

JOINT
PUBLIC NOTICE

CHARLESTON DISTRICT, CORPS OF ENGINEERS
69A Hagood Avenue
Charleston, South Carolina 29403-5107
and the

S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT
1362 McMillan Avenue, Suite 400
Charleston, South Carolina 29405

REGULATORY DIVISION
Refer to: P/N #2005-1W-129-P

22 APRIL 2005

Pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), Sections 401 and 404 of the Clean Water Act (33 U.S.C. 1344), and the South Carolina Coastal Zone Management Act (48-39-10 et.seq.) an application has been submitted to the Department of the Army and the S.C. Department of Health and Environmental Control by

THE SOUTH CAROLINA DEPARTMENT OF PARKS RECREATION & TOURISM
c/o COASTAL SCIENCE & ENGINEERING (CSE)
POST OFFICE BOX 8056
COLUMBIA, SOUTH CAROLINA 29202-8056

for a permit to perform beach nourishment using sand from two offshore borrow areas and to construct nine sheet pile-type groins adjacent to and in waters of the

ATLANTIC OCEAN

at locations offshore of and along the shoreline of Hunting Island State Park on Hunting Island, Beaufort County, South Carolina (Latitude 32.3714°, Longitude 80.4367°)

In order to give all interested parties an opportunity to express their views

NOTICE

is hereby given that written statements regarding the proposed work will be received by both of the above mentioned offices until

12 O'CLOCK NOON, MONDAY, 23 MAY 2005

from those interested in the activity and whose interests may be affected by the proposed work.

The proposed work consists of placing up to 1,500,000 cubic yards of beach quality sand along up to 17,000 linear feet of shoreline on Hunting Island State Park. Two offshore borrow areas are proposed for use as sand sources. Area "C" is adjacent to and north of the area that was approved for a 1991 nourishment project and is 170 acres in size. Area "1" was reviewed for a proposed Ecosystem Restoration project in September 2004 and is approximately 490 acres in

size. These borrow areas are shown on sheets 2, 3 and 4 of 12. The sand will be removed by cutterhead dredge and pumped onto the beach through a pipeline. In addition, the project includes the construction of nine groins as shown on sheets 5 through 12 of 12 and discussed in the attached narrative. The purpose of the project is for erosion control and beach restoration and, according to the applicant, also includes the following:

- To restore the recreational beach and to protect the associated infrastructure.
- To protect the lagoon area and minimize the threat of a breach inlet forming.
- To protect campsites and associated infrastructure from further damage.
- To cover exposed roots and mud outcrops which pose hazards to swimmers and liability to the state.
- To maintain park revenues which are dependent on a viable beach and campsite area.
- To minimize impacts to wilderness sections of the beach to preserve the character of the oceanfront.
- To provide beach habitat for shorebirds and turtles where none currently exist.

NOTE: Plans depicting the work described in this notice are available and will be provided, upon receipt of a written request, to anyone that is interested in obtaining a copy of the plans for the specific project. The request must identify the project of interest by public notice number and a self-addressed stamped envelope must also be provided for mailing the drawings to you. Your request for drawings should be addressed to the

**U.S. Army Corps of Engineers
ATTN: REGULATORY DIVISION
69A Hagood Avenue
Charleston, South Carolina 29403-5107.**

The District Engineer has concluded that the discharges associated with this project, both direct and indirect, should be reviewed by the South Carolina Department of Health and Environmental Control in accordance with provisions of Section 401 of the Clean Water Act. As such, this notice constitutes a request, on behalf of the applicant, for certification that this project will comply with applicable effluent limitations and water quality standards. The work shown on this application must also be certified as consistent with applicable provisions the Coastal Zone Management Program (15 CFR 930). The District Engineer will not process this application to a conclusion until such certifications are received. The applicant is hereby advised that supplemental information may be required by the State to facilitate the review.

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. Implementation of the proposed project would impact 300 acres of beach and open ocean substrates and emergent wetlands utilized by various life stages of species comprising the red drum, shrimp, and snapper-grouper management complexes. Our initial determination is that the proposed action would not have a substantial individual or cumulative adverse impact on EFH or fisheries managed by the South Atlantic Fishery Management Council and the National Marine Fisheries Service (NMFS). Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the NMFS.

The District Engineer has consulted the most recently available information and has determined that the project is likely to adversely affect the loggerhead sea turtle (*Caretta*

caretta), the piping plover (*Charadrius melodus*) and sea-beach amaranth (*Amaranthus pulmilus*) and/or result in the destruction or adverse modification of designated or proposed critical habitat. This public notice serves as a request to the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service to initiate formal consultation on these species and/or critical habitat that may be present in the area which would be affected, pursuant to Section 7(c) of the Endangered Species Act of 1973 (as amended) and request their views regarding the impact of the proposed work on these threatened species.

The District Engineer has consulted the latest published version of the National Register of Historic Places for the presence or absence of registered properties, or properties listed as being eligible for inclusion therein, and this worksite is not included as a registered property or property listed as being eligible for inclusion in the Register. Consultation of the National Register constitutes the extent of cultural resource investigations by the District Engineer, and he is otherwise unaware of the presence of such resources. Presently unknown archaeological, scientific, prehistorical, or historical data may be lost or destroyed by the work to be accomplished under the requested permit.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state, with particularity, the reasons for holding a public hearing.

The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the activity on the public interest and will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency (EPA), under authority of Section 404(b) of the Clean Water Act and, as appropriate, the criteria established under authority of Section 102 of the Marine Protection, Research and Sanctuaries Act of 1972, as amended. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the project must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the project will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production and, in general, the needs and welfare of the people. A permit will be granted unless the District Engineer determines that it would be contrary to the public interest. In cases of conflicting property rights, the Corps of Engineers cannot undertake to adjudicate rival claims.

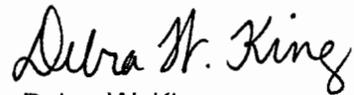
The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this project. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public

REGULATORY DIVISION
Refer to: P/N #2005-1W-129-P

22 APRIL 2005

interest of the activity.

If there are any questions concerning this public notice, please contact me at A/C 843-329-8044 or toll free at 1-866-329-8187.



Debra W. King
Project Manager
Regulatory Division
U.S. Army Corps of Engineers

11. DESCRIPTION OF THE OVERALL PROJECT AND OF EACH ACTIVITY IN OR AFFECTING U.S. WATERS OR STATE CRITICAL AREAS

The proposed activity is a beach restoration project along the oceanfront of Hunting Island, Beaufort County, South Carolina (see Sheet 1). Work will include **placement of up to 1,500,000 cubic yards (cy) of beach-quality sand along the oceanfront shoreline**. The exact length of shoreline covered and exact nourishment volume will depend on available funding and bid prices, but potentially up to 17,000 linear feet (ft) or approximately 75 percent of the oceanfront shoreline would be nourished. In addition, **construction of up to nine (9) sheet pile-type groins is planned to hold much of the nourishment sand in place**. The groins will extend seaward from the existing foredune/backshore and will be downward-sloping toward the ocean, so as to closely match the natural beach profile and allow passage of littoral sand over and around each structure. Location of the groins and beach fill are shown on Sheet 2.

NOURISHMENT

Borrow Areas

Two (2) potential borrow areas are being considered for the project (see Sheets 3 and 4):

- 1) Offshore area "C" adjacent to and north of the borrow area for the 1991 state-sponsored nourishment project (P/N 90-2T-320-P). Area "C" is approximately 0.5 mile square (~170 acres) centered ~1.8 miles offshore of the Hunting Island lighthouse in depths of -10 to -12 feet (ft) NGVD (See Sheet 2). Maximum excavation depth would be 10 ft (to accommodate operational requirements of cutterhead dredges), the same depth as the 1991 nourishment project using deposits immediately to the south. As Sheet 3 illustrates, Area "C" consists of 0.2-0.22 millimeter (mm) (mean diameter) fine sand with less than 7 percent "gravel" (>2 mm diameter). Previous geotechnical surveys (CSE 1991) indicated the mud content (<0.0625 mm mean diameter) in this area averages less than 7 percent to the target maximum dredging depth (-20 ft NGVD). Total area of borrow area "C" is 170 acres.
- 2) Offshore area "1" as described in USACE (2003) *Appendix B – Geotechnical Appendix for Feasibility Report – Ecosystem Restoration Project, Hunting Island, South Carolina*, and USACE (September 2004) *Draft Environmental Assessment for Hunting Island Ecosystem Restoration Study* (Charleston District). Area "1" is approximately 0.65 by 1.2 miles in size (~490 acres) centered ~1.7 miles offshore of "south" beach public recreation area in the center of Hunting Island. Geotechnical surveys by the Charleston District

(USACE 2003) indicated that acceptable borrow material, similar in nature to the native sand of Hunting Island, occurs to depths of up to 10 ft. See Sheet 4. Area "1" contains fine sand (D_{50} ranges from 0.6 mm to 0.25 mm) with the "mud" fraction (percent passing the #200 sieve at 0.074 mm mesh) testing an average of ~7 percent to 6 ft of section (USACE 2003). Total area of borrow area is ~490 acres.

Combined, areas "C" and "1" potentially can provide up to 2.7 million cubic yards and 7.9 million cubic yards (respectively). This represents about seven times more volume than is needed to accomplish the proposed project. The applicant is conducting additional geotechnical investigations to optimize placement of the dredge within areas "C" and "1." Following are the criteria sought for the final borrow area:

- Mean grain size (D_{50}) >2.2 mm
- Percent mud (<0.0625 mm) <5%
- Percent gravel (>2 mm) <15%
- Maximum dredging depth -20 ft NGVD

The dredging depth is based on minimum operational requirements for ocean-certified cutterhead dredges at low water tide stage. The existing fleet of US dredges typically requires a minimum of 17 ft operational depth. A depth of -20 ft NGVD at Hunting Island corresponds with a depth of approximately -17 ft mean low water. Based on an average cut-section ("embankment") of 8 ft and a dredging volume of ~1,500,000 cubic yards, approximately 120 acres will be excavated. The 1991 nourishment project impacted ~52 acres (CSE 1991, 1992).

The selection of borrow area(s) will be based on additional evaluations and comparison of sediment quality (in preparation), potential environmental and physical impacts, logistics, and economics in consultation with representatives of SC Department of Natural Resources.

Fill Placement

Permitting of a range of fill volumes generally from 140 to 200 cubic yards per linear foot of beach is requested. The extent of the constructed fill will depend on the bid prices and the funding available. Profiles of the beach fill and groins are shown on Sheets 5 through 9. Nourishment sand will be pumped from the selected borrow area(s) via hydraulic dredge to areas along Hunting Island described below and listed in order of priority:

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- 1) Reach II, North Beach Area – Placement of 140 to 200 cubic yards per linear foot of beach to create a berm width of 200 to 250 ft between groins 3, 4 and 5. This will provide a wide beach over some 2500 linear feet centered on the lighthouse (See Sheet 2).
- 2) Reach IV, South Beach Area – Placement of 140 to 200 cubic yards per linear foot to create a berm width of 200 to 250 ft between groins 6, 7, 8 and 9. This will provide a wide beach over a reach of approximately 3000 linear feet encompassing the recreation/parking area and northern end of the lagoon (Cabin Road).
- 3) Reach I, Campground Area – Placement of 140 to 200 cubic yards per linear foot of fill to create a berm width of 200 to 250 ft between groins 1 and 2. This will provide a wide beach over some 1200 linear feet centered on the campground beach area (see Sheet 2).
- 4) Reach III, Central – Placement of 35 to 50 cubic yards of fill per linear foot of beach to create a berm width of 50 to 75 ft between groins 5 and 6. This will provide a protective berm over 2600 ft of beach.
- 5) Reach V, Residential – Placement of 35 to 50 cubic yards of fill per linear foot of beach to create a berm width of 50 to 75 ft. This will provide a protective berm over approximately 4,400 ft of beach south of groin 9.

The total length of the beach fill from the end of the taper north of groin 1 (sta -35+02) to south of groin 9 (station 136+22) will be in excess of 17,000 ft with a total fill volume (based on highest estimate) of 1,500,000 cubic yards. Land-based equipment will spread and grade the nourishment to the typical slopes and elevations shown in the beach and groin profiles on Sheets 5 through 9. The volume of the nourishment will vary from ~40 cubic yards per foot (cy/ft) to a maximum of ~250 cy/ft according to priority areas and the availability of funding. Beach fill profiles on each side of groins 2, 3, 5, 6 and 9 reflect the differential in fill volumes from one side of the groin to the other. The goal of varying the placement quantities is to increase project longevity in priority areas and fill the sections where groins are proposed. The final extent of the constructed project will be adjusted after bids are received for construction and balanced with available funding.

If Hunting Island south spit is used as a borrow area, some excavations and transport to nourishment areas may be via land-based equipment (eg, scraper pans, dump trucks).

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The total nourishment volume proposed is approximately twice the volume of the 1968, 1971, 1975, and 1991 projects and six times greater than the 2003 project.

GROINS

Up to nine (9) groins are proposed for purposes of retaining sand in priority areas along Hunting Island. The groin locations are illustrated in Sheet 2. The plan for groins follows a preliminary design prepared by CSE Baird (1998) and the USACE (September 2004) draft environmental assessment. Profiles of the groins are provided on Sheets 5 through 9. Groins will be placed in the reaches shown below and listed by priority.

- 1) Reach II, North Beach Area – Up to three groins in a cluster with typical spacing of ~1,200 ft (groins 3, 4, and 5). Maximum lengths of the north beach groins will be 650 to 750 ft.
- 2) Reach IV, South Beach Area – Up to four groins in a cluster with typical spacing of ~1,200 ft (groins 6, 7, 8 and 9). Maximum lengths of the south beach groins will be from 650 to 750 ft.
- 3) Reach I, Campground Area – Up to two groins (groins 1 and 2) situated ~1,500 ft south of the existing terminal groin (built in 1968). These groins will also have lengths of 650 to 750 ft.

The final number and dimensions of groins will depend on funds available and bid prices for nourishment and structure costs. The lengths will be balanced against the nourishment requirements to optimize sand-trapping by each structure. Detailed studies of the optimal configuration of groins and nourishment are in progress. The indicated groin lengths and nourishment volumes represent the maximum requested in the present permit application.

Groin profiles will follow the natural beach contours after nourishment with each groin containing a berm section (dry-beach zone), sloping beach-face section, and low-tide beach section (see Sheet 5). The beach-face section will slope at 1 on 30. Lengths will range from ~650 ft to 750 ft total so as to encompass the active beach zone of Hunting Island. Table 1 lists the groin lengths by groin number and baseline station.

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TABLE 1. Proposed maximum groin lengths.

Groin #	Groin Station (CSE Baseline)	Groin Length (linear feet)
1	-26+94	750
2	-15+00	650
3	8+14	750
4	20+02	750
5	32+22	750
6	57+84	650
7	63+39	750
8	69+81	750
9	87+34	750

Groins will likely be constructed immediately after beach nourishment with most work performed "in the dry." The proposed material will be precast concrete sheet pile with timber walers along both sides of the crest (similar design as the existing terminal groin at the northern end of Hunting Island). Installation will be by conventional marine construction methods with sheet piles both washed and driven into place. As shown on Sheet 10, the concrete sheet piles will be driven deeper over the beach face portion of the groin profile because this portion of the profile is the most likely to experience significant change. Following installation of the sheet piles, treated timber walers (0.8 pcf and 2.5 pcf, CCA) will be bolted along both sides of the length of each groin. Details of the groin section are shown on Sheet 12. The walers serve to stabilize the sheets and distribute lateral loads occurring at points on the groin over a longer length of structure. The plan and profile of a typical groin with toe protection is shown on Sheet 10.

A geotechnical investigation was completed by S&ME (2004) to evaluate the engineering properties of the surficial and underlying soil strata in the areas where the groins are to be constructed. Three soundings were performed at equal spacing along the beach. The data collected were used to determine the feasibility of concrete sheet pile installation and stability. A copy of the report is provided as an attachment to these documents.

Generally, the beach consists of an upper strata of loose to medium dense sands approximately 20 ft thick. This is underlain by a layer of soft to firm silts from 8 to 20 ft thick. The recommendations in the report will be used to prepare the final design of the groin structures. These parameters will be balanced with riprap thickness, driving depth

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and sheet thickness. Generally, the report confirms that the groins can be constructed as proposed.

Each groin will include a partially buried scour apron of riprap stone around the toe of the groin structure to hold the toe elevations in place. The riprap toe protection will be placed from the mean high water elevation out to the end of the groin with a head section anchoring the end of each groin. Details of the riprap placement are shown on Sheet 11. Stone in the armor portion will be graded granitic riprap weighing from 500 to 2000 pounds. Stone in the bedding and gabion layer will be graded riprap weighing from 5 to 200 pounds.

Other composite materials and profiles are being investigated with the goal of minimizing exposure of each structure and achieving optimal design life. Tradeoffs between riprap quantities and pile depth will be investigated in detail. Changes in the driving depth or riprap quantity will not change significantly from that shown in these permit documents.

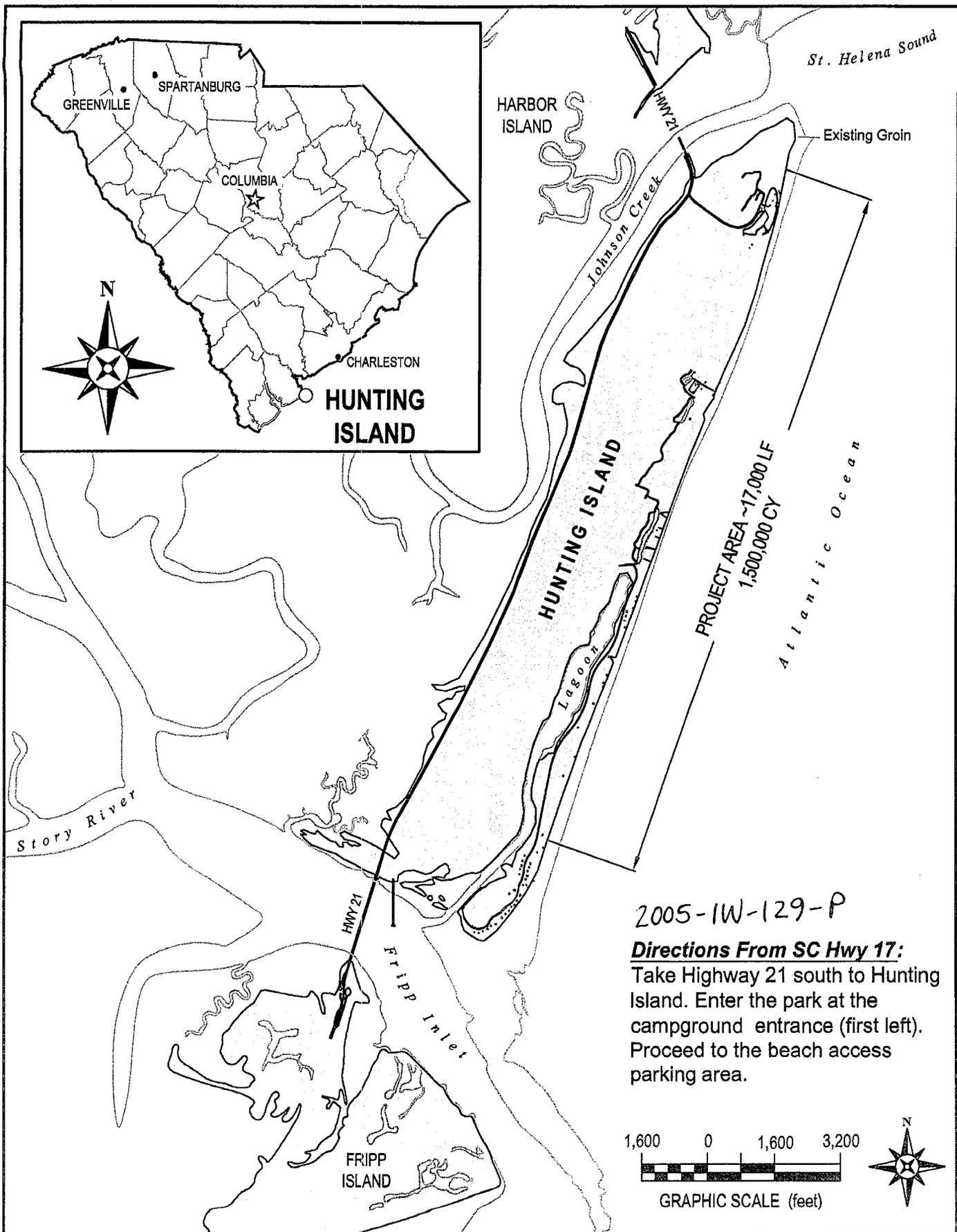
The groin clusters are expected to produce and maintain shoreline salients, thereby reducing the erosion rate around the structures and reducing the overall sand loss on the island.

No groins are proposed along the southern ~33 percent of Hunting Island. Net longshore transport along most of Hunting Island is to the north.

REFERENCES

- CSE. 1992. Hunting Island State Park 1991 beach nourishment project, beach surveys. Survey Report No. 2 to South Carolina Department of Parks, Recreation & Tourism, Columbia; CSE, Columbia, SC, 18 pp. + appendix.
- CSE. 1991. Hunting Island State Park 1991 beach nourishment project. Survey Report No. 1 to South Carolina Department of Parks, Recreation & Tourism, Columbia; CSE, Columbia, SC, 26 pp. + appendices.
- USACE. 2003. Ecosystem restoration project, Hunting Island, South Carolina. Appendix B. Geotechnical appendix for feasibility report. US Army Corps of Engineers, Charleston District, South Carolina. 12 pp + app B1 and B2.
- USACE. 2004. Environmental assessment (EA), Hunting Island ecosystem restoration study, Beaufort County, South Carolina. USACE, Charleston District, South Carolina, 29 pp + appendices A-J.
- Zapata. 2002. Hunting Island offshore sub-bottom profiling and sidescan sonar surveys. Final Report for USACE, Charleston District (Contract DACW60-00-D-0002 DO 0008). Zapata Engineering, Charlotte, NC, 26 pp + appendices.
- S&ME. 2004 Report of Geotechnical Exploration, Beach Restoration Project, Hunting Island State Park, Hunting Island, South Carolina. Prepared for Coastal Science & Engineering. S&ME, Mt. Pleasant, SC, 10 pp + appendices.

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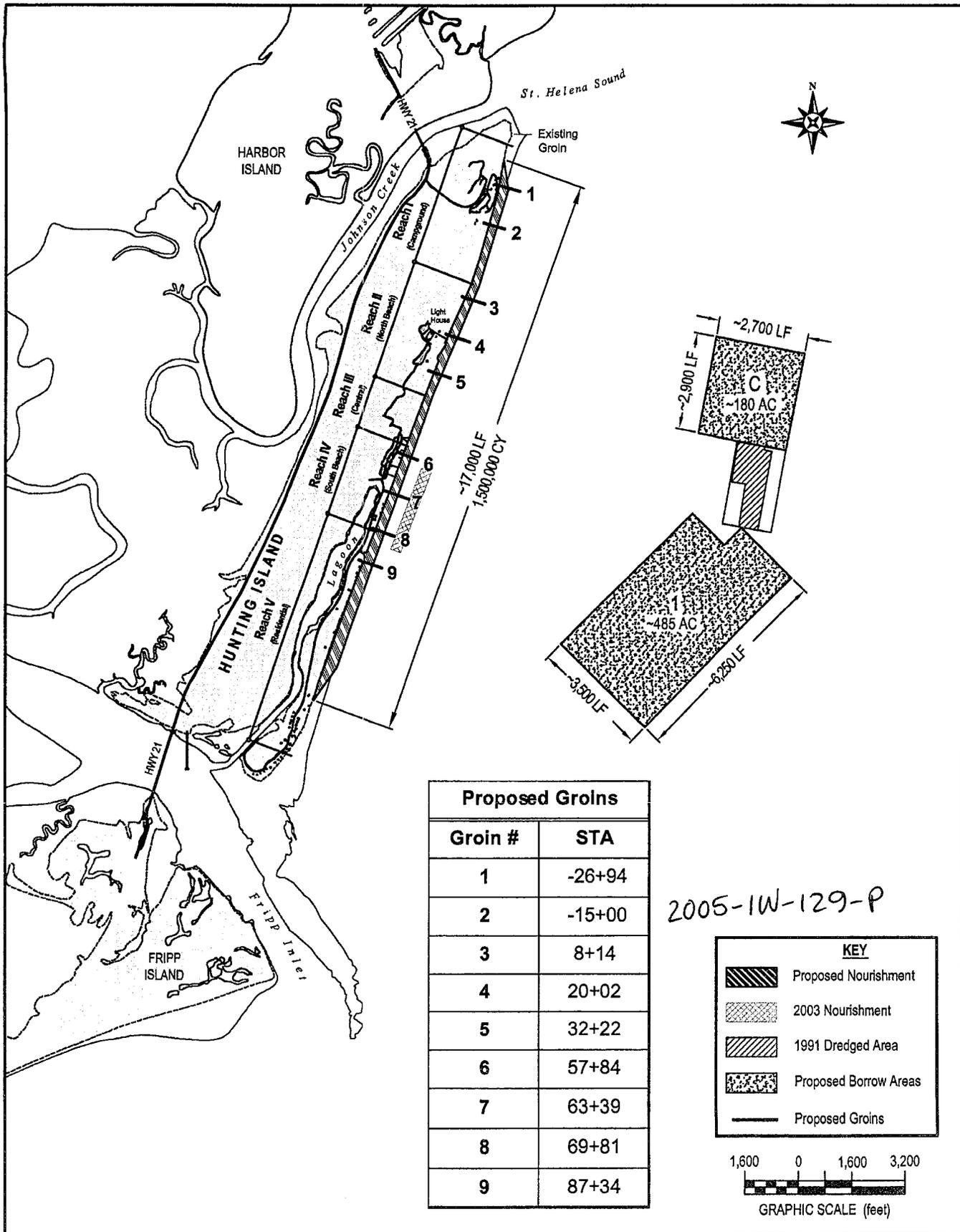
Project Name:
 Hunting Island
 Beach Restoration Plan

Prepared For:
 South Carolina Department of
 Parks, Recreation, and Tourism

Vicinity Map

30 March 2004

Sheet 1 of 12



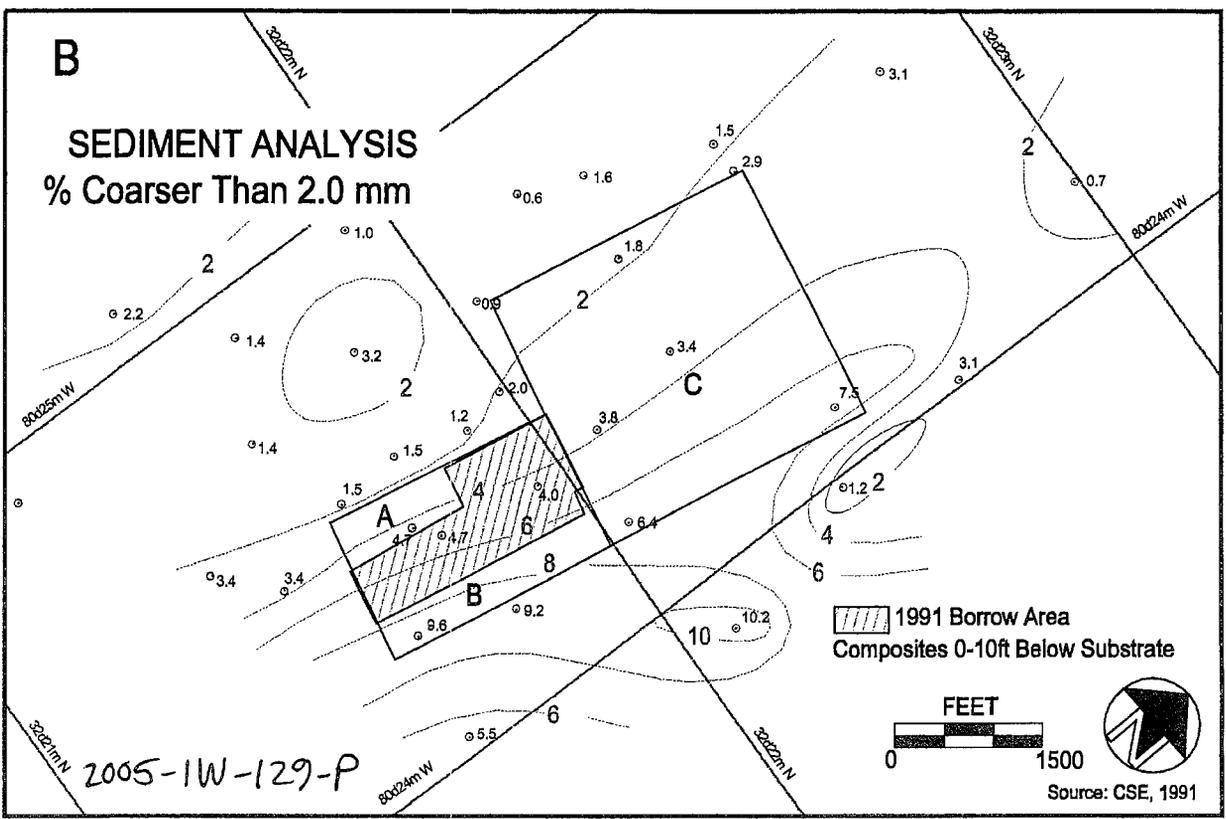
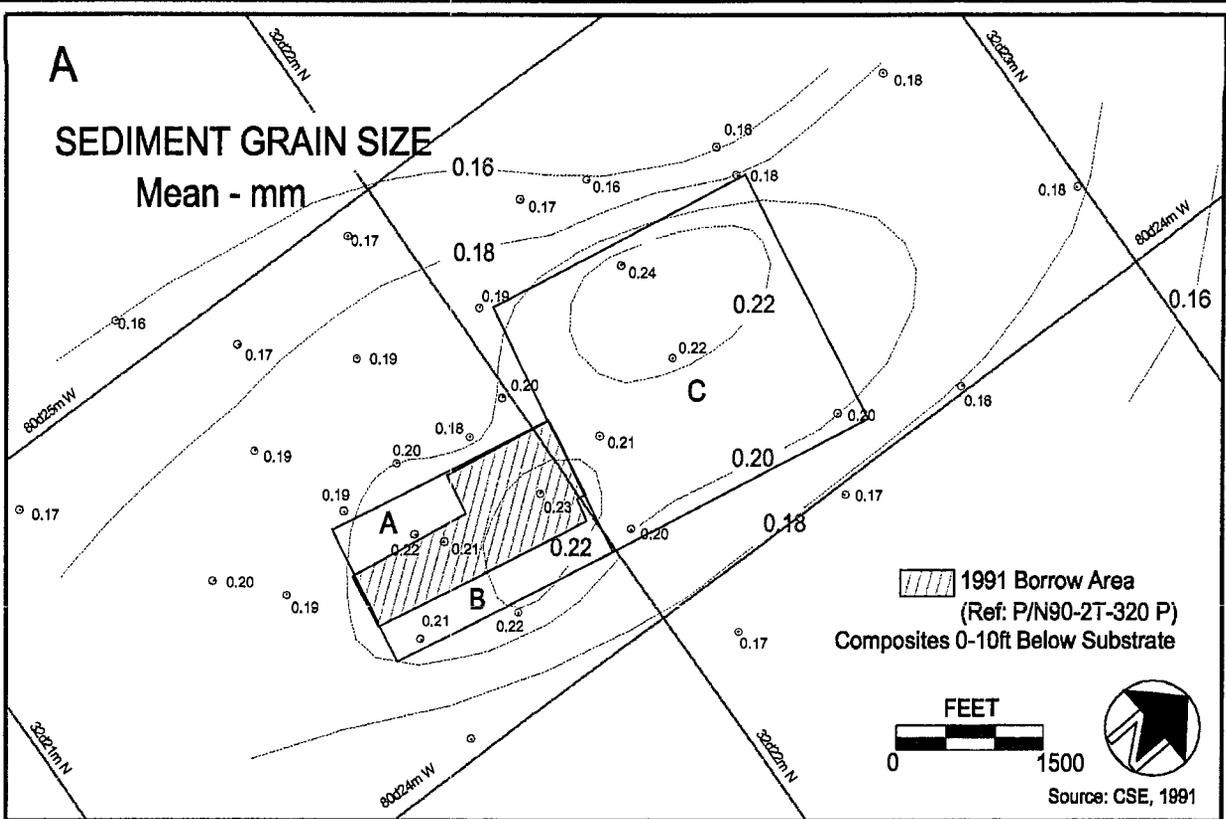
Project Name:
Hunting Island
Beach Restoration Plan

Prepared For:
South Carolina Department of
Parks, Recreation, and Tourism

Project Plan

30 March 2005

Sheet 2 of 12



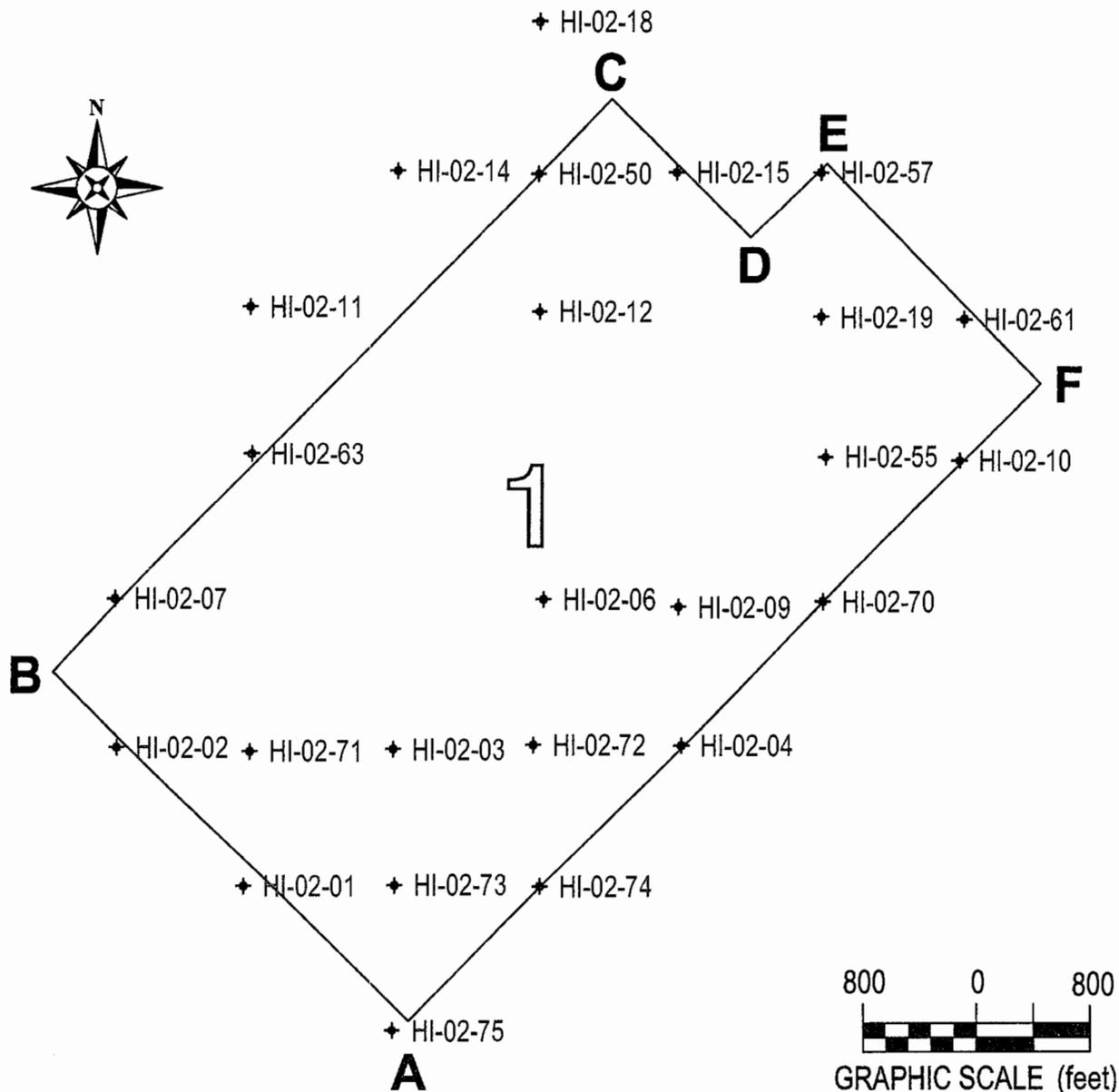
Project Name:
Hunting Island
Beach Restoration Plan

Prepared For:
South Carolina Department of
Parks, Recreation, and Tourism

**Sediment Grain Size/
Sediment Analysis**

30 Mar 2005

Sheet 3 of 12



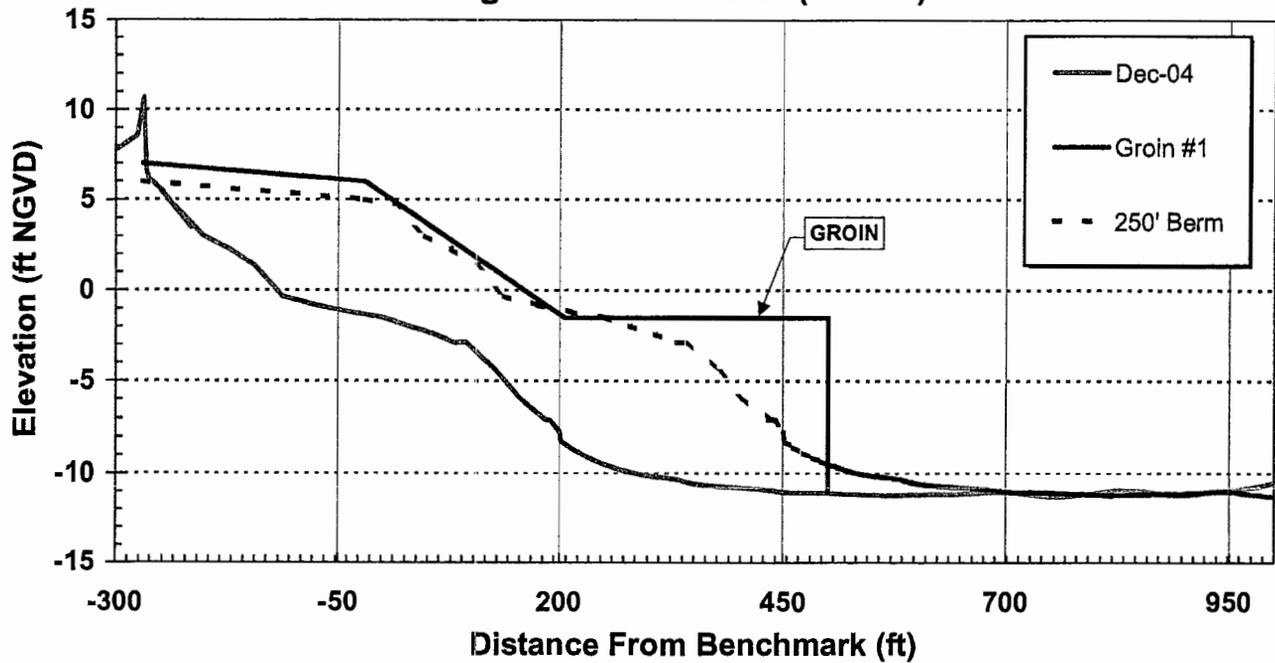
HUNTING ISLAND OFFSHORE BORROW AREA 1	
PARTICLE DIAMETER AT 50% PASSING	
RANGE (mm)	.12 - .6
AVERAGE (mm)	.16 - .25
PERCENT PASSING THE #200 SIEVE	
RANGE (%)	1 - 13
AVERAGE (%)	7
UNIFORMITY COEFFICIENT (UC)	
	1.5

BORROW AREA 1 COORDINATES		
POINT	NORTHING	EASTING
A	2179950	185877
B	2177450	188480
C	2181505	192481
D	2182452	191510
E	2182917	191994
F	2184479	190491
SC SPCS NAD 1983 (feet)		

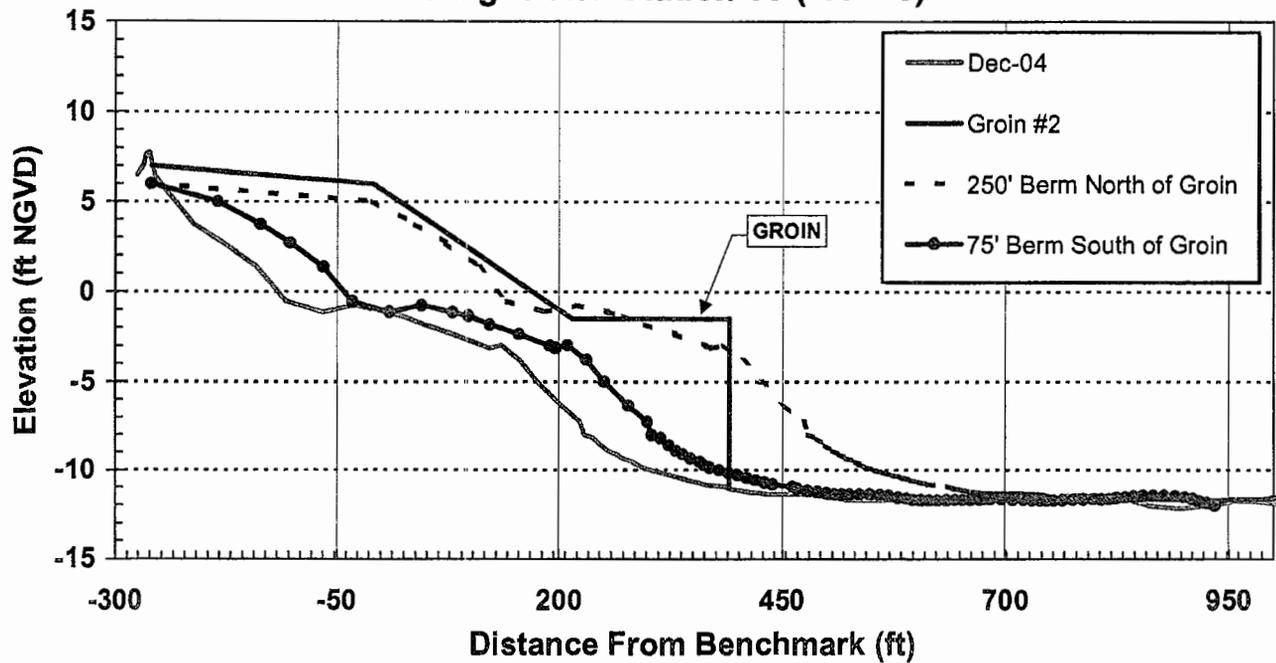
Source: USACE. 2003. Ecosystem restoration project, Hunting Island, South Carolina. Appendix B. Geotechnical appendix for feasibility report. US Army Corps of Engineers, Charleston District, South Carolina. 12 pp + app B1 and B2. (Reference appendix for additional data)

Project Name: Hunting Island Beach Restoration Plan 2005-1W-129-P	Prepared For: South Carolina Department of Parks, Recreation, and Tourism	Boring Locations and Sediment Quality Borrow Area "1" 30 March 2005	Sheet 4 of 12
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Hunting Island Station 26 (-25+00)



Hunting Island Station 30 (-15+00)



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Project Name:
Hunting Island
Beach Restoration Plan

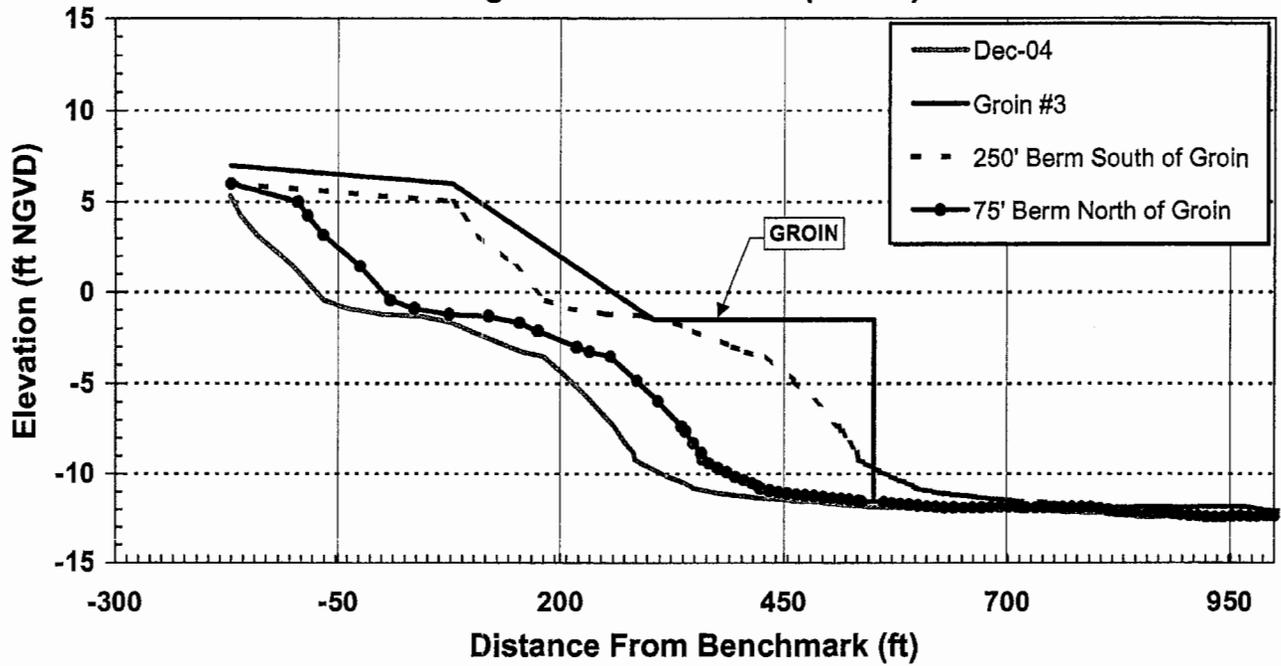
Prepared For:
South Carolina Department of
Parks, Recreation, and Tourism

Typical Nourishment Sections

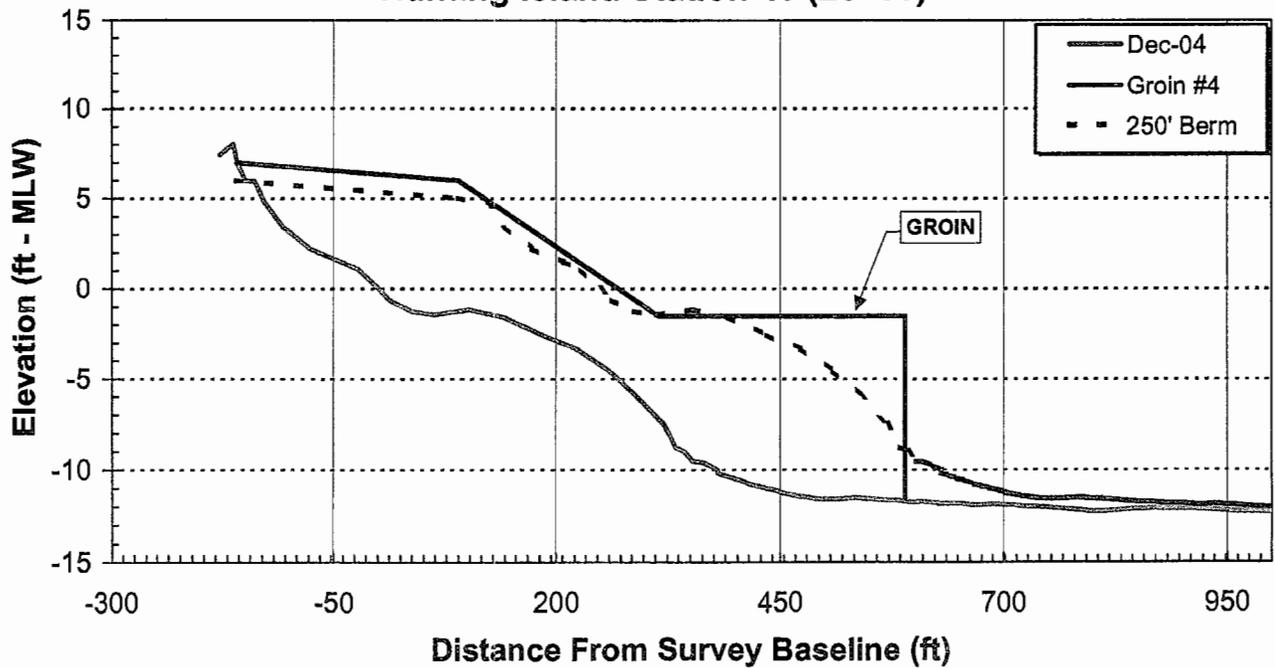
30 March 2005

Sheet 5 of 12

Hunting Island Station 40 (10+00)



Hunting Island Station 46 (25+00)



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Project Name:
Hunting Island
Beach Restoration Plan

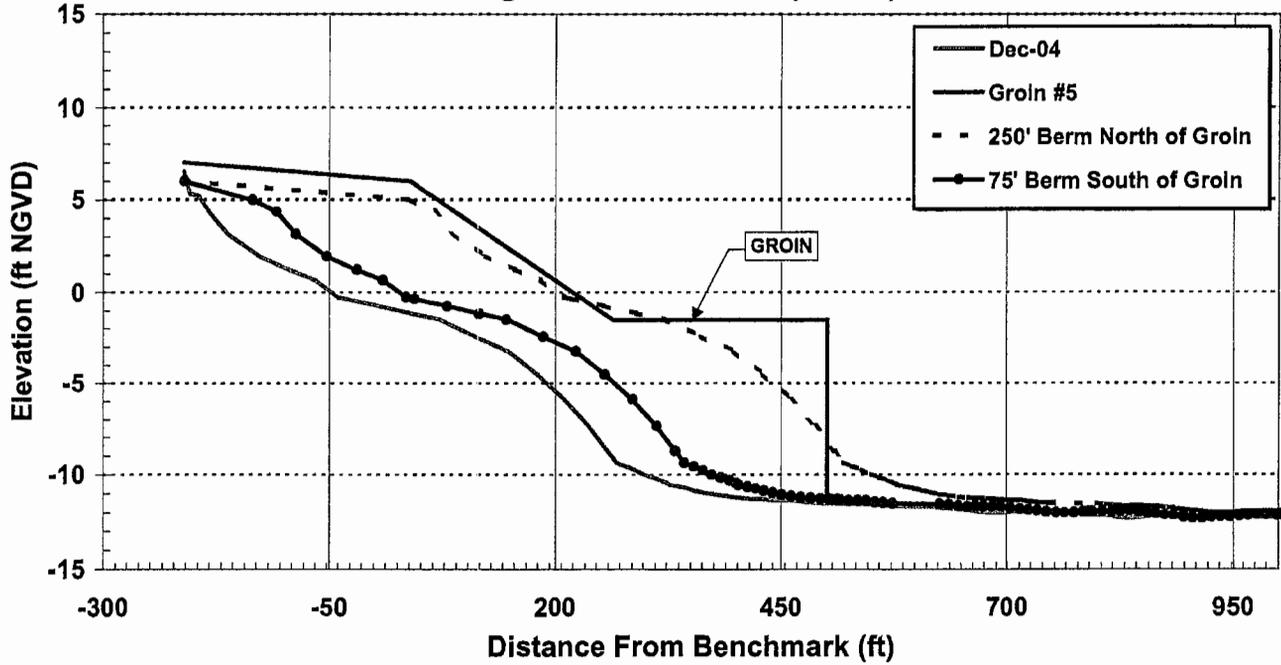
Prepared For:
South Carolina Department of
Parks, Recreation, and Tourism

Typical Nourishment Sections

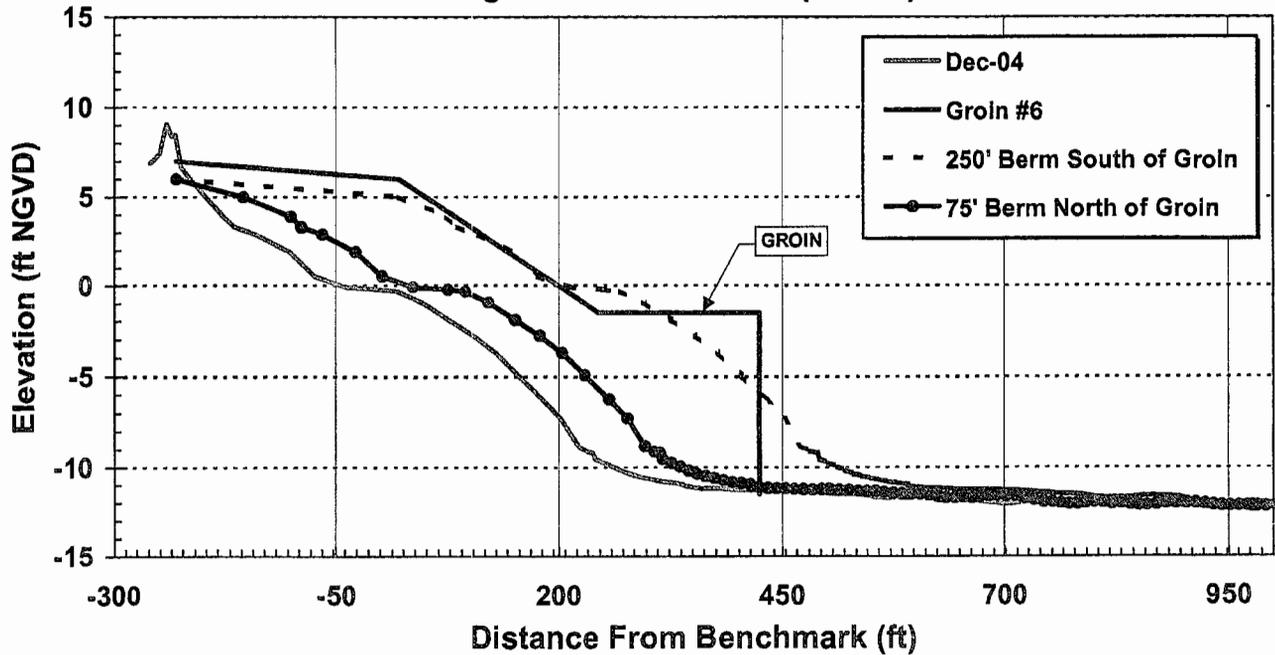
30 March 2005

Sheet 6 of 12

Hunting Island Station 50 (35+00)



Hunting Island Station 60 (59+94)



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Project Name:
Hunting Island
Beach Restoration Plan

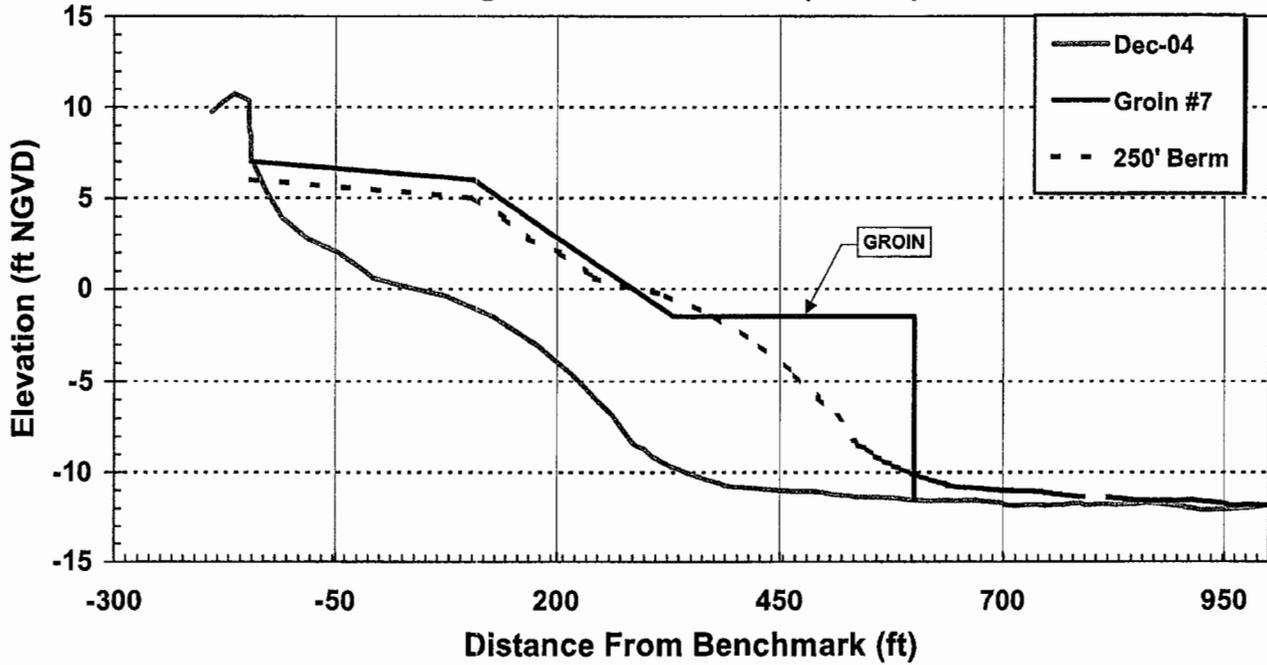
Prepared For:
South Carolina Department of
Parks, Recreation, and Tourism

Typical Nourishment Sections

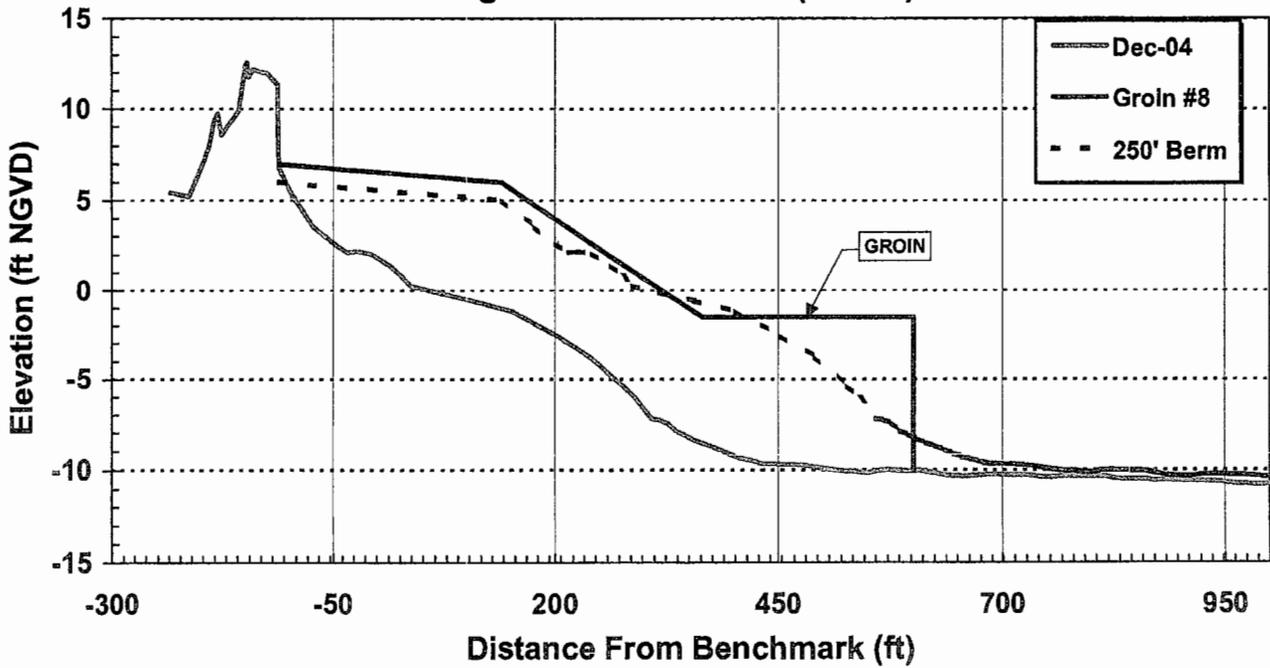
30 March 2005

Sheet 7 of 12

Hunting Island Station 66 (74+70)



Hunting Island Station 70 (84+92)



2005-1W-129-p

Project Name:
Hunting Island
Beach Restoration Plan

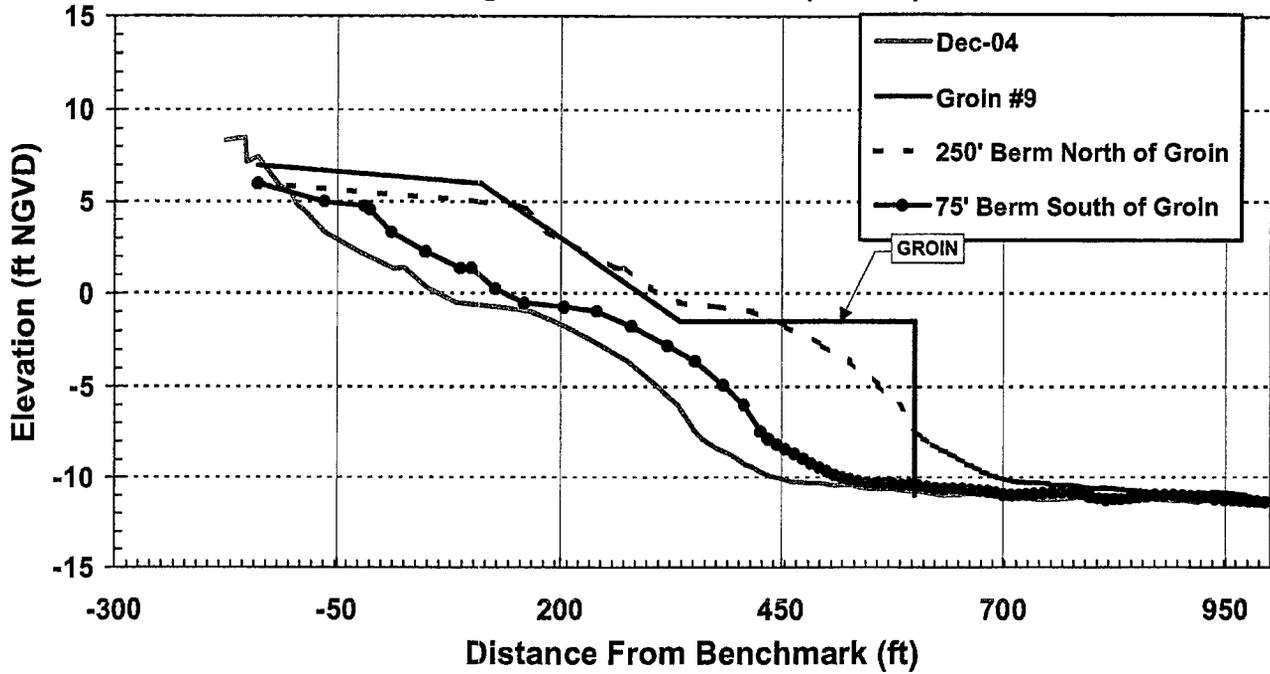
Prepared For:
South Carolina Department of
Parks, Recreation, and Tourism

Typical Nourishment Sections

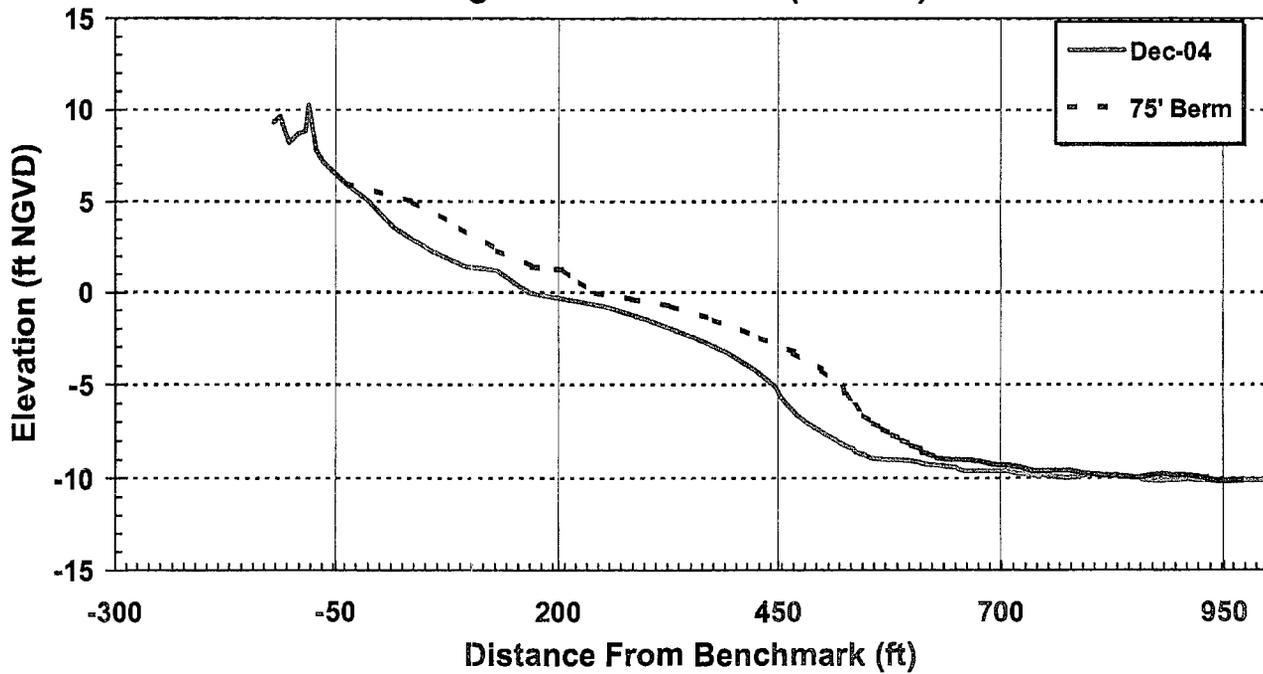
30 March 2005

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Hunting Island Station 74 (96+28)



Hunting Island Station 84 (124+68)



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Project Name:
Hunting Island
Beach Restoration Plan

Prepared For:
South Carolina Department of
Parks, Recreation, and Tourism

Typical Nourishment Sections

30 March 2005

Sheet 9 of 12

GENERAL NOTES

NO.	REVISION	BY	DATE

CSE
 Coastal Science & Engineering
 11400
 Oldham
 Columbia, South Carolina 29208-2000
 Phone 803-792-8240
 Fax 803-792-8400
 www.cse-engineering.com

PROJECT TITLE
 HUNTING ISLAND STATE PARK
 BEACH RESTORATION

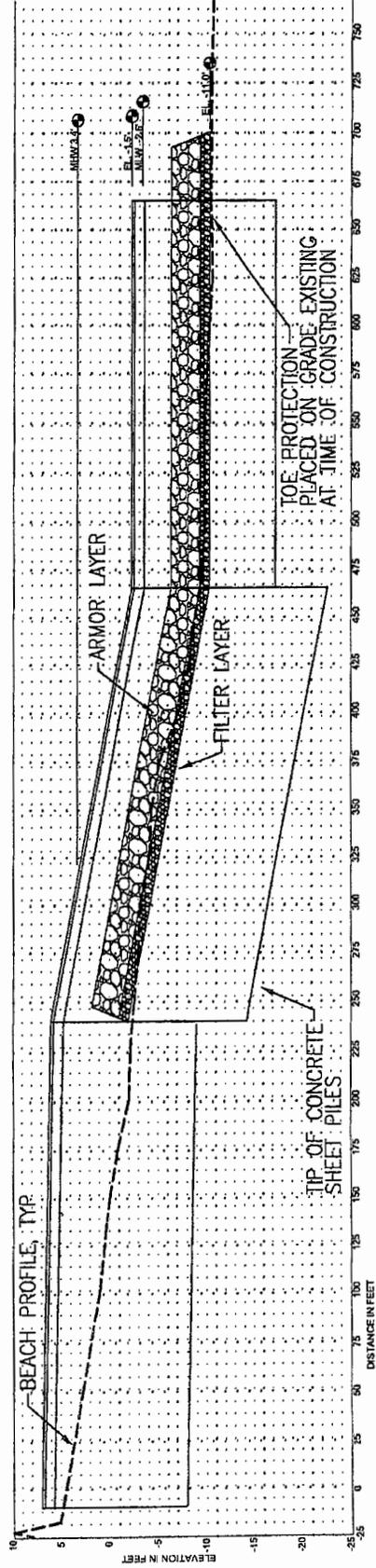
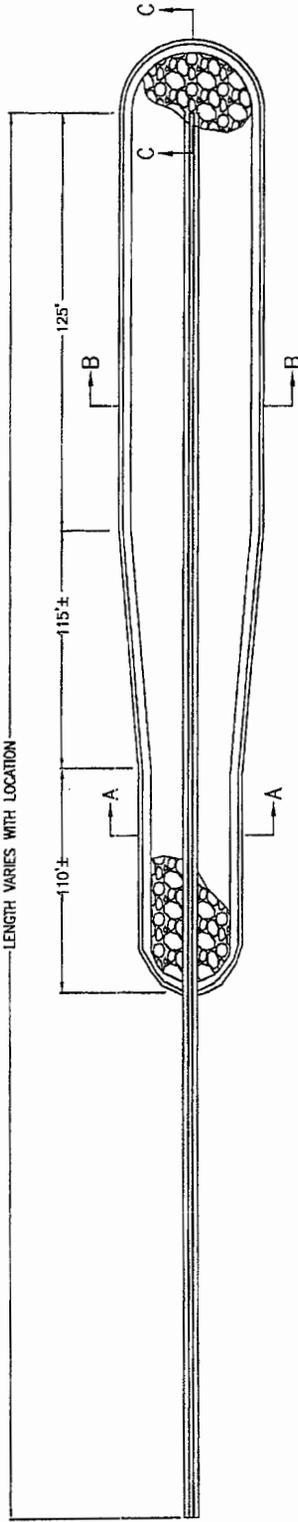
PREPARED FOR
 S.C. DEPT OF PARKS
 RECREATION & TOURISM
 1205 PENDELTON STREET
 COLUMBIA, SC 29201

DRAWING TITLE
 GROIN PLAN PROFILE

Preliminary Drawing
 Not For Construction

SCALE	AS SHOWN	SHEET #	10
DATE	MAY 2005	PROJECT #	2155
DRAWN BY	EMF	DATE	05.12.05
APPROVED BY	JMF		

LENGTH VARIES WITH LOCATION



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 Sheet 10 of 12

GENERAL NOTES

NO.	REVISION	BY	DATE

GSE
 Coastal Science & Engineering
 1010 Bay Blvd.
 Columbia, South Carolina 29202-6228
 Phone: 803-799-8811
 Fax: 803-799-8811
 www.coastalscience.com

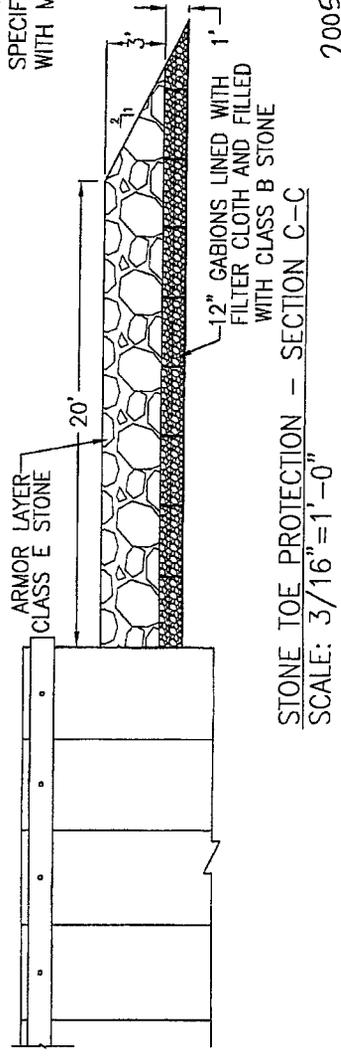
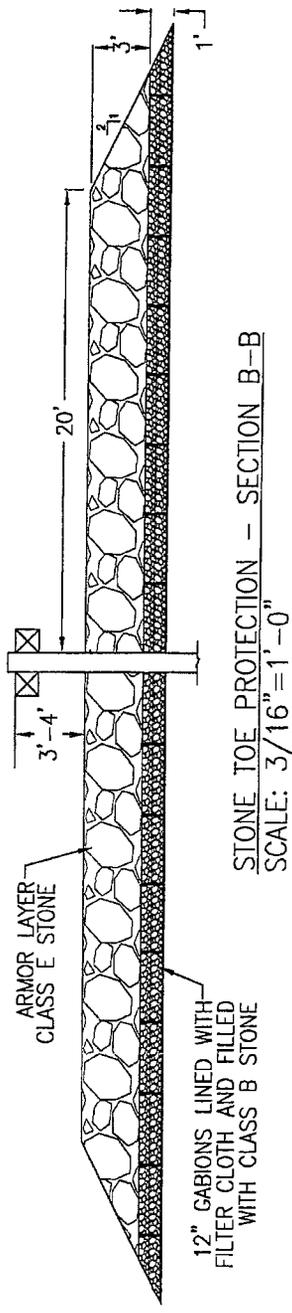
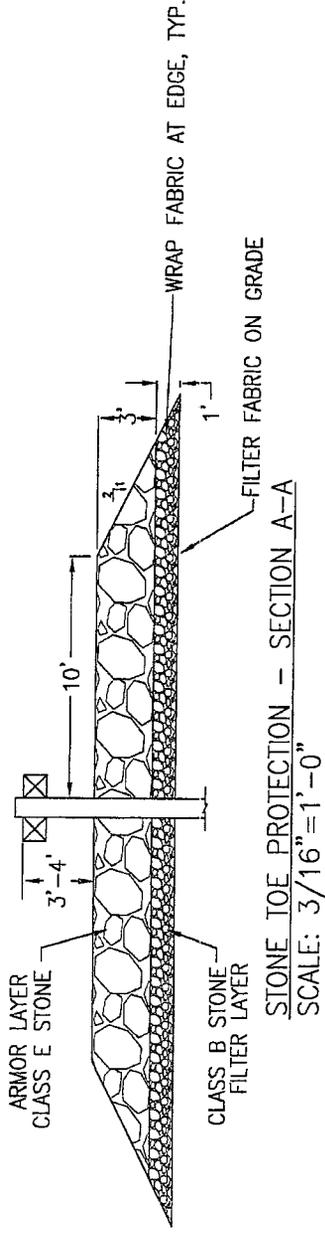
PROJECT TITLE
 HUNTING ISLAND STATE PARK
 BEACH RESTORATION

PREPARED FOR
 S.C. DEPT OF PARKS
 RECREATION & TOURISM
 1205 PENDELTON STREET
 COLUMBIA, SC 29201

DRAWING TITLE
DETAILS

**Preliminary Drawing
 Not For Construction**

SCALE	AS SHOWN	SHEET #	11
DATE	MAR 2005	PROJECT #	2155
DRAWN BY	DMF		
APPROVED BY	DMF		



ALL STONE SHALL MEET SCDOT SPECIFICATIONS AND BE SOUND GRANITE WITH MIN. SPECIFIC GRAVITY OF 2.65

2005-1W-129-P
 Sheet 11 of 12

GENERAL NOTES

NO.	REVISION	BY	DATE

CSC
 Coastal Science & Engineering
 1010 West 10th Street
 Columbia, South Carolina 29202-0208
 Phone: 803-792-8411
 Fax: 803-792-8411
 www.coastalscience.com

PROJECT TITLE
 HUNTING ISLAND STATE PARK
 BEACH RESTORATION

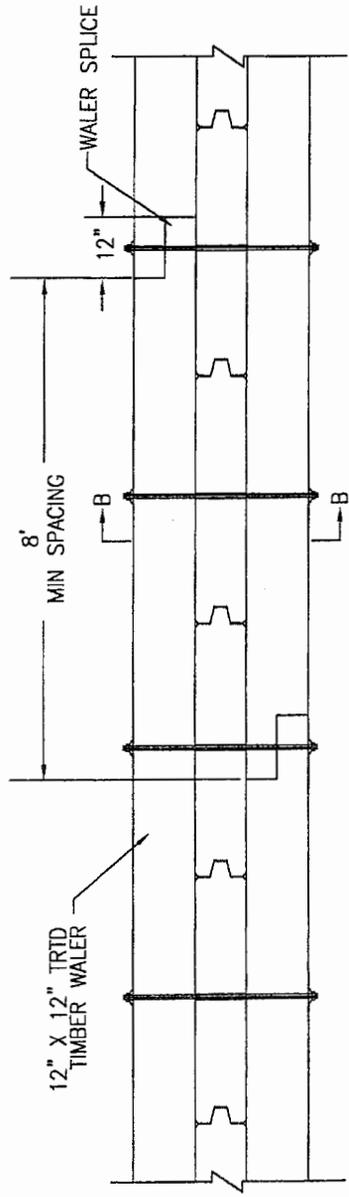
PREPARED FOR
 S.C. DEPT OF PARKS
 RECREATION & TOURISM
 1205 PENDELTON STREET
 COLUMBIA, SC 29201

DRAWING TITLE
DETAILS

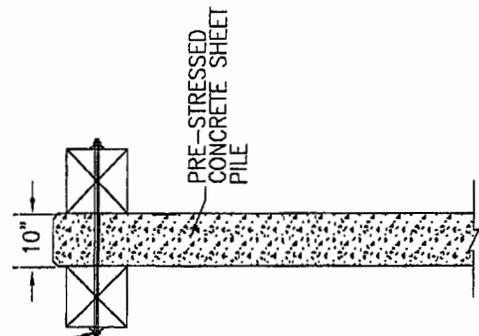
Preliminary Drawing
 Not For Construction

SCALE	AS SHOWN	SHEET
DATE	DATE	12
DRAWN BY	CRAF	
APPROVED BY:	JMF	PROJECT: 2155
		OF 12

3/4" GALV. STEEL W/
 O.G. WASHERS BOTH SIDES



GROIN PLAN TYPICAL
 SCALE: 1/2"=1'-0"



CONCRETE SHEETPILE GROIN WALL
 SECTION B-B
 SCALE: 1/2"=1'-0"

2005-1W-129-P
 Sheet 12 of 12