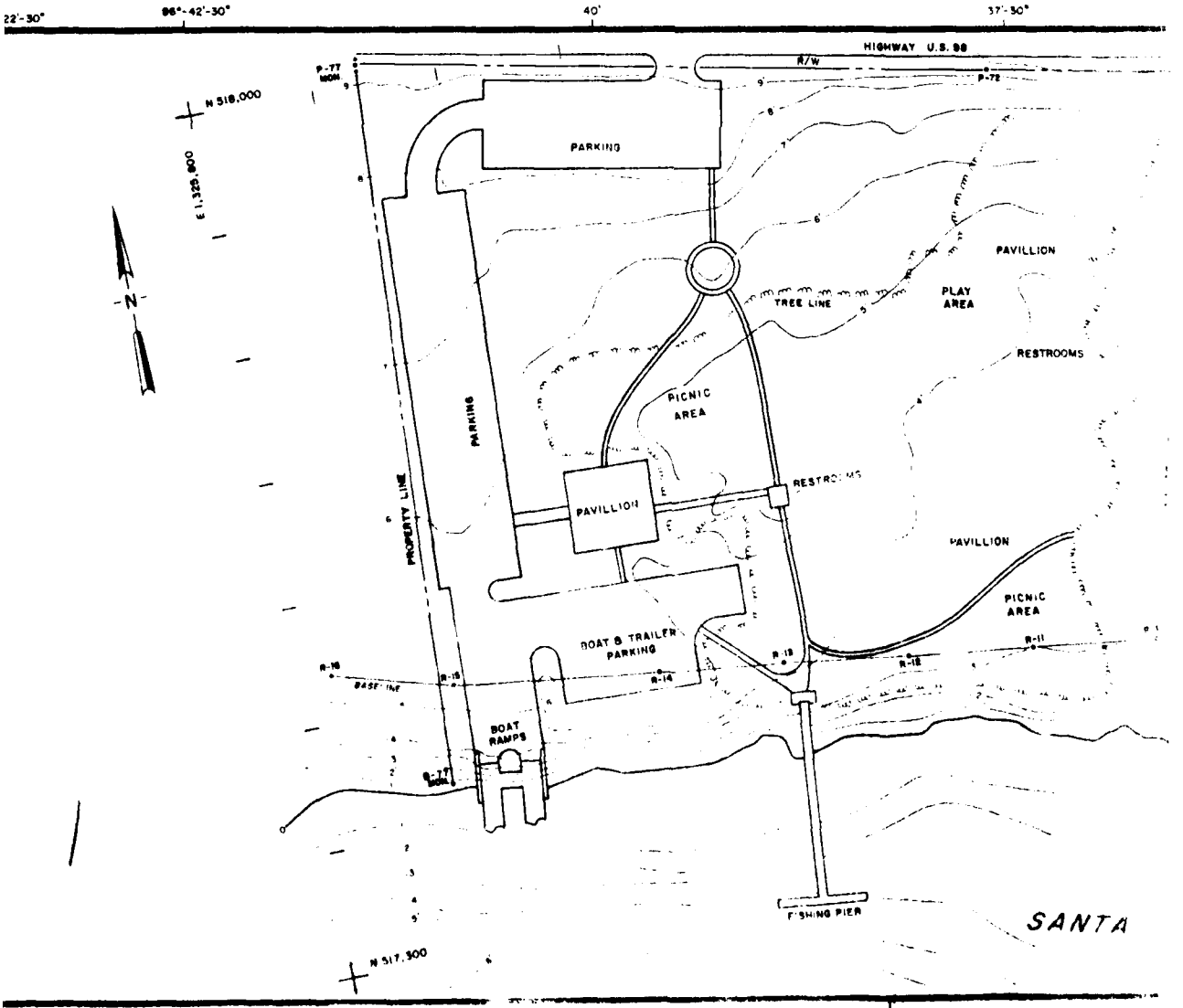
NOTES
ELEVATIONS ARE IN FEET AND REFER TO NGVD
THIS MAP SHOWS EXISTING CONDITIONS

DETAILED PROJECT REPORT
ON
BEACH EROSION CONTROL
LIZA JACKSON PARK
FORT WALTON BEACH, FLORIDA

GENERAL MAP



GULF OF MEXICO



g. Turbidity generated by the construction activities would be short-term and minor.

h. No endangered or threatened species would be affected by the proposed action.

i. Cultural resources would not be affected by the proposed work.

j. Aesthetics and recreational opportunities of Liza Jackson Park and surrounding area would be enhanced by the plan.

k. The proposed action is consistent to the maximum extent practicable with the Florida Coastal Zone Management Plan.

l. By letter dated 8 March 1984, water quality certification for the proposed action, pursuant to section 401 of the Federal Water Pollution Control Act (33 U.S.C. 1251, 1341), was received from the State of Florida Department of Environmental Regulation.

DATE: 14 June 84

BY: Patrick J. Kelly
PATRICK J. KELLY
Colonel, CE
District Engineer

FINDINGS OF NO SIGNIFICANT IMPACT (FONSI)

FOR

DETAILED PROJECT REPORT

ON

LIZA JACKSON PARK

FORT WALTON BEACH, FLORIDA

Based on the results of the Environmental Assessment and the 404(b)(1) Evaluation, it is concluded that the environmental impacts associated with the considered action are minor and that the preparation of an Environmental Impact Statement is not required. Specific factors considered in making this determination include:

a. The proposed work will alleviate an erosion problem which, if allowed to continue, would result in further reduction in recreation at Liza Jackson Park.

b. The quantities of materials to be used are small and either native to the area or inert.

c. Less than 2 acres of eroding, subtidal, sandy bottoms would be changed to more stable intertidal bottoms. An existing wetland area would be expanded by the addition of a 0.7-acre salt marsh to be created as part of the plan.

d. The use of riprap and establishment of the wetland area would provide increased habitat diversity and increased productivity for this area of Santa Rosa Sound.

e. The realignment and piping of the existing storm drainage ditch would result in improved water quality in the area of Liza Jackson Park by allowing the drainage to filter through the marsh prior to entering Santa Rosa Sound.

f. Evaluation of the fill material in accordance with 40 CFR 230.60, indicates that the extraction site is removed from sources of pollution and that the material is not a carrier of contaminants.

copy of the 15 April 1980 transmittal letter, listing the agencies that received the letter, and comments received from the agencies are attached in Appendix D. Since April of 1980 numerous meetings and reviews have taken place concerning the formulation of new alternatives. See the section, PLAN FORMULATION, in the main report for further detail. In accordance with Section 404 of the Clean Water Act, a public notice was circulated for public comment on 23 February 1981.

are considered temporary and would not adversely affect adjacent biological communities.

The breakwater would preserve the natural character of the shoreline for awhile. However, material would accumulate and remain trapped in the wave shadow between the breakwater and shore just inside the ends of the breakwater. In time, the end area would close off and a stagnant water pool would be created as a result of the storm drainage ditch effluent. Over the life of the project, it can be expected that this change in shoreline conditions would be adverse to the park and marine communities.

The breakwater would act as a site of attachment for many marine organisms. Fish, especially larval stages, and shorebirds would utilize the breakwater for cover and resting areas. Fishing from the pier would be good since sport fish would also be attracted to the breakwater.

The breakwater would act as a boating hazard in the area since access to the boat launching ramps would be somewhat restricted. The breakwater would require lighting for nighttime visibility.

Noise and air quality would be temporarily affected during the construction activities.

No endangered or threatened plant or animal species would be affected by the construction of the breakwater. In addition, no cultural resources or municipal water supplies would be affected by the breakwater construction.

COORDINATION WITH OTHERS

A public workshop was held on 19 February 1980 in Fort Walton, Florida to obtain public input into the various alternatives developed by the Corps. Information on additional problems and needs by the locals was obtained and incorporated into the various alternatives. In April 1980 the Plan Formulation Report was circulated to the agencies for their review and comment. A

shore zone area being impacted. Existing plant and animal life utilizing the shoreline would be destroyed; however, plant and animal life would inhabit the riprap area after construction ceases. The construction activity would also destroy the existing marsh and its associated communities. Construction of the bulkhead could accelerate erosion of the lands adjacent to the park. The bulkhead and riprap would also be a hazard to small children using the park.

Water quality in the construction area would not be greatly reduced since this plan would utilize sand trucked in from the borrow area at Point Washington. However, reclamation of sand from the borrow area would disrupt the limited plant and animal communities utilizing the area. Construction related turbidities would not be significant.

The aesthetic quality of the area would be reduced by the construction of the bulkhead. Noise and air quality would be temporarily degraded during the construction activities. Public use of the water for recreational activities would be severely restricted by the bulkhead. This would be inconsistent with the normal expected function of a park located on a class III body of water.

No endangered or threatened species would be affected by the construction of the bulkhead. In addition, no cultural resources or municipal water supplies would be affected by the bulkhead construction.

Plan C - Offshore Breakwater. This plan would construct a rock breakwater about 1,000 feet long, approximately 200 feet from the shoreline. The existing fishing pier would be extended out to the breakwater. A more detailed description of the plan can be found in the main report.

The deposition of the rock into the Sound would destroy nonmotile benthic organisms as would the driving of the pier pilings. These impacts are considered temporary and insignificant. Benthic organisms should populate the sediments trapped between the rocks of the breakwater and offset the losses associated with the construction activities. Minor turbidity would be produced by deposition of the rock and pile driving. However, these turbidities

The construction of the beach would have environmental impacts similar to those for the proposed plan. However, the magnitude of these impacts would be greater due to the increased construction area and the use of an open-water borrow area. In addition, Plan A would virtually destroy the one-acre marsh, along with its benthic communities, located in the southeast corner of the park. The installation of the culvert would destroy benthic communities and habitat for small fish in the drainage ditch. Turbidity during the construction period would be slight and should not have a significant impact on fish and benthic communities.

Creation of the artificial beach would change the natural aesthetic character of the shoreline.

Noise and air quality would be temporarily affected during the construction activities.

No endangered or threatened plant or animal species would be affected by the construction of the beach.

No archeological or cultural resource sites would be affected by the beach construction.

No municipal water supplies would be affected by the beach construction.

Plan B - Bulkhead Plan. To prevent shoreline erosion, this alternative would provide a bulkhead along the entire shoreline of the park. Riprap would be placed adjacent to the bulkhead. Sand from a GIWW disposal area at Point Washington would be utilized to create a sandy area behind the bulkhead. A culvert would be constructed under the sandy area and through the bulkhead to allow passage of water from the drainage ditch to the Sound.

The protection of the park's shoreline under this alternative would have environmental impacts similar to those for Plan A. However, the construction impacts of this plan would be less due to a decrease in the amount of shallow

Public use of the park would be temporarily restricted during construction. Construction would be done during the winter season thereby minimizing this restriction.

ALTERNATIVES TO THE PROPOSED ACTION

A variety of alternatives were considered during planning. A detailed discussion of the alternatives is contained in the main report. The environmental evaluation of the alternatives is briefly discussed in the following paragraphs.

No Action. This alternative involves the continuation of existing conditions and no new solutions for existing problems. This alternative avoids both the monetary investment and potential adverse impacts associated with structural improvements. Without corrective action, shoreline erosion along the park would continue with the resultant loss of valuable park land and the failure to realize recreational opportunities. In addition the potential for storm flood damage to park facilities would increase.

Existing flora and fauna in the project area would be left undisturbed and subject to the natural erosion conditions presently experienced by Liza Jackson Park. Existing vegetation and benthic organisms in the littoral zone and along the shoreline would not be disturbed except by the natural processes of erosion. The limited flora and fauna at the borrow area would not be disturbed.

Plan A - Artificial Beach Restoration. This alternative would require pumping about 16,700 cubic yards of sand approximately 1,500 feet from a borrow area adjacent to the GIWW. The sand would be deposited on the project site by a hydraulic dredge and other mechanical devices would be used to shape the beach. A groin would be constructed on the western edge of the newly created beach to prevent sand from filling into the boat launching ramp channel. The beach would be allowed to blend into the natural beach east of the parks eastern boundary. A culvert would be constructed at the drainage ditch to permit flow into Santa Rosa Sound.

ANY ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The principal environmental effects associated with construction of the artificial beach involve the placement of sand in the littoral zone and along the exisiting shoreline.

Construction of the artificial beach would result in approximately 1.1 acres of shallow bottom area and approximately 0.2 acre of shoreline being covered with sand. The deposition of sand on the shoreline would destroy existing vegetation and benthic organisms. Vegetation would not be expected to establish to any significant degree on the sand. Nonmotile benthic organisms inhabiting the littoral area would be destroyed by the filling activity. Benthic organisms should repopulate the new littoral area within a few months.

Turbidities caused by the placement of sand into the littoral area cannot be avoided. However, turbidities would have a temporary and insignificant impact on the biological community.

Establishment of the marsh would result in approximately 0.7 acres of shallow bottom area being converted to marsh habitat. The establishment of the marsh will be adjacent to an existing marsh increasing this type of productive habitat. Consequently, any adverse impacts are not considered significant.

Noise levels in the vicinity would be temporarily increased by trucking sand from the disposal area at Point Washington. The transport route would be via a major state highway and would have only a minor effect on traffic flow.

The destruction of the very limited plant and animal communities at the borrow area cannot be avoided. Also, the physical appearance of the borrow area would be affected by the removal of the sand. The borrow area would be contoured to blend into the surrounding area once borrow activities cease.

Secondary Impacts Induced by the Proposed Beach Construction. Construction of the proposed beach at Liza Jackson Park would increase the utilization and development of the park. As more people utilize the park, utilization of the area by terrestrial wildlife would decline due to increased human disturbance.

There may be some initial, very minor, changes in the littoral transport patterns in the vicinity of the park. The westerly groin will tend to entrap material in the boat ramp channel during periods of easterly flow thus causing erosion of the shore just west of the channel. However, littoral movement in this area is extremely gradual and is not expected to cause a serious problem.

Air and noise pollution in the immediate area would increase as the park's utilization increased. However, these conditions would be considered temporary and insignificant.

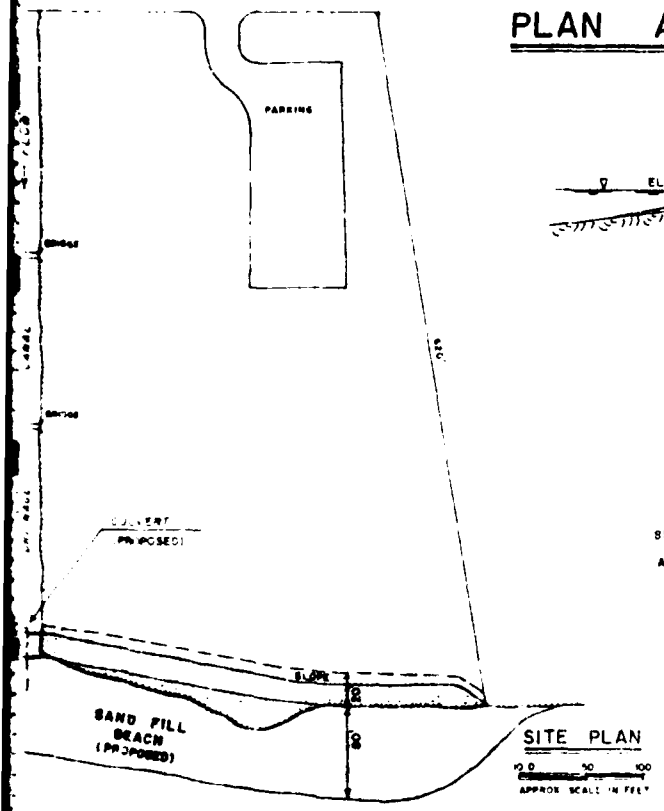
Establishment of Marsh

Construction of the retaining wall and establishment of the marsh would destroy nonmotile benthic organisms in the littoral zone and disrupt use of the area by motile forms such as fish and shellfish. Once the marsh is established it will serve as a very productive habitat and will supply food in the form of detritus to Santa Rosa Sound.

Construction activities would cause some minor increase in turbidity, however, these impacts would be insignificant and temporary. No endangered or threatened plant or animal species would be affected by this action.

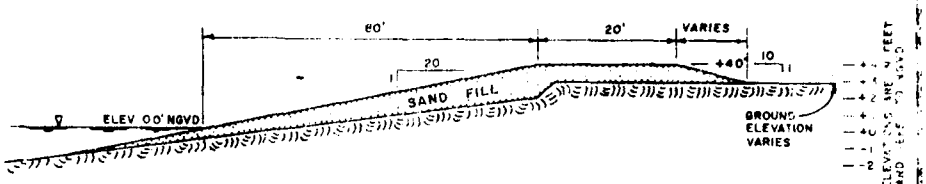
Rerouting of the drainage ditch via pipeline would serve to enhance water quality by allowing the runoff carried by the ditch to be filtered through the marsh. This would tend to remove coliforms, nutrients, and other pollutants carried by the runoff. Such rerouting and piping would also improve the usability and safety of the park.

PLAN A



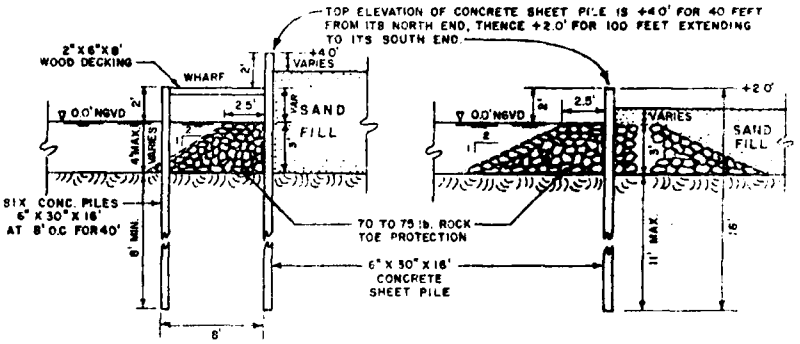
SITE PLAN

APPROX SCALE IN FEET



TYPICAL BEACH SECTION

NOT TO SCALE



SECTION A-A

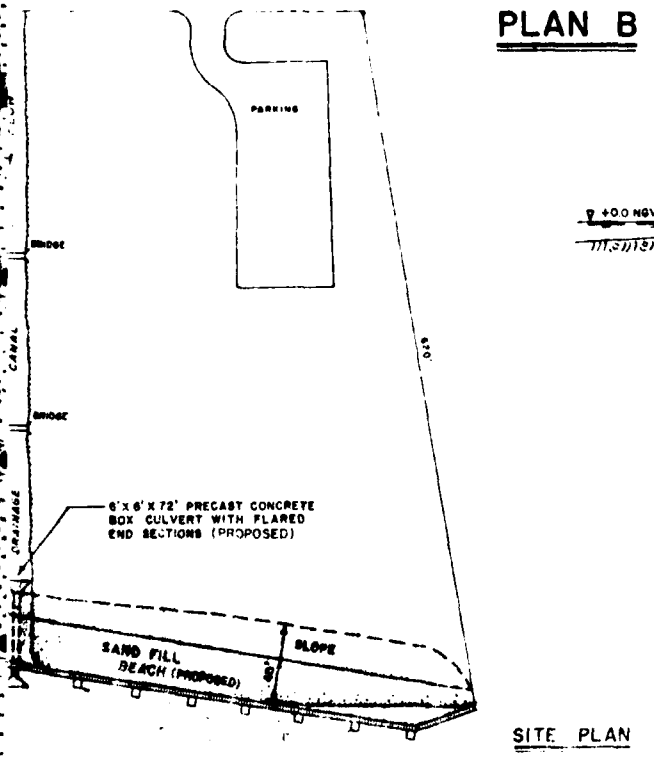
NOT TO SCALE

SECTION B-B

NOT TO SCALE

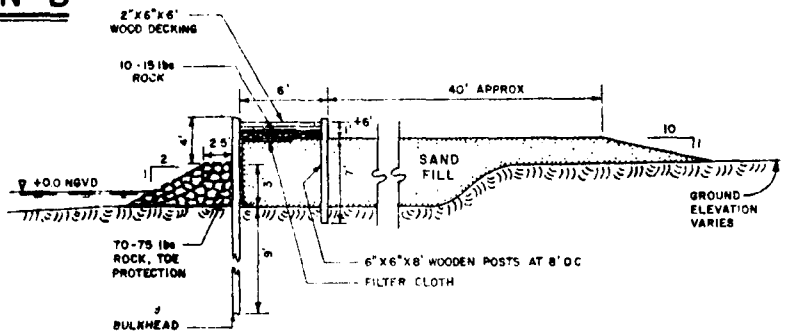
NOTE
CONSTRUCTION OF WHARF AND PIER IS OPTIONAL AT LOCAL EXPENSE

PLAN B



SITE PLAN

APPROX SCALE IN FEET



TYPICAL BEACH SECTION

NOT TO SCALE

LEGEND

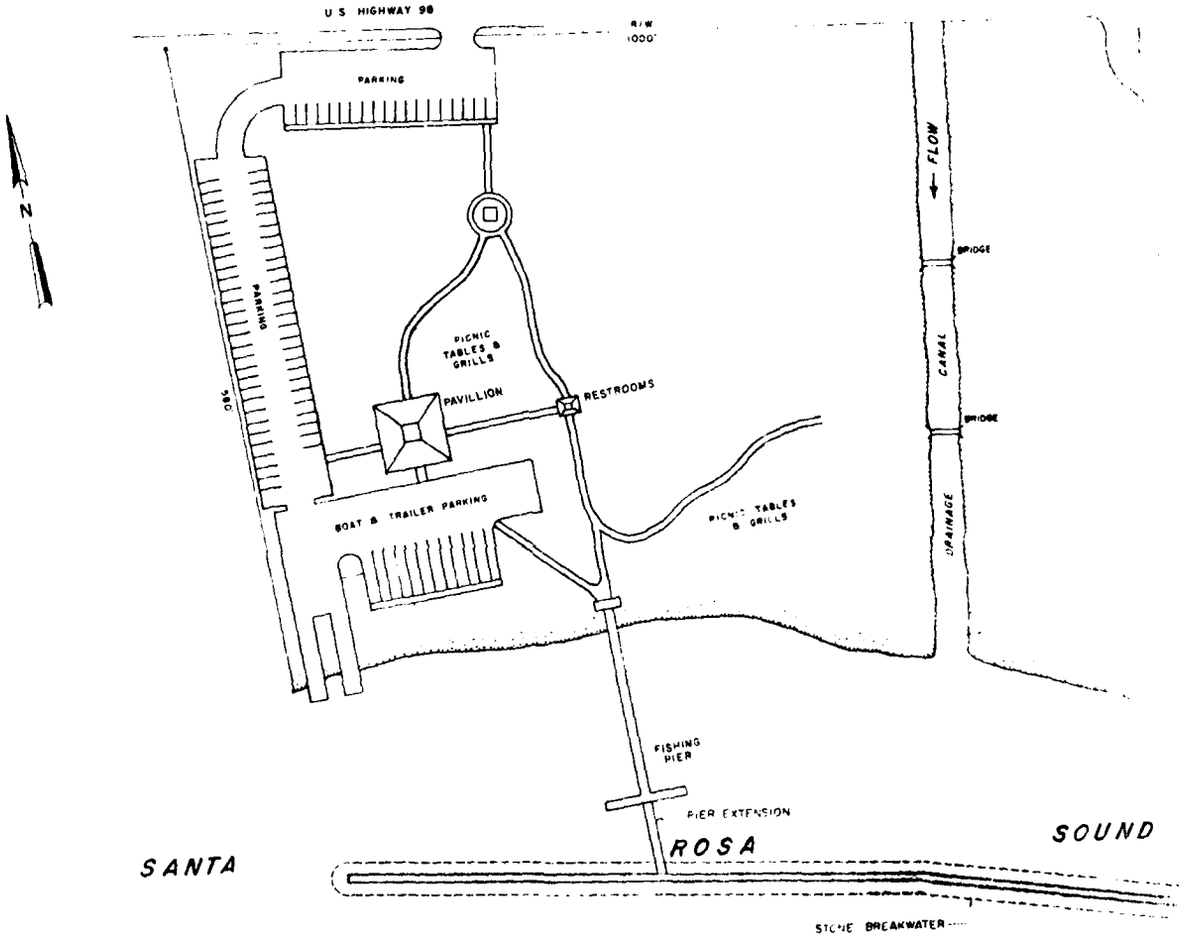
2"X6" WOODEN DECKING

DETAILED PROJECT REPORT
ON
BEACH EROSION CONTROL
LIZA JACKSON PARK
FORT WALTON BEACH, FLORIDA

PLAN DETAILS

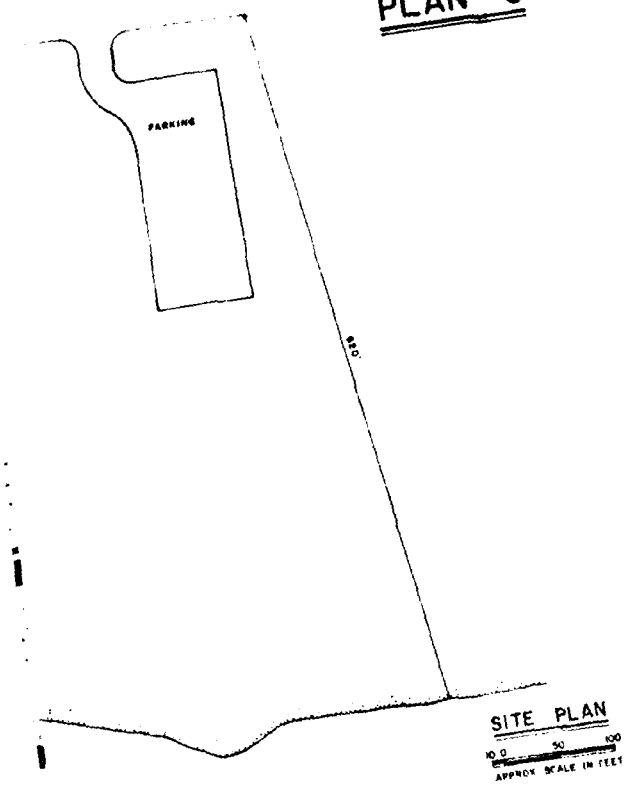
2

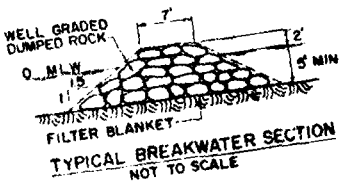
CORPS OF ENGINEERS



U. S. ARMY

PLAN C





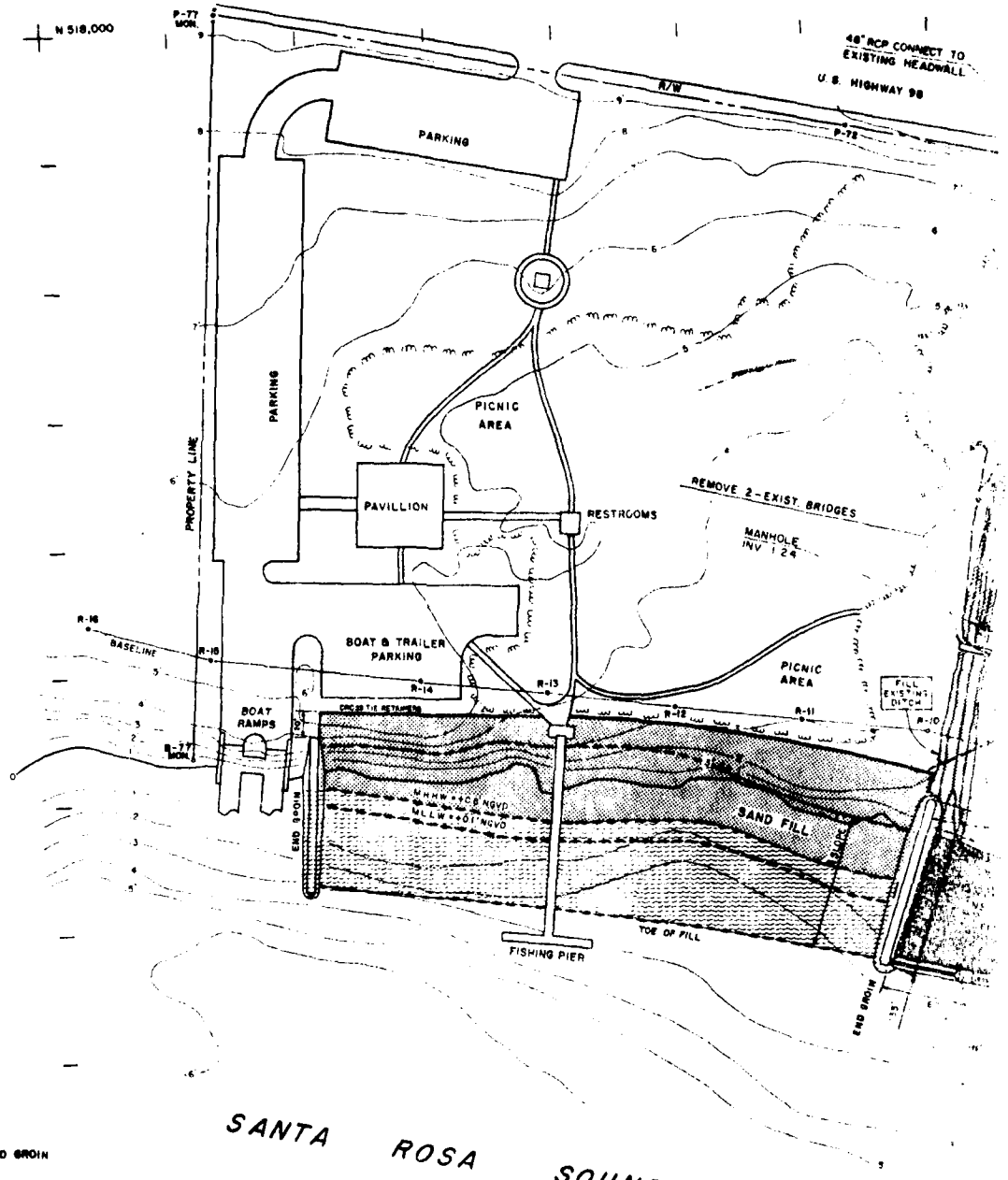
TYPICAL BREAKWATER SECTION
NOT TO SCALE

DETAILED PROJECT REPORT
ON
BEACH EROSION CONTROL
LIZA JACKSON PARK
FORT WALTON BEACH, FLORIDA

PLAN DETAILS

2

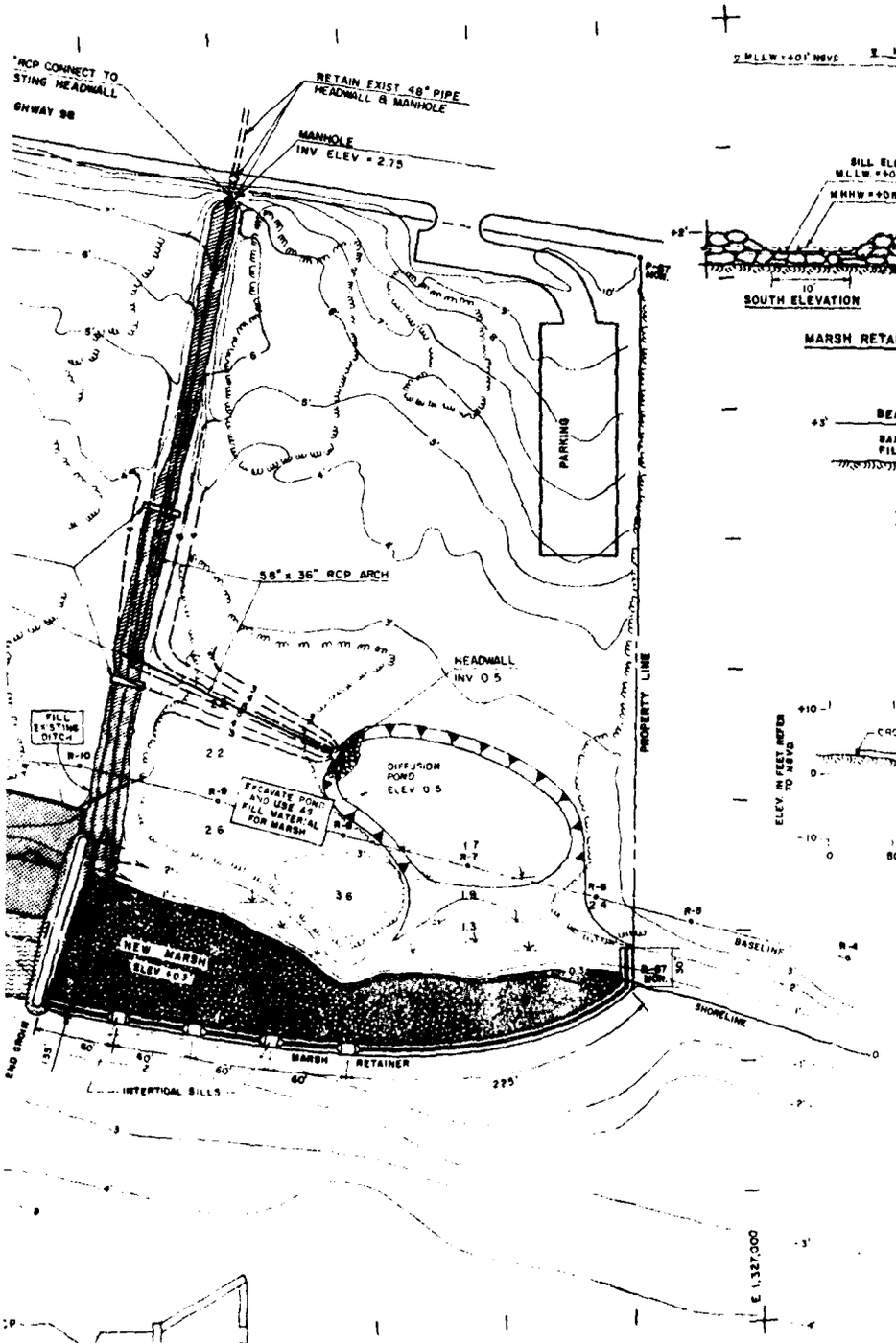
PLATE 10

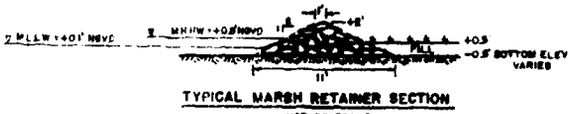


HEADWALL SCHEMATIC

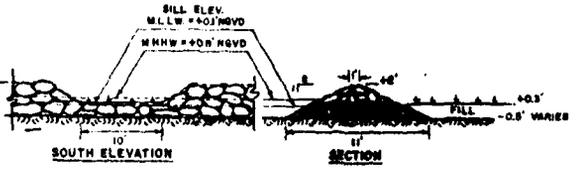
REVISIONS

SYM	ZONE	DESCRIPTION	DATE	APPROVED





TYPICAL MARSH RETAINER SECTION
NOT TO SCALE



MARSH RETAINER INTERTIDAL SILL
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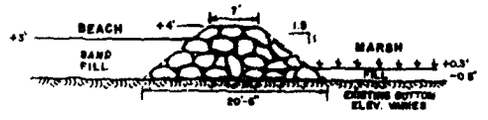
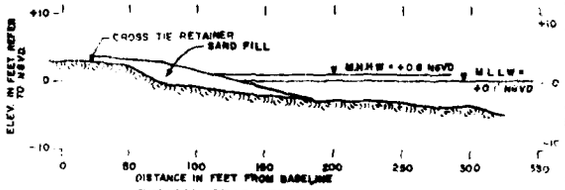


TYPICAL END GROIN SECTION
THROUGH BEACH BERM AND NEW MARSH
NOT TO SCALE



TYPICAL BEACH SECTION
AT STA R-11

NOTES:
ALL ELEVATIONS ARE IN FEET AND REFER TO NATIONAL GEODETIC VERTICAL DATUM (NGVD)
MLLW INDICATES MEAN LOWER LOW WATER
MHHW INDICATES MEAN HIGHER HIGH WATER

DETAILED PROJECT REPORT
ON
BEACH EROSION CONTROL
LIZA JACKSON PARK
FORT WALTON BEACH, FLORIDA

SELECTED PLAN

APPENDIX A

ENGINEERING INVESTIGATIONS

AND DESIGN

DETAILED PROJECT REPORT
ON
LIZA JACKSON PARK
FORT WALTON BEACH, FLORIDA

APPENDIX A

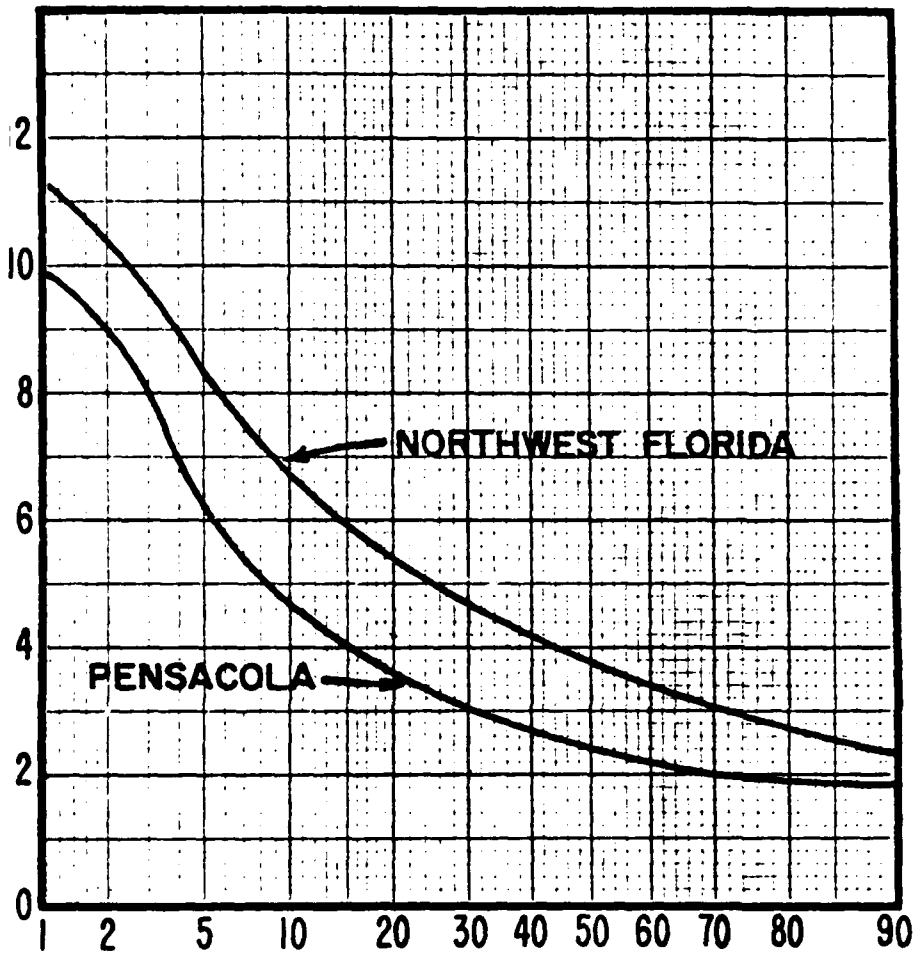
Engineering Investigations, Design and Cost Estimate Appendix

SECTION 1 ENGINEERING INVESTIGATIONS

As mentioned in Problems, Needs, and Opportunities on page 20, it is probable that erosion of the shoreline at Liza Jackson Park is primarily the result of an increase in sea level. As can be seen by Figure 1 in the main report, there has been a pattern of sea level rise in the recent past. Sea level rise has a direct relationship to shore erosion, a relationship which was originally developed by Per Bruun. Calculations using the Bruun Rule (Ref 1) yield a theoretical rate of erosion of 7 feet per year in the 1968 thru 1975 period, notably greater than the actual rate. (Longterm rates vary from .4 to .8 feet/year depending on reach and period of time.) This can be attributed to the low wave energy climate at the park resulting from its sheltered location. At such locations there can be a rapid rearrangement of the beach profile by storm waves. The extent of storm erosion depends on wave conditions, storm surge, the state of the tide and storm duration. Potential damage to property behind the beach depends on all these factors.

Figure A-1 was taken from a report on Florida hurricanes and shows stage heights versus frequency. Because of the rather drastic difference between stages on the exposed coast and of protected inland waters, the curve for the Pensacola area was used to approximate storm surge at Liza Jackson Park. It was assumed that a one-year hurricane approximated a one-year storm. By extending the curve on Figure A-1, it was estimated that a one-year stage height would be about 1.8 feet. Likewise, a 2-year storm would produce a 2.4-foot stage and a 5-year storm would produce a 3.6-foot stage.

Wind and the distance it blows over water (fetch) are also important in determining the size of waves which impact on the shoreline. Examination of



HURRICANE-TIDE FREQUENCY CURVES

NORTHWEST FLORIDA

Figure A-1

Plate I shows restricted fetches for the Liza Jackson area. The longest possible fetch is from the west and is approximately 2 miles. Wind data from Hurlburt Field (Table A-1), about 3 miles west of Liza Jackson Park, and from Eglin Field, about 7 miles northeast of Liza Jackson Park, were analyzed using methods discussed in detail in the Shore Protection Manual (SPM) and the Coastal Engineering Notebook (CEN), publications from the Coastal Engineering Research Center (CERC). The wind data was analyzed for frequency of occurrence and adjusted for anemometer height, over-water effects, and drag. This analysis yielded the following:

Recurrence Interval (years)	Adjusted Wind Speed (mph)
1	17
2	23
5	29
20	50

Utilizing the wind, fetch and stage data, design waves were developed and calculations for wave runup on a beach, rubble mound and vertical wall were made using the CERC publications referenced above.

Using the Hurlburt Field wind data (Table A-1), the wave climate and resulting littiral drift at Liza Jackson Park were calculated. Methodology was from the CEN.

Wind data was adjusted using CETN-I-5. Since the park is located on the north shore of Santa Rosa Sound, only those winds from the east through south to west directions were used. Waves were calculated using CETN-I-6. The forecasting curves in that CETN exclude wind speeds below 10 mph, which eliminates a large portion of the wind data.

Bathymetry in the vicinity of the park shows mlw depths in the 2.5- to 3-foot range between 450 to 900 feet offshore. Inside 450 feet, the bottom slopes drops slightly and then slopes gently upward to 2- to 3-foot depths near the shoreline (see the typical profiles in Figure A-2 for further detail.) When $d/L \geq 1/2$, wave characteristics are independent of depth and that is the apparent case here. In addition, since the times shown on the wind data were relatively long, it was assumed that the waves would be fetch limited. A final

STATION

STATION NAME

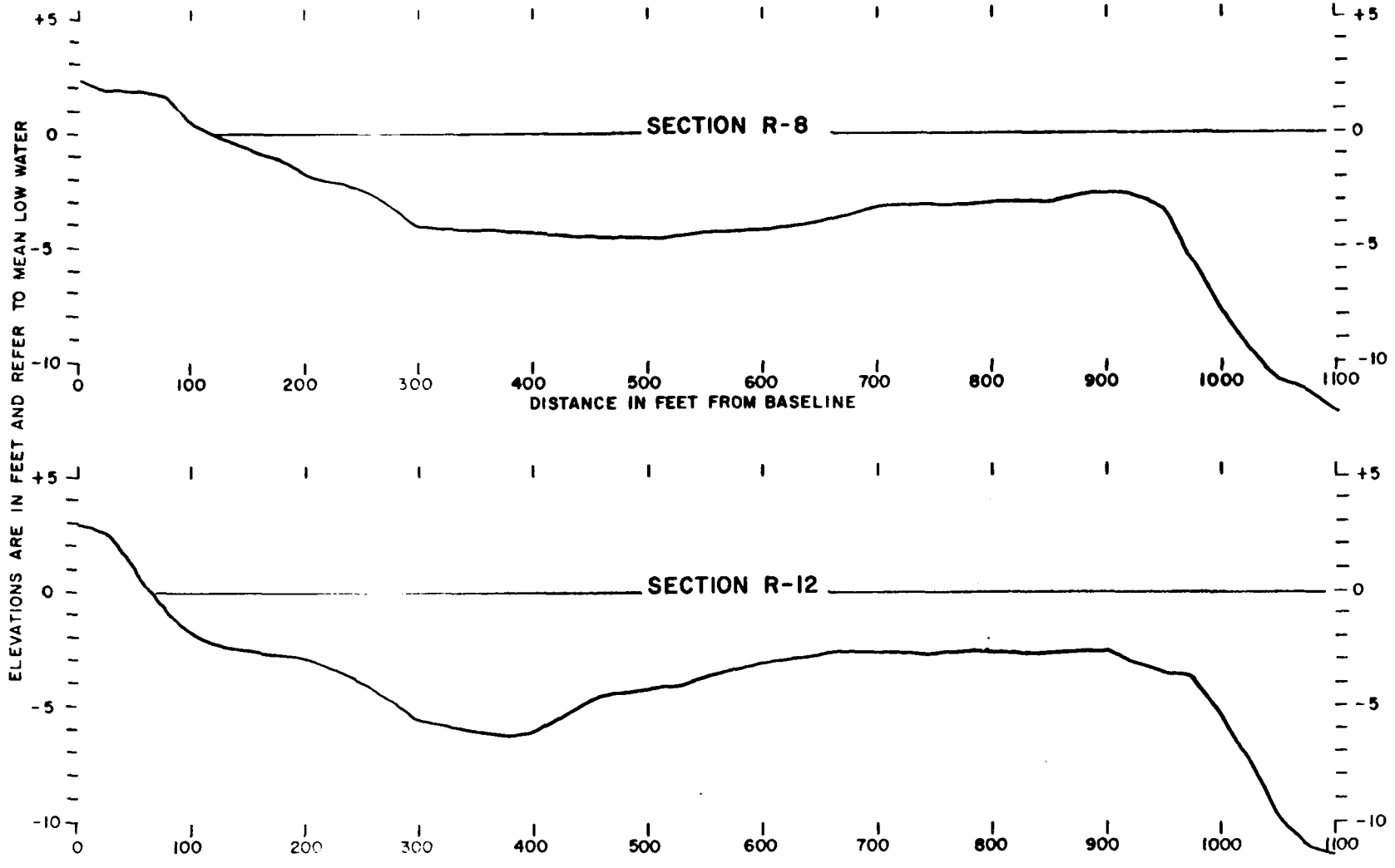
ALL WEATHER
CLASS

CONDITION

ALL
HOURS (L.S.T.)

SPEED (KNTS) DIR.	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	22 - 27	28 - 33	34 - 40	41 - 47	48 - 55	≥56	%	MEAN WIND SPEED
N	5.5	5.9	3.3	1.5	.1	.0	.0					16.5	5.6
NNE	1.2	1.5	1.3	.4	.1	.0						4.7	5.9
NE	1.2	2.3	1.4	.3	.0	.0						5.2	5.8
ENE	.7	1.5	1.2	.2	.0	.0						3.8	6.0
E	.7	1.9	2.1	.3	.1	.0	.0	.0				5.2	6.5
ESE	.4	1.1	1.5	.3	.1	.0		.0				3.6	7.7
SE	1.2	1.5	2.3	1.	.1	.0	.0	.0		.0		5.5	8.2
SSE	.3	1.2	2.1	.5	.1	.0	.0					4.4	7.9
S	.7	2.1	3.5	.9	.1	.0						7.8	7.4
SSW	.3	1.2	2.0	.5	.2	.0						4.4	6.9
SW	.3	1.3	2.2	.5	.1	.0	.0					5.4	7.2
WSW	.3	1.1	1.1	.4	.2	.0						3.2	6.9
W	.7	1.4	.8	.2	.1	.0						3.3	5.6
WNW	.3	.7	.5	.1	.1	.0						2.0	5.3
NW	.3	1.3	1.2	.4	.2	.0						3.7	6.4
NNW	1.2	1.5	1.4	.5	.1	.0						4.9	6.6
VARBL													
CALM												16.7	
	16.5	28.5	27.8	5.5	.8	.1	.0	.0		.0		100.0	5.5

TOTAL NUMBER OF OBSERVATIONS 135269



NOTE: DATA ARE BASED ON SURVEY MADE IN SEPTEMBER 1976.

LIZA JACKSON PARK, FLORIDA
TYPICAL SECTIONS

FIGURE A-2

ng, but conservative, assumption that the shoreline runs due east to made to avoid adjusting wind directions.

ts of these calculations are summarized in Table A-2.

ater depth (d), assuming 3 feet average depth at the toe of the beach feet in front of the park, would be 4.8 feet for the one year storm lus 1.8-foot stage). Using Reference CEN-B, which is for a constant 5 feet, both the wave period (T) and height (H) can be estimated, he fetch is about 10,000 feet and wind speed 17 mph. With H=.75 feet 0 seconds, Reference CEN-A can then be used to calculate the it deepwater wave height (H_o) by first determining the value of $5.12\ T^2$ and then entering the table at that point and reading the H/H'_o. Since H=.75, H'_o is found to be .79. Knowing H'_o and constant depth (d_s) of 5 feet it is then possible to calculate 6.07 and $H'_o/gT^2 = .0076$. Entering Reference CEN-C with these lus knowledge of the slope, the wave runup is calculated to be .18 herefore, a beach berm height equal to the stage height plus runup event overwash and ponding behind the beach. Figure A-3 shows the ed berm height above NGVD versus storm frequency. These heights are roximate due to the assumptions made (such as using Reference CEN-C) felt to give a reasonable basis for planning.

. Water depth (d) at the base of the wall would be 1.8 feet below NGVD one-year storm. As derived above, the expected period would be 1.80 and the unrefracted wave height (H'_o) would be .79 feet. Knowing = .0076 and estimating the slope of the bottom at the park to be 1 M=.033, the breaking wave height (H_b) can be calculated using e CEN-D yielding $H_b = .85$. Then entering Reference E with H_b/gT^2 , the breaking depths can be found. Therefore, for the assumed ns the estimated depth of water in which a wave would break is 1.01 , therefore, the wave would hit the wall before it breaks. Similar or the 2- and 5-year storms are 1.29 and 1.58 feet, respectively, ng nonbreaking waves impacting on the wall.

TABLE A-2
LIZA JACKSON PARK, FLORIDA
WAVE CLIMATE AND LITTORAL DRIFT CALCULATIONS

WIND DIRECTION	FETCH FEET	ADJUSTED SPEED MPH	H FEET	T SEC	Q CY/YEAR	WIND DIRECTION	FETCH FEET	ADJUSTED SPEED MPH	H FEET	T SEC	Q CY/YEAR
E	10740	13.5	0.5	1.5	4.95	SSW	1710	13.5	0.2	0.9	7.24
		19.0	0.8	1.7	2.27			19.0	0.4	1.0	6.21
		24.5	0.9	1.8	2.70						
		30.5	1.1	1.9	3.04						
		37.0	1.2	2.1	2.25						
ESE	4440	13.5	0.4	1.2	46.35	SW	1830	13.5	0.3	0.9	26.03
		19.0	0.5	1.3	12.14			19.0	0.4	1.0	10.08
		24.5	0.7	1.4	21.91			25.5	0.4	1.1	11.97
		37.0	0.8	1.5	13.11			30.5	0.5	1.2	13.49
SE	2040	13.5	0.3	1.0	62.04	WSW	4350	13.5	0.4	1.2	27.18
		19.0	0.4	1.1	12.74			19.0	0.5	1.3	12.14
		24.5	0.5	1.2	15.57			24.5	0.7	1.4	19.63
		30.5	0.6	1.2	17.55						
		37.0	0.7	1.4	15.48						
		51.5	0.9	1.5	9.67						
SSE	1800	13.5	0.3	0.9	28.14	W	16560	13.5	0.6	1.6	3.04
		19.0	0.4	1.0	9.63			19.0	0.8	1.9	2.89
		24.5	0.4	1.1	6.74			25.5	1.0	2.0	3.70
		30.5	0.5	1.2	8.41						
S	1470	13.5	0.2	0.9	0						
		19.0	0.4	1.0	0						
		24.5	0.4	1.0	0						

TRANSPORT SUMS

WESTERLY=	295	CY/YEAR
EASTERLY=	144	CY/YEAR
GROSS=	439	CY/YEAR
NET=	151	CY/YEAR

FREQUENCY VS. RUNUP CURVES

LIZA JACKSON PARK, FL.

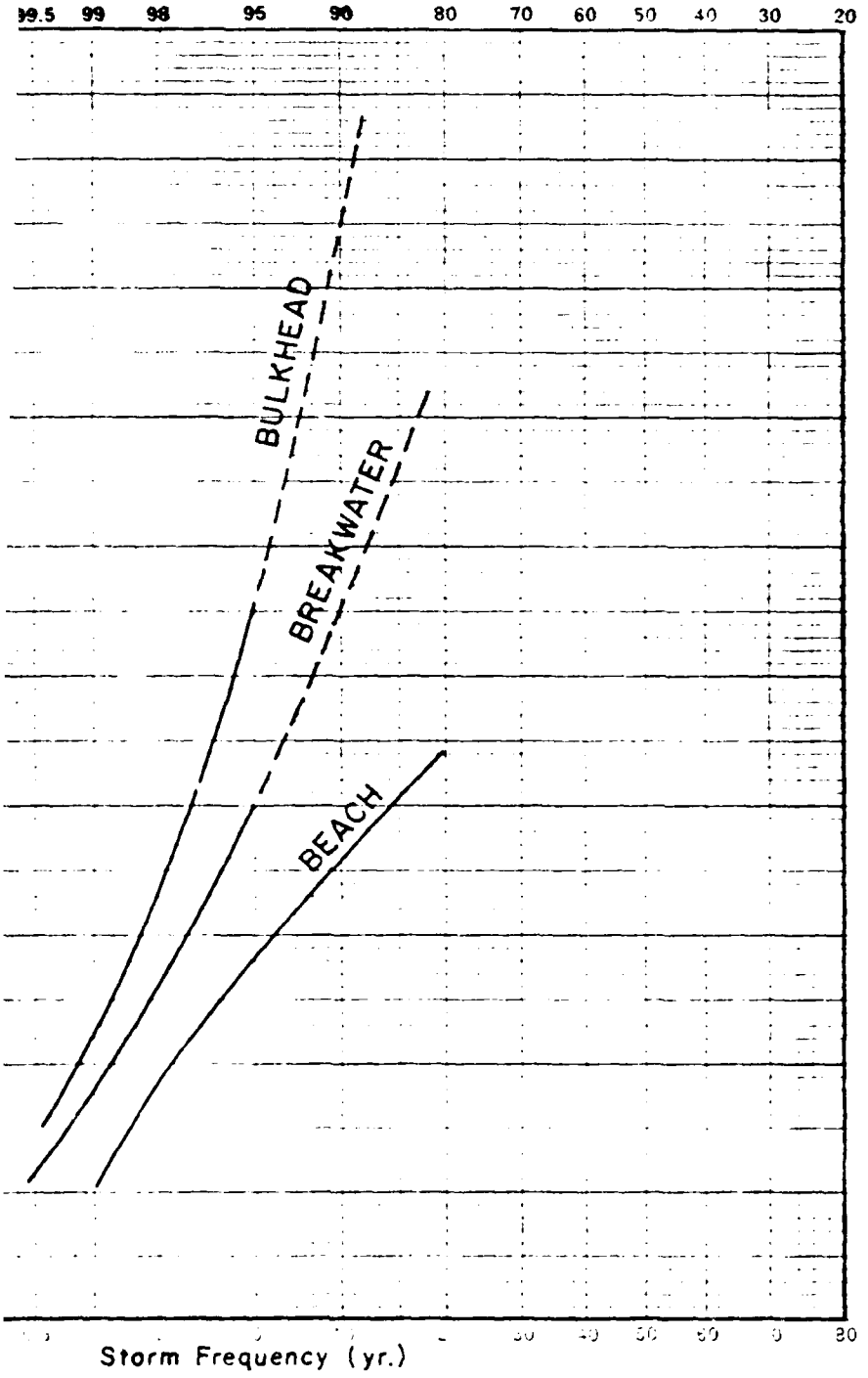


Figure A-3

AD-A156 057 DETAILED PROJECT REPORT LIZA JACKSON PARK SHORELINE EROSION CONTROL AT FORT WALTON BEACH FLORIDA(U) CORPS OF ENGINEERS MOBILE AL MOBILE DISTRICT JUN 84 2/3

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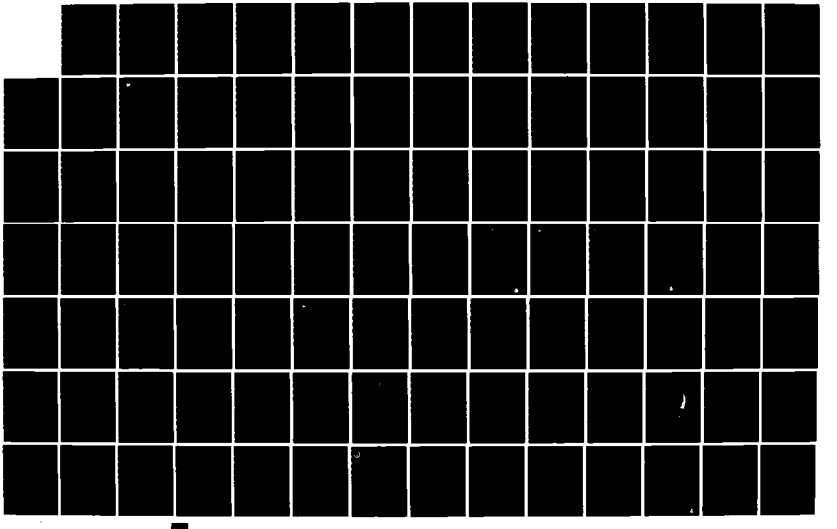
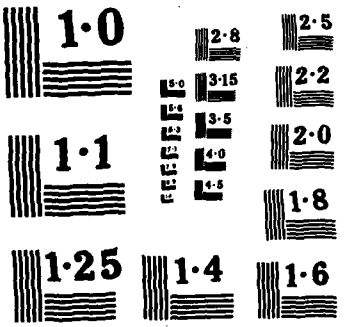




NATIONAL BUREAU OF STANDARDS
MICROCOPY RESOLUTION TEST CHART

A rigid structure such as a sheet pile or timber bulkhead should use the average height of the highest 1 percent of all waves for the design wave height. Curve b of Reference F is interpreted to mean that the highest 1 percent of the waves (having a significant wave height of .75 (Reference CEN-B) would have a height of (2.36 X .75)÷ 1.416 = 1.25 feet. (This height also was checked to confirm nonbreaking impact on the wall.) Then with Reference CEN-G and a liberal interpretation of d_s/H'_o for the three storm frequencies the runup on the vertical wall is found to be 1.5, 1.9, and 3.0 feet. Figure A-3 displays the total height of a vertical wall above NGVD required to prevent overtopping.

Breakwater. As shown above, a nonbreaking wave would also be impacting on the breakwater. The design wave height was determined from Reference CEN-B for the storm conditions. The expected runup obtained for the height of the highest 1 percent of the waves from Reference H for the three storm frequencies is .94, 1.17, and 1.45 feet, respectively. Figure A-3 indicates crest height of the rubble structure above NGVD necessary to avoid overtopping.

Engineering investigations were conducted in the field with topographic and hydrographic surveys and bottom sediment samples being made. The surveys were used to prepare Plate V. Since use of an offshore borrow site was ruled out by nonengineering considerations, that hydrographic and sand analysis data has not been included in this report. Sand analysis data from the grab samples taken from the beach along with sand data from the proposed borrow site at Point Washington are included in Table A-1.

SECTION II DESIGN CONSIDERATIONS

Comparing the calculated berm heights (Figure A-3) with the topography indicated on the Plates, it can readily be seen that frequent storms will cause overtopping of the existing shore berm. A 2-year storm will nearly meet the 3.0-foot contour and a 10-year storm will inundate about half of the park at the 4.5-foot contour. Early designs attempted to protect the shore from overtopping by a 5-year storm. This required a berm height of nearly 4 feet or a bulkhead of about 6.5 feet. There is no evidence of erosion problems in

Table A-3

Liza Jackson Beach Sand Analysis

Sample Number	16% Coarser mm	16% Coarser φ	84% Coarser mm	84% Coarser φ	μ	σ
1	.61	.71	.27	1.29	1.30	.59
2	.59	.76	.22	2.18	1.47	.71
3	.40	1.32	.23	2.12	1.72	.40
4	.54	.89	.23	2.12	1.505	.615
5	.45	1.15	.24	2.06	1.605	.455
					7.6	2.77
					÷ 5	÷ 5
					= 1.52	= .554

$$M_\varphi = \frac{\sum \mu}{n}$$

$$\frac{M_{\varphi b} - M_{\varphi n}}{\sigma_{\varphi n}} = \frac{1.50 - 1.52}{0.55} = -0.04$$

$$\frac{\sigma_{\varphi b}}{\varphi_{\sigma n}} = \frac{0.83}{0.55} = 1.51$$

R_A = 1.14, From Ref SPM-A

R_J = 0.3, From Ref SPM-B

Sand Analysis for Point Washington GIWW Disposal Area

Sample Number	16% Coarser mm	16% Coarser φ	84% Coarser mm	84% Coarser φ	μ	σ
GSI-1 #1	.66	.60	.21	2.25	1.43	0.83
GSI-1 #2	.61	.71	.15	2.73	1.72	1.01
GSI-2 #1	.56	.84	.20	2.32	1.58	0.74
GSI-2 #2	.69	.54	.165	2.60	1.57	1.03
GSI-3 #1	.55	.86	.192	2.38	1.62	0.76
GSI-3 #2	.67	.58	.195	2.36	1.47	0.89
GSI-4 #1	.57	.81	.20	2.32	1.57	0.76
GSI-4 #2	.55	.86	.183	2.45	1.66	0.80
GSI-5 #1	.65	.62	.23	2.12	1.37	0.75
GSI-5 #2	.65	.62	.20	2.32	1.47	0.85
GSI-6 #1	.60	.74	.23	2.12	1.43	0.69
GSI-6 #2	.80	.32	.26	1.94	1.13	0.81

$M_{\varphi b} = 1.50$

$\sigma_{\varphi b} = 0.83$

the park due to the higher less frequent waves. It was, therefore, determined that designs involving a structure higher than the existing shore would be impractical. They would be flanked or overtopped by fairly frequent storm waves and would create poor drainage conditions on the shoreward side. In addition, they would not be aesthetically compatible with the existing shore. When it was determined that protecting against storm surge was impracticable that aspect was eliminated from further planning. There were other nontechnical considerations involved also: the desire for continued use of the fishing pier and boat launching areas and for a beach remaining with the limits of the historic shoreline. Ultimately, the separation of a beach segment and a marsh segment also became a consideration. During the preliminary evaluations, design computations were carried out in sufficient detail to produce accurate cost estimates only.

Beach. Considering the various factors, a 1 on 20 profile was selected for design. This compares to existing profiles of 1 on 15 to 1 on 50 in that immediate vicinity. A concrete sheetpile groin was initially selected to keep the launching ramp from shoaling from transported beach sand. Overtopping was not considered a problem, therefore, the elevation of the cap was kept at 4 feet above NGVD. The concrete tongue and groove sheetpile dimensions were 6" X 30" X 14' to allow for 8' minimum penetration. Approximately 40 feet from the existing shoreline the cap height would drop from +5.0 to +3.0 NGVD.

The beach was designed to allow for a 10-year nourishment interval. The volume of sand fill required was calculated to be about 12,300 yards. Using data obtained from the beach samples and offshore borrow area core holes, an estimate of the volume of fill material needed to create a unit volume of native beach material was made. Since these computations are no longer germane, they have not been included here. These calculations indicated that the initial volume of beach fill should be 1.25 X 12,300 = 15,400 cubic yards. Also, placing advanced nourishment on the beach during the initial dredging would require an additional 1,000 cubic yards. The advanced nourishment would enable the average width of beach to be maintained at the beach width used for the initial economic analysis.

Plan A on Plate III shows this plan with a typical beach profile and groin detail. Drainage behind the beach berm has a natural slope to the drainage ditch bisecting the park. At the interface of the beach and ditch a culvert was to be placed.

The eastern end of the beach would not have been contained by a groin or other structure; instead it would be allowed to flow until it reached an equilibrium state. That was expected to require an additional 300 cubic yards of fill. Therefore, the total volume of fill required for the artificial beach was about 16,700 cubic yards.

Toe protection for the western side of the groin would be required. The wave height of the highest 10 percent of the waves expected during the one year storm was .93 feet. The stability number from the SPM along with the unit weight (w_r) and specific gravity (S_r) of the rock were used in the equation:

$$W = \frac{W_r \ H_{10}^3}{N_S^3 \ (S_r - 1)^3}$$

This computation determined that the weight for each stone would be less than one pound. Such a design would be subject to severe damage from major storms and greatly increase operation and maintenance charges. Therefore, a wave generated by a 25-year storm was used to calculate a stone size which would not be subject to major disruption. Stone size from this calculation was 70-75 pounds. Stone would be dumped to approximate a 1 on 2 slope.

Concrete Sheetpile Bulkhead. Concrete tongue and groove sheetpile with filter cloth was less expensive than a wooden bulkhead when considered over the economic life of the project. Piles of 6" X 30" X 14" would be backfilled with approximately 3,700 cubic yards of sand once the filter cloth had been laid on the landward side of the piles. The piles would be placed about 20 feet seaward of the existing scarp allowing a sandy area between the bulkhead and the park's trees. Toe protection for the bulkhead would be similar to that

described above for the groin. Concrete steps allowing access to the water would be placed approximately every 25 feet along the bulkhead. A culvert passing through the bulkhead at the drainage ditch would be required along with necessary drainage adjustments along the park's waterfront. Overtopping of the bulkhead could be expected from storms of frequency greater than 2 years. In order to anchor the filter cloth, it would be placed on top of the sand fill with riprap holding it down. The sheetpile would extend from the eastern edge of the boat launching ramp to the eastern edge of the park. This would require approximately 13,000 linear feet of concrete sheetpile. Piling would be driven to minus 8 feet with the cap at plus 6 feet NGVD. This is shown as Plan B on Plate III.

Rubble Mound. The height of the structure required for a 25-year storm was determined previously to be about 5.1 feet. The core of the structure should be composed of finer material than the external armor stone. The weight of the external stone was calculated using:

$$W = \frac{W_r H^3}{K_D (S_r - 1)^3 \cot \phi}$$

where W = weight in pounds of armor stone

W_r = specific weight of stone (171 lb/ft^3)

K_D = stability coefficient (3.5)

S_r = 2.74

$$H^3 = \frac{(1.15)\quad (1.77)\quad 3}{1.416} = 2.97 \text{ feet}$$

ϕ = angle of structure slope (26.6°)

The stones required would weigh about 14 pounds and measure about 7 inches in diameter. That small size of rock could be expected to cause maintenance problems both due to vandalism and damage from storms of greater intensity than the 5-year storm. Since it would take a wave of approximately 2.5 feet to dislodge stones weighing between 100 and 200 pounds, two layers of this size stone would be placed on top of the core made from stones having an average

weight of 20 pounds. Filter cloth would be placed under the mound to prevent it from being undermined. The structure would be placed at the existing shoreline, minimizing required backfill and allowing a short culvert for the drainage ditch. Approximately 700 cubic yards of quarry stone would be required along with 13,800 square feet of filter cloth. Plate IV shows this as Plan C.

Wooden Bulkhead. A wooden bulkhead would be designed similarly to the concrete sheetpile bulkhead but with the addition of anchor piles. Twelve-inch diameter Class B wooden piles approximately 15 feet long would be driven at 8-foot intervals along the shoreline with an anchor pile for each. One inch diameter 10-foot tie rods would connect the piles. Walers of 6 X 6 material would be bolted to the main piles on the landward side and 3 X 10 tongue and groove sheathing nailed to these walers. The sheathing length would be determined by the location along the shore but should extend into the existing bottom an average of 4 feet. Toe protection identical to the concrete sheetpile wall would be required. Additionally, the bulkhead would be tied back into the park at its ends. Drainage behind the bulkhead would be directed to the drainage ditch where a culvert would pass through the bulkhead.

Longard Tube. A longard tube is a flexible, sandfilled polyethelene tube. Sand required for filling the tube would be trucked to the park. The size of the tube was determined using the bulkhead curve in Figure A-3. Eight standard 70" tubes in 100 meter lengths placed on filter cloth would be required. Placement along the existing shoreline would minimize backfill requirements. A special coating is required to protect the polyethelene from ultraviolet rays and vandalism. Construction is straightforward but requires an especially designed filling machine.

Gabions. Wire baskets filled with rock stacked on the shoreline would have an effect on wave energy similar to a rubble mound. Figure A-2 was used to select the basket sizes. The gabions would be placed on filter cloth just in front of the existing scarp. The lower unit's dimensions would be 13'1" X 3'3" X 3'3" while the upper units would be 13'1" X 3'3" X 1'8". The upper unit would be set back from the sound about a foot giving a stepped appearance to the gabion.

Seventy of each unit would be required. Special precautions must be taken at the drainage ditch and either end of the structure to tie the structure into the bank. The wire baskets are P.V.C. coated and projected to have a life span of 25 years. Rock to fill the gabions would be stockpiled at the park and a large work crew required during construction.

Floating Tire Breakwater. The shallow water wave curves from the SPM yield a wave period (T) of 1.8 sec. for the one year wave and 2.0 sec. for a two year wave. This information determines the required width of a floating tire breakwater since the minimum width must be 1/2 the wave length (L) where, $L = 5.12\ T^2$. For the cited waves, the width would be between 10 and 11 feet. A single tire bundle would not suffice for that width and it could be expected that with little additional expense larger waves could be dissipated. Therefore, an additional row of bundles was added to the design. The breakwater would be over 1,000 feet long and located about 200 feet offshore since it must be far enough offshore to float and also not interfere with the fishing pier. Both ends will bend back toward the shoreline and be anchored with appropriate anchors. Approximately 5,200 tires will be required. Construction would be on site. The breakwater must be marked to avoid boat collisions.

Sandgrabber. An assembly of cinder blocks and steel rods would be placed on filter cloth about 50 feet offshore in a straight line with the ends turning back into the shoreline. The average depth of water would be about 2 feet. The structure must be high enough to allow waves to strike it without overtopping. Using the curve for a breakwater on Figure A-3, a height of at least 3.6 feet would be required to prevent overtopping from a 2-year storm. Dimensions of the blocks are dependent on supplier.

Selected Plan. The beach portion of the Selected Plan was designed with a 20:1 slope very much the same as in Plan A insofar as the profile is concerned. The major differences in profile are a reduced elevation of the upper berm and conformance to the combined 1871-1934 historic shoreline. Both changes were made in order for the plan to be acceptable to the local sponsor and to all reviewing agencies, thus helping to make the plan implementable. In addition,

the westerly groin was changed to broken stone to reduce cost and to make it more environmentally acceptable. As noted in Section II, Design Considerations, the west end groin helps contain the beach fill and direct material transported around its end into a depth where it should not significantly hinder traffic to the boat ramp. An additional stone structure was added to separate the beach from the new marsh. Although for convenience this structure was designed as a groin and has been referred to as such in other portions of this report, it is not a true groin. Its purpose is to separate the beach fill and the new marsh and provide an end point anchor for the marsh retainer. Both groins were designed in accordance with the Plan C breakwater with regard to stone size. The new marsh is described in the main report. The stone marsh retainer was also designed in accordance with Plan C with regard to stone size.

The existing drainage ditch would be diverted via pipeline to a diffusion pond upland of the marsh. The pipe would connect with an existing State Highway 98 48-inch culvert and follow the existing ditch to a point about 360 feet downstream where it will turn easterly to a headwall at the diffusion pond. Following the existing ditch with the pipe is required in order to minimize disruption of the park grounds and to prevent the removal of as many trees as possible. The pipe would be a reinforced concrete arch pipe due to limited and, in some places, inadequate depth from invert to existing grade. In those places where cover is inadequate it will be necessary to place a gradually sloping mound over the pipe for protection. At the invert gradient provided between the pond elevation and the existing culvert invert, the 48-inch equivalent arch pipe will equal or exceed the 85 cfs capacity of the existing culvert with a velocity of nearly 7 fps. This is a relatively high velocity which could cause erosion at the pipe outfall. Consequently, a jump sill was designed into the headwall and stone riprap would be placed beyond the headwall to disperse the flow and reduce the velocity to an acceptable level.

Stone Size for Breakwater and Groins. The height of the stone structure required for a 5-year storm was determined in Section 1 to be about 5.1 feet above NGVD. The core of the structure could be composed of finer material than the external armor stone. The weight of the external stone was calculated

using methods prescribed in the Shore Protection Manual based on a 5-year storm. The resultant stones would weigh about 26 pounds and measure about 7 inches in diameter. That size of rock could be expected to be a maintenance problem due both to vandalism and storms of greater intensity than the 5-year storm. Based on experience, it was determined that two layers of 100-pound minimum stones would be placed on top of a core made from stones having an average weight of 20 pounds. Filter cloth would be placed under the mound to prevent it from being undermined.

SECTION III COST ESTIMATES

The following paragraphs contain cost estimates suitable for comparing benefits and annual costs of the various alternative plans. Only Plans A, B, and C were done in detail. The remaining plans were developed only to the point of showing that their benefit-cost ratio would be significantly less than one and are not shown in detail here. Costs for those plans are tabulated below.

Summary of Alternative Economics
Based on 1980 Economic Data

Alternative	First Cost	Annual Cost
Gabions	$ 39,000	$ 3,400
Wooden bulkhead	102,000	9,800
Concrete sheetpile wall	223,000	16,400
Rubble mound revetment	39,000	2,900
Sandgrabber	115,000	16,400
Longard tube	92,000	8,800
Offshore breakwater	253,000	18,600
Floating tire breakwater	68,000	9,800

Plan A - Artificial Beach Restoration (Plate III). The costs involved in this alternative are mainly due to using a hydraulic pipeline dredge to recover and pump sand from the borrow area to the park. The concrete sheet pile groin also

contributes significantly to the initial cost. Among the assumptions made for this estimate was a dredge size of 12 inches and the assumption that the face of cut is a steep bank. Total first cost was calculated as follows:

Beach

Beach sand dredged from GIWW (16,700 yds @ $2.00/yd)	$33,400
Mobilization of dredge	46,300
Grading beach (dozer 1 day)	500
Drainage pipe (50 feet, 54"RCP @ $75.00)	3,700

Groin

Concrete sheet pile (784 ft @ $20/ft)	15,700
Concrete Pile Cap (140 ft @ $20/ft)	2,800
Riprap (170 yds @ $46/yd)	7,800
Boat Ramp Dock	3,200
Sub Total	109,700
Contingencies (20%)	21,900
Sub Total	131,600
E&D (15%)	19,700
S&A (10%)	13,000
TOTAL	168,000

Total first cost of beach renourishment would be as follows:

Beach sand dredged from GIWW (2100 C.Y. @ $2.00)	$ 4,200
Dredge Mobilization	46,300
Grading by Dozer (1 day)	500
	51,000
Contingencies (20%)	10,000
	61,000
S&A (10%)	6,000
Total First Cost	67,000

Plan B - Wooden Bulkhead (Plate III). The greatest drawback of a wooden bulkhead is that its lifespan is only about 20 to 25 years. This means that the bulkhead would need replacing at least once and probably twice during the period of evaluation. Maintenance of the project is the sole responsibility of the local sponsor. The estimated first cost of a wooden bulkhead is:

Piles (240 x 15" @ $12/ft)	43,200
Filter cloth (24,500 ft^2 @ 45¢/ft^2)	11,000

Riprap (560 yd @ $46/yd)		25,800
Sheathing and walers (41,200 bd ft @ $1.10/bd ft)		45,300
Tie rods (240 @ $46)		11,000
Fill (5000 cy @ $12/yd)		60,000
Drainage pipe (75 LF @ $75)		5,600
Wood decking (820 LF @ $36)		29,500
	Subtotal	231,400
	Contingency (20%)	46,300
	Subtotal	277,700
	E&D (15%)	41,700
	S&A (10%)	27,800
	Total	$347,200

Total first cost for replacement at 25-year intervals would be as follows:

Wood decking		29,500
Piles		43,200
Filter cloth		11,000
Riprap (200 C.Y. @ $46)		9,200
Sheathing & walers		45,300
Tie Rods		11,000
Fill (2000 C.Y. @ $12)		24,000
		173,200
	Contingency (20%)	34,600
		207,900
	S&A (10%)	20,800
Total First Cost		228,700

Plan C - Offshore Breakwater (Plate IV). Breakwater first costs were calculated for 1,000 feet of breakwater as follows:

Quarry-run Stone (4,500 yd^3 @ $55/$yd^3$)		$247,500
Filter cloth (20,000 ft^3 @ $.45/$ft^2$)		9,000
Pier Extension (8 OLF @ $87)		7,000
	Sub Total	263,500
	Contingency (20%)	52,700
	Sub Total	316,200
	E&D (15%)	47,400
	S&A (10%)	31,600
	Total	395,200

Selected Plan (Plate V). The total first cost of the Selected Plan is computed as follows:

Quarry-run Stone Groins (290 C.Y. @ $55)	16,000
Filter Cloth (900 S.Y. @ $4.50)	4,100

Place & Grade Beach (3000 C.Y. @ $12.50)		37,500
Marsh & Retainer		30,700
Pipeline in Place		58,700
Headwall & Riprap		1,600
Ditch Fill (975 C.Y. @ $7.50)		7,300
Excavation of Pond (350 C.Y. @ $4)		1,400
	Subtotal	157,300
	Contingencies (20%)	31,500
		188,800
	E&D (15%)	28,300
	S&A (10%)	18,900
Total First Cost		236,000

tal cost of beach renourishment would be as follows:

Place and Grade Beach Sand (250 C.Y. @ $12.50)		3,100
	Contingency (20%)	600
		3,700
	S&A (10%)	400
Total First Cost		$ 4,100

st of the sand is based upon transporting it by truck from the Point shington Disposal Area for the Gulf Intracoastal Waterway land cut between octawhatchee Bay and East Bay, a distance of about 30 miles.

APPENDIX C

BENEFITS ANALYSIS

e. Appropriate steps to minimize potential adverse impacts of the discharge on aquatic systems include planning of the operation for winter when use of the area is low.

f. On the basis of the guidelines, the proposed sites for the discharge of fill materials are specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem.

DATE: 21 Dec 83

PATRICK J. KELLY
Colonel, CE
District Engineer

g. Determination of Cumulative Effects on the Aquatic Ecosystem. The nulative effects of the beach establishment and the construction of groins, rsh retainer, and marsh area were considered and found to be insignificant.

h. Determination of Secondary Effects on the Aquatic Ecosystem. condary effects of the discharge operation would be in terms of increased versity of the aquatic system which would lead to increased production and nancement of the ecosystem.

I. Findings of Compliance or Noncompliance with the Restrictions on Dis-arge.

a. No significant adaptations of the guidelines were made relative to is evaluation.

b. The planned disposal of fill materials at Liza Jackson Park would not olate any applicable State water quality standards. The disposal operation uld not violate the Toxic Effluent Standards of Section 307 of the Clean ter Act.

c. Use of the selected disposal sites would not harm any endangered ecies or their critical habitat.

d. The proposed disposal of fill materials would not result in adverse fects on human health and welfare, including municipal and private water pplies, recreational and commercial fishing, plankton, fish, shellfish, ldlife, and special aquatic sites.

e life stages of aquatic life and other wildlife would not be adversely fected. Significant adverse effects on aquatic ecosystem diversity, oductivity and stability and recreation, aesthetic, and economic values uld not occur.

d. Contaminant Determinations. No testing was required of the material to be used in construction of the beach, groins, and marsh retainer since these materials have been determined to meet the exclusion criteria under 40 CFR 230.62b(1). The determination was based on the fact that the materials are characterized as sand, gravel, and stone which are sufficiently removed from sources of pollution to provide reasonable assurance that the material would not be contaminated by such pollution and the fact that the material itself is inert.

The material to be utilized in construction of the marsh habitat originates in an immediately adjacent upland area and is sufficiently removed from known point sources to provide reasonable assurance that the material is not contaminated, therefore meeting the exclusion criteria under 40 CFR 230.62b(1).

e. Aquatic Ecosystem and Organism Determinations. Not required under 40 CFR 230.61b(1).

f. Proposed Disposal Site Determinations.

(1) Mixing Zone Determination. Certification from the State of Florida will be obtained prior to discharge. The State of Florida determines mixing zones on a case-by-case basis and these criteria will be adhered to.

(2) Determination of Compliance with Applicable Water Quality Standards. Santa Rosa Sound in the vicinity of Liza Jackson Park is classified as Class III waters which are intended for recreational use. The disposal operation would not alter constituent concentrations established for this use, and should not violate State water quality standards.

(3) Potential Effects on Human Use Characteristic. The disposal operation would enhance water related recreation and aesthetics of Liza Jackson Park. Municipal and private water supply and recreational and commercial fisheries would not be affected.

reduced during the disposal activity but should return to normal shortly after construction is completed. The rerouting of the drainage ditch to flow through the marsh would improve water quality in the vicinity of the park since the marsh will serve as a filter system.

(2) Current Patterns and Circulation. There would be no significant effects on current patterns and circulation in Santa Rosa Sound.

(3) Normal Water Level Fluctuations. There would be no change in normal water level fluctuations.

(4) Salinity Gradients. There would be no change in existing salinity regime.

c. Suspended Particulate/Turbidity Determinations.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site. Short-term increases in suspended particulate levels would occur at time of the construction activities, however, these increases would be insignificant and reversible.

(2) Effects on Chemical and Physical Properties of the Water Column. Slight decreases in the degree of light penetration and dissolved oxygen concentration would occur during construction activities; however, these would be short-term in nature.

(3) Effects on Biota. Effects would be insignificant since the biota of Santa Rosa Sound are adapted to temporary increases of suspended particulates and turbidity caused by wind/wave resuspension.

(4) Actions Taken to Minimize Impacts. The construction operations would be scheduled to occur during winter when use of the area by fish and shellfish is low.

average of 0.8 NGVD. Placement of sandy fill material in construction of the new marsh would increase the elevation to 0.3 NGVD.

(2) Sediment Type. Mineral composition of the substrate in the area of beach construction would not be altered. The materials to be used in construction of the groins and marsh retainer are of much larger size than sediments that normally exist at the site. Mineral composition of the substrate in the area of marsh establishment would be changed from sands to organically rich silty material.

(3) Fill Material Movement. Due to the size of the materials to be used in construction of the groins and marsh retainer, the movement of these materials would be insignificant. The material to be used in marsh establishment would be contained within the retainer and movement of these materials would be insignificant. The material to be used in establishment of the beach would be subject to movement in both inshore-offshore and littoral drift directions, however, the impacts of the movement of the materials would be insignificant.

(4) Physical Effects on Benthos. Placement of the riprap and materials used in beach and marsh construction would destroy any nonmotile organisms living in this area of Santa Rosa Sound. After stabilization of the fill material, organisms common to the area would colonize the submersed fill. The new benthic communities would be more diverse than those currently in the area due to the addition of hard substrate and marsh habitat.

(5) Actions Taken to Minimize Impacts. Construction would be scheduled to occur during winter, thereby minimizing impacts to fish and shellfish which utilize this area for spawning and nursery activities.

b. Water Circulation, Fluctuation, and Salinity Determinations.

(1) Water. There would be no significant adverse impacts on water chemistry, color, odor, taste, dissolved gas levels, nutrients or eutrophication characteristics due to disposal. Water clarity may be temporarily

(3) Source of Materials. The sand material would be obtained from a GIWW disposal area at Point Washington, Florida; the crushed stone would be obtained from commercial sources; and the material for the marsh would be obtained from an upland area adjacent to the site.

c. Description of the Proposed Discharge Site(s).

(1) Location and Area Extent. The discharge sites are located on the northern shore of Santa Rosa Sound adjacent to Liza Jackson Park at Fort Walton Beach, Florida, and occupy a total of approximately 1.8 acres of shallow bay bottom.

(2) Types of Discharge Site(s). The discharge site for the construction of the beach, groins, and marsh retainer is an unconfined sandy-bottom shallow-water site; the discharge site involved with establishment of the marsh would be a confined sandy-bottom shallow-water site.

(3) Method of Discharge. The fill materials for beach, groin, and marsh retainer construction would be trucked to the site and placed by bulldozer or front-end loader. The fill materials for construction of the marsh would be excavated onsite and placed by bulldozer, or front-end loader.

(4) Time of Disposal. Filling is scheduled during winter, 1985.

(5) Projected Life Discharge Site(s). The fill material utilized in the construction of the beach will need to be renourished at approximately 10-year intervals. The materials used in the construction of the groins and marsh retainer, and establishment of the marsh should remain at the site permanently and no further maintenance would be required.

II. Factual Determinations.

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. Placement of sandy fill material in construction of the beach would increase the elevation of the site to an

Section 404(b)(1) Evaluation
for
Liza Jackson Park at
Fort Walton Beach, Florida

I. Project Description. The proposed plan to provide protection from erosion affecting the beach at Liza Jackson Park in Fort Walton Beach, Florida, involves the construction of two groins, located about 20 feet and 500 feet east of the boat ramp. Approximately 3,000 cubic yards of sand would be placed between the groins in establishment of a beach, 1,300 cubic yards of which would be placed below mean high water. In addition, a 465-foot long rubble retainer would be constructed soundward of the existing marsh on the east edge of the park. Within this area, a 0.66 acre marsh would be established. The existing drainage ditch would be rerouted such that flows would filter through the marsh prior to entering Santa Rosa Sound. The plan is depicted on Plate V.

a. Authority and Purpose. This study was initiated and performed under the authority of Section 103a of the River and Harbor Act of 1962, as amended, in response to a resolution by the city of Fort Walton Beach dated 25 March 1975.

b. Description of the Proposed Dredged and Fill Materials.

(1) General Characteristics. The fill material that would be placed on the sound bottom for construction of the beach would consist of clean white sands from the Point Washington disposal area near the east end of Apalachicola Bay. The materials to be utilized in the construction of the groins and marsh retainer would consist of commercially obtained crushed stone. The material to be used during construction of the marsh would consist of soils excavated from the adjacent upland portion of the park.

(2) Quantity of Material Proposed for Discharge. Approximately 1,300 cubic yards of sand would be placed below mean high water during construction of the beach. Approximately 490 cubic yards of crushed stone would be used in construction of the groins and marsh retainer. Approximately 684 cubic yards of soil would be required for marsh construction. Approximately 250 cubic yards of sand would be placed on the beach site for renourishment once every 10 years.

Therefore, the following constitutes the position of this Service and our official recommendations under the authorities of the Fish and Wildlife Coordination Act:

> Plan E, the recommended plan, is unacceptable to the Service unless the plan includes a detailed description of how marsh will be created to control erosion on the eastern half of the Park. The plan must include detailed information regarding (a) marsh dimensions and acreage, (b) pattern and density of planting, (c) need for changes in substrate elevation and methods to accomplish this, (d) specific locations of donor sites for transplanting, (e) manner and intensity of harvest from donor sites, (f) species to be transplanted, (g) proposed time of year to conduct the project, and (h) a detailed cost analysis for completion of the plan. The mitigation costs should, of course, be clearly identified in the Plan as project costs.

Additional Comments

In view of the obvious recreation benefits associated with Plan F, we suggest construction of the offshore breakwater be given further consideration as an erosion control alternative before official endorsement of a project plan. We believe Plan F is the most favorable alternative from the standpoint of fish and wildlife resources and reliable benefits. This plan will adequately curtail erosive wave action, best preserve valuable estuarine habitat, provide additional "hard-bottom" or "reef" type habitat and significantly increase recreational fishing space.

We appreciate the opportunity to provide comments at this time.

Sincerely yours,

John C. Oberheu

John C. Oberheu
Acting Area Manager

The description also states, "the plan would create an artificial beach between the boat launching ramps and the drainage canal" and "the remaining park frontage (from the drainage canal eastward to the eastern park boundary) would have marsh plants transplanted from areas along the sound just west of the park."

The Environmental Assessment, as presently drafted, is deficient and unacceptable to the Service because it does not clearly describe the marsh creation phase of Plan E. We acknowledge that paragraph 23 on page A-8 contains some very brief information regarding marsh creation. However, even this paragraph is extremely insufficient and non-commital regarding the amount of marsh creation proposed and how this task will be accomplished. We note that a specific cost estimate of $4,600 has been included in the budgets for Plans D, Modified D and E. However, the descriptions of these alternatives, whether in the DPR or in the Environmental Assessment, should contain detailed information about marsh creation. We pointed out this information deficiency to the Corps in our May 22, 1980 comments regarding the Plan Formulation Report (see pages D-12 through D-21; specifically page D-20 of the draft DPR). There is a specific section in the Environmental Assessment devoted to "Construction of the Artificial Beach," but there is no similar section for artificial creation of marsh.

We are also somewhat confused by the statement on page 89, paragraph 239 that, "The 1.0 acre marsh on the eastern side of Liza Jackson Park would be enlarged by additional marsh plants transplanted from the construction area." Because erosion has taken place along the western half of the Park shoreline, this "construction" area is nearly devoid of marsh plants, particularly saltmarsh cordgrass, Spartina alterniflora, with the exception of one existing patch west of the drainage ditch. Paragraph 239 gives the erroneous impression that this would be the only source of donor plants utilized for marsh creation. In reality, several hundred clumps of marsh vegetation need to be transplanted to the eastern half of the Park in order to provide adequate shoreline protection from wave erosion. Certainly, marsh plants taken from the "construction area" would constitute only a small part of the vegetation required for transplanting at the marsh creation site. All donor sites for the marsh establishment project need to be specifically identified.

Service Position and Recommendations

The Fish and Wildlife Service has carefully examined all of the proposed alternatives for erosion control at Liza Jackson Park. We have fully considered the impacts that each proposal would have on the fish and wildlife resources and habitat types within the project area.

Page 18, paragraph 46: The green turtle (Chelonia mydas) and the loggerhead turtle (Caretta caretta) are included in the list of federally endangered or threatened species. The green turtle is listed as endangered; the loggerhead as threatened.

Page 35 paragraph 77: Several of the proposed alternatives for erosion control at the Park call for creation of a recreational swimming beach. In fact, the majority of the benefits that make these alternatives economically feasible are attributed to recreational swimming and/or sunbathing. Unfortunately, beach creation would result in the destruction of some amount of biologically productive natural shoreline and estuarine shallow water area. This trade off of resources should not be made unless it can be clearly shown that swimming at the Park is feasible. In the subject paragraph it is stated that, "swimming is not currently allowed at the park..." Among the reasons cited for the ban on swimming are (1) lack of supervision and (2) trash deposited by careless park patrons. Development of the artificial beach would not, in and of itself, resolve these problems which up till now have resulted in a ban on swimming. Commitments should be obtained from the City of Fort Walton Beach to provide swimming supervision and trash control, thus allowing a removal of the ban on swimming. This problem should be resolved prior to approval of any alternative which requires elimination of fish and wildlife resources for the sake of artificial beach creation.

Page 57, paragraph 155: This paragraph is in error regarding total impacts to fish and wildlife resources. The first sentence in the paragraph should read, "two acres of wetland comprised of natural estuarine shoreline, isolated stands of marsh plants, and shallow shore-zone habitat will be destroyed along with the benthic communities of this area." It should also be stated, as was indicated in our resource inventory, that filling for beach construction would remove and eliminate utilization of this area by other fish and wildlife. The area is currently being used by a variety of marine fishes, invertebrates, wading birds and shorebirds for such activities as feeding, resting, and protection. The area also provides nursery habitat for juvenile fishes and invertebrates.

Review of the Environmental Assessment

General Comments

The "recommended plan", Plan E, is identified in the section of the Draft Detailed Project Report just before the Environmental Assessment. Discussion within the Assessment is therefore directed to an analysis of Plan E.

As was stated earlier in the DPR, Plan E "is another modification of Plan D." The difference between the two plans is simply the addition of a groin along the eastern edge of the proposed beach, at the drainage canal. On page 68, the description of Plan D clearly states, "the purpose of this plan is to control erosion by both artificial beach and artificial marsh construction."

United States Department of the Interior
FISH AND WILDLIFE SERVICE
15 North Laura Street
Jacksonville, Florida 32202

October 8, 1980

District Engineer
U.S. Army Corps of Engineers
P.O. Box 2288
Mobile, Alabama 36628

Dear Sir:

This is in response to Mr. Lawrence R. Green's letter of August 7, 1980, regarding comments on the Corps of Engineers' Draft Detailed Project Report (DPR) for Liza Jackson Park at Fort Walton Beach, Okaloosa County, Florida. The report is the result of a study undertaken pursuant to the small beach erosion authority provided by Section 103 of the 1962 River and Harbor Act, as amended. The report includes an environmental assessment and a water quality evaluation as required by Section 404(b) of Public Law 92-500, as amended. The following comments are submitted under the terms of the fiscal year 1980 funding agreement between the U.S. Fish and Wildlife Service and the Mobile District U.S. Army Corps of Engineers.

These comments also serve as the Fish and Wildlife Coordination Act Report in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

Review of the Draft DPR

General Comments

The document is basically well written and clear. However, a major problem observed in the report is the lack of specific information regarding artificial marsh creation which is mentioned briefly as a part of some of the alternatives. All of the proposed alternatives advocating beach creation would involve destruction of from one to two acres of estuarine habitat. Mitigation for this loss by creation of marsh should be an integral part of any proposed project.

Specific Comments

Page 16, paragraph 42: The Atlantic bottlenose dolphin (Tursiops truncatus) is not listed as a federally endangered or threatened species. The dolphin is protected under the Marine Mammal Protection Act of 1972.

APPENDIX B

FISH AND WILDLIFE
COORDINATION REPORT
AND
SECTION 404(b)(1) EVALUATION

APPENDIX A
ENGINEERING INVESTIGATIONS AND DESIGN

COASTAL ENGINEERING NOTEBOOK (CEN) REFERENCES

A. Table; Functions of d/L for Even Increments of d/L_o

B. Curves; Forecasting Curves for Shallow-Water Waves. Constant Depth = 5 feet, Constant Depth = 10 feet.

C. Curve; Relative Runup for Smooth Slope on Horizontal Bottom; $d_s/H'_o=5$

D. Curve; Breakwater Height vs. Deep Wave Steepness

E. Curve; Dimensionsless Depth at Breaking vs. Breaker Steepness

F. Curve; Theoretical Wave-Height Distributions

G. Curve; Wave Runup on Impermeable Vertical Wall vs. H'_o/gT^2

H. Curve; Comparison of Wave Runup on Smooth Slopes with Runup on Permeable Rubble Slopes (Data for $d_s/H'_o>3.0$)

SHORE PROTECTION MANUAL (SPM) REFERENCES

A. Figure 5-3; Isolines of the Adjusted Fill Factor, R_A

B. Figure 5-4; Isolines of the Renourishment Factor, R_J

BRUUN RULE REFERENCES

1. Sea Level Rise as a Cause of Shore Erosion, Bruun, Paper # 3065, Vol 88, WW1, February, 1962, ASCE Proc.

2. A Regional Test of the Bruun Rule on Shoreline Erosion, S. Rosen, Marine Geology, 26 (1978) M7 thru M16, Elsener

3. The Bruun Theory on Sea Level Rise as a Cause of Shore Erosion, M. L. Schwartz, Journal of Geology, Vol 75, No. 1, 1967, pp 76 thru 92

4. Support and Refinement of the Bruun Rule on Beach Erosion, R. N. DuBois, J. Geoly 83:5, 1975, pp 651 thru 657

5. Nearshore Evidence in Support of the Bruun Rule on Shore Erosion, R. N. DuBois, J. Geoly, Vol 84, 1976, pp 485 thru 491

DETAILED PROJECT REPORT

ON

LIZA JACKSON PARK

FORT WALTON BEACH, FLORIDA

APPENDIX C

Benefits Analysis

Information pertaining to the economic aspects of the considered improvements to the Liza Jackson project is presented in this appendix. It covers the tangible benefits and costs of the considered improvements that can be reduced to monetary terms.

METHODOLOGY

Economic justification of a selected plan is determined through comparison of the equivalent average annual costs (includes interest, amortization and maintenance costs) and the estimates of the equivalent average annual benefits expected to accrue over the economic life of the project. For the project to be considered feasible, the average annual benefits should exceed the average annual costs. Benefits and costs were computed for a 50-year project life and converted to an average annual equivalent basis using the current interest rate of 8-1/8 percent, applicable to all water resource projects at the time of this report. Benefits and costs reflect October 1984 price levels.

Benefit evaluation of the Liza Jackson project included benefits accruing from prevention of damages and recreation benefits from providing additional saltwater beach in the study area. The authority for calculating benefits is contained in ER 1105-2-40 dated 8 January 1982, as updated and by EC 1105-2-115 dated 10 March 1983.

Erosion Damages Prevented. Based on the rate of erosion experienced at Liza Jackson in recent years, it was determined that the land would continue eroding away at approximately 1 foot per year. At this rate about 960 square feet of valuable park land is lost every year.

The value of the 13.5-acre park as determined by the Mobile District Real Estate Appraisal Branch in 1981 was about $1.60 per square foot. In July of 1982 it was concluded that property values had increased in the area of the park by a factor of between 12% and 15%. Using the higher factor of 15% would establish a 1982 value of about $185 per square foot. Likewise, the 1983 value was determined to be about $2.00 per square foot on the basis of a 10% increase between 1982 and 1983. Assuming an erosion rate of 1 foot per year over the 960 feet of park shoreline, the value of the loss due to erosion will be $1,920.00 per year. Therefore, the $1,920 average annual cost attributable to land loss was accepted as loss of land prevention benefits. At an 8-1/8% interest rate, if the first cost of any design is greater than $23,155 and does not generate any benefits other than erosion protection, the plan will not be economically justified.

RECREATION BENEFITS

Total Demand. The 1980 Florida Statewide Comprehensive Outdoor Plan (SCORP) analyzes the existing and projects the future demand and supply for a wide variety of recreation experiences; one, i.e., beach activities, is directly applicable to the Liza Jackson study. Several pastimes which necessarily utilize the beach are included in this category, primarily saltwater swimming, sunbathing, relaxing on a beach, beachcombing and shell collecting. Since all the above pastimes are closely related and not clearly defined individually, they are considered as a group and, as a composite, distinguished from such major activities as fishing and boating, each of which might use the seashore.

In the 1980 SCORP report, the state was divided into 11 regions. The study area lies within Region 1 which consists of five counties; Bay, Escambia, Santa Rosa, Okaloosa, and Walton. The total demand and regional resident per capita participation rate (pcpr) are shown in Table C-1.

TABLE C-1

TOTAL DEMAND FOR BEACH ACTIVITIES - REGION

Item	Year 1979	1985	1990
Region 1 - Total Demand: (1,000 User-Occasions)	7,416	8,212	9,040
Region 1 - Resident Participation Rate	2.57	2.57	2.57

Okaloosa County Resident Population and Per Capita Participation Rate (PCPR). The SCORP projects total state population. County population figures were obtained from the University of Florida, Bureau of Economic and Business Research. These data are presented in Table C-2. Okaloosa County accounts for approximately 27% of Region 1's population, both historic and projected. Whenever possible, the regional data were subdivided to county level. The PCPR rate used for Okaloosa is the same as that for Region 1, 2.57.

Okaloosa County Tourist Population. Tourist demand in the 1980 Florida SCORP is divided into two categories, those arriving by air transport and those arriving by automobile. Data on the number of tourists visiting Okaloosa County by automobile were obtained from the Florida Department of Commerce, Division of Tourism. According to their surveys, approximately 2,381,000 tourists visited Okaloosa County in 1982. The statistical sample of tourists arriving by air was too small to be reliable. Therefore, for the purposes of this analysis, it was determined that the number of tourists in this category is too small to significantly affect the total demand for beach activities.

Okaloosa County Tourist PCPR. The tourist PCPR varies from beach to beach, region to region, and year to year. The 1981 SCORP report shows a tourist PCPR of 1.50 for Region 1. Total demand, including tourist, for Okaloosa County in user-occasions is presented in Table C-3.

TABLE C-2

HISTORIC AND PROJECTED POPULATION
(000's)

County	1982	1985	1986	1990	1995	2000	2010	2020	2030	2035
State of Florida	10,375.3	11,155.6	11,408.5	12,478.7	13,683.8	14,820.7	16,919.7	18,810.2	20,901.9	22,033.5
Bay	104.5	111.5	113.6	122.6	134.0	144.3	164.7	183.1	203.5	214.5
Escambia	254.5	254.1	257.2	269.8	286.8	300.4	343.0	381.3	423.7	446.6
Okaloosa	117.2	123.7	126.0	135.4	146.9	157.1	179.4	199.4	221.6	233.6
Santa Rosa	58.6	62.6	63.9	69.3	75.4	81.2	92.7	103.0	114.4	120.6
Walton	22.2	23.9	24.4	26.6	29.3	31.8	36.3	40.4	45.0	47.5

Source: Florida Statistical Abstract, 1983

TABLE C-3

TOTAL USER-OCCASIONS-OKALOOSA COUNTY

	1982	1986	1990	2000	2010	2020	2030	2035
Okaloosa County Resident Population (1,000)	117.2	126.0	135.4	157.1	179.4	199.4	221.6	233.6
Region 1 Resident PCPR	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57
Resident User-Occasions (1,000)	301.2	323.8	348.0	403.7	461.0	512.4	569.5	600.4
Okaloosa County Tourist Population (1,000)	2,381.0	2,551.1	2,762.4	3,370.7	4,112.9	5,018.5	6,123.5	6,764.2
1976 SCORP Tourist PCPR	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Tourist User-Occasions (1,000)	3,571.5	3,826.6	4,143.6	5,056.0	6,169.4	7,527.8	9,185.2	10,146.3
Total User Occasions (1,000)	3,872.7	4,150.4	4,491.6	5,459.7	6,630.4	8,040.2	9,754.7	10,746.7

Future Tourist Demand. Tourist demand projections for beach activities in the future was unavailable on a county-by-county basis. However, such data was available in the 1980 SCORP for the region. The calculated future tourist demand for Okaloosa County is based on the growth rates for the region. After subtracting the regional resident demand from the total SCORP demand for the years 1979, 1985, and 1990, the growth rate between each 5-year interval was computed which revealed a pattern of increasing demand.

The rate used to project the 1982 tourist base was interpolated between 1979 and 1985 and the rate used to derive the 2000 to 2035 tourist population was based on the growth rate between 1985 and 1990. The projected number of tourists expected to visit Okaloosa County during the project life is presented in Table C-4.

Daily Visitation. Total annual demand for beach activities was distributed throughout the year to determine the amount of visitation on similar type days. The best source for data to determine daily visitation patterns to the project beach is from similar beaches (locally owned and operated) in the project area. However, such data was not available. Therefore, it was determined that for the purpose of establishing beach visitation patterns, data from three state parks located in the panhandle of Florida were adequate.

The state parks used were St. Andrews State Park, Grayton Beach State Park, and St. Joseph State Park. St. Andrews State Park was selected as being the most representative of the project area beach because of similar available facilities. A year's data, March 1983 through February 1984, were analyzed for St. Andrews State Park, Grayton Beach State Park and St. Joseph State Park. It was determined that the St. Andrews State Park data was the most representative of the daily visitation pattern for Liza Jackson. The visitation patterns of the remaining three sets of data analyzed exhibit very similar distribution patterns. The selected and similar distribution patterns are shown in Table C-5.

Table C-6 defines the similar type days used in this analysis and shows the percentage each classification comprises of the total annual project visitation.

The product of the annual demand for beach activities in Okaloosa County (Table C-4) and the ratio of similar type day visitation (Table C-6) yields the demand for saltwater beach on a daily basis. Table C-7 presents the daily demand for beach activities in Okaloosa County.

Supply of Saltwater Beach. A recreational beach is defined as the area of beach between the toe of the dune or the vegetation line and mean high water. A major factor to this definition is the utilization of saltwater beach for sunbathing. A recreation beach is considered available if it is accessible and if there is adequate parking within reasonable proximity of the beach.

Table C-8 shows the square footage of public saltwater beach in Okaloosa County, by beach. The total area of beach for the county is 921,050 square feet. Using the approved method of conversion which allocates 100 square feet of beach per user times a turnover rate of 2, it was determined that, on any given day, public beaches in Okaloosa County will support 18,421 user-occasions.

Excess Demand. Table C-9 records the projected excess demand in Okaloosa County for similar type days. As shown, the excess demand over the available supply of saltwater beach in the area is substantial. Supply exceeds demand throughout the project life for only 2 categories.

Carrying Capacity of Alternatives. Three alternative plans which have recreational benefits are considered in this analysis. Plan A consists of a beach with an average area over the project life of 75,000 square feet. Plan B is a bulkhead with a sand recreational area of about 38,000 square feet behind it. Plan C has no beach and the Selected Plan has a beach with an average area over the life of the project of about 41,000 square feet. Table C-10 presents the carrying capacity of the alternative plans in terms of user-occasions per day.

TABLE C-5

DAILY VISITATION DISTRIBUTION PATTERN
(March 1983 through February 1984)

St Andrews State Park		Grayton Beach State Park		St Joseph State Park	
# Days[1]	Ratio[2]	# Days[1]	Ratio[2]	# Days[1]	Ratio[2]
2	.0105	1	.0140	2	.0105
3	.0100	8	.0123	9	.0091
11	.0084	9	.0088	12	.0075
9	.0077	8	.0075	24	.0064
8	.0065	12	.0064	25	.0054
29	.0053	23	.0054	31	.0045
45	.0047	21	.0043	30	.0035
58	.0019	62	.0018	58	.0014
200	.0013	221	.0015	174	.0011

[1] Number of days that have similar amounts of visitation.

[2] Ratio of the number of visitations per type of day to the total number of visitations per year.

TABLE C-6

SIMILAR DAY DETERMINATION

# Days	Ratio	% Total Visitation	Type of Similar Day
2	.0105	2.1	Holiday and weekend day associated holiday[1]
3	.0100	3.0	Weekend days end of May through early September and peak weekdays
11	.0084	9.2	Weekend days mid-May through mid-August
9	.0077	6.9	Weekend days early June through early September
8	.0065	5.2	Weekend days end of April through July and in season weekdays
29	.0053	15.4	Weekend days mid-March to early September and in season weekdays
45	.0047	21.2	Weekend days early March to mid-September and in season weekdays
29[2]	.0037	10.7	Weekend days: March and April, September and October, Weekdays: March through June, August
46[2]	.0023	10.6	Weekend days: February and March, September and October, Weekdays: March and April, August and September
36[2]	.0012	4.3	Weekend days off season
147[2]	.0008	11.8	Weekdays off season
		100.4	
		100.0	

[1] Memorial Day and weekend day associated with July the Fourth.
[2] Last two categories were broken into four based on wide spread of visitation ratio values.

DAILY DEMAND FOR BEACH ACTIVITIES - OKALOOSA COUNTY

(USER OCCASIONS)

Item		1982	1986[1]	YEAR 1990	2000	2010	2020	2030	2035
Total Annual Demand (000's)		3,872.7	4,150.4	4,491.6	5,459.7	6,630.4	8,040.2	9,754.7	10,746.7
# Days	Average Ratio to Annual								
2	.0105	40,663	43,579	47,162	57,327	69,619	84,422	102,424	112,840
3	.0100	38,727	41,504	44,916	54,597	66,304	80,402	97,547	107,467
11	.0084	32,531	34,863	37,729	45,861	55,695	67,538	81,939	90,272
9	.0077	29,820	31,958	34,585	42,040	51,054	61,910	75,111	82,750
8	.0065	25,172	26,978	29,195	35,488	43,098	52,261	63,406	69,854
24	.0053	20,525	21,997	23,805	28,936	35,141	42,613	51,700	56,958
45	.0047	18,202	19,507	21,110	25,660	31,163	37,789	45,847	50,509
29	.0037	14,329	15,356	16,619	20,201	24,532	29,748	36,092	39,763
46	.0023	8,907	9,546	10,331	12,557	15,250	18,492	22,435	24,717
36	.0012	4,647	4,980	5,390	6,552	7,956	9,648	11,706	12,896
147	.0008	3,098	3,320	3,593	4,368	5,304	6,432	7,804	8,597

[1] First year project life.

TABLE C-8

OKALOOSA COUNTY SALTWATER BEACH

(Square Footage)

Public Beaches 1 - 6, Okaloosa Island:[1]			Type
Public Beach #1 -	250' x 75'	= 18,750 sq. ft.	Gulf
Public Beach #2 -	600' x 75'	= 45,000 sq. ft.	Gulf
Public Beach #3 -	600' x 75'	= 45,000 sq. ft.	Gulf
Public Beach #4 -	300' x 75'	= 22,500 sq. ft.	Gulf
Public Beach #5 -	200' x 75'	= 15,000 sq. ft.	Gulf
Public Beach #6 -	300' x 75'	= 22,500 sq. ft.	Gulf
Brackin Wayside Park -	1,100' x 75'	= 82,500 sq. ft.	Gulf
John Beasley Park -	2,640' x 75'	= 198,000 sq. ft.	Gulf
Hwy 98 (Roadside) -	4,224' x 100'	= 422,400 sq. ft.	Gulf
Lincoln Park -	400' x 35'	= 14,000 sq. ft.	Bay
Ft. Walton Municipal Park	1,100' x 15'	= 16,500 sq. ft.	Bay
Gainiers Beach -	260' x 65'	= 16,900 sq. ft.	Bay
Lions Park -	200' x 10'	= 2,000 sq. ft.	Bay
		921,050 sq. st.	

Number User-Occasions

921,050 sq. ft. ÷ 100 sq. ft. per user x 2 turnover rate = 18,421 user-occasion capacity per day

[1] Though public beach for Okaloosa Island Public Beaches 1 - 6 was designated on both sides of the highway, i.e. gulf and sound side of Okaloosa Island, there is essentially no beach on the sound side since the mean high water mark falls at the vegetation line.

EXCESS DEMAND FOR BEACH ACTIVITY-OKALOOSA COUNTY

(USER OCCASIONS)

Item		1982	1986[a]	YEAR 1990	2000	2010	2020	2030	2035
# Days	Average Ratio to Annual								
2	.0105	22,242	25,158	28,741	38,906	51,198	66,001	84,003	94,419
3	.0100	20,306	23,083	26,495	36,176	47,883	61,981	79,126	89,046
11	.0084	14,110	16,442	19,308	27,440	37,274	49,117	63,518	71,851
9	.0077	11,399	13,537	16,164	23,619	32,633	43,569	56,690	64,329
8	.0065	6,751	8,557	10,774	17,067	24,677	33,840	44,985	51,433
20	.0053	2,104	3,576	5,384	10,515	16,720	24,191	33,279	38,537
45	.0047	0	1,086	2,689	7,239	12,742	19,368	27,426	32,088
29	.0037	0	0	0	1,780	6,111	11,327	17,671	21,342
46	.0023	0	0	0	0	0	71	4,014	6,296
36	.0012	0	0	0	0	0	0	0	0
147	.0008	0	0	0	0	0	0	0	0

[a] First year project life.

Parking Restriction. A restricting factor on beach visitation is the availability of parking spaces. Using the existing 154 spaces, 3 persons per car and a turnover rate of 2, the maximum beach visitation capacity is restricted to 924 user-occasions per day. The Selected Plan and Plan B fall well below this level and therefore are not affected. Plan A has a carrying capacity of 1,500 user-occasions. However, for purposes of economic analysis, daily visitation for Plan A is limited to 924 user-occasions to reflect the parking restriction.

Value Per User-Occasion. In accordance with current policy, values per beach visit were assigned to the alternative plans based on the recreational opportunities offered by the facilities at Liza Jackson. Existing facilities at the park include picnicking areas consisting of tables and barbeque grills, fishing pier, boat ramps, comfort stations, covered pavilions for group functions, playground and swimming area. Hotel accommodations are within a quarter mile radius of the park. Paved parking areas for cars and for cars with boat trailers are provided in the park. In the near future, the city plans to extend facilities through construction of another covered pavilion and additional paved parking spaces.

TABLE 10

DAILY USER-OCCASIONS FOR PLANS A, B, C, AND D

Plan	Square Footage	÷	Square Footage Per User	X	Turnover Rate	=	User Occasions Per Day
A	75,000		100		2		1,500
B	38,000		100		2		760
SELECTED PLAN	41,000		100		2		820

As shown in Table 11 the improved beaches provided in Plans A and the Selected Plan were assigned a beach visitation value of $3.56 based on the facilities and the quality of beach activity opportunity offered. Access to the water is

nconstrained under these plans. However, due to the restrictions to water ccess experienced by beach users under Plan B, the beach visitation value was educed to $3.12. These values are derived from EC 1105-2-115, Table VIII-3-1, f 10 March 1983.

ecreational Benefits. The following sample computation presents the procedure tilized to derive the benefits accruing to the project for various years uring the project life for the Selected Plan. As shown, the recreation enefits were derived by applying the value per user-occasion to the number of ser-occasions per day then multiplying the daily benefits times the number of ays in the year that demand for beaches in the area exceeds supply. In those ases where the demand for similar type days exceeds or equals the carrying apacity of the improved beach, full benefits are realized. However, as shown n the sample computation, when excess demand in the region is less than the arrying capacity of the improved beach, benefits are only computed for the lemand not satisfied.

be planted, techniques for grading, acquiring plants, planting, and monitoring. Also, reasonable assurance should be provided that the replacement marsh will be viable and maintained for the life of the project.

Page 70, paragraph 194.a., Acceptability. The statement, "Creation of marsh on the eastern section of the park is consistent with existing usage but future planned uses would require modification." should be clarified. What are the future planned uses for the marsh?

PLAN F - OFFSHORE BREAKWATER

Page 78, paragraph 115.f., Benefit-Cost Ratio. We hope that a benefit-cost ratio will be calculated based on information provided by the U.S. Fish and Wildlife Service and other pertinent data.

ENVIRONMENTAL ASSESSMENT

DESCRIPTION OF THE PROPOSED ACTION

Page 89, paragraph 239. Comments are the same as for page 68, paragraph 188.

If we can be of further assistance, please advise.

Sincerely yours,

D. R. Ekberg
Chief, Environmental and
Technical Services Division

Page 18, paragraph 46. This section should be corrected to note at the Florida breeding population of the green turtle (Chelonia das mydas) is on the Federal list of endangered species and the ggerhead turtle (Caretta caretta caretta) is on the Federal list of reatened species.

OBLEMS, NEEDS, AND OPPORTUNITIES

Page 36, paragraph 78. As stated in our May 29, 1980, letter to lonel Ryan regarding the Preliminary Coordination Report on Beach osion at Liza Jackson Park, we believe that the last sentence which ads, "A determination of the ecological value of the park wetland is quired to assess its biological value and to determine if it should maintained" should be more fully explained. The Jacksonville strict Corps of Engineers, Operations Division, determined that the rsh in the park was a valuable resource and worth maintaining. ecifically, the Jacksonville District requested the City of Fort lton Beach to remove an unauthorized fill and reestablish preproject evations to restore the marsh to its former capacity (Cease and sist Order No. 79A-67-014 dated April 6, 1979, and letter from Gail en, Jacksonville District COE to City of Fort Walton Beach dated rch 7, 1980). If further "determination of the ecological value of e park wetlands is required", we hope it will be consistent with the cksonville District's determination.

SESSMENT AND EVALUATION OF DETAILED PLANS

Page 57, paragraph 14b. Detailed plans for Plans A-F should more lly explain the fate of the existing marsh fringe at the project te. If the marsh would be adversely impacted, then detailed tigation plans should be included, estimated costs of mitigation ans calculated, and benefit/cost ratios adjusted accordingly.

AN A - ARTIFICIAL BEACH RESTORATION

Page 57, paragraph 153. Anticipated impacts to seagrass beds near e project site caused by increased erosion rate of the "artificial ach" should be addressed in greater detail.

Page 57, paragraph 155. Does the "one acre of marsh" also include e marsh fringe west of drainage ditch?

AN D - BEACH AND MARSH PLAN

Page 68, paragraph 188, Plan Description. A detailed plan for rsh creation should be discussed including specific locations, acreage

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Duval Building
9450 Koger Boulevard
St. Petersburg, FL 33702

October 8, 1980 F/SER61/SDB
893-3503

Colonel Robert H. Ryan
District Engineer, Mobile District
Department of the Army, Corps of Engineers
P.O. Box 2288
Mobile, AL 36628

Dear Colonel Ryan:

The National Marine Fisheries Service has reviewed the Detailed Project Report (DPR) on Liza Jackson Park, Fort Walton Beach, Florida, dated July 1980, that accompanied the August 7, 1980, letter from Lawrence R. Green, Chief, Planning Division. The following comments are offered for your consideration.

General Comments

After reviewing the seven alternative plans described in the DPR, we have concluded that PLAN F - OFFSHORE BREAKWATER would be the least damaging to fishery resources. Therefore, we would not object to its implementation. We realize that no benefit/cost ratio has been formulated for PLAN F due to lack of data. However, we also understand that pertinent data have been submitted to your office by the U.S. Fish and Wildlife Service in August 1980, to aid in such calculations.

Specific Comments

PROBLEM IDENTIFICATION

EXISTING CONDITIONS (Profile)

Page 11, paragraph 35. The phrase, "A wetland area..." would be more accurate if rephrased, "A vegetated wetland area...". This section should note that a vegetated wetland fringe also exists to the west of the drainage ditch.

Page 16, paragraph 42. The Atlantic bottlenose dolphin (Tursiops truncatus) is not on the D.O.I.'s Endangered and Threatened Wildlife and Plants of the U.S. list. However, it is protected by Federal law under the U.S. Marine Mammal Protection Act of 1972.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

JAN 05 1983

4PM-EA/WET

Mr. Lawrence R. Green
Chief, Planning Division
U.S. Army Corps of Engineers, Mobile
P.O. Box 2288
Mobile, Alabama 36628

ATTENTION: Walter W. Burdin
Coastal Branch

SUBJECT: Liza Jackson Park Project
Fort Walton Beach, Florida

Dear Mr. Green:

Our review of the proposed revised plan for Liza Jackson Park indicates that it is acceptable from an environmental standpoint. We are in favor of the plan to obtain the beach fill sand from the Gulf Intracoastal Waterway disposal area. The use of riprap to protect the marsh should ensure its stability and the drainage plan, which directs surface water away from the beach area, is an improvement over previous plans.

Because of tight restrictions on travel funds, we are unable to attend the meeting on January 12, 1983. Kindly consider this letter as our acceptance of the proposed project works.

Sincerely yours,

Arthur G. Linton, P.E.
Federal Activities Coordinator
Environmental Assessment Branch

United States Department of the Interior
FISH AND WILDLIFE SERVICE

Division of Ecological Services
1612 June Avenue
Panama City, Florida 32405

April 12, 1983

Mr. Lawrence R. Green
Chief, Planning Division
Mobile District
Corps of Engineers
Mobile, Alabama 36628

Dear Mr. Green:

We have reviewed the plans provided in your April 1, 1983, letter concerning creation of a marsh at Liza Jackson Park, Fort Walton Beach, Florida.

Our review shows that the plans have been modified to adequately alleviate the concerns that we expressed at the January 19th meeting in Fort Walton. We therefore concur in the marsh design.

Sincerely,

C. W. Hoeft

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Region
9450 Koger Boulevard
St. Petersburg, FL 33702

April 19, 1983

F/SER113/EJK
(904)234-5061

Mr. Lawrence R. Green
Chief, Planning Division
Corps of Engineers
P.O. Box 2288
Mobile, AL 36628

Dear Mr. Green:

The National Marine Fisheries Service has reviewed the revised plans for the Liza Jackson Park project in Fort Walton Beach, Florida, that accompanied your letter of April 1, 1983.

We have no further questions regarding this proposal and have no objection to its construction.

Should you require additional information, please contact Dr. Ed Keppner of our Panama City Area Office.

Sincerely yours,

Edward J. Keppner

for Richard J. Hoogland
Chief, Environmental Assessment Branch

In July of 1980, the draft Detailed Project Report recommended a plan which included beach restoration between the existing boat ramp and drainage ditch with groins at each end and new marsh establishment in the area of the existing marsh east of the ditch. All reviewing agencies with the exception of the National Marine Fisheries Service and the Florida Department of Environmental Regulation (DER) found this plan to be acceptable. However, the Fish and Wildlife Service still favored further consideration of the offshore breakwater plan. In addition, the Northwest Florida Water Management District suggested that the drainage ditch be routed to the marsh area to take advantage of its filtering capabilities and thereby improve water quality in the sound. In January of 1981, the Florida Department of Environmental Regulation recommended a reduced scope alternative that would have been neither adequate for erosion control nor suitable for recreation.

In January of 1983, a revised plan was presented to all interested agencies which included the beach with groins at each end and a new man-made marsh adjacent to the existing marsh. The plan also included diversion of the drainage ditch through the marsh as was suggested earlier by the Northwest Florida Water Management District. All except Florida DER agreed that the new marsh would lessen the impact of the beach restoration on the Santa Rosa Sound ecosystem and, with minor reservations concerning construction details, that the plan was acceptable and implementable.

Subsequent meetings between February and August of 1983 with DER representatives and the city of Fort Walton Beach representatives resolved all differences and resulted in the plan designated as the Selected Plan. This plan slightly reduces the amount of shallow bottoms covered by the beach and includes piping storm drainage to the marsh area allowing the drainage ditch to be filled. The Selected Plan is acceptable to the local sponsor and to all concerned agencies and is complete, effective, and efficient in the way in which it addresses the problems and opportunities identified during this study.

The following is representative of correspondence received and responses made during the coordination process:

Formulation of Plan A was a result of applying the traditional beach erosion control methods of the Gulf Coast to solve the problems at the park. Plan B was adapted from a suggestion by the US Fish and Wildlife Service with the intent to obtain recreational benefits with the use of an otherwise uneconomical erosion control measures. As the planning process progressed it became obvious that these plans, while providing a solution to the erosion problem, were not completely sympathetic to environmental concerns and did not fully address the identified problems and opportunities.

In the spring of 1979, the marsh area at the east end of the park was identified as significant and it was determined that it should be preserved. Subsequently, plans were formulated which provided for erosion control while also enhancing the marsh to mitigate for expected losses of shallow-bottom habitat. These plans all centered around the concept of beach establishment west of the drainage ditch and marsh enhancement east of the drainage ditch. Each measure would provide the needed erosion control while the beach would provide considerable recreation benefits. In February of 1980, a workshop was held during which the need for additional recreation facilities such as an additional boat ramp, additional fishing facilities, and a nature trail were identified. Subsequent to the workshop, however, it was determined that there would be no Federal cost sharing for these items and they were dropped from further consideration as features of a possible Federal project.

Upon review of the preliminary coordination report in late May 1980, two additional alternatives were developed. Recognizing the water quality problems caused by the drainage ditch, the Environmental Protection Agency suggested the use of a second groin on the eastern edge of the beach thereby requiring runoff water in the drainage ditch to travel a greater distance before mixing with water used by swimmers. The US Fish and Wildlife Service, while favoring the beach/marsh alternative, strongly recommended the use of an offshore breakwater together with a fishing pier extension. Although this alternative had been investigated earlier in the study and not carried forward because of its poor economics, it was considered further.

The following is a list of those with whom coordination was done during the course of this study. All comments received during the coordination process were considered in the preparation of the study report:

Federal Agencies:

National Marine Fisheries
US Fish and Wildlife Service
Environmental Protection Agency
Federal Aviation Administration
US Department of Housing and Urban Development
United States Coast Guard

State Agencies

Florida Department of Transportation
Florida Department of Environmental Regulation
Florida Department of Natural Resources
Florida Game and Freshwater Fish Commission
Northwest Florida Water Management District
West Florida Regional Planning Council

Local

City of Fort Walton Beach
St. Joe Paper Company

The following summarizes the plan formulation process since the draft Detailed Project Report was issued in 1980. The evolution of the Selected Plan was responsive to comments made by various Federal, State, and local agencies. These comments are included in the accompanying correspondence.

APPENDIX D

COORDINATION AND DOCUMENTATION

Sensitivity. As a test of the economic feasibility, the necessary mileage per car was determined to yield a benefit/cost ratio of 1 for various years during the project life. This is presented in Table C-14. The average annual cost of the project is $20,000 and the latest cost estimate per mile of operating a car is 8-1/2 cents. The annual visitation was divided by 3 to yield the annual number of vehicles at the project. The number of vehicles was then divided into the average annual costs to yield the cost per vehicle. This amount was then divided by cost per mile to yield the necessary roundtrip mileage to recover project costs. As shown, even in the first year of project life it would only take a roundtrip mileage of 1.7 to recover the annual costs. Due to the small amount of annual visitation and the insignificant amount of roundtrip mileage it would take to justify the project, it was not considered necessary to use the travel cost methodology in lieu of the day unit value.

TABLE C-14

ROUNDTRIP MILEAGE NEEDED FOR VARIOUS YEARS DURING PROJECT LIFE FOR RECOVERY OF AVERAGE ANNUAL COSTS

Years	Average Annual Cost	÷	Annual Visitation	=	Cost Per User Occasion	÷	Cost Per Mile	=	Roundtrip Miles Needed for Cost Recovery
1986-1990	$ 20,000		87,740		.228		$ .135		1.7
	20,000		111,520		.179		.135		1.3
	20,000		114,786		.174		.135		1.3
	20,000		149,240		.134		.135		1.0

TABLE C-12

AVERAGE ANNUAL RECREATION BENEFITS, PLANS A, B, AND SELECTED PLAN

Year	Annual Benefits		
	Plan A	Plan B	Selected Plan
1986	$352,000	$289,000	$312,000
1990	352,000	289,000	312,000
2000	447,000	368,000	397,000
2010	447,000	368,000	397,000
2020	459,000	380,000	409,000
2030	599,000	492,000	531,000
2035	599,000	492,000	531,000
Average Annual Benefits	$402,000	$330,800	$357,000

TABLE C-13

SUMMARY OF AVERAGE ANNUAL BENEFITS, PLANS A, B, AND SELECTED PLAN

Type Benefits	Plan A	Plan B	Selected Plan
Recreation:	$402,000	$330,000	$357,000
Loss of land: Prevention:	1,920	1,920	1,920
Total	$403,920	$332,720	$358,920

SELECTED PLAN
SAMPLE COMPUTATION

User-Occasions Per Day: 820 Value Per Occasion: $3.56
Days with Demand Exceeding Supply: 1986 - 1990 (107)
2000 - 2010 (136)
2020 - 2035 (182)

1986 - 1990:	107 days X 820 X $3.56 =	$312,000
2000 - 2010:	136 days X 820 X $3.56 =	$397,000
2020:	(136 days X 820 X $3.56)+	
	(46 days X 71 X $3.56)=	$409,000
2030 - 2035:	182 days X 820 X $3.56 =	$531,000

Average Annual Recreation Benefits. Table C-12 presents both the annual recreation benefits for various years during the project life and the average annual equivalent recreation benefits for Plans A and the Selected Plan using the current interest rate of 8-1/8%.

Summary of Benefits. Total average annual benefits, comprised of recreation and loss of land prevention benefits, are presented in Table C-13.

Average annual benefits for Plan A total $403,920; for the Plan B beach total $332,720; and, for the Selected Plan total $358,920.

TABLE C-11

ASSIGNED POINT VALUE AND DAY UNIT VALUE
FOR PLANS A, B, AND SELECTED PLAN

Plan A and Selected Plan

Point Category	Plan-Assigned Value	Remarks
Recreation Experience	7.5	Several general activities
Availability of Opportunity	16.5	Within 30 minutes travel time
Carrying Capacity	5.0	Basic facilities to conduct activities
Accessibility	16.5	Located adjacent to state highway
Environmental Quality	10.0	Above average aesthetic quality
	55.5	

Day Unit Value: $3.56

Plan B

Point Category	Plan B Value	Remarks
Recreation Experience	2.0	Two general activities (access to water severely restricted).
Availability of Opportunity	16.5	Within 30 minutes travel time
Carrying Capacity	5.0	Basic facilities to conduct activities
Accessibility	16.5	Located adjacent to state highway
Environmental Quality	3.0	Low aesthetic factors exist which significantly lower quality
	43.0	

Day Unit Value: $3.12

Source for Point and Day Unit Values: EC 1105-2-115 dated 10 March 1983

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
JACKSONVILLE AREA OFFICE
PENINSULAR PLAZA
661 RIVERSIDE AVENUE
JACKSONVILLE, FLORIDA 32204

REGION IV

September 16, 1980

IN REPLY REFER TO:
4.6SS
(RLC)

Mr. Lawrence R. Green
Navigation and Costal Branch
Department of the Army
Mobile District, Corps of Engineers
Post Office Box 2288
Mobile, Alabama 38828

Dear Mr. Green:

We have reviewed the Draft Detailed Project Report for Liza Jackson Park at Fort Walton Beach, Florida and have no comment to offer. Our review indicates that the proposed project would have no impact upon existing, or proposed U.S. Department of Housing and Urban Development projects in the area. However, we do feel that a proposal to maintain or increase the existing recreational benefits of the park would have a positive impact upon the recreational needs of the community.

Thank you for providing us an opportunity to review this report.

Sincerely,

Everett H. Rothschild
Area Manager

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

ADDRESS REPLY TO:
COMMANDER (dpl)
EIGHTH COAST GUARD DISTRICT
HALE BOGGS FEDERAL BLDG.
500 CAMP ST.
NEW ORLEANS, LA. 70130
FTS 682-2961

16475
8 SEP 1980

Mobile District
Corps of Engineers
P.O. Box 2288
Mobile, AL 36628

Dear Sir:

In response to your request for a review of your draft Detailed Project Report for Liza Jackson Park at Fort Walton Beach, Florida, no objections or comments are felt necessary. Your draft report appears complete and will not significantly impact on Coast Guard programs or areas of responsibility as documented.

Sincerely,

P.C. GOLDEN
Lieutenant, U.S. Coast Guard
Environmental Assessment Officer
By direction of the Commander,
Eighth Coast Guard District

Copy: Commandant (G-WEP-7)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

4E-ER/WT

SEP 05 1980

Mr. Lawrence R. Green
Chief, Planning Division
Mobile District, Corps of Engineers
P.O. Box 2288
Mobile, Alabama 36628

SUBJECT: Draft Detailed Project Report, Liza Jackson Park,
Ft. Walton Beach, Florida

Dear Mr. Green:

This is in response to your letter of August 7, 1980, soliciting comments on the subject document.

Generally we are not in favor of beach nourishment projects which require continual maintenance unless they can be combined with an authorized navigation project which can supply the necessary sand for replenishment. Using the sand bar off shore for beach nourishment has the potential of increasing shore erosion. Beach nourishment for the protection of shore facilities which have encroached upon the natural beach to the extent that they require continual nourishment is a never ending costly process and a drain on the national economy. In this particular instance, the sand necessary for constructing and maintaining the project would be trucked from a spoil mound borrow area at East Pass formed by the maintenance of the channel through the pass. Sufficient spoil is available for maintaining the beach at East Pass and also Liza Jackson Park which would only require approximately 1100 cubic yards per year or about 11,000 cubic yards once every 10 years.

It is noted that the selected Plan "E" includes a groin with a fishing pier extending outward from the west side of the drainage canal outlet. Storm water runoff from the urbanized area along U.S. Route 98 through the canal has the potential for a high fecal coli count and the groin should lessen the possibility of the beach area becoming contaminated.

If the marsh area at the east end of the park which was filled is restored and planted with marsh grass we will not object to the selected plan "E".

Sincerely yours,

Arthur G. Linton, P.E.
Federal Facilities Coordinator
Enforcement Division

cc: See Attached

cc: Mr. Donald J. Hankla, Area Manager
U.S. Fish and Wildlife Service
Jacksonville, Florida

Mr. C. W. Hoeft
U.S. Fish and Wildlife Service
Panama City, Florida

Dr. Ed Keppner
National Marine Fisheries Service
Panama City, Florida

Ms. Victoria J. Tschinkel, Secretary
Florida Department of Environmental Regulation
Tallahassee, Florida

Mr. D. T. Raynor
West Florida Regional Planning Council

United States Department of the Interior
FISH AND WILDLIFE SERVICE
15 NORTH LAURA STREET
JACKSONVILLE, FLORIDA 32202

March 31, 1981

District Engineer
U.S. Army Corps of Engineers
P.O. Box 2288
Mobile, Alabama 36628

Re: Public Notice FP81-LJ01-4
Liza Jackson Park
Dated February 23, 1981
Santa Rosa Sound
Okaloosa County, Florida

Dear Sir:

The Fish and Wildlife Service has reviewed the above-cited public notice and our comments are provided in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The proposed project, as it is described in the public notice, would involve federal construction of an artificial beach to control erosion at Liza Jackson Park. Approximately 9,600 cubic yards of sand would be used to build an artificial beach. Of this total amount, 4,400 cubic yards would be deposited on approximately 1.9 acres of shallow bottom estuarine habitat and along about 0.2 acres of shoreline. Project plans also call for establishing an artificial marsh to control shoreline erosion.

Service comments regarding the Draft Detailed Project Report (DPR) for Liza Jackson Park, Fort Walton Beach, Florida, were provided to you via Acting Area Manager John C. Oberheu's letter of October 8, 1980. Our views regarding this project were also expressed in a public hearing statement of August 19, 1980 and in a letter from this office dated July 24, 1980 which provided a Service review of the Corps of Engineers' Preliminary Coordination Report on Beach Erosion at Liza Jackson Park. Therefore, we will not reiterate the details of those transmittals.

Although considerable details are provided in the public notice regarding beach construction, little information is presented regarding the specifics of marsh construction. As we pointed out in our Fish and Wildlife Coordination Act letter of October 8, 1980, the draft DPR also lacked detailed information regarding marsh construction. By contrast, the

public notice provides information about beach construction such as: (a) length and acreage, (b) cubic yards of material, (c) type of material, (d) site from which material will be obtained, (e) method of transporting, and (f) history of material to be used. However, marsh construction is summarized in the single sentence, "the remaining park frontage ... would have marsh plants transplanted from areas along the Sound just west of the park."

Proper establishment of a viable artificial marsh is an exacting phase of the proposed project. Marsh construction is also the only phase of the proposed project that is in the interest of fish and wildlife. Beach construction, by comparison, will destroy nearly two acres of productive estuarine habitat. We believe that a detailed plan regarding marsh construction is an extremely important and necessary component of the overall proposal to control erosion at the park. Without such a plan, there is not formal, binding assurance of marsh establishment. A detailed marsh construction plan is imperative in order to assure full and equal consideration for fish and wildlife resources.

Therefore, the following is the position of the Fish and Wildlife Service regarding the Liza Jackson Park project as it is currently proposed:

> The proposed erosion control plan cannot be supported by the Service unless the plan includes a detailed description of how marsh will be established to control erosion on the eastern half of the park. Such a plan should include, at a minimum, detailed information regarding: (a) marsh dimensions and acreage, (b) pattern density and method of planning, → planting (c) need for and quantification of changes in substrate topography and methods to accomplish this, (d) specific locations of donor sites for transplanting, (e) manner and intensity of harvest from donor sites, (f) species to be transplanted, and (g) proposed time of year to conduct the project. Furthermore, we believe this project should be held in abeyance until such information is prepared and until the project can be readvertised by a public notice containing detailed marsh establishment information.
>
> Finally, this Service has, from the beginning, suggested the construction of an offshore breakwater as an erosion control alternative from the standpoint of fish and wildlife resources and reliable benefits. An offshore breakwater would adequately curtail erosive wave action, best preserve valuable estuarine habitat, provide additional "hard bottom" or "reef" type habitat and significiantly increase recreational fishing space, if, as we have suggested in previous correspondence, the breakwater were constructed in conjunction with a fishing pier. Information regarding recreational fishing from piers was provided to the Mobile District on August 19, 1980, with the understanding that the Corps' socio-economics department would develop an economic

Lynn C Hilsman

→ at the park we still think this is the best alternative

analysis and benefit-cost ratio for Plan F (the offshore breakwater-fishing pier alternative). To date we have seen no evidence that this analysis has been accomplished. We believe the Corps should complete the analysis and present it for public review, prior to adoption of any other alternative.

We appreciate the opportunity to provide comments at this time.

Sincerely yours,

Larry E. Goldman
Assistant Area Manager -
Environment

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

SOUTHERN REGION
P. O. BOX 20636
ATLANTA, GEORGIA 30320

APR 6 1981

Commander
Department of the Army
Mobile District Corps of Engineers
Post Office Box 2288
Mobile, Alabama 36628

Dear Sir:

Proposed Erosion Protection for Liza Jackson Park
Fort Walton Beach, Florida

This will acknowledge your notice of February 23, 1981, advising that the U. S. Army Corps of Engineers Mobile District proposes to perform erosion protection work at Liza Jackson Park, Fort Walton Beach in Okaloosa County, Florida.

We have reviewed the project with respect to potential environmental impact for which this agency has expertise. Our review indicates there will be no significant adverse effects to the existing or planned air transportation system as a result of this project.

Thank you for the opportunity to review and comment on this proposal.

Sincerely,

for Benny C. Frazier
Chief, Aviation Policy and International
Affairs Staff

October 31, 1983

Environmental Compliance
Section

Dr. Elton Gissendanner
Executive Director
Florida Department of Natural Resources
Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32303

Dear Dr. Gissendanner:

On July 11 and 14, 1983, we submitted to your agency the final items required to complete processing of Application No. 3367-46-253-03 concerning proposed beach erosion protection at Liza Jackson Park, Fort Walton Beach, Okaloosa County, Florida. Our response contained all the items requested in a June 17, 1983 letter from the Department of Natural Resources except those previously submitted and the $200.00 application fee. The fee was omitted because, pursuant to the Memorandum of Understanding and other agreements between the Department of Natural Resources (DNR), the Department of Environmental Regulation (DER), and the U. S. Army Corps of Engineers, the only payment required of the Corps is the water quality certification fee paid to DER. This has been the procedure for granting any state required easements to the Corps without exception. After numerous attempts to resolve the issue over the telephone, the matter was discussed at the last pre-quarterly meeting on August 26, 1983. At this time, Mr. Art Wilde agreed a misunderstanding had occurred and he would resolve the matter within the week. We have talked with Mr. Wilde on several occasions since then and the issue is apparently not any closer to resolution.

We are currently preparing to submit our final detailed project report to our South Atlantic Division by the end of November 1983 recommending construction of the project. The report cannot be approved without state water quality certification and, as you are aware, DER views the DNR authorization as a prerequisite to issuance

of certification. DER has informed us that your agency approval is the only outstanding item required for issuance of water quality certification. Therefore, we strongly solicit your assistance in resolving this matter so that the Chief of Engineers may approve the project, thus providing beach erosion protection to the citizens of Fort Walton Beach.

We have enclosed a legal description of the easement area.

Please contact Mr. Curtis M. Flakes at 205/694-4108 if additional information is required.

Sincerely,

Patrick J. Kelly
Colonel, CE
District Engineer

Enclosure

Copies Furnished:

Honorable Kate Bagley
Mayor of Fort Walton Beach
Post Office Box 4009
Fort Walton Beach, Florida 32549

Mr. Robert Kriegel
Florida Department of
Environmental Regulation
Northwest District
160 Government Center
Pensacola, Florida 32501

All that tract or parcel of land lying and being in Section 22, Township 2 South, Range 24 West, Tallahassee Meridian, Okaloosa County, Florida, being more particularly described as follows:

Beginning at a point which is 150 feet, more or less, South of the North line and 1,320 feet, more or less, West of the East line of said Section 22, on the mean high water line of Santa Rosa Sound and at plane coordinate position North 517,272 feet and East 1,326,905 feet based on Florida State Plane coordinate system, North Zone;

Thence S 02° 44' W 63.1 feet to coordinate position North 517,209 feet and East 1,326,902 feet;

Thence S 69° 30' W 131.3 feet;

Thence N 88° 49' W 97.0 feet;

Thence N 81° 32' W 95.0 feet;

Thence N 80° 08' W 93.4 feet;

Thence N 79° 37' W 61.0 feet;

Thence N 76° 46' W 139.7 feet;

Thence N 77° 41' W 121.8 feet;

Thence N 82° 58' W 81.6 feet;

Thence N 83° 40' W 126.8 feet;

Thence N 03° 26' E 50.1 feet;

Thence N 01° 55' E 90.1 feet to said mean high water line of Santa Rosa Sound;

Thence along the meanders of said mean high water line of Santa Rosa Sound the following bearings and distances;

S 87° 08' E 100.1 feet;

Due East 101.0 feet;

S 84° 51' E 100.4 feet;

S 79° 15' E 101.8 feet;

S 76° 46' E 87.3 feet;

S 69° 16' E 110.1 feet;

S 62° 40' E 100.2 feet;

S 54° 41' E 29.4 feet;

N 87° 48' E 78.1 feet;

N 89° 27' E 105.0 feet;

S 82° 53' E 40.3 feet, more or less, to the point of beginning.

Containing 132,900 square feet, more or less.

The above coordinates have been substituted for the original coordinates which were found to be in error.

September 2, 1983

Coastal Branch

Dear Mr.

This is regarding a meeting on August 24, 1983 between Messrs Youngman and Burdin of this office with Messrs Fancher and Rohlke of the Florida State Department of Environmental Regulation and a later meeting the same date between Messrs Youngman and Burdin and Messrs Elliot and Ingram of the City of Fort Walton Beach. Both meetings were in regard to Liza Jackson Park in Port Walton Beach and the Selected Plan for shoreline erosion control of April 1983.

Closing the soundward end of the drainage ditch from the waters of Santa Rosa Sound could worsen the present water quality in the ditch. During the above meetings it was agreed that piping the storm runoff along the alignment of the existing ditch and then to a diffusion pond behind and upland of the existing and new marsh would allow the drainage ditch to be filled in. This will provide safer conditions for park users, particularly small children. A copy of a drawing showing the agreed upon revision is enclosed for your information. We are proceeding with the Detailed Project Report on the basis of this revision becoming an element in the Selected Plan. If you have any concerns, please let us know at the earliest possible date. Any questions you may have can be directed to Bill Youngman or Walter Burdin at 205/694-3807.

Sincerely,

Lawrence R. Green
Chief, Planning Division

Enclosure

We consider that the proposed project will not provide a significant rrier to the westerly draft. The west end groin should trap the easterly ift and provide some minor maintenance problem at the boat ramp. Much that material should be returned at the next drift reversal. Westerly ift should bypass the new marsh and be subject to minor trapping in the ach area. We do not agree that the downdrift area will experience celerated erosion problems. Photographs of the area indicate a large bate shoal at the next highway drain to the west of the park boundary. similar shoal is evident to the east. Those shoals are already providing gnificant barriers to the longshore drift such that the proposed project ll have little to no effect.

Grain size analyses are attached.

Hydrographic Survey as
Explained in a 1/27/83 Letter From
Ms. Pamela Sperling

copy of the erosion rate computations and shoreline change map are
ıed. Methodology was as follows:

. Select 2 shorelines of different date.

. Select 2 or more convenient endpoints, such as crossovers, or
ıate an end point as desired.

. Planimeter area between selected shorelines and endpoints.

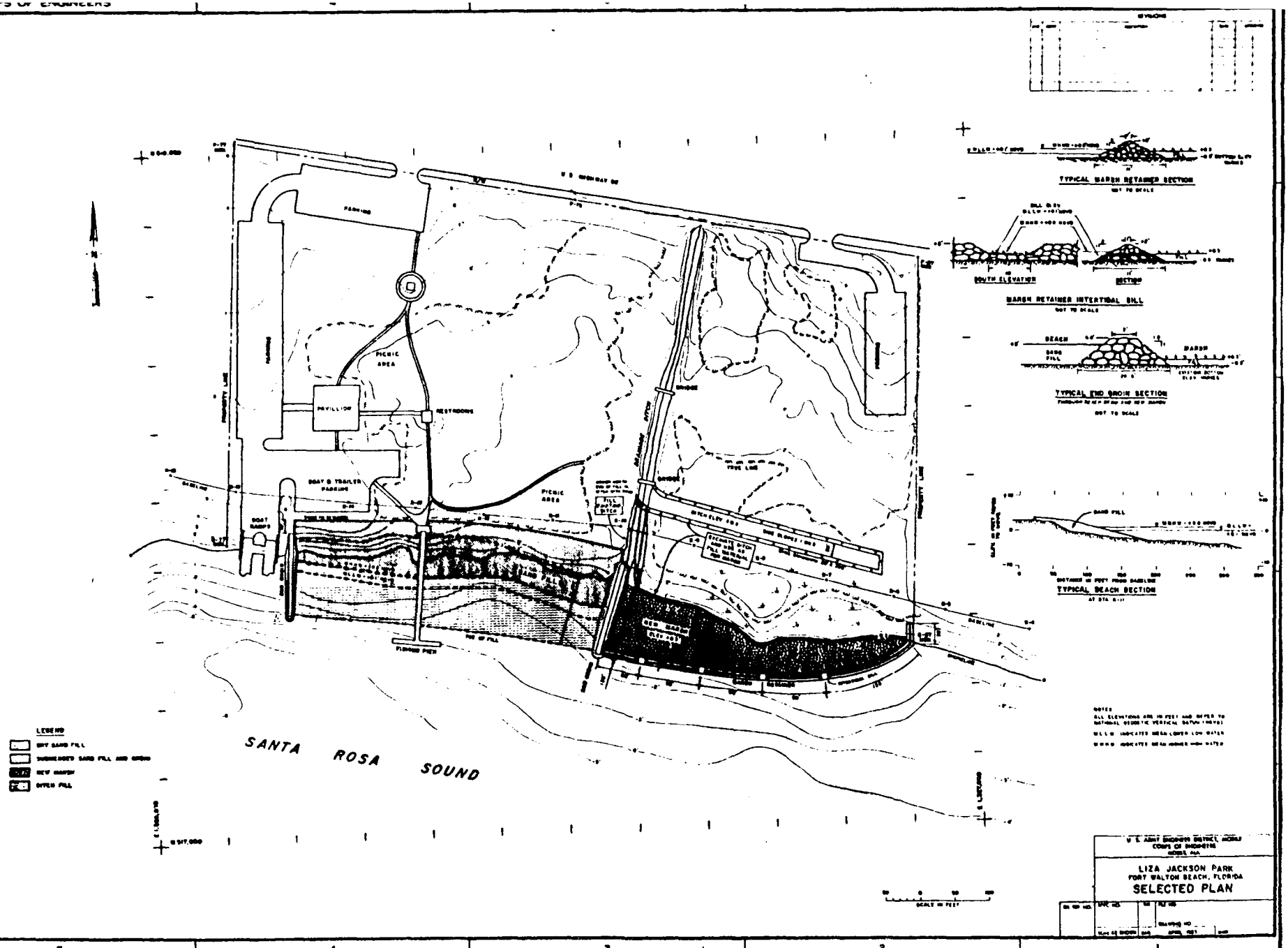
. Measure distance between endpoints with map measure.

. Divide planimetered area by measured distance for weighted total
on.

. Divide weighted total by years between line dates for weighted
l average rate.

and from the proposed borrow area (Point Washington GIWW) is slightly
er than the native beach at the park. We estimate that future erosion
d be about 1/3 of the present rate. (As a conservative measure, this
ot used in estimating annual costs.)

copy of our longshore transport computations are inclosed. All basic
mation is included. The methodology was derived from the Shore Protection
l, U.S. Army Coastal Engineering Center, 1977 edition. We do not believe
there is a significant interconnection between the erosion rate and the
hore transport.


SANTA ROSA SOUND
PARKING
PICNIC AREA
PAVILION
RESTROOMS
BOAT & TRAILER PARKING
BOAT RAMPS
BRIDGE
PROPERTY LINE
TYPICAL MARSH RETAINER SECTION
MARSH RETAINER INTERTIDAL SILL
TYPICAL END GROIN SECTION
TYPICAL BEACH SECTION
LEGEND
LIZA JACKSON PARK
FORT WALTON BEACH, FLORIDA
SELECTED PLAN

If you have any questions on the above please contact me.

Sincerely,

Pamela A. Sperling
Hydrographic Engineer
Bureau of Permitting

'js

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

NIN TOWERS OFFICE BUILDING
100 BLAIR STONE ROAD
ALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

January 27, 1983

Walt Burdin
Planning Division
Mobile District Corps of Engineers
Post Office Box 2288
Mobile, AL 36628

Dear Mr. Burdin:

File No. 460405259, Okaloosa County
Liza Jackson Park

This is in response to your January 26, 1983 phone request for the requirements of the hydrographic survey of the above referenced project. Basically, what is needed for the hydrographic survey has been requested in the completeness summary letters but not in the detail that will be needed for my review. Therefore, please submit the following:

1. Erosion rate. Please give rates, both existing and predicted for this project. Give figures and methodology. Support all material with proper referencing.

2. Longshore transport. Give rates with all support data. This is tied in with the erosion rate above. Discuss interconnection between the two.

3. Downdrift erosion. The project will interrupt the longshore drift. The downdrift area will experience accelerated erosion problems. Discuss how these problems are to be minimized.

4. Grain size analysis. All core borings are to be accompanied by the grain size analysis curves. Boring logs alone are not acceptable.

Florida Administrative Code Rules 17-4.28(3) & (11) and 17-4.29(5)

WATER QUALITY INFORMATION

] Your project is in Class II waters. Please provide a detailed plan for protecting the area in the vicinity of the project from significant damage. [FAC Rule 17-4.28(8)]

] Your project is in Class III waters. Please provide detailed plans for complying with State Water Quality Standards as outlined in Fla. Admin. Code Rule 17-3.051, 17-3-061, and 17-3.121.

] Your project is in Aquatic Preserve _____ Please provide the following items demonstrating compliance with Chapter 258, Florida Statutes.

] Your project is in Outstanding Florida Waters. Please provide the following items demonstrating compliance with Fla. Admin. Code Rule 17-4.242.

HYDROGRAPHIC INFORMATION

] Your project will require a hydrographic survey, to be conducted under the supervision of the department. Please have your engineer contact Pamela A. ing to discuss the specific details. [Sections 253.123 and 253.124, F.S.]

] Additional information is needed to complete the hydrographic review pursuant to Sections 253.123 and 253.124, F.S. Please provide the following:

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

WIN TOWERS OFFICE BUILDING
00 BLAIR STONE ROAD
LLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

COMPLETENESS SUMMARY
DREDGE & FILL PERMIT APPLICATION

File No. 460405259, Okaloosa County

NAME: U.S. Army Corps of Engineers
ADDRESS: Post Office Box 2288
Mobile, Alabama 36628

DATE RECEIVED: March 4, 1981
DATE REVIEWED: January 19, 1983
BY: M. Collins

The following marked items were omitted or were found to be incomplete in your application as submitted:

GENERAL

[XX] Application fee. $ 200 has been received; $ 180 refund is due. [FAC Rule 17-4.05]

[ ] Letter of authorization for your agent. [FAC Rule 17-1.203(1)]

[ ] Certification of drawings by a professional engineer or registered land surveyor. [FAC Rule 17-4.05]

[ ] Two copies of aerial photographs of project area, scale 1:24,000 (1" = 2000 ft) or greater (more detailed). [FAC Rule 17-1.203(1)]

[XX] Consent of use of state-owned land from the Board of Trustees (Department of Natural Resources) in the form of all necessary authorization. (See application pamphlet for explanation) [Section 253.77, F.S.]

APPLICATION FORM [FAC Rule 17-1.203(1)]

[ ] Your application was not signed; please sign and return.

[ ] Your affidavit of ownership was not signed/notarized; please sign/have notarized.

[ ] Item No. _____ was not completed. Please provide _____

DRAWINGS [FAC Rule 17-1.203(1)]

[ ] Vicinity map:

[XX] Plan view: See attached notes

[XX] Cross-sectional view: See attached notes

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TOWERS OFFICE BUILDING
ILAIR STONE ROAD
AHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

January 20, 1983

U.S. Army Corps of Engineers
Mobile District
Post Office Box 2288
Mobile, Alabama 36628
Attention: Colonel Robert H. Ryan

Dear Colonel Ryan:

This is to acknowledge receipt of your application, file number 460405259, for a permit to: construct artificial beach for erosion control at Liza Jackson Park.

[XX] This letter constitutes notice that a permit will be required for your project pursuant to Chapter(s) 253 and 403, Florida Statutes.

[ ] Your application for permit is complete as of _____ and processing has begun. You are advised that the department under Chapter 120, Florida Statutes, must take final action on your application within ninety (90) days unless the time is tolled by an administrative hearing.

[ ] Your application for permit is incomplete. Please provide the information listed on the attached sheet promptly. Evaluation of your proposed project will be delayed until all requested information has been received.

[XX] The additional information was received on December 23, 1982 was reviewed, however, the items listed on the attached sheet remain incomplete. Evaluation of your proposed project will continue to be delayed until we receive all requested information.

[ ] At this time no permit is required for your project by this department. Any modifications in your plans should be submitted for review, as changes may result in permits being required. This letter does not relieve you from the need to obtain any other permits (local, state or federal) which may be required.

If you have any questions, please contact the undersigned of this office. When referring to this project, please use the file number indicated.

Sincerely,

Marvin Collins, III, Ph.D.
Environmental Specialist
Standard Permitting Section

cc: D.N.R., Art Wilde
D.E.R., Pensacola

DER Form 17-1.201(4)
Effective November 30, 1982

d. Relative to our plans for complying with State Water Quality Standards in Class III waters as outlined in Sections 17-3.051, 17-3.061, and 17-3.121, the material to be discharged during the replenishment of the beach and construction consists of rubble, medium sand, and upland materials. The sand to be used was dredged from the Gulf Intracoastal Waterway near Choctawhatchee Bay and discharged into the Port Washington disposal area and has a median diameter of 1.50 ϕ (medium sand) and a sorting value of 0.83 ϕ (well-sorted). The rubble will be commercially obtained and will consist of inert natural materials such as quarry-run stone. The upland materials will be excavated from within the Liza Jackson Park. Due to the origin and nature of the materials, the probability of the materials being contaminated and violating the referenced State standards is remote.

e. The results of the "hyrographic survey" are enclosed (Enclosure 2).

f. The information requested in the Completeness Summary as "attached notes" are enclosed (Enclosure 3).

We believe that the preceding responses adequately address the incomplete portions of the Completeness Summary for which the Mobile District has responsibility. Further questions may be directed to Mr. Curtis M. Flakes or Mr. Walter Burdin at 205/694-4108 and 205/690-2772, respectively.

Sincerely,

Lawrence R. Green
Chief, Planning Division

Enclosures

April 15, 1983

Environmental Compliance
Section

Mr. Robert Kriegel
Florida Department of
Environmental Regulation
Northwest District
160 Government Center
Pensacola, Florida 32501

Dear Mr. Kriegel:

Reference is made to your January 20, 1983 Completeness Summary for Application File Number 460405259 concerning the construction of an artificial beach to control erosion at Liza Jackson Park, Okaloosa County, Florida.

The Completeness Summary identified several items which were considered incomplete on our February 27, 1981 application for water quality certification. The incomplete portions are addressed below. The responses also reflect discussions that transpired at an April 8, 1983 meeting in Fort Walton involving representatives from the Mobile District, Department of Environmental Regulation (DER), and the City of Fort Walton, and a January 27, 1983 letter from Ms. Pamela Sperling clarifying the requested "hydrographic survey."

a. Acknowledgement is made of your receipt of the required application fee and the $180.00 refund due the Mobile District.

b. In accordance with the Memorandum of Understanding between the Corps and DER, obtainment of consent for use of State owned land from the Board of Trustees (Department of Natural Resources) in the form of all necessary authorizations is a DER responsibility.

c. Plan view and cross-sectional drawings in the requested 8½ x 11 format are enclosed (Enclosure 1). The drawings depict the plan agreed to by all parties at the referenced April 8, 1983 meeting and deemed permittable by you and Dr. Marvin Collins.

Property ownership data

Adjacent property owners to Liza Jackson Park, Fort Walton Beach, FL

Lot 66 - East Side

Roger Clary
214 Miracle Strip Parkway
Fort Walton Beach, Florida 32548

Lot 77 - West Side

Jackson Land Company
11 Mircle Strip Parkway
Fort Walton Beach, Florida 32548

July 14, 1983

Environmental Compliance
Section

Mr. Art Wilde
Department of Natural Resources
Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32303

Dear Mr. Wilde:

Please refer to our July 11, 1983 letter to you submitting information pursuant to a Department of Natural Resources (DNR) easement for the Liza Jackson Park project at Fort Walton Beach. A list of adjacent property owners as requested by your office was inadvertently omitted from the letter. Pursuant to completion of DNR action on the easement, we are providing that information with this letter.

If you have any further questions please contact Mr. Walt Burdin at (205) 690-2772 or Mr. Dennis Barnett at (205) 694-4106.

Sincerely,

Willis E. Ruland
Chief, Environment and Resources
Branch

Enclosure

September 1, 1983

Coastal Branch

Mr. Dick Fancher
Florida Department of
Environmental Regulation
Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794

Dear Mr. Fancher:

This is in reference to the meeting of August 24, 1983 between you, Mr. Cliff Rohlke of your office, and Messrs Burdin and Youngman of this office, concerning storm water piping at Liza Jackson Park, Fort Walton Beach, Florida. As a result of that meeting, we have revised the drawing discussed to show the larger diffusion pond agreed upon. Also, as agreed to, measures will be taken through pipe design and/or diffusers at the pipe outlet to reduce water velocity to a minimum in the vicinity of the pipe outfall, Enclosed, for your information, are two copies of the revised drawing.

We understand that with these revisions you concur with the storm water piping plan and on that basis we are proceeding with the final Detailed Project Report. We also anticipate receiving water quality certification for the project in the very near future.

If you have any questions, please contact Bill Youngman or Walter Burdin at 205/694-3807.

Sincerely,

Lawrence R. Green
Chief, Planning Division

Enclosure (2)

Mr. Edwin Keppner
National Marine Fisheries Service
3500 Delwood Beach Road
Panama City, Florida 32407

Mr. Jim Barkuloo
U. S. Fish and Wildlife Service
1612 June Avenue
Panama City, Florida 32405

Mr. Michael Allen
Florida Game and Freshwater Fish Commission
620 South Meridian Street
Tallahassee, Florida 32304

Mr. J. William McCartney
Northwest Florida Water Management District
Route No. 1 Box 3100
Havana, Florida 32333

Mr. Art Linton
U. S. Environmental Protection Agency
Region IV
345 Cortland Street
Atlanta, Georgia 30365

Responses to "Attached Notes"

1. The proposed pier has been deleted from the plan.

2. The proposed marsh boardwalk has been deleted from the plan.

3. The fill material would be sand obtained from the Gulf Intracoastal Waterway upland disposal area at Point Washington, Walton County, Florida. Grain size analyses of the Point Washington Disposal Area and the Liza Jackson Park disposal area are provided in Enclosure 2.

4. A copy of the shoreline change map prepared for the study area, and a copy of the erosion rate computations map are provided in Enclosure 2.

5. Coliform bacteria testing is not performed in the drainage ditch, however, samples are taken in the vicinity of the proposed beach at intervals during late spring, summer, and early fall. A copy of representative results is attached. Those results are typical of an estuarine area subject to upland runoff. Most of the time the bacteria count is well below safe limits. However, occasionally the count "spikes" to a very high level, probably due to an influx of upland drainage following rainfall. The count drops rapidly back to a low level. The City of Fort Walton Beach will accept the responsibility of regulating bathing during the unacceptable intervals.

6. Additional details of the proposed marsh have been added to the plan of the proposed development and a copy is attached for your use. The marsh will be planted with Spartina alterniflora at 3-foot intervals. The grass will be

obtained from a commercial source (except that a small patch inside the proposed beach limits will be transplanted into the new area). Planting will be in accordance with "Planting Guidelines for Marsh Development and Bank Stabilization," published as CETA 77-3 and EM 1110-2-5002. A copy is attached for your information and use.

7. Grain size analysis and the suitability of the material as beach fill is provided in paragraph 3 above and in Enclosure 2.

8. An 8½ inch by 11 inch copy of the selected plan is provided in Enclosure 1.

FILE COPY

December 21, 1982

Coastal Branch

Dr. Marvin Collins
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Dr. Collins:

On November 22, 1982 you were contacted about a meeting on Liza Jackson Park, Fort Walton Beach, Florida, by Mr. Walter W. Burdin, Study Manager for the Corps of Engineers (Corps) study for erosion control at that park. Arrangements have been made to hold that meeting in the conference room at City Hall in Fort Walton Beach, Florida, at 10 a.m. on January 12, 1983.

Enclosed is a plate showing our latest plan for arresting the erosion and protecting the shoreline at Liza Jackson Park, together with a tabulation of pertinent data. We are prepared to recommend this plan in our report if it is acceptable to the various review agencies, but it is not presently considered final. If possible, we would like to leave the conference with a plan that is environmentally permittable, acceptable to the city, and implementable by the Corps.

You will note that we have made a number of changes from the "selected plan" presented in our July 1980 Draft Detailed Project Report (DPR). Some of these changes have been dictated by policy, some by economics, and some were responses to comments on the Draft DPR. In general, we find that no structural plan is economical if the resulting benefit is protection of the park property alone. Additional benefits from recreational use are necessary for economic justification. However, Corps of Engineers authority to participate in shoreline erosion control projects is limited to part of the construction costs of restoration and protection of the shore, based on public ownership and use of the shore frontage. For these projects, other recreation developments are entirely non-Federal responsibilities. For this reason, we have dropped a number of the recreation features which were considered in earlier plans.

Traditional cost-sharing requirements provide for Federal cost-sharing of up to 70 percent of project cost for public parks, under special conditions. One of those conditions is that the park include a beach suitable for recreational use. In addition, Federal participation is limited to the restoration of the historic shoreline. Cost allocation computations for the present plan, based on a shoreline change map of the area with the shoreline of 1871 as the historic shoreline, and the 70-30 rule for parks, indicate that the City of Fort Walton Beach must assume 69 percent of the total construction cost.

A problem that surfaced during review of the draft DPR was the location of a suitable source of sand which will not result in unwarranted environmental damage. We propose to obtain the necessary sand from the Gulf Intracoastal Waterway disposal area at Point Washington, near the west end of the land-cut portion which links Choctawatchee Bay and St. Andrew Bay. This is good quality sand, of suitable color and gradation, and the property owner has agreed to use of that sand free of charge. Hauling that sand by truck from Point Washington to Liza Jackson Park is expensive, but reasonably competitive with dredging at present cost levels. Total first cost of the present plan is estimated to be $216,000, of which $149,000 would be local cost and $67,000 would be Federal.

We would like to conclude this study and to recommend for approval and construction a project which answers the local needs within our legislative authority. To this end, we welcome your active participation in the upcoming conference.

Sincerely,

Lawrence R. Green
Chief, Planning Division

Enclosure

Similar letter sent to the attached list of addressees.

Dr. Marvin Collins
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Mr. J. William McCartney
Northwest Florida Water Management
District
Route No. 1, Box 3100
Havana, Florida 32333

Mr. William E. Teute
U.S. Environmental Protection
Agency
Region IV
345 Courtland Street
Atlanta, Georgia 30365

Mr. Harold B. Elliott
Parks & Recreation
City of Fort Walton Beach
P.O. Box 1449
Fort Walton Beach, Florida 32548

Mr. Ney Landrum
Florida Department of Natural Resources
3900 Commonwealth Blvd.
Tallahassee, Florida 32303

Dr. Edwin Keppner
National Marine Fisheries Service
3500 Delwood Beach Road
Panama City, Florida 32407

Mr. Michael Allen
Florida Game and Freshwater
Fish Commission
620 South Meridian Street
Tallahassee, Florida 32304

Mr. Jay Troxel
U.S. Fish and Wildlife Service
1612 June Avenue
Panama City, Florida 32405

Mr. Walter Kolb
Office of the Governor
Office of Planning & Budgeting
The Capitol
Tallahassee, Florida 32301

PROPOSED PLAN

LIZA JACKSON PARK, FORT WALTON BEACH, FLORIDA

December 1982

New Beach - Area	0.8 Acres (A)
- Volume Initial Fill	6,400 Cubic yards (cy)
New Marsh - Area	0.5 A
- Volume Initial Fill	1,200 cy
Marsh Retainer - Broken Rock - Length	450 Feet (ft.)
- " " - Volume	200 cy
East End Groin - " " - Length	220 ft.
- " " - Volume	70 cy
West End Groin - " " - Length	120 ft.
" " - Volume	300 cy
Bottoms covered by proposed construction	2.0 A

DEPARTMENT OF THE ARMY
MOBILE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2288
MOBILE, ALABAMA 36628

Seckinger/frs/
690-3207

REPLY TO
ATTENTION OF:

SAMPD-EC

9 February 1979

Mr. L. Ross Morrell
Deputy Florida State Historic
Preservation Officer
Division of Archives, History, and
Records Management
Department of State
401 East Gaines Street
Tallahassee, FL 32304

Dear Mr. Morrell:

On 13 March 1978 this office wrote to you requesting any cultural resource information your files contained on Liza Jackson Park in Okaloosa County.

Since that time a cultural resources survey was performed at the park and the report is inclosed for your information and concurrence. As the report indicates, no cultural resources were located by this survey.

If you concur with this survey, please sign in the afforded space and return this letter. If we have received no reply by 13 March 1979, we will assume the report is adequate.

Your cooperation in the management of the cultural resources under our joint jurisdiction is appreciated.

Sincerely yours,

John H Bowen

JOHN H. BOWEN
Acting Chief
Environment and Resources Branch

1 Incl
As stated

CONCURRENCE

CULTURAL RESOURCES SURVEY
LIZA JACKSON PARK
OKALOOSA COUNTY, FLORIDA

INTRODUCTION

A cultural resources survey was performed at Liza Jackson Park, Fort Walton Beach, Okaloosa County, Florida, by the undersigned on 24 March 1978. The survey was performed in response to potential beach nourishment of the waterfront area of the park.

ARCHEOLOGICAL BACKGROUND

Prior to the field visit, consultation was held with Ms. Yulee Lazarus at the Fort Walton Temple Mound Museum to determine the presence of any known sites in the area. One site, 80k23, had been located during the original clearing for the park. Artifacts from this site included a potential Hardaway projectile point, a gray-green stone celt, and several sherds of Deptford Bold Checked Stamped pottery.

Exact locational data for the site was not present in the files, but it appeared to be away from the project area with which this report is concerned and was not located in the field.

LOCAL ENVIRONMENT

The eastern, undeveloped portion of the park is characterized by low-lying swampy ground with tall grasses and salt-tolerant shrubs. Higher ground exists in the western portion. Vegetation there includes magnolia, palmetto and tree palm. The original shoreline was at least 10 feet to the south of the present bank as evidenced by a pine stump 10 feet from shore.

FIELD SURVEY

The entire shoreline area of the park was traversed on foot. The shoreline is characterized by a bank approximately .5m high at its greatest heighth and a narrow sand beach below this which leads to the water's edge. No artifacts or features other than those associated with the present park were observed.

USIONS

cultural resources were located during the survey, clearance is
mended.

ERNEST W. SECKINGER, JR.
Mobile District Archeologist

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

IORTHWEST DISTRICT

60 GOVERNMENTAL CENTER
ENSACOLA, FLORIDA 32501-5794

December 1, 1983

CERTIFIED, RETURN
RECEIPT REQUESTED

U.S. Army Corps of Engineers
P. O. Box 2288
Mobile, Alabama 36628

Dear Colonel Ryan:

RE: Application No. 460405259, Liza Jackson Park

Pursuant to Section 403.815, Florida Statutes, and Section 17-1.62, Florida Administrative Code, you are required to publish at your own expense the attached notice of the Department's intent to issue a permit to:

> Construct a beach, two rock groins, reroute and modify a ditch, construct a new marsh and surround the new marsh with a rock retainer sill, in accordance with the attached drawning labelled "Detailed Project Report On Beach Erosion Control Liza Jackson Park", "Selected Plan"; located in Township 2 South, Range 24 West, Santa Rosa Sound.

The Department regulates this activity under the authority granted by Sections 253.123, 253.124 and 403.087, Florida Statutes. After publication of notice the Department intends to issue the permit pursuant to Section 17-4.07, Florida Administrative Code for the following reasons:

> The original application was reviewed by the agency. The agency determined the project as proposed would not meet State environmental permitting standards. The applicant subsequently revised the application by reducing the extent of the beach and groins, rerouting an existing ditch and creating additional marsh.
>
> The net effects of the revised project activities are expected to result in insignificant environmental impacts. The sand fill will result in the loss of intertidal habitat for the extent of the beach. Marsh planting of the adjoining beach is expected to enhance that shallow water habitat. Diversion, detention and filtration of the existing urban runoff through the marsh will result in a higher quality runoff being discharged to the Sound.

cc: Mr. Donald J. Hankla, Area Manager
U.S. Fish and Wildlife Service

Mr. C.W. Hoeft
U.S. Fish and Wildlife Service

Mr. Jacob D. Varn, Secretary
Florida Department of Environmental Regulation

Mr. W. Mark Thompson
National Marine Fisheries Service

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Region
9450 Koger Boulevard
St. Petersburg, FL 33702

March 24, 1981 F/SER61/SBD
893-3503

Colonel Robert H. Ryan
District Engineer, Mobile District
Department of the Army, Corps of Engineers
P.O. Box 2288
Mobile, AL 36628

Dear Colonel Ryan:

The National Marine Fisheries Service (NMFS) has reviewed Public Notice No. FP81-LJ01-4 dated February 23, 1981, for proposed erosion protection for Liza Jackson Park, Fort Walton Beach, Florida. We previously addressed this project in NMFS letters dated May 29, 1980, regarding the Preliminary Coordination Report, and October 8, 1980, regarding the Detailed Project Report (DPR).

Based on information in the public notice, the DPR and a May 15, 1980, inspection of the project site by an NMFS biologist, we have concluded that the proposed beach creation would eliminate about 1.9 acres of shallow-water habitat and a small, but important marsh fringe vegetated mainly with saltmeadow cordgrass, sawgrass, and black needlerush. These wetlands produce and export detritus to the estuarine food chain of Santa Rosa Sound, provide habitat for fish and invertebrates, and enhance water quality by cycling waterborne pollutants.

In our October 8 letter on the DPR, we advised that the offshore breakwater (Plan F) would be the least damaging alternative to fishery resources. Accordingly, we recommend that Plan F be implemented rather than the proposed plan.

If you have any questions, please contact our Panama City office.

Sincerely yours,

D. R. Ekberg
Chief, Environmental and
Technical Services Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

ET

1981

Robert H. Ryan
: Engineer
ny Corps of Engineers,

ox 2288
Alabama 36628

: Beach Erosion Control Project, Liza Jackson Park,
Florida ATTEN: PDEC; PN FP81-LJ01-4

lonel Ryan:

in response to the public notice dated February 23, 1981, relating
subject work.

ws regarding the project were expressed in detail in our letter of
1980, and remain the same as outlined in this letter.

ly yours,

S. Linton, P.E.
Facilities Coordinator
ment Division

e Attached

The notice should be published, one time only, in the legal ad section of a newspaper of general circulation in Okaloosa County, as soon as possible and no later than December 15, 1983. Pursuant to Section 17-1.62(3)(a), Florida Administrative Code, the provisions of Section 120.60(2), Florida Statutes shall be held in abeyance until fourteen days after publication of the public notice. Requests for administrative hearings may be made by affected parties during the fourteen day period after publication of notice.

The Department, in accordance with Section 17-1.62, Florida Administrative Code is required to have proof that the public notice was given. Therefore, it is your responsibility to insure an affidavit of publication is provided to the Department within seven days of publication of the notice.

The Department shall issue the permit with the enclosed conditions unless an appropriate petition is filed for a hearing pursuant to the provisions of Section 120.57, Florida Statutes. At such formal hearing, all parties shall have an opportunity to present evidence and argument on all issues involved, to conduct cross-examination and submit rebuttal evidence, to submit proposed findings of fact and orders, to file exceptions to any order or hearing officer's recommended order and to be represented by counsel.

Any petition for a hearing must comply with the requirements of Part III, Chapter 17-1, and Section 28-5.201, Florida Administrative Code (copies enclosed) and be filed with the Secretary of the Department of Environmental Regulation at Twin Towers Office Building, 260 Blair Stone Road, Tallahassee, Florida 32301, with a copy to this office within fourteen (14) days of publication of public notice. Petitions which are not filed in accordance with the above provisions may be subject to dismissal.

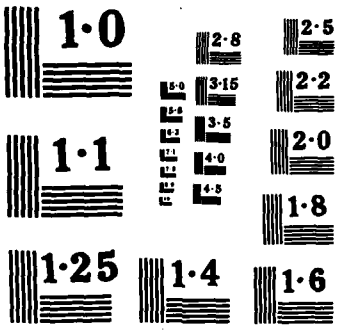
Sincerely,

Robert W. Krieger
District Manager

RVK:dfd
Attachment
cc: E. Gary Early, Esq., DER Tallahassee
John Cole, DNR

AD-A156 057 DETAILED PROJECT REPORT LIZA JACKSON PARK SHORELINE EROSION CONTROL AT FORT WALTON BEACH FLORIDA(U) CORPS OF ENGINEERS MOBILE AL MOBILE DISTRICT JUN 84 3/3

UNCLASSIFIED F/G 13/2 NL



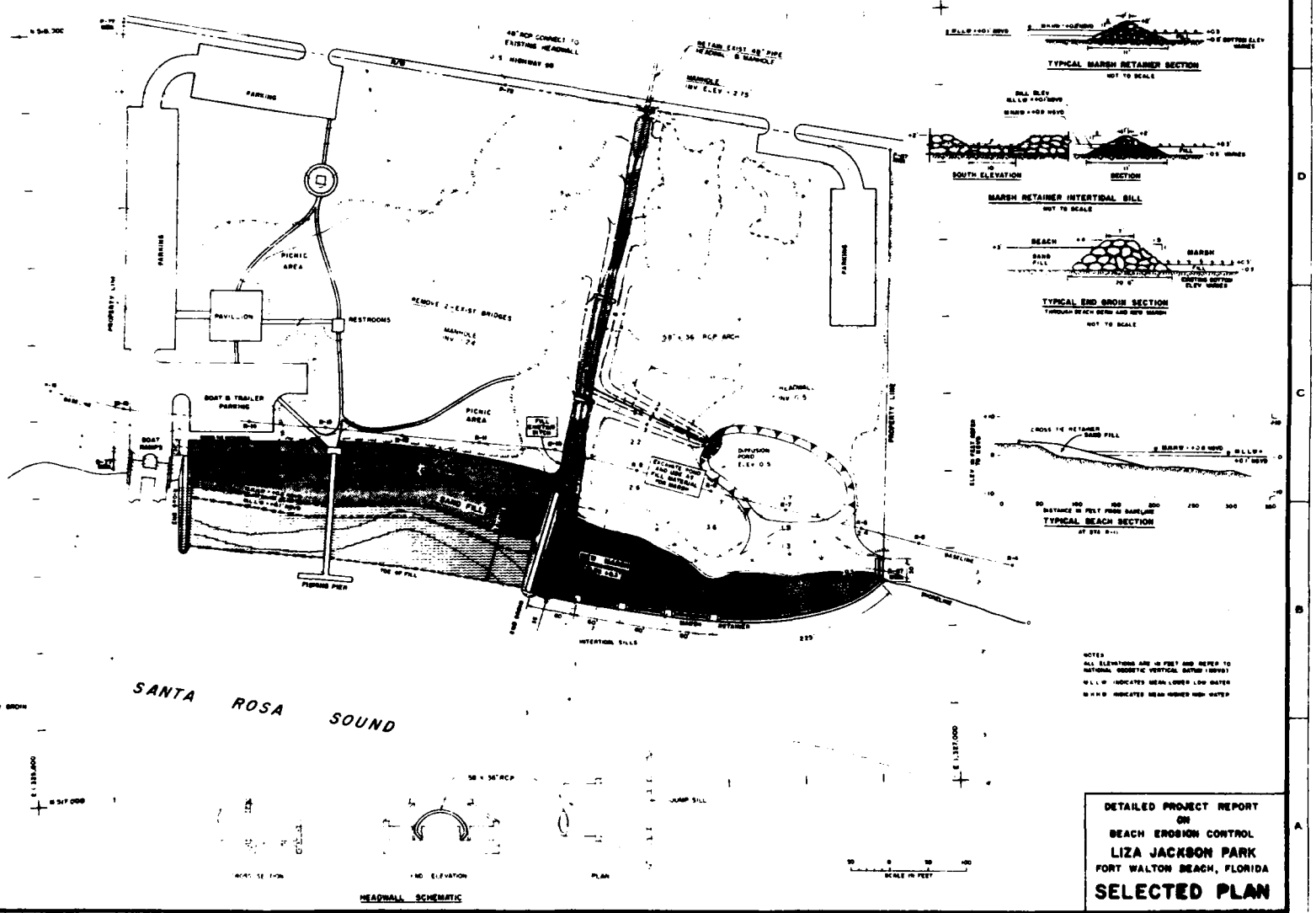
NATIONAL BUREAU OF STANDARDS
MICROCOPY RESOLUTION TEST CHART

NOTICE OF PROPOSED AGENCY ACTION

The Department of Environmental Regulation gives notice of its intent to issue a permit to the U.S. Army Corps of Engineers to beach, two rock groins, modify a drainage ditch and plant a marsh surrounded by a rock retainer sill at Liza Jackson Park, Santa Rosa Sound.

A person who is substantially affected by the Department's proposed permitting decision may request a hearing in accordance with Section 120.57, Florida Statutes, and Chapters 17-1 and 28-5, Florida Administrative Code. The request for hearing must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32301, within fourteen (14) days of publication of this notice. Failure to file a request for hearing within this time period shall constitute a waiver of any right such person may have to request a hearing under Section 120.57, Florida Statutes. The application is available for public inspection during normal business hours, 8:00 A.M. to 5:00 P.M., Monday through Friday, except legal holidays, at the Department of Environmental Regulation, Northwest District Office, 160 Governmental Center, Pensacola, Florida 32501.

CORPS OF ENGINEERS



DETAILED PROJECT REPORT
ON
BEACH EROSION CONTROL
LIZA JACKSON PARK
FORT WALTON BEACH, FLORIDA

SELECTED PLAN

PLATE II

FLORIDA GAME AND FRESH WATER FISH COMMISSION

FARRIS BRYANT BUILDING
620 South Meridian Street
Tallahassee, Florida 32301

September 12, 1983

Mr. Bill Youngman
Mobile District, U.S. Corps
of Engineers
P.O. Box 2288
Mobile, AL 36628

Re: Liza Jackson Park, Walton County

Dear Mr. Youngman:

The Office of Environmental Services has reviewed the revised project designs for the referenced project with regard to the effects the proposal may have on fish and wildlife resources. Based on our initial review, we do not foresee any signficant adverse impacts on these resources. If further information becomes available which affects our conclusion, we will forward supplemental comments to your office.

Sincerely,

Douglas B. Bailey

for Bradley J. Hartman, Director
Office of Environmental Services

E507rd/74
ENV 1-2-2
MA

State of Florida
DEPARTMENT OF NATURAL RESOURCES

DR. ELTON J. GISSENDANNER
Executive Director
Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard, Tallahassee, Florida 32303

June 17, 1983

U. S. Corps of Engineers
Mobile District
Post Office Box 2288
Mobile, Alabama 36628

Attention: Mr. Curtis Flakes

Dear Mr. Flakes:

DNR Easement No. 3367-46-253.03
Easement No. 460405259
Applicant: Artificial Beach Construction, Okaloosa County

After review of the material supplied by the Department of Environmental Regulation, this is to advise you that any activity performed below the line of Mean High Water will involve state-owned land and consent will be needed from this Department in the form of an easement.

Attached is an application and list of needed materials to obtain the above-mentioned easement.

If I can be of further assistance, please feel free to contact me at (904)488-2297.

Sincerely,

Gloria C. Watson
Gloria C. Watson
Bureau of State Lands Management
Division of State Lands

GCW/pjs
cc: Department of Environmental Regulation
Art Wilde

July 11, 1983

Environmental Compliance
Section

Mr. Art Wilde
Department of Natural Resources
Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32303

Dear Mr. Wilde:

Please refer to the enclosed copy of a June 17, 1983 letter to our office from your Division of State Lands concerning the Liza Jackson Park project at Fort Walton Beach. The letter requested information from our office in order to process the necessary easement to permit the filling of state-owned bottoms associated with project construction.

We have identified the tract of state-owned bottoms that would be affected by the project. A map and coordinate points are enclosed to facilitate your finalization of the necessary easement. All other information requested in the June 17 letter has been previously provided to your office via the Department of Environmental Regulation permit process and in accordance with the Memorandum of Understanding defining procedures for processing of state clearances.

We trust that this information will satisfy your requirement. Your expeditious review and approval would be appreciated. If you have any questions please contact Mr. Walt Burdin at (205) 690-2772 or Mr. Dennis Barnett at (205) 694-4106.

Sincerely,

Lawrence R. Green
Chief, Planning Division

Enclosure

Northwest Florida Water Management District

Route 1, Box 3100, Havana, Florida 32333

J. William McCartney
Executive Director

(904) 487-1770

May 11, 1983

Mr. Lawrence R. Green, Chief
Planning Division
Department of the Army
Mobile District
Corps of Engineers
P. O. Box 2288
Mobile, Alabama 36628

Dear Mr. Green:

In reference to your letter of April 1, 1983, concerning the revisions to the proposed Liza Jackson Park, Fort Walton Beach, Florida, our staff has reviewed the plans submitted. I have also discussed the project with Mr. Echols of our staff, who provided the initial comments concerning the project.

The Northwest Florida Water Management District finds no objections to the project as submitted for review. If further comments would be required, please feel free to contact me.

Sincerely,

Richard J. Musgrove, P.E.

RJM/sb

NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Project Review Form

TO: Mr. Lawrence R. Green
Corps of Engineers
P. O. Box 2288
Mobile, Alabama 36628

DATE: May 13, 1983

SUBJECT: Project Review
Title: Liza Jackson Park Marsh
County: Okaloosa County
File #:
Applicant:

The District has reviewed the subject application and attachments in accordance with its responsibilities and authority under the provisions of Chapter 373, Florida Statutes. As a result of the review, the District has the following responses:

ACTION

- ☐ No Comment.
- ☐ Supports the project; explanation attached.
- ☐ Objects to the project; explanation attached.
- ☒ Has no objection to the project; explanation optional. *
- ☐ Cannot evaluate the project; explanation attached.
- ☐ Project requires a permit from the District under

* Letter attached.

DEGREE OF REVIEW

- ☐ Documentation was reviewed.
- ☐ Field investigation was performed.
- ☐ Discussed and/or contacted appropriate office about project.
- ☐ Additional documentation/research is required.
- ☐ Comments attached.

SIGNED Barbara A. Hoagland

Barbara A. Hoagland

TITLE Comment and Review Coordinator

NWFWMD Form No. 22
2/82

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

January 5, 1983

Mr. Lawrence R. Green
Chief, Planning Division
Mobile District, Corps of Engineers
P.O. Box 2288
Mobile, AL 36628

Dear Mr. Green:

File No. 460405259, Liza Jackson Park
Okaloosa County

This is in response to your letter of December 21, 1983 requesting our attendance at a public meeting on January 12, 1983 in Fort Walton.

The Department has reviewed various design proposals for this project. We have also had meetings with Corps and City officials at which various design changes have been discussed. As a result, Mr. Robert Kriegel, District Manager, Northwest District, advised the City of a project design that would meet the Department's standards for issuance. A copy of Mr. Kriegel's letter is enclosed for your reference.

Because the design you have submitted for discussion is greatly in excess of that described by Mr. Kriegel, because we have clearly outlined a design that would be permittable and because of severe budgetary problems, we must decline your invitation to attend the meeting. We suggest that you redesign the project to be consistent with that described by Mr. Kriegel.

Sincerely,

Jeremy A. Craft, Administrator
Standard Permitting Section

Enclosure

cc: Robert Kriegel

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

I TOWERS OFFICE BUILDING
BLAIR STONE ROAD
.AHASSEE, FLORIDA 32301

BOB GRAHA
GOVERN
VICTORIA J. TSCHINKEL
SECRETARY

July 14, 1981

City of Ft. Walton Beach
Board of City Commissioners
P.O. Box 4009
Ft. Walton Beach, FL 32549

Attention: Mr. Charles H. Evans
City Clerk Finance Director

Dear Mr. Evans:

File No. 46-40525, Okaloosa County
U. S. Army Corps of Engineers, Liza Jackson Park

The Department of Environmental Regulation staff has performed a biological survey for the above project and offers the following comments to be considered by the Board of Commissioners as required by Subsection 253.124(3).

Applicant proposes to construct an artificial beach 500 feet long by 64 feet wide at Liza Jackson Park by depositing 9600 cubic yards of material below the mean high water line, and to contain the fill be constructing two fishing pier-groins 170 feet into Santa Rosa Sound.

The specific project site varies significantly from a west to east direction. The western shoreline starts with a double boatramp. The following several hundred feet of shoreline exhibit the most significant signs of erosion. Vegetation includes Spartina patens, Iva frutescens, Serenoa rapens, Baccharis halminifolia and Pinus elliottii. The bank alongside the boatramp is undercut and a pine tree appears to be threatened.

The shoreline east of the pier appears to be less severely impacted by erosion. There is a significant growth of Spartina alterniflora along shore on the eastern edge of the proposed artificial beach. The shoreline appears to be accruing at and around this growth of cordgrass.

In the shallow waters offshore numerous polychaete worm holes, schools of small fish, and dozens of blue crabs were noted.

The fishing pier has two fish cleaning stations, one on each end of the "T". Directly below each station the water is about 3.5 feet average depth. There is a large accumulation of fish bones, solid waste and oysters on the bottom substrate below each station. A significant "oyster bar" has formed below each fish cleaning station, and has contributed to the spread of oyster "clusters" throughout the surrounding area.

This project as proposed poses significant short and long term impacts.

Short-term impacts include:

1. The initial deposition of the proposed 9600 cubic yards would eliminate approximately 30,000 square feet of productive shallow water habitat.

2. The elimination of approximately 1200 square feet of Spartina alterniflora.

3. Elimination of scattered growths of transitional vegetation (Spartina patens) along the shoreline.

Long-term impacts include:

1. General water degradation due to loss of nutrient uptaking organisms normally found in the eliminated shallow water habitat.

2. Increased erosion impacts on neighboring properties due to the extreme lengths of the two proposed groins.

3. Swimming, especially within the portion east of the fishing dock, will be hazardous because of the numerous oyster clusters on the bottom. Elimination of the oysters may have negative water quality impacts.

4. The drainage canal eastward of the proposed beach may pose an additional health hazard to swimmers in the form of bacteriological contaminants, oils and greases, and urban runoff.

5. Normal erosion of the beach may cause creation of sandbars or shoaling in waterward areas, possibly

necessitating increased maintenance dredging of existing navigation channels in the area.

Pursuant to the requirements of Subsection 253.124(3), Florida Statutes, the preceding comments should be duly considered and read into the minutes of the meeting at which time a determination of local approval is made. To assist in evaluating the project a copy of the application and a set of project drawings are enclosed (Attachment I, II).

A sample resolution (Attachment III) prepared by the Department's legal staff is also enclosed. This document is provided to assist the Board of Commissioners in preparing a resolution that will meet the requirements of Subsection 253.124(3), Florida Statutes. The Board of Commissioners is not obligated to use this format so long as the Department is made aware that the requirements of the statute have been fulfilled.

Sincerely,

Marvin Collins, III
Environmental Specialist
Bureau of Permitting

Enclosures

MC/ras

cc: U. S. Army Corps of Engineers, Mobile

Burdin/br/205/690-2772

SAMPD-N

3 August 1981

Mr. Harold B. Elliott
Director of Parks and Recreation
City of Fort Walton Beach
PO Box 4009
Fort Walton Beach, FL 32549

Dear Mr. Elliott:

Reference is made to Florida Department of Environmental Regulation (DER) letter to the Board of City Commissioners dated 14 July 1981, and to your ensuing discussion with Mr. Walter Burdin of this office on 27 July 1981. Reference is also made to the meeting in Liza Jackson Park on 7 July 1981 between yourself, Mr. Burdin and Dr. Susan Ivester of this office, Mr. Cliff Rohlke, with DER's Pensacola office, and representatives of several other Federal agencies. It appears that word of several issues discussed at that meeting had not reached DER's Tallahassee office when their letter was written.

As was discussed, policy guidance from higher authority indicated that the Federal Government will not cost-share in the fishing pier additions to the proposed groins as well as several other recreational aspects of the presently proposed plan. We can recommend these features and would have no objection if the city wishes to construct them at their expense. However, since you indicated that this is not probable, we now propose to shorten the two groins to 100 feet.

Mr. Rohlke indicated that oyster bars have formed on the waste below the fish cleaning stations on the pier. He believes that both the waste and the oysters present a hazard to future bathers. You quickly agreed that the city would remove the fish cleaning stations from the pier and remove the waste and the oysters from that vicinity when the proposed project was approved and construction was pending.

Our further discussion is keyed to DER's comments.

Short-Term Impacts

1. Covering the bottom during construction of the proposed beach will kill most of the bottom organisms, however, these creatures will reestablish within a short time. The stone at the groins will offer a more productive environment than presently exists at that site.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

4E-ER/WT

MAY 06 1980

Mr. Donald J. Chatelain
Acting Chief
Navigation and Coastal Branch
Mobile District, Corps of Engineers
P.O. Box 2288
Mobile, Alabama 36628

SUBJECT: Beach Erosion Control Project
Liza Jackson Park, Florida (SAMPD-N)

Dear Mr. Chatelain:

This is in response to your letter of April 24, 1980, soliciting comments on the proposed alternative plans for the Beach Erosion Control Project at Liza Jackson Park at Fort Walton Beach in Florida.

It appears that the original Plan D, Plate III, would be the best of the plans submitted from an environmental standpoint. However, Plan D could probably be improved from a water quality standpoint. Plans A, B and C would involve more beach fill but would also involve considerably more marsh fill, particularly in the area to the east of the drainage canal. Also, we believe it would be better to use the money which it would cost to extend the park to the east by insuring that good water quality values are maintained to the west of the canal. We believe this could be done by constructing a groin perpendicular to the shore on a line extending out from the west side of the canal. This groin would be similar in construction to the one shown in Section A-A, Plate II, with the sheet piling extending for its full length to deep water. The groin would contain a fishing pier and rock toe protection would be required. Such a groin would direct all storm water from the canal to a point well beyond the beach. The groin should be long enough to prevent fecal coli contamination of the beach area by surface water drainage from the built up area along U.S. Highway 98. Also, a submerged breakwater under that portion of the pier on Plan C parallel with the shore would give additional erosion protection to the shore from boat wakes or storm waves and would also probably give additional water quality protection from contaminated waters coming down the drainage canal.

ıte of Florida

:PARTMENT OF NATURAL RESOURCES

I.TON J. GISSENDANNER
Executive Director

CROWN BUILDING / 202 BLOUNT STREET / TALLAHASSEE 32301

BOB GRAHAM
Governor
GEORGE FIRESTONE
Secretary of State
JIM SMITH
Attorney General
GERALD A. LEWIS
Comptroller
BILL GUNTER
Treasurer
DOYLE CONNER
Commissioner of Agriculture
RALPH D. TURLINGTON
Commissioner of Education

June 3, 1980

Mr. Donald J. Chatelain
Acting Chief
Navigation and Coastal Branch
Mobile District, Corps of Engineers
Post Office Box 2288
Mobile, Alabama 36628

Dear Mr. Chatelain:

The Staff of the Bureau of Beaches and Shores has reviewed the Preliminary Coordination Report for the Liza Jackson Park, Beach Erosion Control Study.

The Staff concurs in the selection of Plan D as the Selected Plan for this Project. The Bureau's Engineering Staff has adopted the general policy of favoring beach restoration/nourishment rather than alternatives involving hard-armoring of the shoreline. Further, there is nothing in the report to suggest that this site is unique in terms that would indicate the need to reverse this policy.

The State in review of the Report has developed the following general comments; the ability to make more specific comments is precluded given the absence in the report of information concerning littoral drift, wave characteristics, or sediment analyses of either on-site material or borrow sources.

- The overall length of the groin appears to be excessive for the stated purpose. The penetration of the piling and design of the groin are acceptable.

- The shorter length of the restored beach in Plan D will result in less sediment volume being available to the drift system, however, environmental and aesthetic factors may outweigh this difference.

- The ultimate acceptability of a borrow area would be weighted most heavily by the physical quality and compatibility of the borrow material.

a recent filling violation. The Corps office in Panama City took enforcement action and made the city restore the area. This marsh as well as others along the north shore of the sound recognizably perform the beneficial filtrative functions associated with this type of vegetation by treating the runoff from Eglin, Ft. Walton and the various smaller communities in the area. Destruction of any of this marsh would result in adverse, long term impacts.

Although there are no seagrasses in the sound near the park, the area has an abundant benthic population. To utilize these bottom lands as a borrow area would eliminate beneficial communities and create anoxic depressions. The shoreline of Santa Rosa Sound is a marsh area not a beach. Beach renourishment, trucking in upland fill, the use of jetties and other methods to create a beach would not only be exercises in futility but would destroy the very attributes which contribute to the general environment health of the sound and related shorelines.

Finally, permits from this Department would be required for the proposed project. Based upon information currently at our disposal we do not believe the project would meet the environmental standards of Chapters 253 and 403, Florida Statutes. Additionally, there are public beaches extending from Ft. Pickens and Pensacola Beach to the west to those in Walton and Bay Counties to the east. These areas are accessible and provide more than adequate beach recreational opportunities.

Sincerely,

William L. Buzick
Deputy Director
Division of Environmental
Permitting

BB/jb

cc: Jake Varn
Bob Kriegel
Andy Feinstein
Marvin Collins

WERS OFFICE BUILDING
IR STONE ROAD
ASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

August 13, 1980

Colonel Robert H. Ryan
Mobile District Engineer
U.S. Army Corps of Engineers
Post Office Box 2288
Mobile, Alabama 36628

Dear Colonel Ryan:

Re: Proposed Beach Erosion Project at Liza Jackson Park, Fort Walton Beach, Florida

Your notice of a public meeting on August 19, 1980 has prompted a response stating our position on the project. The Department has conducted a field appraisal of this project and offers the following comments.

Liza Jackson Park is a small park within Ft. Walton on the north shore of Santa Rosa Sound. The existing facilities include two boat ramps, a picnic area, a fishing pier and a very narrow beach. The opposite shore of the sound is a barrier island characterized by undeveloped and developed land. The undeveloped land is government property associated with Eglin Air Force Base.

Santa Rosa Sound extends from Choctawhatchee Bay on the east to Pensacola Bay on the west. A good portion of which is Class II Waters approved for shellfish harvesting. The western part is associated with one of the few remaining lush seagrass beds in northwest Florida. The natural shorelines are generally characterized by extensive dunes or dense marsh vegetation.

Upland residential and commercial development has impacted much of the natural shoreline. Although the area is far from being described in the same breath as South Florida the general tendency of development in the more populated areas is to replace the natural vegetation with bulkheads. Along the adjacent shoreline of the park exist localized dense stands of Spartina alterniflora and Juncus roemarianus. Past development has broken up the continuity of the marsh, and the effects of bulkheading and filling as erosive influences on the remaining marsh and unprotected shoreline are evident in many places.

The park itself is characterized by an extensive S. alterniflora, J. roemarianus, sawgrass marsh on its eastern edge. The City of Ft. Walton Beach was guilty of

Florida Department of Transportation

BOB GRAHAM
GOVERNOR

Haydon Burns Building, 605 Suwannee Street, Tallahassee, Florida 32301 Telephone (904) 488-3329
WILLIAM N. ROSE
SECRETARY
EARNEST W. ELLIOTT, DIRECTOR
DIVISION OF TRANSPORTATION PLANNING

August 25, 1980

Mr. Lawrence R. Green
Chief, Planning Division
Corps of Engineers
Department of the Army
P. O. Box 2288
Mobile, Alabama 36628

Dear Mr. Green:

Subject: Liza Jackson Park
Ft. Walton Beach, Florida

We have reviewed the draft project report on the above referenced project and find that it has little or no impact on the transportation systems under our jurisdiction.

Thank you for the opportunity to review and comment.

Sincerely,

Ed McNeely, Transportation
Impacts Review Coordinator

EM/pc

cc: Mr. Walter Kolb
Office of the Governor

Please add these comments to the official record of the August 19, 1980 meeting, as they constitute the views of the Florida Game and Fresh Water Fish Commission.

Sincerely,

Bradley J. Hartman

Bradley J. Hartman, Director
Office of Environmental Services

2264/rw2f
sc
cc: U.S. Fish and Wildlife Service

September 3, 1980

Colonel Robert H. Ryan
District Engineer
U.S. Army Corps of Engineers
Post Office Box 2288
Mobile, AL 36628

Dear Colonel Ryan:

The Office of Environmental Services of the Florida Game and Fresh Water Fish Commission has reviewed the Preliminary Coordination Report on Beach Erosion at Liza Jackson Park, Ft. Walton Beach, Florida. We have also reviewed the comments by the U.S. Fish and Wildlife Service on this report. A discussion of the fish and wildlife habitat losses and their mitigation is noticeably lacking in the Coordination Report, although the Resource Inventory Report supplied by the U.S. Fish and Wildlife Service contained excellent material concerning values of the habitats and communities involved.

We also prefer Plan D (modified), plus mitigation, over Alternatives A, B or C. The use of artificial reef material in proximity to the existing and proposed fishing piers would mitigate the loss of estuarine shoreline and enhance recreational opportunities. It should therefore be added to Plan D (modified). Groins should not be considered (Plan E) due to their effect on long-shore drift and shoreline erosion.

The offshore breakwater-fishing pier concept (Plan F) also has considerable merit. Erosive wave action would be curtailed, viable estuarine habitat would be preserved, long-shore drift would not be interrupted, a substantial amount of high quality habitat would be added, and recreational fishing space would be increased. Marsh creation should be added to this plan too, to further enhance the project environmentally.

NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT

M E M O R A N D U M

TO: erry Burch

FROM: Ann Redmond

DATE: August 28, 1980

SUBJECT: Liza Jackson Park

I think the comments by the Fish & Wildlife Service in Appendices B & D appropriately detail comments and criticisms of the plan.

Routing the stormwater through the marsh would be a preferrable course of action. Unfortunately, this possibility is not considered anywhere in the report. On page 35, it is stated that the drainage ditch through the park has not yet caused any water quality problem, but if this area were to be used for swimming, that it may. It would seem reasonable that the COE or the City has sufficient interest in testing the quality of this stormwater ditch's water before going to the expense of constructing a groin, largely for human health reasons. According to the aerial photograph on page 19, the runoff which feeds this ditch is from a commercial-residential area, as well as a major 4-lane highway. The water quality in this ditch is probably poor much of the time.

From water quality and hydrologic standpoints, routing this stormwater through the marsh would greatly reduce contaminants into the sound, as well as moderating the flow generated by storm events. The result would be a more natural and henceforth healthier ecosystem at this location. Public benefits of such an action would be a reduction of the health hazard for the proposed swimming area and the proposed nature trail system would route through a more natural ecosystem which serves as an example of how effectively a wetland can channel and cleanse urban waste while providing life support needs for wildlife.

AR/ms

Northwest Florida Water Management District

Route No. 1, Box 3100, Havana, Florida 32333

J. William McCartney
Executive Director

(904) 487-1770

September 4, 1980

Mr. Lawrence R. Green, Chief
Planning Division
Department of Army
Corps of Engineers
Post Office Box 2288
Mobile, Alabama 36628

Dear Mr. Green:

Liza Jackson Park, Ft. Walton Beach, Florida - Detailed Project Report, July 1980.

The District has reviewed the subject project report for Liza Jackson Park at Ft. Walton Beach, Florida, and endorses the project. The development of recreational facilities and the retardation of erosion are worthwhile projects for this area. The ecological and biological values of the wetlands should be retained and enhanced.

Alternative plans examined by the Corps of Engineers appear reasonable and consistent with plans of the District. However, the District staff does have some comments regarding the study which should be addressed by the Corps.

1) Water quality regarding the drainage canal is not addressed sufficiently. Water quality samples should be taken and analyzed to determine the actual quality of the runoff. For example, some constituents to evaluate in the water are: heavy metals, oil, grease, BOD, nitrogen, phosphate, and total and fecal coliform.

2) An alternative to the selected plan is to route the drainage canal through the marsh to allow filtering of stormwater before it enters the Sound. See the attachment for detailed comments.

Sincerely,

Bill

J. William McCartney
Executive Director

JWM/rmr

Attachments

cc: Dr. Marvin Collins, DER

I have copied the material you gave me, and your copies are attached.

Let me know if I can be of any additional help.

Sincerely,

Robert V. Kriegel
District Manager

RVK/rks

Enclosures: 2

cc: Mr. Jacob D. Varn
Mr. Walter W. Burdin
Mr. Michael C. Applegate
Mrs. Frances Mahan
Mr. Jerry Melvin
Mr. Harold B. Elliott
Mr. Jeremy Craft

During our meeting we discussed your Alternative E, which essentially consists of the construction of a sand beach by filling of submerged lands approximately 70 to 80 feet waterward of the existing shoreline enclosed by two groins on the eastern and western ends of the fill area. We advised you of our concerns with this alternative, which essentially included hydrological impact, as well as the elimination of benthic habitat. We advised you that we did not think the alternative had a viable chance of being permitted at either the State or the Federal level. I have since discussed the project with Mr. Michael C. Applegate, Chief, Permits Section, Panama City Field Office, U. S. Army Corps of Engineers, and he agrees with this assessment.

I do feel the project can be modified, and that both governmental entities working together can resolve the substantive environmental issues. As I said, I feel if the project were reduced in size to minimize the amount of filling and to eliminate the construction of the large jetties, it could be permittable. We reviewed specific modifications and suggested the construction of a gradually sloping beach that extends on the west from the toe of the existing boat ramp wingwall and tapers into the shoreline in the vicinity of the existing outfall ditch. The fill on the western edge would extend no more than some 20 to 30 feet, and the groin would have approximately the same dimensions.

A project of these dimensions appears to qualify as a Short Form Project handled by the District, and I advised you that if I were to receive a reasonably complete application, including the Department of Natural Resources approval required by Section 253.77, Florida Statutes, I felt I would issue a Short Form Permit for the Project.

I also advised you that if you were disposed to modify the project along these lines, our field inspector could meet with your engineer on site to specifically delineate the project dimensions prior to submission of the application.

I think we have made some progress, and I hope we can continue until we have a project that reasonably fulfills your needs and complies with the applicable environmental requirements.

160 GOVERNMENTAL CENTER
PENSACOLA, FLORIDA 32501

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

ROBERT V. KRIEGEL
DISTRICT MANAGER

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

NORTHWEST DISTRICT

January 9, 1981

Honorable Bob Gates
Mayor
City of Fort Walton Beach
Post Office Box 4009
Fort Walton Beach, Florida 32549

Dear Mayor Gates:

I enjoyed meeting with you yesterday to discuss the erosion control project associated with the Liza Jackson Park in Fort Walton Beach.

You asked that I address certain comments made by Mr. William L. Buzick in his letter of August 13, 1980--specifically, the statement that the City of Fort Walton Beach was guilty of a recent filling violation. I understand that there evidently was some misunderstanding between the U. S. Army Corps of Engineers' field inspectors and your staff in determining jurisdictional limits which resulted in some unpermitted filling, which subsequently was restored.

I have tried to recreate our early involvement in this project; our first correspondence dates from mid-1980. In August 1980 we commented to the U. S. Army Corps of Engineers as a result of a notice of public meeting. Subsequently, Secretary Varn corresponded with you in September 1980. The draft detailed project report was circulated to the State Clearing House for A-95 review in roughly late September, and the Department provided Mr. Walter Kolb, the A-95 Coordinator in the Governor's Office, our comments. Evidently the input was misplaced, and we re-sent copies of the correspondence several weeks ago.

State of Florida

DEPARTMENT OF NATURAL RESOURCES

DR. ELTON J. GISSENDANNER
Executive Director

3900 COMMONWEALTH BOULEVARD / TALLAHASSEE 32303

BOB GRAHAM
Governor
GEORGE FIRESTONE
Secretary of State
JIM SMITH
Attorney General
GERALD A. LEWIS
Comptroller
BILL GUNTER
Treasurer
DOYLE CONNER
Commissioner of Agriculture
RALPH D. TURLINGTON
Commissioner of Education

May 8, 1981

Mr. Lawrence Green
Chief, Planning Division
Department of the Army
Mobile District, Corps of Engineers
Post Office Box 2288
Mobile, Alabama 36628

Dear Mr. Green:

Staff of this Department has reviewed the material you submitted by letter dated April 7, 1981 concerning the beach restoration project at Liza Jackson Park, Fort Walton Beach, Okaloosa County, Florida. We have no objection to the general concept of using sand from Old Pass Lagoon for restoration and future nourishment of a small beach at Liza Jackson Park.

As I'm sure you are aware, the State of Florida is currently in litigation involving the point of land, known as Holiday Isle, immediately south of Destin, Florida and on the western side of Old Pass Lagoon. We are very keen to review all proposals concerning this area as thoroughly as possible in as timely a manner as possible.

Your continued cooperation in this matter would be greatly appreciated.

Sincerely,

Elton J. Gissendanner
Executive Director

EJG/tfb

cc: Mr. I. Henry Dean Esq., DNR
Ms. Deborah E. Athos, BBS
Ms. Suzanne P. Walker, DER (46-40525)

SAMPD-N 30 August 1981
Mr. Harold B. Elliott

2. We propose to transplant the Spartina alterniflora to the east as part of the new marsh to be created there. None will be eliminated.

3. There is an insignificant amount of Spartina patens on the shoreline within the proposed beach limits.

Long-Term Impacts

1. There will be no long-term loss in water quality. See "1" above.

2. There is no littoral transport to the east since the existing marsh would trap any moving sediment. There may be some transport to the west, however, we anticipate that the proposed shortened groin will minimize any possible erosion impact to the adjacent property.

3. There will be no hazard if the city cleans the bottom in this area, as was discussed. Removal of the oysters will have no long-term effect on water quality.

4. We have no data on the water in the ditch at present. The Okaloosa County Pollution Control Board has agreed to sample the ditch during their next routine visit to Liza Jackson Park and provide us the results of their tests. In addition, we are considering a method of diffusing the water from the ditch through the marsh to improve water quality.

5. We consider that any shoaling in navigable channels from erosion of the new beach will be no greater than that due to the presently eroding shoreline.

In addition to the above comments, we note that the model resolution attached to your copy of the letter contains several inapplicable phrases, particularly those pertaining to "dredging and filling" since the proposed project includes only filling and "a corporation ..." since neither the Federal Government nor the Corps of Engineers is a corporation.

If we can be of further assistance, please contact the study manager, Mr. Walter Burdin, at 205/690-2772.

Sincerely,

LAWRENCE R. GREEN
Chief, Planning Division

cc: Mr. Donald J. Hankla, Area Manager
U.S. Fish and Wildlife Service

Mr. C. W. Hoeft
U.S. Fish and Wildlife Service

Mr. Jacob D. Varn, Secretary
Florida Department of Environmental Regulation

Mr. John Hall
National Marine Fisheries Service

September 1, 1983

Coastal Branch

Mr. Harold Elliot
Director of Parks and
Recreation
City of Fort Walton Beach
Fort Walton Beach, Florida 32549

Dear Mr. Elliot:

Thank you for meeting with Messrs Burdin and Youngman of this office on August 24, 1983 concerning storm water piping in Liza Jackson Park. In accordance with our agreement with the Department of Environmental Regulation earlier that day, we have revised the drawing you discussed to include a larger diffusion pond. Two copies of the revised drawing are enclosed. We understand that you concur with the piping concept and we are proceeding with the Final Detailed Project Report on that basis.

The Selected Plan now consists of beach restoration out to the combined historic shoreline (70%/30% cost shared), the new marsh and retainer (70%/30%), storm water piping from highway 98 culvert to and including the diffusion pond (70%/30%), and the landward extension of the beach (100% local cost). The total cost of the Selected Plan is estimated to be about $236,000 with the local share of that cost estimated at about $81,000.

If you have any questions, please do not hesitate to call Bill Youngman or Walter Burdin at 205/694-3807.

Sincerely,

Lawrence R. Green
Chief, Planning Division

Enclosure (2)

ty of Fort Walton Beach

P. O. Box 4009 • Fort Walton Beach, Florida 32549
Telephone (904) 243-3141

April 20, 1983

Mr. Walter Burdin
Mobile District
Corps of Engineers
P.O. Box 2288
Mobile, AL 36628

Dear Walter:

Enclosed is a copy of the City Council meeting of April 8, 1983 concerning Liza Jackson Park.

If you need any further information, please let me know.

Sincerely,

Buddy

Harold B. Elliott
Director
Parks & Recreation

Enclosure

DATE: April 8, 1983

TO: COUNCIL

FROM: COUNCIL AS A WHOLE COMMITTEE

SUBJECT: EROSION CONTROL AND RECREATION PROJECT - LIZA JACKSON PARK

Council as a Whole Committee met at City Hall in the Conference Room at 10:25 a.m. this date with the following present:

Mayor Kathryn Bagley
A.E. Grant
J. Jerome Miller
Patricia Thornber
LaVern Bechtel

Mr. Bob Kriegle, DER
Dr. Marvin Collins, DER
Mr. Walter Burdin, Corps of Engineers
Mr. Roger Burke, Corps of Engineers
Chuck Ingram

The purpose of the meeting was to discuss the erosion control and recreation project for Liza Jackson Park with Council, Department of Environmental Regulation and the U. S. Army Corps of Engineers.

Mr. Burdin, Corps of Engineers, presented two plans, optimal and constrained. Mr. Kriegle, DER, stated that DER could not go along with the optimal plan but felt the constrained plan would be permitted.

Mr. Ingram, Public Works Director, stated he did not see any major differences in the plans and it appeared that the end results would be the same.

A discussion was held about extending the beach inland approximately 20 feet. Both DER and the Corps of Engineers stated they did not foresee a problem in that. Mr. Burdin stated that the Corps could possibly do the work and the City reimburse them.

It was the general consensus of the Committee that the following be recommended to Council:

> That the City elect to go with the constrained plans for erosion control and recreation project at Liza Jackson Park and that the beach be extended inland by the Corps of Engineers approximately 20 feet.

RIGHT-OF-ENTRY
For Removal of Sand From Property of
St. Joe Paper Company
Walton County, Florida

Joe Paper Company
(OWNER(S)

St. Joe Paper Company

undersigned hereinafter called the "Owner", hereby grants to the United States of ica, hereinafter called the "Government", a permit of right-of-entry upon the follow- terms and conditions:

1. The Owner hereby grants to the Government a right to enter upon the lands inafter desceibed at any time within a period of 36 months from the date of this rument, in order to excavate and remove 10,000 cubic yards of sand, without cost he Government. Government hereby agrees to contact Mr. Bill Ellisor, Owner's Unit ester, at 904-234-2204 prior to entering the premises.

2. This permit includes the right of ingress and egress on other lands of the r not desceibed below, provided such ingress and egress is necessary and not rwise conveniently available to the Government.

3. All tools, equipment, and other property taken upon or placed upon the land he Government shall remain the property of the Government and may be removed by Government at any time within a reasonable period after the expiration of this it or right-of-entry.

4. The Government agrees to be responsible for damages arising from the activity he Government, its officers, empoyees, or representatives on said land, in the cise of rights under this permit or right-of-entry, either by repairing such damage at the option of the Government by making an appropriate settlement with the Owner lieu thereof.

5. The lands affected by this permit or right-of-entry are located in the State Florida, County of Walton, and are described as follows:

Tract 22B, located in Section 6, Township 3 South, Range 18 West
as depicted on Exhibit "A" attached hereto and made a part hereof.

NESS MY HAND AND SEAL this 14th day of April 1983.

ST. JOE PAPER COMPANY
BY: Robert E. Nedley
ROBERT E. NEDLEY
ITS: Vice President

TED STATES OF AMERICA
Donald L. Burchett
DONALD L. BURCHETT
Chief, Real Estate Division
U. S. Army Engineer District, Mobile

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

NORTHWEST DISTRICT

160 GOVERNMENTAL CENTER
PENSACOLA, FLORIDA 32501-5794

MAR 0 8 1984

U.S. Army Corps of Engineers
P. O. Box 2288
Mobile, Alabama 36628

Gentlemen:

Enclosed is permit number 460405259, dated MAR 0 8 1984 to construct a beach, two rock groins, reroute and modify a ditch, construct a new marsh and surround the new marsh with a rock retainer sill, issued pursuant to Sections 253.123, 253.124 and 403.087, Florida Statutes.

Acceptance of the permit constitutes notice and agreement that the Department will periodically review this permit for compliance, including site inspections where applicable, and may initiate enforcement action for violation of the conditions and requirements thereof.

Sincerely,

W. Richard Fancher
Dredge and Fill Supervisor

WRF:dfd

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

)RTHWEST DISTRICT

GOVERNMENTAL CENTER
NSACOLA, FLORIDA 32501-5794

PERMITTEE:

U.S. Army Corps of
Engineers

I.D. Number:
Permit/Certification Number: 460405259
Date of Issue:
MAR 08 1984
Expiration Date: March 30, 1987
County: Okaloosa
Latitude/Longitude: 30°23'45"/86°37'15"
Section/Township/Range: 00/2S/24W
Project: Beach & Reroute Drainage

This permit is issued under the provisions of Chapters 253 and 403, Florida Statutes, and Florida Administrative Code Rules 17-3 and 17-4. The above named applicant, hereinafter called Permittee, is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

Construct a beach, two rock groins, reroute and modify a ditch, construct a new marsh and surround the new marsh with a rock retainer fill, in accordance with the attached drawing labelled "Detailed Project Report On Beach Erosion Control Liza Jackson Park", "Selected Plan", Santa Rosa Sound.

PERMITTEE:
U.S. Army Corps of Engineers

I.D. Number:
Permit/Certification Number: 460405259
Date of Issue: MAR 0 8 1984
Expiration Date: March 30, 1987

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions", and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefor caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, unless specifically authorized by an order from the department.

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

PERMITTEE:
U.S. Army Corps of Engineers

I.D. Number:
Permit/Certification Number: 460405259
Date of Issue: MAR 0 8 1984
Expiration Date: March 30, 1987

GENERAL CONDITIONS:

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

a. A description of and cause of noncompliance; and

b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

PERMITTEE:
U.S. Army Corps of Engineers

I.D. Number:
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MAR 0 8 1984
Expiration Date: March 30, 1987

GENERAL CONDITIONS:

10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500).

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

PERMITTEE:
U. S. Army Corps of Engineers

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GENERAL CONDITIONS:

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurement;
- the person responsible for performing the sampling or measurement;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

16. This permit does not authorize a variance from or violation of the Water Quality Standards as specified in Chapter 17-3, Florida Administrative Code, including but not limited to:

17-3.051 Minimum Criteria for All Waters at All Times and All Places.

17-3.061 Surface Waters: General Criteria.

17-3.121 Criteria: Class III Waters - Recreation-Propagation and Management of Fish and Wildlife - Surface Water.

17. The Department's Pensacola District Office shall be notified of the pre-construction conference and placed on the agenda as a participant.

18. Turbidity controls shall surround the site throughout all filling and construction operations.

19. Erosion and sedimentation controls such as hay baling, grassing and mulching shall be utilized during construction operations.

20. This permit does not authorize any temporary fill access into the sound or marsh areas, or the excavation of channel(s) in the Sound.

PERMITTEE:
U. S. Army Corps of
Engineers

I.D. Number:
Permit/Certification Number: 460405259
Date of Issue: MAR 0 8 1984

Expiration Date: March 30, 1987

SPECIFIC CONDITIONS:

Expiration Date:

March 30, 1987

Issued this 8th day of March, 1984.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

ROBERT V. KRIEGEL
District Manager

CORPS OF ENGINEERS
SANTA ROSA SOUND
PROPERTY LINE
PARKING
PAVILION
PICNIC AREA
RESTROOMS
PARKING
PROPERTY LINE
DEPARTMENT OF ENVIRONMENTAL REGULATIONS
PERMIT
STATE OF FLORIDA

of Fort Walton Beach

P. O. Box 4009 • Fort Walton Beach, Florida 32549
Telephone (904) 243-3141

e 13, 1984

Lawrence R. Green
ef, Planning Division
ile District Corps of Engineers
. Box 2288
ile, AL 36628

N: Coastal Branch

r Mr. Green:

requested in your letter of May 23, 1984, the City of Fort Walton Beach
ees to provide the following items of local cooperation to support the
pletion of the Selected Plan for improvements at Liza Jackson Park in
s city. These items of agreement were approved by City Council on June
1984.

1. Provide without cost to the United States all necessary lands,
ements, rights-of-way and relocations required for construction of the
ject, including that required for periodic nourishment.

2. Hold and save the United States free from claims for damages which
result from construction and subsequent maintenance of the project,
ept damages due to the fault or negligence of the United States or its
tractors.

3. Assure continued conditions of public ownership and use of the shore
n which the amount of Federal participation is based during the economic
e of the project (normally 50 years).

4. Assure maintenance and repair, and local share of periodic beach
rishment, where applicable, during the economic life of the project as
uired to serve the intended purposes.

5. Provide and maintain necessary access roads, parking areas, and
er public use facilities, open and available to all on equal terms.

6. Provide a cash contribution for the local share of construction costs determined in accordance with existing law and based on the extent of share in public ownership or use at the time of construction, or subsequent nourishment.

7. Comply with any applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646).

8. Comply with Title VI of the Civil Rights Act of 1964 (PL 88-352).

9. Assume responsibility for all project costs in excess of $1,000,000.

Sincerely,

Kathryn P. Bagley

Kathryn P. Bagley
Mayor

KPB/vew

END

FILMED

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DTIC