

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE	PAGE OF PAGES	
				J	1	3
2. AMENDMENT/MODIFICATION NO. 0003	3. EFFECTIVE DATE 30-Jun-2003	4. REQUISITION/PURCHASE REQ. NO. W81LJ8-2252-7512		5. PROJECT NO.(If applicable)		
6. ISSUED BY USAED, WILMINGTON -(910)251-4424 ATTN: DANNY R KISSAM P O BOX 1890 (28402-1890) 69 DARLINGTON AVE (28403) WILMINGTON NC 28402-1890	CODE DACW54	7. ADMINISTERED BY (If other than item 6) <b>See Item 6</b>		CODE		
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)				X	9A. AMENDMENT OF SOLICITATION NO. DACW54-02-B-0020	
				X	9B. DATED (SEE ITEM 11) 25-Apr-2003	
					10A. MOD. OF CONTRACT/ORDER NO.	
					10B. DATED (SEE ITEM 13)	
CODE		FACILITY CODE				
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS						
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input checked="" type="checkbox"/> is extended, <input type="checkbox"/> is not extended.						
Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning <u>2</u> copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.						
12. ACCOUNTING AND APPROPRIATION DATA (If required)						
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.						
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.						
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).						
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:						
D. OTHER (Specify type of modification and authority)						
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.						
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Specifications for DACW54-02-B-0020, Clean Sweep, Dredging, Baldhead Shoal Outer Reach (STA 270+00) thru Horseshoe Shoal (STA 00+00), Wilmington Harbor, NC-96 Act, is amended as follows:  The hour and date specified for receipt of Bids is extended from 9 July 2003 at 2:00 p.m. local time to read 31 July 2003 at 2:00 p.m. local time.						
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.						
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)		
				TEL: _____ EMAIL: _____		
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA		16C. DATE SIGNED		
_____ (Signature of person authorized to sign)		BY _____ (Signature of Contracting Officer)		26-Jun-2003		

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

**SUMMARY OF CHANGES**

SECTION 00010 - SOLICITATION CONTRACT FORM

The required response date/time has changed from 09-Jul-2003 02:00 PM to 31-Jul-2003 02:00 PM.

The contractor period of performance end date has increased by 15 days from 185 days to 200 days.

Global Changes

CLIN 0001 -- CLIN 0005

The FSC code Z217 has been added.

The PROG code C20 has been added.

The WSC Equipment code 000 has been added.

The SIC code 1629 has been added.

The NAICS code 237990 has been added.

SECTION 00800 - SPECIAL CONTRACT REQUIREMENTS

The following have been modified:

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, (c) complete the entire work ready for use not later than **Two Hundred (200)** calendar days, after the date the Contractor receives the notice to proceed.

The time stated for completion shall include final cleanup of the premises.

(End of clause)

The following have been deleted:

52.0211-4003 COMPLETION OF BEACH NOURISHMENT (Dec 2000) AUG 2002

SECTION 01100 - SUPPLEMENTARY SPECIAL CONTRACT REQUIREMENTS

Delete existing Page 1 thru Page 19 in their entirety and replace with enclosed revised Page 1 thru Page 21.

SECTION 01355 - ENVIRONMENTAL PROTECTION

(1) Delete existing Page 17 in its entirety and replace with enclosed revised Page 17.

(2) Delete existing Attachment 3 - Permit for Disposal of Material on Bird Islands and replace with enclosed signed Permit.

SECTION 02325 - Delete existing Page 1 thru Page 28 in their entirety and replace with enclosed revised Page 1 thru Page 28.

NOTE:

Text that is added or revised by this amendment is replaced in its entirety and printed in bold and/or stamped appropriately.

The text changes may have necessitated reformatting of subsequent text or pages. If this is the case, those pages have also been issued as amended pages but are not underlined with bold text.

DRAWING

Delete existing Plate P-28 in its entirety and replace with enclosed liked-numbered revised Plate.

(End of Summary of Changes)

Encls  
As stated

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SECTION 01100

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-- End of Section Table of Contents --

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## SECTION 01100

## SUPPLEMENTARY SPECIAL CONTRACT REQUIREMENTS

## PART 1 GENERAL

## 1.1 REFERENCES

The publication listed below forms a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

33 CFR 62.31	Special Marks
33 CFR 62.35	Mooring Buoys
33 CFR 84.11	Discrimination Prohibited
33 CFR 84.13	Employment Criteria
33 CFR 88.13	Lights on Moored Barges
33 CFR 88.15	Lights on Dredge Pipelines
33 CFR 156.118	Advance Notice of Transfer
33 CFR 173.21	Vessel Documentation
46 CFR 15.910	Uninspected Towing Vessels
46 CR4 15.815	Radar Observers

## U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(1996) Safety and Health Requirements Manual
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## NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT)

NCDOT	Standard Specifications For Roads And Structures, English, July 1995
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## NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH Pub No. 85-115	(1985) Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities
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## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals having an "FIO" designation are for information only. The

following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-06 Test Reports

List of Subcontractors; FIO

Progress Chart; G

Quality Control Plan; G

Within 24 hours of conclusion of physical tests, 5 copies of test results including calibration curves and results of calibration tests.

SD-07 Certificates

Certificate of Insurance; FIO

Completion of Corps CQC Course; FIO

Letter Appointing Superintendent; FIO

Qualifications of the commercial testing laboratory or Contractor's testing facilities; G.

1.3 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER  
ER 415-1-15 dtd 31 OCT 89

(a) This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the contract clause entitled "DEFAULT (Fixed Price Construction)". In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

(b) The following schedule of monthly anticipated adverse weather delays is based on wave information, including wave height, period and direction over a 20 year hindcast period (1976-1995) presented in Technical Report CHL-99-18, dated September 1999, entitled, "Wave Climate and Littoral Sediment Transport Potential, Cape Fear River Entrance and Smith Island to Ocean Isle Beach, North Carolina", by Edward F. Thompson, Lihwa Lin, and Dlyle L. Jones, US Army Corps of Engineers, Engineering Research and Development Center, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199. The wave height between 4 and 5 feet will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY  
WORK DAYS BASED ON (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
(4)	(5)	(7)	(5)	(3)	(3)	(2)	(2)	(3)	(2)	(4)	(5)

(c) Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day.

(d) The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph b, above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract clause entitled "Default (Fixed Price Construction)".

#### 1.4 U.S. COAST GUARD REQUIREMENTS - DREDGING OPERATIONS

(a) The Contractor shall provide lights and dayshapes on all vessels, plant, and pipeline dredges in accordance with 33 CFR 88.13, 88.15. The following specific maritime regulations shall be adhered to during the execution of this contract:

- (1) Lights on dredge pipelines (33 CFR 88.15)
- (2) Lights on barges at a bank or dock (33 CFR 88.13)
- (3) Lights and Shapes (33 CFR 84.11-13)
- (4) Mooring Buoys (33 CFR 62.35)
- (5) Special Marks (33 CFR 62.31)
- (6) Uninspected Towing Vessel's (UTV) Licensing Requirements (46 CFR 15.910 and 15.815)
- (7) UTV Drug Testing Requirement (46 CFR 4.06 and 4.03.02)
- (8) UTV Drug Marine Radar Requirement (33 CFR 164.01 (b) and 164.72)
- (9) UTV Certificate of Documentation (33 CFR 173.21)
- (10) UTV Marine Casualty Reporting Criteria (46 CFR 4.05-1)
- (11) Dredge or UTV Advance Notice of Transfers (33 CFR 156.118)

(b) The Contractor shall display signal lights and conduct his

operations in accordance with the General Regulations of the Department of the Army and the Coast Guard governing lights and day signals to be displayed by towing vessels, tows on which no signals can be displayed, vessels working on wrecks, dredges, and vessels engaged in laying cables or pipes or vessels involved in submarine or bank protection operations. The Contractor must also be in accordance with those regulations governing lights to be displayed on dredge pipeline and day signals to be displayed by vessels of more than 65 feet in length moored or anchored in a fairway or channel and the passing by other vessels of floating plant working navigable channels, as approved by the Secretary of the Army and Commandant, U.S. Coast Guard. (33 C.F.R. 80.18 - 80.31a; 33 C.F.R. 95.51 - 95.66; 33 C.F.R. 9.22 - 90.36; 33 C.F.R. 82 and C.G. Pub. M-16672.2B, Navigation Rules, International -Inland (latest version))

#### 1.5 PERFORMANCE AND PAYMENT BONDS

Each bidder shall include his premiums for performance and payment bonds under item, "Performance and Payment Bonds" of the Bidding Schedule. Payment to the Contractor therefore, shall not exceed the bid price and shall be made in accordance with the Contract Clause entitled "PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS." Any additional amount bid in excess of the actual bond premium will be included in the final pay estimate for this contract.

#### 1.6 WATER CONSERVATION

Water is one of our valuable natural resources. Accordingly, the Contractor shall be judicious in its use in the performance of the work as specified. Water needed for compaction of roadway and/or foundation materials, and dust control shall be obtained from uncontrolled stream flow instead of potable supply sources to the extent available and suitable as determined by the Contracting Officer.

#### 1.7 FINAL EXAMINATION AND ACCEPTANCE

As soon as practicable after the completion of the entire work or, if the work is divided into sections, or if any section which in the opinion of the Contracting Officer will not be subject to damage by further operations under the contract, such work will be thoroughly examined at the cost and expense of the Government by sounding or by sweeping, or both, as determined by the Contracting Officer. If any shoals, lumps, or the lack of contract depth are disclosed by this examination, the Contractor shall remove same by dredging the bottom with payment at the contract rate for dredging. The Contractor is only allowed to do dragging operations in lieu of dredging if approved by the Contractor Officer. The Contractor will be notified when soundings or sweepings are to be made and will be permitted to accompany the survey party. When the area is found to be in satisfactory condition, it will be accepted. If more than two sounding or sweeping operations by the Government over an area are necessary because of work for the removal of shoals disclosed by prior sounding or sweeping, the cost of such subsequent soundings or sweeping operations will be charged against the Contractor at the rate of \$3,600.00 per day in which the Government plant is engaged in sounding or sweeping, is enroute to or from the site, or is held at or near the site for such operations.

## 1.8 ACCOMMODATIONS AND MEALS FOR INSPECTORS

(a) The Contractor shall furnish regularly to inspectors, for office purposes and sleeping purposes, when applicable, a suitable separate room onboard the dredge or other craft upon which they are employed. If no suitable office space is available thereon, the Contractor shall furnish suitable alternate accommodations ashore at a location approved by the Contracting Officer and furnish suitable transportation between the alternate accommodations and the dredge or other craft upon which they are employed.

(b) If the Contractor maintains an establishment for the subsistence of his own employees, he shall, when required, furnish to inspectors employed on the work, and to all Government agents who may visit the work on official business, meals of a quality satisfactory to the Contracting Officer. The meals furnished shall be paid for by the individual consuming the meal at a rate commensurate with the basic Government subsistence rate of: \$5.00 Breakfast; \$5.00 Lunch; \$14.00 Dinner.

## 1.9 RETAINAGE FOR UNTIMELY SUBMISSION OF SUBCONTRACTING REPORTS

(a) In accordance with Contract Clause 52.219-9I, Small Business and Small Disadvantage Business Subcontracting Plan, and 52.219-16, Liquidated Damages - Small Business Subcontracting Plan, retainage will be withheld from progress payments in an amount sufficient to protect the Government's ability to assess liquidated damages in accordance with Clause 52.219-16 for the contractor's failure to timely submit Standard Form 294, Subcontracting Report for Individual Contracts, and Standard Form 295, Summary Subcontract Report, reports.

(b) The retainage will be determined in accordance with the following formula:

Total dollar amount for subcontracting to small business multiplied by percentage of actual progress on the contract shall be withheld from the next progress payment due after the contractor fails to submit a required report. If one or more reports have been submitted before such failure, formula for determining the amount of retainage will be adjusted by deducting any amounts reported as subcontracted to small business from the total dollar amount proposed to be subcontracted and the difference multiplied by the percentage of actual progress.

(c) Subcontracting plans are not required--

(1) For contracts or contract modifications that will be performed entirely outside of any State, territory, or possession of the United States, the District of Columbia, and the Commonwealth of Puerto Rico; or

(2) For modifications to contracts that do not contain the clause 52.219-8, Utilization of Small Business Concerns and Small Disadvantaged Business concerns (or equivalent prior DAR, FPR, or NASA clauses); e.g., contracts awarded before Pub. L. 95-507 and which are within the scope of the contract.

1.10 SHOP DRAWINGS AND MATERIALS SUBMITTAL

(a) Five (5) days prior to the preconstruction conference (see paragraph REQUIRED CONSTRUCTION MEETINGS), the Contractor shall complete and submit to the Contracting Officer, in duplicate, Submittal Register, listing all submittals and dates. In addition to those items listed on the Submittal Register, the contractor will furnish submittals for any deviation from the plans or specifications. The scheduled need dates must be recorded on the document for each item for control purposes. In preparing the document, adequate time (minimum of 15 days) will be allowed for review and approval and possible resubmittal. Scheduling shall be coordinated with the approved progress schedule. The Contractor's Quality Control representative shall review the listing at least every 30 days and take appropriate action to maintain an effective system. Copies of updated or corrected listings shall be submitted to the Contracting Officer at least every 60 days in the quantity specified. Payment will not be made for any material or equipment which does not comply with contract requirements.

(b) Contractor submittals required by the Technical Provisions are indicated in those provisions and are listed on the Submittal Register furnished in Section 01330, Submittal Procedures. The list does not relieve the Contractor from furnishing submittals required elsewhere in the specifications, those inadvertently omitted from the listing; or from furnishing other submittals that the Government may deem necessary as the work progresses.

(c) Normal review levels for required approvals are indicated by letter designations as follows:

- Contractor Quality Control Manager --- (CQC)
- Area or Resident Engineer ----- (R)
- Engineering Branch ----- (E)

The Government reserves the right to vary the review levels for (R) and (E) to its convenience.

(d) The Contractor shall use ENG Form 4025, furnished in Section 01330, to transmit Shop Drawings, Equipment Data, Material Samples or Manufacturer's Certificate of Compliance to the Government.

1.11 SAMPLING, CERTIFICATES, AND TESTING

(a) General. Within 30 days after acknowledgment of Notice to Proceed, the Contractor shall submit to the Contracting Officer five (5) copies of a list of the items for which he proposes to furnish manufacturer's certificates and/or samples for inspection and testing. The list shall include, but is not limited to the following information:

- (1) Name of item
- (2) Specification paragraph covering this item
- (3) Date sample will be furnished
- (4) Delivery date of product

(5) Items for which a certificate will be furnished

(b) Submittals. Any product or item mentioned in these specifications and required to meet Federal, ASTM, AASHTO, U. S. Army or Navy, AREA, AWWA, NEC, and UL Specifications or Codes, specified herein with certain limiting or qualifying requirements, or any product or item which is required to be similar and equal to a specified product or item may require the submission, before delivery of the product or item to the job site, of one or more of the following:

(1) Certificate by the manufacturer that the item meets the contract requirements.

(2) Samples for inspection, comparison, and testing, including destructive tests.

(c) Sample delivery. Unless otherwise specified or authorized, all samples shall be delivered (without cost to the Government) to:

U.S. Army Engineer District, Wilmington  
Corps of Engineers  
ATTENTION: Construction Branch  
69 Darlington Avenue (28403)  
Post Office Box 1890 (28402-1890)  
Wilmington, North Carolina

If required by the Contracting Officer, duplicate samples shall be shipped to the Wilmington District Office at no expense to the Government.

(d) Testing. All tests required in the Technical Provisions shall be made by and at the expense of the Contractor except those material tests specifically excluded which will be made by and at the expense of the Government. All instruments and personnel required for the required tests shall be furnished by the Contractor. The Government reserves the right to interrupt the work to make tests on all facets of concreting and other operations. These tests will be made as necessary to insure conformance to applicable specifications and drawings and will be made by and at the expense of the Government except Contractor sampling support as required by the Technical Provisions. In those instances where testing is specified to be made at the Government's expense, the cost of the initial testing will be at the Government's expense; however, any retesting due to failure of the materials to meet the requirements in the initial test shall be performed at the Contractor's expense. The retests shall be made at laboratories approved by the Contracting Officer. The costs of retests made at Government laboratories will be deducted from the total amount due the Contractor, at actual cost to the Government, unless otherwise specified.

1.12 CERTIFICATES OF COMPLIANCE  
(1969 MAY OCE)

Any certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in 3 copies. Each certificate shall be signed by an official authorized to certify in behalf of the manufacturing company and shall contain the name and address

of the Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if, after tests are performed on selected samples, the material is found not to meet the specific requirements.

#### 1.13 REQUIRED CONSTRUCTION MEETINGS

(a) In addition to meetings required elsewhere in the specifications, the Contractor and any Subcontractors identified by the Contracting Officer's Representative shall be required to attend a preconstruction meeting (after award of the contract but before Commencement of Work) and a post construction meeting (after final acceptance of the work but before final payment is made). The Contractor and identified Subcontractors shall meet with Corps of Engineers personnel at a time and place determined by the Contracting Officer's Representative.

(b) At the preconstruction conference, the Contractor shall be oriented with respect to Government procedures and line of authority in contractual, administrative, and construction matters. Additionally, a schedule of required submittals will be discussed.

(c) Five (5) days prior to the preconstruction conference, the Contractor shall submit the following items:

- Environmental Protection Plan
- Accident Prevention Plan
- Quality Control Plan
- Certificate of completion of Corps Contractor Quality Control Course
- Preliminary Submittal Register (ENG Form 4288 exclusive of Contractor submittal dates)
- Letter Appointing Superintendent (see Contract Clause entitled Superintendence by the Contractor)
- List of Subcontractors

(d) The letter of record will be written documenting all items discussed at the conference and a copy will be furnished by the Contracting Officer's Representative to all in attendance.

#### 1.14 "AS-BUILT" RECORD DRAWINGS

(a) The Contractor shall be responsible for maintaining in good condition one set of full size drawing prints at the job site, on which he shall keep a careful and neat record of all deviations, field changes and modifications from the original contract drawings which are made to each phase of construction as the work progresses. The Contractor is responsible for noting all changes and corrections on these prints promptly as in-place construction activities occur, but in no case less often than on a weekly basis. In addition to the above, the following shall be included:

(1) Actual location of all Contractor installed subsurface

utility lines. Type of materials actually installed, major sizes of lines, etc. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered or obscured, the record drawings shall show, by offset dimensions to two permanently fixed surface features, both ends of each run and each change in direction. Valves, splice boxes and similar appurtenances shall be located by dimensions along the utility run from a reference point. The average depth below the surface of each run shall also be recorded.

(2) Any shop drawings which constitute part of the design shall be included with the record drawings.

(3) The manufacturer and model number of all major items of equipment shall be shown on the record drawings.

(4) Upon completion of all construction, the Contractor will delete by notation all references to features not constructed.

(b) These annotated prints shall be certified as to their correctness by the signature of the Contractor and turned over to the Contracting Officer not later than ten (10) days after final acceptance of the work by the Government. Marked up prints shall be reviewed for approval by the Contracting Officer and returned for corrections as necessary.

#### 1.15 SURVEY DATA

The Contractor shall maintain complete and accurate field notes, sketches, recordings and computations required in establishing the necessary horizontal and vertical control. All survey data shall be recorded in accordance with accepted standards and as approved by the Contracting Officer. All the above data shall be available at all times during the progress of the work for ready examination and use by the Contracting Officer. Upon request of the Contracting Officer, the Contractor shall furnish a copy of above survey data. The Contractor will furnish to the Government copies of all borrow area and beachfill survey data taken as required on a 3.5 inch, high density, microdisks. The points along the beach survey shall be presented in ASCII format and in x, y, z, coordinates or northing, easting, elevation. The survey information will be used by the government to control and make adjustments to the volume of beach fill placed along the beach.

#### 1.16 PLANT LOCATION

The Contractor's plant shall be arranged and located in areas approved by the Contracting Officer. This requirement includes the construction plant; offices; shop and storage buildings; housing facilities and all other equipment and materials needed to construct the project.

#### 1.17 PLANT

(a) The Contractor agrees to keep on the job sufficient plant to meet the requirements of the work. The plant shall be in satisfactory operating condition, and capable of safely and efficiently performing the work as set forth in these specifications, and the plant shall be subject to inspection by the Contracting Officer at all times. The plant listed on the Plant and Equipment Schedule, ENG Form 1619-R, is the minimum which the

Contractor agrees to place on the job unless otherwise determined by the Contracting Officer, and its listing thereon is not to be construed as an agreement on the part of the Government that it is adequate for the performance of the work.

(b) All scows must be kept in good condition, the coamings repaired and the pockets provided with proper doors or appliances to prevent leakage of material.

(c) All pipelines for hydraulic machines must be kept in good condition at all times and any leaks or breaks along their length must be promptly and properly repaired.

(d) No reduction in the capacity of the plant employed on the work shall be made except by written permission of the Contracting Officer. The measure of the "capacity of the plant" shall be its actual performance on the work to which these specifications apply.

1.18 WORK IN QUARANTINED AREA  
(1968 MAY OCE)

The work called for by this contract involves activities in counties quarantined by the Department of Agriculture to prevent the spread of certain plant pests which may be present in the soil. The Contractor agrees that all construction equipment and tools to be moved from such counties shall be thoroughly cleaned of all soil residues at the construction site with water under pressure and that hand tools shall be thoroughly cleaned by brushing or other means to remove all soil. In addition, if this contract involves the identification, shipping, storage, testing, or disposal of soils from such a quarantined area, the Contractor agrees to comply with the provisions of ER 1110-1-5 and attachments, a copy of which will be made available by the Contracting Officer upon request. The Contractor agrees to assure compliance with this obligation by all subcontractors.

1.19 INSPECTION

The Contractor shall be required:

(a) To furnish, on the request of the Contracting Officer or any inspector, the use of such boats, boatmen, laborers, and material forming a part of the ordinary and usual equipment and crew of the dredging plant as may be reasonably necessary in inspecting and supervising the work. However, the Contractor will not be required to furnish such facilities for the surveys prescribed in the clause entitled FINAL EXAMINATION AND ACCEPTANCE.

(b) To furnish, on the request of the Contracting Officer or any inspector, suitable transportation from all points on shore designated by the Contracting Officer to and from the various pieces of plant, and to and from the dumping ground.

1.20 PARTNERING

(a) In order to most effectively accomplish this contract, the Government proposes to form a cohesive partnership with the Contractor and

its subcontractors. This partnership would strive to draw on the strengths of each organization in an effort to achieve a quality project done right the first time, within budget and on schedule. Integral to the partnership would be a joint Contractor/Government effort to settle any disputes that may arise without costly and time consuming litigation. To that end, a non-binding procedure such as the Alternate Dispute Resolution process could be developed and agreed upon by both parties when it is determined to be necessary. This partnership would be bilateral in make-up and participation will be totally voluntary. Any cost associated with developing this partnership will be agreed to by both parties and will be shared equally with no change in contract price.

(b) In addition to partnering with the Contractor, the Government has an existing partnership with the State of North Carolina, acting through the Department of Environment and Natural Resources, which is the sponsor for the Wilmington Harbor 96 Act Project. In this capacity the State pays a portion of the costs of the project and coordinates in the management of it. Funding and project implementation depend on effective communication and cooperation between the Government and the State. While the State is not a party to this contract between the Government and the Contractor, the Contractor should expect that the Government will consult with the State on performance or cost of the work.

#### 1.21 PROTECTION OF EXISTING FACILITIES

The Contractor will not be responsible for any alterations to existing structures or utilities except those made by him for his convenience. The Contractor shall protect all existing structures, including bridges, roadway embankments, utilities and improvements from damage, and, in the event of damage as a result of his operations, the Contractor shall be responsible for their repair, restoration, or for all cost of damage resulting therefrom. In addition, the Contractor shall be responsible for any damage to bridge or culvert structures or railway embankments or track caused by the unauthorized excavation or excavation beyond the project dimensions shown on the plans. If the Contractor elects to have alterations made to any existing structure, utility or other improvements for his convenience, he shall make arrangements with the owner of the facility for such alterations and the agreement shall be approved by the Contracting Officer prior to their alteration.

#### 1.22 CONTRACT AREA AND TRESPASSING

The Contractor's operation shall be confined solely to those areas for which permission has been granted by the owners to enter. The Contractor shall cut only such timber as may be necessary for the prosecution of the work. The Contractor shall not inflict damage upon land outside the contract area by unwarranted entry upon, passage through, or disposal of material on such land. The Contractor may make a separate agreement with any other party, regarding the use of, or right to, lands or facilities outside the contract area. If such an agreement is made, it shall be in writing and a copy shall be furnished the Contracting Officer. The Contractor shall hold and save the Government, its officers, and agents free from liability of any nature or kind arising from any trespassing or damage occasioned by his operations.

## 1.23 ACCESS BALD HEAD ISLAND

Access to Bald Head Island is by ferry or barge. Special equipment transfer requirement shall apply to work at this location. This includes access by personnel, vehicle(s) and on site road limitations, etc. The Contractor shall be required to coordinate his/her construction operations with the Village of Bald Head Island.

## 1.24 COORDINATION WITH OTHER CONTRACTORS

The Government may undertake or award other contracts for dredging near the site of the work under this contract. The dredging Contractor for other Government contracts will be required to cooperate with the Contractor performing the work under this contract. The Contractor performing the work under this contract shall coordinate his operations with other contractors as needed to avoid conflicts and delays.

## 1.25 NOTICE TO MARINERS

Should the Contractor, during dredging operations, encounter any objects on the bottom which could be a hazard to navigation, he shall issue an immediate notification to the U.S. Coast Guard as to the location of said object and any other pertinent information necessary to put out a Notice to Mariners. The Contractor shall immediately advise the Contracting Officer of the hazard and the issuance of the notification to the U.S. Coast Guard. A copy of the notification shall be furnished to the Contracting Officer.

## 1.26 BEACH SURVEYS AND SURVEY PERSONNEL

(a) Survey personnel. All surveys required of the Contractor shall be made by personnel of a professional engineering and/or surveying firm experienced in the practice of such work. The survey personnel shall have the following minimum qualifications:

(1) Instrument men shall be proficient in the operation of precise and semi-precise instruments including transit, level, and alidade, and shall prepare all survey notes in a firm and legible manner.

(2) Rodman and chainman. At least one rodman and one chainman, with a minimum of 6 months prior experience each, shall be assigned to each survey party.

(b) Beach surveys to be performed by the Contractor are as follows:

(1) Preplacement surveys shall be made of the beach (onshore and offshore) area prior to placement of fill and at least one week prior to the initiation of any dredging. Such surveys shall be scheduled so that field notes and computations can be furnished to the Contracting Officer's Representatives in advance of placement so that control of quantities and adjustments to the fill section may be made if necessary. The sections shall be taken at intervals of 100 feet, generally at increments of no more than 1,500 feet in advance of the beach work and at right angles to the longitudinal alignment of the project baseline or as otherwise directed. All sections shall extend from the project baseline, as

indicated on the drawings to a minimum distance of 1,500 feet seaward of baseline. Elevations and ocean soundings shall be taken generally at 25-foot intervals and at all break points.

(2) Postplacement surveys shall be made as soon as possible after placement of the fill. The Contractor shall use the same stations that were used in the preplacement surveys. Elevations and ocean soundings shall be taken at 25-foot intervals and at all break points. All sections shall extend from the baseline to a distance offshore not less than 1,500 feet or as needed to indicate the intersection of beach fill with the preplacement bottom profile. In the event the first examination shows additional work is required in an area prior to its acceptance, additional elevations and/or soundings will be required only in the area where additional work is required. Elevations and soundings will continue to be taken until such area is acceptable.

(c) Unless waived in each specific case, all surveys made by the Contractor shall be conducted in the presence of a representative of the Contracting Officer.

(d) The Government reserves the right to make such surveys as necessary for verification of surveys made by the Contractor.

(e) The Contractor shall furnish to the Government copies of all Beach surveys taken as required on a 3.5 inch, high density, microdisks. The points along the beach survey shall be presented in ASCII format and in x, y, z, coordinates or northing, easting, elevation. The survey information will be used by the government to control and make adjustments to the volume of beach fill placed along the beach.

(f) In addition to the above requirements, the Contractor shall compute beach fill volumes for the contract typical sections based on the preplacement surveys as described herein above. The Contractor shall also compute beach fill volumes for construction template with a +0.5 foot vertical tolerance and a -0.5 foot vertical tolerance. Paper plots of the profiles along with digital records of the surveys and computations shall be furnished to the Government.

1.27 FINAL EXAMINATION AND ACCEPTANCE OF BEACH FILL

**(a) After the completion of each contiguous 2500-foot acceptance section of beach fill, the Contracting Officer's Representative will thoroughly examine the section, including the Contractor's soundings or surveys, for final acceptance and payment. The order of work for acceptance sections shall be as follows:**

- |                             |                              |
|-----------------------------|------------------------------|
| 1. Station 51+00 to 76+00   | 2500-foot Acceptance Section |
| 2. Station 76+00 to 101+00  | 2500-foot Acceptance Section |
| 3. Station 101+00 to 126+00 | 2500-foot Acceptance Section |
| 4. Station 126+00 to 149+00 | 2500-foot Acceptance Section |

**Acceptance sections less than 2500 feet may occur if a shorter section would complete the work, or, no damage to further operations associated with the contract will occur in the opinion of the Contracting Officer's Representative. The Contracting Officer or authorized representative shall**

be notified when beach fill soundings and/or surveys are to be made and will be permitted to accompany the survey party; the surveys and/or soundings will occur prior to beach tilling and final acceptance of the section. Requirements for final acceptance shall include proper grading, beach tilling, and removal of all material, equipment, and temporary grade stakes, including beach fill pipeline. See Section 02325, Payments, regarding payment for dredging borrow areas associated with the beach fill.

Should this examination disclose deficiencies of material in the beach fill acceptance section, the Contractor shall be required to place additional material at the contract unit price until the fill requirements are met. If examination shows that material has been deposited elsewhere other than in places designated or approved by the Contracting Officer, the Contractor may be required to remove such misplaced material and deposit it where directed at the Contractor's expense.

(b) Final acceptance of the whole or part of the work and the deductions or corrections of deductions made thereon will not be reopened after having once been made, except on evidence of collusion, fraud, or obvious error.

(c) The Village of Baldhead Island intends to issue a contract to rehabilitate the existing tube groins concurrently with this contract. The order of work beach fill completion acceptance sections noted above are intended to facilitate the coordination of the tube groin construction. The approximate locations of the existing tube groins are noted on the beach fill area drawings. Any offshore submerged dredging pipeline shall not be placed within 500 feet of the beach fill landward tie-in to avoid interference with the tube groin construction by others.

#### 1.28 SEAGOING BARGE

The Seagoing Barge Act (4. U.S.C. et seq.) applies to this project. In the event the low bidder contemplates using plant that requires U.S. Coast Guard certification to comply with this Act, the low bidder shall within ten (10) calendar days after bid opening submit a copy of said certificate to the Contracting Officer. Failure to produce the certificate within the required time shall subject the bidder to a determination of nonresponsibility.

#### 1.29 CONTRACT DRAWINGS AND SPECIFICATIONS (AUG 2000) DFARS 252.236-7001

(a) The Government will provide to the Contractor, without charge, five (5) sets of contract drawings and specifications, except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Officer.

(b) The Contractor shall-

- (1) Check all drawings furnished immediately upon receipt;
- (2) Compare all drawings and verify the figures before laying out the work;
- (3) Promptly notify the Contracting Officer of any discrepancies;

(4) Be responsible for any errors that might have been avoided by complying with this paragraph (b); and

(5) Reproduce and print contract drawings and specifications as needed.

(c) In general--

(1) Large-scale drawings shall govern small-scale drawings; and

(2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work that are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. The Contractor shall perform such details as if fully and correctly set forth and described in the drawings and specifications.

(e) The work shall conform to the specifications and the contract drawings identified on the following index of drawings (Attachment 1).

1.30 RATES OF WAGES

- a. General Decision Number NC030034  
Superseded General Decision No. NC020034

Work under this General Decision Number applies to hopper dredges.

State: North Carolina Construction Type:  
DREDGING County(ies):  
BEAUFORT CURRITUCK PAMLICO  
BERTIE DARE PASQUOTANK  
BRUNSWICK GATES PENDER  
CAMDEN HERTFORD TYRRELL  
CARTERET HYDE WASHINGTON  
CHOWAN NEW HANOVER  
CRAVEN ONSLOW  
HOPPER DREDGE CONSTRUCTION PROJECTS  
Modification Number Publication Date  
0 06/13/2003

COUNTY(ies):  
BEAUFORT CURRITUCK PAMLICO  
BERTIE DARE PASQUOTANK  
BRUNSWICK GATES PENDER  
CAMDEN HERTFORD TYRRELL  
CARTERET HYDE WASHINGTON  
CHOWAN NEW HANOVER  
CRAVEN ONSLOW  
SUNC2002A 05/24/1993

	Rates	Fringes
SELF-PROPELLED HOPPER DREDGES:		
Drag Tenders	8.21	

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Unlisted classifications needed for work not included within  
the scope of the classifications listed may be added after  
award only as provided in the labor standards contract clauses  
(29 CFR 5.5(a)(1)(ii)).  
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- b. General Decision Number NC030050  
Superseded General Decision No. NC020050

Work under this General Decision Number apply to all dredging work, including mobilization and demobilization.

State: North Carolina Construction Type:  
DREDGING County(ies):  
STATEWIDE  
DREDGING CONSTRUCTION PROJECTS  
Modification Number Publication Date  
0 06/13/2003

COUNTY(ies):  
STATEWIDE  
ENGI0025E 02/01/2003

	Rates	Fringes
<b>HYDRAULIC DREDGES 20" &amp; OVER</b>		
Leverman	19.90	4.01+a
Engineer	18.72	4.01+a
Derrick Operator	17.37	4.01+a
Mate	16.25	3.81+a
Welder	16.79	3.81+a
Spill Barge Operator	17.03	3.81+a
Carpenter	17.27	4.01+a
Electrician	17.70	4.01+a
Oiler	12.75	3.61+a
Deckhand	11.93	3.61+a
Shoreman	11.70	3.61+a
Handyman	11.93	3.61+a
Fill Placer	17.27	4.01+a
Asst. Fill Placer	15.71	4.01+a
<b>HYDRAULIC DREDGES UNDER 20"</b>		
Leverman	10.03	1.73+b
Engineer	9.59	1.73+b
Welder	9.79	1.73+b
Mate	8.82	1.73+b
Oiler & Fireman	8.11	1.73+b
Deckhand	7.77	1.73+b
Launchman	8.19	1.73+b
Shoreman	7.82	1.73+b
Spill Barge Operator	8.68	1.73+b
Spider Barge Operator	8.68	1.73+b
Cook	8.11	1.73+b
Mess Cook	7.71	1.73+b
Messman & Janitor	7.53	1.73+b
<b>CLAMSHELL DREDGES:</b>		
Operator	19.80	4.01+a
Engineer	17.71	4.01+a
Welder	16.52	3.81+a
Mate	15.91	3.81+a
Oiler	12.75	3.61+a
Deckhand	11.93	3.61+a
Scowman	12.10	3.61+a
Handyman	11.93	3.61+a

	Rates	Fringes
<b>DIPPER DREDGES:</b>		
Operator	19.99	4.01+a
Engineer	18.54	4.01+a
Welder	16.79	3.81+a
Mate	16.25	3.81+a
Oiler	12.75	3.61+a
Deckhand	11.93	3.61+a
Scowman	12.10	3.61+a
Handyman	11.93	3.61+a
<b>TUGS LESS THAN 600 HP:</b>		
Tug Master	15.88	4.01+a
Tug Captain	15.37	4.01+a
Tug Deckhand	11.93	3.61+a
<b>TUGS 600 HP TO 1350 HP:</b>		
Tug Master	16.87	4.01+a
Tug Captain	15.53	4.01+a
Tug Deckhand	11.93	3.61+a
<b>TUGS GREATER THAN 1350 HP</b>		
Tug Master	17.95	4.01+a
Tug Captain	17.02	4.01+a
Tug Engineer	17.02	4.01+a
Tug Deckhand	11.93	3.61+a
<b>STEWARD DEPARTMENT:</b>		
Steward	13.14	3.81+a
2nd Cook	11.93	3.61+a
Night Cook	11.93	3.61+a
Messman	11.70	3.61+a
Janitor	11.93	3.61+a
<b>DRILL BOATS:</b>		
Engineer	18.72	4.01+a
Driller	18.03	4.01+a
Blaster	18.03	4.01+a

**FOOTNOTE:**

- a. New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day and Good Friday. Plus Vacation Contribution of 7% of straight time pay for all hours worked.
- b. New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day. Plus Vacation Contribution of 7% of stright time pay for all hours worked.

-----  
**WELDERS** - Receive rate prescribed for craft performing operation to which welding is incidental.  
 =====

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

-----  
 In the listing above, the "SU" designation means that rates

listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U. S. Department of Labor  
200 Constitution Avenue, N. W.  
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N. W.  
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U. S. Department of Labor  
200 Constitution Avenue, N. W.  
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

PART 2 PRODUCTS (Not Applicable)  
PART 3 EXECUTION (Not Applicable)

-- End of Section --

### 3.2.6 Beach Tilling

Prior to final acceptance of the beach fill work as described in Section 01100, Final Examination and Acceptance of Beach Fill, the Contractor shall be required to till the beach fill areas located between the mean high water line (+2.7 NGVD) and the landward tie-in of the berm. The areas shall be tilled with equipment operated so as to penetrate and loosen beach sand. Beach tilling operations shall be completed by April 30, 2004.

- a. vertically to a depth of 36 inches, and
- b. horizontally without leaving unloosened compact sand between the adjacent paths of tilling equipment.
- c. Leveling. To remove furrows, the contractor shall level any materials which are tilled by dragging the areas during the tilling with fencing material, shoreline pipe etc., or approved methods.

### 3.2.7 Protection of Air Resources

The Contractor shall keep construction activities under surveillance, management, and control to minimize pollution of air resources. All activities, equipment, processes, and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with all Federal and State of North Carolina emission and performance laws and standards. Ambient air quality standards set by the Environmental Protection Agency shall be met for the construction operations and activities conducted under this contract. Special management techniques shall be implemented as set out below.

- a. Particulates - Airborne particulates, including dust particles, from construction activities and processing and preparation of materials shall be controlled at all times, including weekends, holidays, and hours when work is not in progress. The Contractor shall maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, disposal sites, borrow areas, and all other work areas free from airborne dust and other particulates which would cause exceedance of Federal, State, or local air pollution standards or which would cause a hazard or nuisance.
- b. Odors - Odors shall be controlled at all times for all construction activities, as well as processing and preparation of materials.
- c. Monitoring - Air in all areas affected by construction activities shall be monitored by the Contractor.

### 3.2.8 Noise Protection

The Contractor shall keep construction activities under surveillance, management, and control to minimize damage to the environment by noise.

Permit Class  
NEW

Permit Number  
45-03

STATE OF NORTH CAROLINA  
Department of Environment and Natural Resources  
and  
Coastal Resources Commission

# Permit

for

Major Development in an Area of Environmental Concern  
pursuant to NCGS 113A-118

Excavation and/or filling pursuant to NCGS 113-229

Issued to NC Wildlife Resources Commission, 512 N. Salisbury St., Raleigh, NC 27604

Authorizing development in New Hanover & Brunswick County at Cape Fear River, at Ferry Slip Island and South Pelican Island, as requested in the permittee's application dated 1/2/03 (MP-1) & 1/3/03 (MP-2), including attached the workplan drawings (2), both dated 2/28/03.

This permit, issued on April 1, 2003, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

### Bird Island Renourishment

- 1) This permit authorizes the renourishment and enlargement of the two existing islands, Ferry Slip and South Pelican, to the extent that neither becomes larger than seven acres. All work shall be done as expressly and specifically set forth in the permit application and as depicted on the attached workplan drawings. This permit does not authorize the construction of any new islands.
- 2) The material used to renourish the islands will be clean and free of any pollutants except in trace quantities.
- 3) No vegetated wetlands will be excavated or filled.

(See attached sheet for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date. An appeal requires resolution prior to work initiation or continuance as the case may be.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

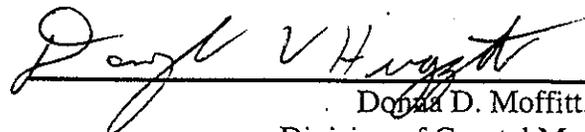
Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on

December 31, 2006

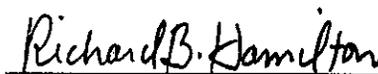
In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DENR and the Chairman of the Coastal Resources Commission.



Donna D. Moffitt, Director  
Division of Coastal Management

This permit and its conditions are hereby accepted.



Signature of Permittee

**ADDITIONAL CONDITIONS**

- 4) No excavated or fill material will be placed at any time in any surrounding waters outside of the alignment of the fill area indicated on the workplan drawings.
- 5) The permitted activity will be conducted in such a manner as to prevent a significant increase in turbidity outside of the area of construction or construction-related discharge. Increases such that the turbidity in the waterbody is 25 NTU's or less in all saltwater classes are not considered significant.

**Sedimentation and Erosion Control**

**NOTE:** An Erosion and Sedimentation Control Plan will be required for this project. This plan must be filed at least thirty (30) days prior to the beginning of any land disturbing activity. Submit this plan to the Department of Environment and Natural Resources, Land Quality Section, 127 Cardinal Drive Extension, Wilmington, NC 28405.

**General**

- 6) The permittee understands and agrees that, if future operations by the United States requires the removal, relocation, or other alteration of the structure or work authorized by this permit, or if in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate or alter the structural work or obstructions caused thereby, without expense to the United States or the state of North Carolina. No claim shall be made against the United States or the state of North Carolina on account of any such removal or alteration.

**NOTE:** This permit does not eliminate the need to obtain any additional state, federal or local permits, approvals or authorizations that may be required.

**NOTE:** Future development of the permittee's property may require a modification of this permit. Contact a representative of the Division at (910) 395-3900 prior to the commencement of any such activity for this determination.

**NOTE:** The permittee and/or his contractor is urged to meet with a representative of the Division prior to project initiation.

**NOTE:** The N.C. Division of Water Quality has authorized the proposed project under General Water Quality Certification No. 3274 (DWQ Project No. 030263), which was issued on 3/28/03.

**NOTE:** The U.S. Army Corps of Engineers has assigned the proposed project COE Action Id. No. 200300466.

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## SECTION 02325

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- 3.25 DISPOSAL OF MATERIAL ON BIRD ISLANDS

3.26 QUALITY CONTROL

-- End of Section Table of Contents --

## SECTION 02325

## DREDGING, BEACH-FILL WORK, AND ISLAND DISPOSAL WORK

## PART 1 GENERAL

## 1.1 DESCRIPTION OF WORK

(a) The work consists of furnishing plant, labor, materials, and equipment to perform dredging and associated work as required by these specifications and the schedules and drawings forming parts thereof, for Wilmington Harbor, NC 96 ACT Clean Sweep, Horseshoe Shoal Channel Sta. 00+00 thru Baldhead Shoal Channel Sta 270+00.

(b) **The depth, bottom widths and lengths to be dredged are shown on the drawings. Before dredge surveys will be performed by the Government to represent actual bottom conditions as work commences in each acceptance section. The depth, bottom widths and lengths to be dredged are based on the bottom conditions existing on the date of the contract survey and are subject to change based on the bottom conditions at the time of the before dredge survey.**

(c) Materials to be dredged in Reach 3 of Baldhead Shoal Channel will be disposed of in new ODMDS.

(d) The work consists of placing beach quality sand along the area of beach on Baldhead Island South and constructing the beach fill sections as shown on the plans along the length of beach as identified on the plans. Dredged material not considered suitable for beach fill will be disposed of in new ODMDS indicated on the plans and in accordance with this section of the specifications.

(e) The work consists of placing beach quality sand from channels above Battery Island Channel on two bird islands as shown on the plans. Material exceeding that capable of being disposed of on the bird island will be disposed of in Disposal Area No. 4 as shown on drawings.

## 1.2 WORK COVERED BY CONTRACT PRICE

**The contract price per cubic yard for dredging as listed in the BIDDING SCHEDULE shall include the cost of all plant, material, supplies, labor, and incidental expenses in connection with the excavating, transporting, disposal in new ODMDS, placing and shaping the island disposal, and placing and tilling the beach fill material; temporary safety fencing, temporary warning signs, all diking, embankments, temporary bulkheading needed for control and confining the material and discharge fluid; surveys for the layout and control of the dredging work and for the beach fill work and new ODMDS surveys described in SECTION 01100: SUPPLEMENTARY SPECIAL CONTRACT REQUIREMENTS, paragraph, BEACH SURVEYS AND SURVEY PERSONNEL, repairs, and its final inspection and acceptance. The Contractor shall be required to place the beach fill in accordance with the drawings.**

(a) The contract price per cubic yard for dredging includes the cost

of removal and disposal of all dredged material. Included is cost for disposal of unsuitable material for beach fill into new ODMS and unsuitable material for bird island disposal into upland disposal area indicated on plans.

(b) The contract price per cubic yard for dredging includes all costs associated with labor, equipment, and materials required for proper placement of dredged material in accordance with these specifications until dredging operations have been completed.

(c) All costs associated with the turtle observers, shortnose sturgeon observers, marine mammal observers, including room and board throughout the entire project, shall be included in the contract price per cubic yard for dredging.

(d) The lump sum for mobilization and demobilization shall include all costs associated with the operations.

### 1.3 ORDER OF WORK

#### 1.3.1 Dredging

If the work is accomplished by pipeline dredge or mechanical dredge (clamshell, dragline, or dipper), the Contractor shall begin work at one end of acceptance section and proceed to the opposite end of the work area. The Contractor shall not work in more than 3 adjoining acceptance sections at any given time. Before proceeding to an additional adjoining acceptance section, work must be completed to the full project depth within at least one of the three previous adjoining acceptance sections.

If the work is to be accomplished by hopper dredge, the Contractor shall submit a dredging plan to the Contracting officer for approval prior to commencement of dredging. The dredging plan shall include an order of work which begins at one end of acceptance section and proceeds to the opposite end of the work area. The Contractor shall not work in more than 4 adjoining acceptance sections at any given time. Before proceeding to an additional adjoining acceptance section, work must be completed to the full project depth within at least one of the four previous adjoining acceptance sections.

If the work is accomplished by a combination of hopper dredge and other types of dredging equipment (pipeline dredge or mechanical dredge), the Contractor shall submit a dredging plan to the Contracting Officer for approval prior to commencement of dredging. The dredging plan shall include an order of work where each piece of dredging equipment completes acceptance sections in an orderly manner progressing in one direction. Work by hopper dredge shall not occur in more than 4 adjoining acceptance sections at any given time and work by other dredging equipment shall not occur in more than 3 adjoining acceptance sections at any given time. For hopper dredge work, before proceeding to an additional adjoining acceptance section, work must be completed to the full project depth within at least one of the four previous adjoining acceptance sections. For other types of dredging equipment, before proceeding to an additional adjoining acceptance section, work must be completed to the full project depth within at least one of the three previous adjoining acceptance sections.

#### 1.4 CHARACTER OF MATERIALS

The material to be removed is predominantly composed of shoaled material which has occurred since the various areas were last dredged. The shoaled materials are believed to consist primarily of sand, hard sand, silt and clay, but also include wood, metal, and other sunken debris that may have become lodged in the channel. The new work is believed to consist of primarily of sand, dense sand, silt, clay, wood, cemented sand, silt and clay, and sedimentary rock with high compressive strength. For definitions of materials, see Geotechnical Manual, DM 1110-1-1, latest edition. See attached (drilling) logs and laboratory data. See also site specific information paragraphs of this section and reference drawings.

#### 1.5 NOTICES

(a) The Contractor shall give the Contracting Officer five (5) days advance written notice before commencing work.

(b) The Contractor shall be responsible for requesting Government before-dredging surveys, in writing five (5) days prior to beginning work in an acceptance section.

(c) The Contractor shall also be responsible for requesting the Government after-dredging surveys. The Government will conduct after-dredging surveys, within three (3) working days of a written request from the Contractor.

#### 1.6 NAVIGATION AIDS

There may be aids to navigation within the project boundaries. Some, or all, of such aids to navigation may need to be removed for the accomplishment of the contract work. It is the responsibility of the Contractor to timely determine any need for moving of aids to navigation and to coordinate with the U.S. Coast Guard (USCG) and any other responsible parties to accomplish any needed movement. Any impacts to the work due to the inability of the Contractor to accomplish any needed movement of aids to navigation will not be the responsibility of the United States Government or of the Contracting Officer.

#### 1.7 MISPLACED MATERIAL

Any material, including material lost through leaks in the pipelines, that is deposited or allowed to flow elsewhere than in places designated or approved by the Contracting Officer will be considered as misplaced material. If, in the opinion of the Contracting Officer, this misplaced material will in any way be a hazard to navigation, to normal activities of the public, or to the environment, the Contractor shall remove such misplaced material and deposit it where directed at the Contractor's expense. Misplaced material includes dredged material deposited outside the specified new Ocean Dredged Material Disposal Site (ODMDS) disposal zone, any dredged material mounded higher than elevation -30 feet MLLW within the disposal zone, and any dredged material placed outside the tolerances as specified for the beach fill sections.

## 1.8 SUBMITTALS

The following shall be submitted to the Contracting officer in accordance with Section 01330 SUBMITTAL PROCEDURES:

- a. Disposal Operation Plan; G.
- b. Turtle deflector device design (required if hopper dredge is to be used to accomplish the work); G
- c. Inflow basket or screen design (required if hopper dredge is to be used to accomplish the work); G
- d. Dredge material disposal plan; FIO
- e. Ocean disposal verification data; FIO
- f. Dredging Plan; FIO

## PART 2 PRODUCTS (NOT APPLICABLE)

## PART 3 EXECUTION

### 3.1 DREDGE POSITIONING SYSTEM

Each dredge shall be equipped with an electronic positioning system, capable of positioning the dredge in the channel with accuracies equal to contract payment surveys (Class 1), as specified in the U.S. Army Corps of Engineers, latest Publication Number EM 1110-2-1003, Title: Engineering and Design - Hydrographic Surveying. This positioning system shall be established, operated, and maintained by the Contractor during the entire period of the contract. The positioning system shall be used to precisely locate the dredge and shall be capable of displaying and recording the dredge's location in an acceptable coordinate system which can be related to, or is directly based on, the North Carolina Lambert State Plane Coordinate System. Navigation channel control, and shore station control, if required, will be provided to the Contractor in the same North Carolina Coordinate System prior to the commencement of work. It shall be the responsibility of the Contractor to have the positioning/navigation system reviewed and inspected by the Contracting Officer's Representative prior to the commencement of work.

### 3.2 QUANTITIES SUMMARY

The quantities listed in the table below include the volumes present at the time of the surveys indicated in the contract drawings, plus anticipated shoaling before dredging begins.

<u>Acceptance Sections</u>	<u>Total Cubic Yards to Required Depth</u>	<u>Total Including Allowable Overdepth</u>
Horseshoe Shoal <sup>1</sup>	25,000 <sup>(42')</sup>	60,000 <sup>(44')</sup>
Snow's Marsh <sup>1</sup>	60,000 <sup>(42')</sup>	150,000 <sup>(44')</sup>
Lower Swash <sup>1</sup>	15,000 <sup>(42')</sup>	40,000 <sup>(44')</sup>
Battery Island <sup>2</sup>	10,000 <sup>(44')</sup>	20,000 <sup>(46')</sup>
Southport <sup>2</sup>	10,000 <sup>(44')</sup>	20,000 <sup>(46')</sup>
Baldhead Caswell <sup>2</sup>	5,000 <sup>(44')</sup>	10,000 <sup>(46')</sup>
Smith Island <sup>2</sup>	300,000 <sup>(44')</sup>	450,000 <sup>(46')</sup>
Baldhead Shoal <sup>2</sup> 00+00 to 45+00	150,000 <sup>(44')</sup>	200,000 <sup>(46')</sup>
Baldhead Shoal <sup>2</sup> 45+00 to 88+00	90,000 <sup>(44')</sup>	200,000 <sup>(46')</sup>
Baldhead Shoal <sup>3</sup> 88+00 to 150+00	1,000,000 <sup>(45')</sup>	1,500,000 <sup>(47')</sup>
Baldhead Shoal <sup>3</sup> 150+00 to 270+00	1,000,000 <sup>(45')</sup>	1,500,000 <sup>(47')</sup>

NOTE:

\*Acceptance sections for the channels that are borrow areas for the beach fill shall be divided appropriately to facilitate completion of the beach fill acceptance sections. See Section 01100, Final Examination and Acceptance of Beach Fill.

NOTE:

<sup>1</sup>Disposal to South Pelican Island and Ferry Slip Island until filled to capacity (DA #4 is alternate site for additional material after filling of islands and any unsuitable material)

<sup>2</sup>Disposal to Baldhead Island South Beach (unsuitable material to new ODMDS)

<sup>3</sup>Disposal to ODMDS (additional foot of required depth because of nature of material to facilitate future maintenance dredging)

### 3.3 ENVIRONMENTAL WINDOWS

See SECTION 01355, ENVIRONMENTAL PROTECTION, for environmental windows.

### 3.4 LOCAL OFFICE

The Contractor shall maintain a land based office in the immediate vicinity of the project. This office shall be equipped with at least one operable telephone and fax machine, which provides both local and long distance service. The number for this equipment shall be provided to the Contracting Officer's Representative during the preconstruction conference, and the telephone shall be monitored and answered by contractor personnel during working hours.

### 3.5 OVERDEPTH AND SIDE SLOPES

#### 3.5.1 Overdepth

This contract allows overdepth dredging. No payment will be made for any material that is removed from below the allowable overdepth or outside of the indicated side-slopes.

#### 3.5.2 Side-Slopes

Material actually removed within limits approved by the Contracting officer, leaving final side-slopes as indicated on drawings. Flatter slopes will not be paid for, whether accomplished by dredging the original position or the space below the pay slope plane and allowing up slope materials to fall into the cut.

#### 3.5.3 Excessive Dredging

Material taken from beyond the limits as extended in provision, side-slopes above, will be deducted from the total amount dredged as excessive dredging and will not be credited.

### 3.6 REQUIRED TRANSPORTATION AND PIPELINE ROUTE

For surface vessel transportation of dredged material to the new Ocean Dredged Material Disposal Site (ODMDS) disposal zone and subsequent return trips to the work site, the vessel(s) shall be limited to the dredging limits and to the designated areas shown on the drawings. Pipeline routes to the Ocean Dredged Material Disposal Site (ODMDS) shall be restricted to the same areas required for surface vessel transportation.

### 3.7 PLACEMENT OF MATERIALS FOR BEACH FILL

#### 3.7.1 General

##### 3.7.1.1 Placement

The beach fill material shall be placed by discharging the material directly into the fill section from the dredge discharge pipe or by stockpiling the dredged material on the beach, in an area approved by the Contracting Officer, and hauling the material by wheeled or tracked earth moving equipment into the fill section. A combination of the above two

methods may also be used. Except as provided for below, the dredged material shall be placed at the location and within the prescribed tolerances of the design sections as shown on the plans and in accordance with subparagraph, Tolerances, unless otherwise approved by the Contracting Officer. No material shall be placed unless an inspector appointed by the Contracting officer is present at the time, or has given his permission for the Contractor to proceed. The contractor shall be required to re-distribute any material that is deposited in places not designated or approved by the Contracting Officer. The Contractor shall be required to remove such misplaced material and deposit it where directed at his own expense. Avoid use of equipment to distribute material in close vicinity of dune crossovers; hand place and hand distribute material around crossovers.

#### 3.7.1.2 Materials

The dredging shall be accomplished so that the most suitable material available for beach fill is placed within the prescribed section. This material should be predominantly of sand (SP, SP-SM, SM) grain size with no more than 10W (by weight) silt and clay (MH, ML, CH, OH, OL) material present. Material with more than 10% (by weight) silt and clay and organic materials and gravel, cobbles, and boulders are unsuitable for beach placement. The limits of the sand have been indicated on the contract plans. It is anticipated that the material within the entire channel prism and to the depth as noted on the plans, including the side slopes, contains suitable material for beach fill. Should the dredge encounter materials not suitable for placement on the beach, the Contractor will be directed by the Contracting Officer to move to a more satisfactory location within the indicated channel or dispose of the material within the designated area of the ODMDS. The Contractor will be directed by the Contracting Officer to dispose of the material dredged within the channel that are located outside the limits and below the depths indicated on the plans in the designated area of the new ODMDS.

#### 3.7.1.3 Objectional Matter

Objectionable matter such as stumps, roots, logs, or other organic or inorganic debris having a diameter of 2 inches or more and/or a length of 1 foot or more, or accumulations of small vegetative growth or debris shall be collected and placed in a disposal area furnished by the Contractor and approved by the Contracting Officer as the work progresses. Objectionable matter such as large clay balls shall be broken up and dispersed and/or mixed in with the beach fill section by scarifying or an appropriate method approved by the Contracting Officer.

#### 3.7.2 Beach Fill

##### 3.7.2.1 Discharge Points

When the fill material is placed by discharging the material in a controlled manner directly into the fill section, the dredge discharge points shall be manipulated and controlled by the Contractor in such a manner to minimize the loss of material into the surf zone.

##### 3.7.2.2 Longitudinal Dikes

For beach fill material placed by discharging the material directly into

the fill section, the Contractor shall provide temporary longitudinal dikes and spreader and pocket pipe as necessary to prevent gullying and erosion of the beach and fill and to retain the fill on the beach and within the limits of the fill cross section. Longitudinal dikes shall initially be 300 feet long in advance of filling operations. Shorter lengths may be subsequently used if approved by the Contracting Officer. Groins, bulkheads, revetments, piers, storm drain outfall pipes, walkover structures, and other structures within the fill section shall be protected by the Contractor to prevent damage thereof by the Contractor's operations. Any damages to any of the above items resulting from the Contractor's activities shall be at the Contractor's expense. If dredged material is to be stockpiled on the beach for hauling with wheeled or tracked equipment, the Contractor shall provide dikes, embankments, temporary bulkheading and spillways to confine the material within the approved stockpile areas. For stockpile areas, the material shall be confined shoreward of the seaward crest of the new top of berm elevation contour as indicated on the drawings for the particular beach fill site.

### 3.7.2.3 Fill Adjustments

It is the intent of the Contracting Officer to control the yardage of the fill material along the beaches to that which is needed to construct the applicable fill sections for the entire lengths of the beaches as shown on the drawings by varying the width of the top of the particular berm for each beach fill site. The distribution of the yardage along the beach, which is based on the design cross sections, the latest survey as of the date of these specifications, and the amount of material removed from the channel is tabulated on Table 1. Note that the amount of material retained on the beach is assumed to be 20% less than the volume of material removed from the channel. Periodic checks of the difference between the volume of material removed from the channel prisms and the amount of material retained on the beach will be made during the prosecution of the work. If the difference is found to be different from the assumed 20%, appropriated adjustments will be made in the retention volumes given in Table 1. The width of the top of the berm is shown on the drawings and is based on the quantity of material to be placed and an assumed slope of the placed material of 1V:15H seaward of the crest of the berm to the point of intersection with the existing bottom. The actual width of the berm needed to achieve the volumetric distribution given in Table 1 the beach fill berm will be based on Government interpretation of the channel and beach profile surveys and the actual slope that the material assumes during placement. The Contractor shall maintain the fill section in a satisfactory condition at all times until final completion and acceptance of the work as specified in SECTION 01100: SUPPLEMENTARY SPECIAL CONTRACT REQUIREMENTS, paragraph, FINAL EXAMINATION AND ACCEPTANCE OF BEACH FILL.

### 3.7.2.4 Temporary Safety Fencing

Before any pumping or discharging of beach fill material can occur, the Contractor shall furnish and erect temporary safety fencing at a distance of 500 feet on either side of the discharge point for the beach fill placement. The temporary safety fencing shall totally encompass the general area around the discharge point for beach fill and shall be moved along the beach in conjunction with the location of the discharge point.

The intent of the safety fencing is to restrict and limit the public access

to and around the general area of the discharge point. The temporary safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 42 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers. The safety fencing shall be maintained by the Contractor during the life of the contract and, upon completion and acceptance of the beach fill work, shall become the property of the Contractor and shall be removed from the work site.

### 3.7.2.5 Temporary Warning Signs

Before any pumping or discharging of beach fill material can occur, the Contractor shall furnish and erect temporary warning signs along and around the outside perimeter of the temporary safety fencing. One temporary warning sign shall be placed along each side of the temporary safety fencing and for each direction accessible to the public. The temporary warning sign shall be moved along the beach in conjunction with the location of the discharge point and the temporary safety fencing. The intent of the warning signs is to warn the public of the hazards and danger of the beach filling operations, construction equipment, and the discharge point. The signs shall be fabricated using 3/4", Douglas Fir, Exterior Marine-Grade, HDO plywood with 4"x4"x12' treated, No. 2 Southern Pine posts installed in 3 feet deep by 12-inch diameter holes backfilled with compacted soil. Sign faces shall be non-reflective vinyl. All letters and logos shall be die-cut or computer-cut. Letter and logo sizes and application to the plywood panel shall conform to the graphic format shown in the U.S. Army Corps of Engineers Signs Standard Manual. The Communications Red panel on the left side of the construction project sign, with Corps logo (reverse version), shall be screen printed onto the white background. Copies of the sign standards manual can be obtained from the Contracting Officer for specific fabrication and installation requirements.

Legends and logos for the temporary warning signs shall be as shown on Attachment 3. No direct payment will be made for the warning signs. The warning signs shall be maintained by the Contractor during the life of the contract and, upon completion and acceptance of the beach fill work, shall become the property of the Contractor and shall be removed from the work site.

### 3.7.2.6 Construction Stakes

The Contractor shall remove in their entirety all construction stakes, ranges, and other devices utilized to delineate and construct the beach fill section. All fill grade stakes shall be steel pipe approved by the Contracting Officer which shall be completely removed prior to final acceptance of the beach fill. The Contractor shall be responsible for locating and removing such stakes using a magnetometer or other suitable means at no additional expense to the Government.

### 3.7.3 Pipeline Route

#### 3.7.3.1 General

The dredged material to be placed on the beaches must be transported over routes that may include public property, navigable and unnavigable water, and under fishing piers. Local authorities will acquire and furnish all

permits, rights-of-way or easements required for the areas shown or specified in which the beach fill is to be placed. Prior to installing the pipeline, the Contractor shall devise a specific pipeline route that will be used and obtain the written approval for the specific pipeline route from the Contracting Officer. The pipeline route shall be devised so as to minimize adverse impacts on vegetation, wildlife, dunes and beach traffic. No road crossings are anticipated for this contract. No pipeline will be placed or stored on the beach seaward of the dune prior to November 16, 2003; except, a submerged pipeline may be landed perpendicular to the beach prior to that date. No work or equipment will be allowed on the beach at any time within 50 feet of a sea turtle nest that has not hatched. All hatching will occur by November 16, 2003. Piping may be stored landward of the dunes in public access with approval of city officials.

#### 3.7.3.2 Dune Crossings

It is the intent of these specifications to minimize the damage to the dunes and vegetation thereon. The Contractor shall exercise extreme care in placing the pipeline across the dunes to the beach, should it become necessary for the pipeline to cross existing dunes. The designated routes shall be followed to the extent practicable and in no case will deviations be made without the written approval of the Contracting Officer. The Contractor will not be allowed to grade, or otherwise disturb the natural dunes. Equipment used in placing and removal of the pipeline shall meet the approval of the Contracting Officer.

Any degradation of the dune area caused by the Contractor's operation shall be restored as near as practicable to the natural condition.

#### 3.7.3.3 Pedestrian Access

The pipeline shall be covered with sand at the Public Beach Access points in each of the completed sections in such a manner so as to allow beach users unobstructed access to the completed beach fill section. The pedestrian access points shall be removed and graded to the final cross section upon the completion of the beach fill.

#### 3.7.3.4 Pipeline Leakage

A tight dredge discharge pipeline shall be maintained along all sections of the pipeline to prevent spilling of dredged effluent outside of the beach fill section or stockpiling area. To minimize damage caused by leaks in the pipeline on the land section of the line, the Contractor shall provide a periodic patrol of the pipeline. A minimum of 12 daily inspections shall be made by the Contractor during disposal operations (four (4) inspections each 8-hour shift). The Contractor shall burlap and strap weld all joints of shore sections of pipeline. When significant leaks occur in the pipe line which can cause erosion of the existing beach or a completed beach fill section and/or appears to be a safety hazard to the public, the Contractor shall immediately cease pumping operations until the pipeline is repaired.

#### 3.7.3.5 Booster Pumps

In the event booster pumps are required along the dredge pipeline, they shall be located so as to minimize the disturbance of residents. The

location of all booster pumps shall be approved in advance by the Contracting Officer.

#### 3.7.4 Tolerances

A vertical tolerance of five-tenths (0.5) of one foot above and five-tenths (0.5) of one foot below the prescribed berm grade and slopes, at and above the top of berm elevation line as shown on the drawings, will be permitted in the finished surface. Below the top of berm elevation line, the fill material will be allowed to assume its natural slope as directed by wave and water level conditions. Any material placed outside the prescribed tolerances may be left in place at the discretion of the Contracting officer; however, the Contractor will not be paid for the material placed outside the prescribed tolerances. The Contractor shall be required to redistribute and/or reshape any material placed outside the prescribed tolerances to conform to the requirements of the contract.

#### 3.8 SUBMERGED PIPELINE

In the event the Contractor elects to submerge his pipeline, the location of the submerged pipeline shall be marked with signs, buoys, flags, and lights conforming to U.S. Coast Guard regulations and to the complete satisfaction of the Contracting Officer.

#### 3.9 DREDGING LIMITS

All dredging shall be confined to within the area and depth limits shown. Dredging shall be regulated and controlled so that bank sloughing in the inlet and borrow area does not occur beyond the limiting lines shown on the drawings. Materials taken from beyond these limits will be deducted from the total amount.

#### 3.10 COMMUNICATIONS

The Contractor shall furnish and maintain a radiotelephone and a cellular phone on the dredge(s) throughout the period of the contract. The plant will not be allowed to begin work until the VHF marine band radio is installed and in good working order and a properly operating cellular phone is on board. The radiotelephone shall be capable of operation from the dredge's main control station and capable of transmitting and receiving on a frequency or frequencies within the 156-162 megahertz band using the classes of emissions designated by the Federal Communications Commission. Continuous radio contact shall be maintained between the dredge control room and the inspectors of the beach fill areas as well as the personnel patrolling the pipeline.

#### 3.11 MEASUREMENT AND PAYMENT

##### 3.11.1 General

The total volume of all material removed and to be paid for under this contract will be measured by the cubic yards in place, by computing the volume between the bottom surface shown by soundings of a survey before dredging each acceptance section and the bottom surface shown by the soundings of a survey made as soon as practicable after completion of each acceptance section. The calculations will exclude any volume of material

removed from beyond the limits of the side-slopes and/or below the allowable overdepth and will be further reduced by the volume of any misplaced material. All pay quantities shall be determined from before and after dredging surveys conducted by the Government. All work connected with excavation, transportation, placing, and shaping of the beach fill, controlling and confining the dredge effluent, surveys for layout and control of the dredging work surveys described in SECTION 01100: SUPPLEMENTARY SPECIAL CONTRACT REQUIREMENTS, paragraph, BEACH SURVEYS AND SURVEY PERSONNEL, and repairs and inspections shall be included in the contract price for dredging.

### 3.11.2 Contract Drawings

The drawings referred to in SECTION 01100, paragraph, CONTRACT DRAWINGS AND SPECIFICATIONS, are believed to represent the conditions existing on the dates of survey. The bottom conditions will be determined by before dredging surveys of each acceptance section prior to commencement of dredging and new maps will be furnished to the Contractor. Determination of quantities removed and the deductions made therefrom to determine quantities by in-place measurement to be paid for in the areas specified, after having once been made, will not be reopened, except on evidence of collusion, fraud, or obvious error.

### 3.11.3 Payments

**Payment for dredging shall be made upon acceptance of each channel dredging acceptance section to required template. See Section 02325, Quantities Summary, describing dredging acceptance sections. In addition, no payment for dredging with beach fill disposal will be made until final acceptance of the associated beach fill acceptance section in accordance with the contract. See Section 01100, Final Examination and Acceptance of Beach Fill, for beach fill completion and final acceptance requirements. For purposes of measurement and payment for a particular beach fill acceptance section, after dredge hydro surveys of the channel associated with the beach fill acceptance section will be performed when the contractor has completed the beach fill placement and prior to beach tilling.**

### 3.11.4 Method of Survey

Class 1 Hydrographic surveys with associated tidal control, as specified in the U.S. Army Corps of Engineers, latest Publication Number (EM 1110-2-1003, Engineering and Design - Hydrographic Surveying), will be accomplished by the Government with the use an automated hydrographic surveying system installed aboard one of the Wilmington District's survey vessels. Horizontal location of survey lines and depth sounding points will be determined by the use of Real Time Kinematic (RTK) differentially corrected GPS (DGPS). Depth soundings as depicted on the Baldhead Shoal Channel plans were obtained using a single beam echo sounder/digitizing system operating at 28 kHz. The echo sounder system will be calibrated at the job site suing the "bar check" method and verified for accuracy twice daily. Position and depth data will be collected and stored on magnetic media for subsequent processing by the Government for map presentation and quantity calculations.

### 3.11.5 Survey Lines

Data will be secured by running survey lines parallel to the longitudinal axis of the channel. A sufficient number of lines will be run to assure good coverage of the bottom. A minimum of two (2) lines will be run within the grade slopes. If longitudinal lines are run, additional lines shall be required along the side slopes. The after dredging surveys will be performed in the same manner as the before dredging surveys. Multi-beam surveys may, however, also be used in the acceptance process. Weather permitting, before and after dredge surveys will be made during the same tidal stage.

### 3.11.6 Misplaced Material

No payment shall be made for any material placed outside of the tolerances of the typical beach section unless otherwise authorized. The Contractor shall be required to redistribute any misplaced material in the beach fill placement areas in order to conform with the typical beach section and tolerances given in the contract and shall be accomplished at his own expense.

## 3.12 COMPLIANCE WITH APPLICABLE NAVIGATION RULES AND REGULATIONS, MARINE EQUIPMENT

The Contractor shall ascertain that all vessels used in performance of this contract are commanded, equipped, navigated and/or operated in strict compliance with the general regulations of the Department of the Army and the U.S. Coast Guard, including but not limited to, applicable safety, environmental, and navigational rules and regulations in the code of Federal Regulations (CFR) Parts 33 and 46.

Installation (i.e., pipeline, pipeline risers and/or booster stations) as may be placed by the Contractor on or over the seabed of the work area are obstructions or structures in accordance with Title 33 CFR SUBPART 67.01. Such installations or portions thereof, are subject to applicable regulations set forth in Title 33 CFR, parts 64, 66 and 67. The responsibility for notifying the Commander, Fifth Coast Guard District, per Title 33 CFR SUBPART 67.40 and the responsibility of securing necessary installation approvals therefrom, rests with the Contractor. The further responsibility for maintaining and operating his/her job site installation and vessels in accordance with applicable laws also rests with the Contractor.

The Government will not undertake to keep the area free from vessels or other obstructions, except to the extent of such regulations, if any, as may be prescribed by the Secretary of the Army, in accordance with the provisions of Section 7 of the River and Harbor Act approved 8 August 1917. The Contractor will be required to conduct the work in such a manner as to obstruct navigation as little as possible, and in case the Contractor's plant so obstructs navigation as to make it difficult or endanger the passage of vessels, said plant shall be promptly moved on the approach of any vessel to such an extent as may be necessary to afford a practicable passage. Upon completion of the work the Contractor shall promptly remove his plant, including ranges, buoys, piles and other markers placed by him under the contract in navigable waters or on the shore.

### 3.13 FLOATING PLANT INSPECTION AND CERTIFICATION

All floating plant regulated by the U.S. Coast Guard (USCG) shall have current inspections and certificates issued by the USCG before being placed in service and a copy shall be posted in a public area on board the vessel.

A copy of any USCG Form 835 issued to the vessel in the preceding year shall be onboard the vessel and shall be available to the Contracting officer upon request.

All dredges and quarter boats not subject to USCG inspection and certification or not having a current American Bureau of Shipping (ABS) classification shall be inspected in the working mode annually by a marine surveyor accredited by the National Association of Marine Surveyors (NAMS) or the Society of Accredited Marine Surveyors (SAMS) and having at least five years experience in commercial marine plant and equipment. All other plant shall be inspected annually by a qualified person. The inspection shall be documented, and a copy of the most recent inspection report shall be posted in a public area on board the vessel and a copy shall be furnished to the Contracting officer upon request. The inspection shall be appropriate for the intended use of the plant and shall, as a minimum, evaluate structural integrity and compliance with NFPA 302, Fire Protection Standard for Pleasure and Commercial Motor Craft.

The hydraulic pipeline dredge shall be ocean certified. The Contractor shall provide a tug at the work site for the duration of the contract capable of moving the hydraulic pipeline dredge to a safe area in the event of severe weather.

### 3.14 REPORTING REQUIREMENT

The Contractor will be required to prepare daily a "Report of Operations" (Attachment 3 and Attachment 4 of Section 01451) and furnish copies thereof to the Contracting Officer. The contractor shall furnish daily a copy or copies of any Contractor forms or operational reports he routinely requires to be submitted by his field personnel.

Beach survey field notes and computations shall be furnished to the Contracting Officer in advance of placement of the beachfill so that control of the quantities and adjustment to the fill section may be made if necessary.

### 3.15 FENDER TIRES

All fender tires used on Contractor dredging equipment or vessels shall be permanently marked by the Contractor with the company name and equipment plant name. All fender tires shall be securely attached to prevent them from falling overboard. The Contractor shall be responsible for damages to fishing nets or other claims that are due to any loss of equipment such as fenders, cables, anchors, pipe, etc.

### 3.16 HOPPER DREDGE EQUIPMENT

Hopper dredge drag heads shall be equipped with rigid sea turtle deflectors that are rigidly attached. No dredging shall be performed by a hopper

dredge without a turtle deflector device that has been approved by the Contracting Officer.

### 3.16.1 Deflector Design

The leading vee-shaped portion of the deflector shall have an included angle of less than 90 degrees. Internal reinforcement shall be installed in the deflector to prevent structural failure of the device. The leading edge of the deflector shall be designed to have a plowing effect of at least 6" depth when the drag head is being operated. Appropriate instrumentation or indicator shall be used and kept in proper calibration to insure the critical "approach angle."

(Information Only Note: The design "approach angle" or the angle of lower drag head pipe relative to the average sediment plane is very important to the proper operation of a deflector. If the lower drag head pipe angle in actual dredging conditions varies tremendously from the design angle of approach used in the development of the deflector, the 6" plowing effect does not occur. Therefore, every effort should be made to insure this design "approach angle" is maintained with the lower drag pipe.)

If adjustable depth deflectors are installed, they shall be rigidly attached to the drag head using either a hinged aft attachment point or an aft trunnion attachment point in association with an adjustable pin front attachment point or cable front attachment point with a stop set to obtain the 6" plowing effect. This arrangement allows fine-tuning the 6" plowing effect for varying depths. After the deflector is properly adjusted there shall be NO openings between the deflector and the drag head that are more than 4" by 4".

### 3.16.2 Inflow Basket Design

The Contractor shall install baskets or screening over the hopper inflow(s) with no greater than 4" x 4" openings. The method selected shall depend on the construction of the dredge used and shall be approved by the Contracting Officer's Representative prior to commencement of dredging. The screening shall provide 100% screening of the hopper inflow(s). The screens and/or baskets shall remain in place throughout the work.

The Contractor shall install and maintain floodlights suitable for illumination of the baskets or screening to allow the observer to safely monitor the hopper basket(s) during non-daylight hours or other periods of poor visibility. Safe access shall be provided to the inflow baskets or screens to allow the observer to inspect for turtles and sturgeons, or parts thereof, and clean the baskets or screens for the next loading cycle. The inflow screens shall be maintained in operational condition throughout the period of their required use.

### 3.16.3 Hopper Dredge Operation

The Contractor shall operate the hopper dredge to minimize the possibility of taking sea turtles.

When initiating dredging, suction through the dragheads shall be allowed just long enough to prime the pumps, then the dragheads must be placed firmly on the bottom. When lifting the dragheads from the bottom, suction

through the dragheads shall be allowed just long enough to clear the lines, and them must cease. Pumping water through the dragheads shall cease while maneuvering or during travel to/from the disposal area.

(Information Only Note: Optimal suction pipe densities and velocities occur when the deflector is operated properly. If the required dredging section includes compacted fine sands or stiff clays, a properly configured arrangement of teeth may enhance dredge efficiency which reduces total dredging hours and "turtle takes." The operation of a drag head with teeth must be monitored for each dredged section to insure that excessive material is not forced into the suction line. When excess high-density material enters the suction line, suction velocities drop to extremely low levels causing conditions for plugging of the suction pipe. Dredge operators should configure and operate their equipment to eliminate all low level suction velocities. Pipe plugging in the past was easily corrected when low suction velocities occurred by raising the drag head off the bottom until the suction velocities increased to an appropriate level. Arrangements of teeth and/or the reconfiguration of teeth should be made during the dredging process to optimize the suction velocities.)

Raising the drag head off the bottom to increase suction velocities is not acceptable. The primary adjustment for providing additional mixing water to the suction line should be through water ports. To insure that suction velocities do not drop below appropriate levels, the Contractor's personnel shall monitor production meters throughout the job and adjust primarily the number and opening sizes of water ports. Water port openings on top of the drag head or on raised stand pipes above the drag head shall be screened before they are utilized on the dredging project. If a dredge section includes sandy shoals on one end of a tract line and mud sediments on the other end of the tract line, the Contractor shall adjust the equipment to eliminate drag head pick-ups to clear the suction line.

Near the completion of each payment section, the Contractor shall perform sufficient surveys to accurately depict those portions of the acceptance section requiring cleanup. The Contractor shall keep the drag head buried a minimum of 6 inches in the sediment at all times. Although the over depth prism is not the required dredging prism, the Contractor shall achieve the required prism by removing the material from the allowable over depth prism.

During turning operations the pumps must either be shut off or reduced in speed to the point where no suction velocity or vacuum exists.

These operational procedures are intended to stress the importance of balancing the suction pipe densities and velocities in order to keep from taking sea turtles.

The Contractor must comply with all requirements of this specification and the Contractor's accepted Environmental Protection Plan. The contents of this specification and the Contractor's Environmental Protection Plan shall be shared with all applicable crew members of the hopper dredge.

### 3.17 WATER POLLUTION CONTROL

#### 3.17.1 Contamination of Water

The Contractor shall not pollute the channels or beach fill area with

paints, fuels, oil, bitumens, calcium chloride, insecticides, herbicides, or any other substance which may be considered harmful to fish, shellfish, or wildlife. It is the responsibility of the Contractor to investigate and comply with all applicable Federal, State, County, and municipal laws concerning pollution of rivers and streams and health protection of shellfish, fish, and domestic animals.

### 3.17.2 Disposal of Materials

The methods and locations of disposal of materials, wastes, effluents, trash, garbage, oil, grease, chemicals, etc., shall be such that harmful agents will not enter the waterway, ocean, and sound by erosion and shall be subject to approval by the Contracting Officer.

### 3.18 EMERGENCY DUMPS

If a vessel experiences an emergency situation which causes a dumping of material outside of the designated disposal zones, the Contractor shall verbally notify the Contracting officer no later than the next work day. The Contractor must submit, in writing within two (2) days of the emergency dump, a statement detailing time of dump, location of dump, and reason dump occurred. Material that is misplaced due to an emergency dump situation is subject to removal by the Contractor at his own expense upon the request of the Contracting Officer.

### 3.19 DISPOSAL OF EXCAVATED MATERIAL (WILMINGTON HARBOR)

(a) The material excavated shall be placed in the disposal area(s) as shown on the contract drawings.

(b) New Wilmington Ocean Dredged Material Disposal Site. Disposal of excavated material in the new Wilmington Ocean Dredged Material Disposal Site (ODMDS) shall be within the designated disposal zone shown on the drawings. Disposal shall be conducted in such a manner that water above the dumped material will have a minimum clearance of 30 feet at mean lower low water (MLLW). In order to maximize ODMDS capacity and minimize mounding of material, the dumps shall be scattered throughout the designated disposal zone and not placed repeatedly at one location. This shall be accomplished by dividing the disposal zone into quadrants and placing successive dump loads into successive quadrants. The Contracting Officer can direct the placement of material within any portion of the disposal zone.

(c) Any material that is deposited other than in places designated or approved by the Contracting Officer will not be paid for, and the Contractor will be required to remove such misplaced material and deposit it where directed at his expense.

(d) Mechanical Dredging. Material shall be excavated by bucket and placed in scows and transported to the approved disposal area where the scows shall be unloaded. No screens are required. All scows shall be kept in good condition and coamings kept in good repair. Dumps scows shall have their pockets provided with proper doors or appliances to prevent leakage of material. All scows shall be equipped with a radio controlled dump mechanism.

(e) Hopper Dredge. Inflow baskets or screens over the hopper

inflow(s) shall be maintained in operational condition throughout the period of work. Debris shall be cleaned from the baskets or screens and disposed of in accordance with subparagraph, Debris Disposal, below.

(f) All disposal vessels shall be equipped with draft measurement and recording devices. The draft of the vessels will be constantly updated throughout the entire cycle. The data will be transmitted by radio to the tug and simultaneously recorded and included in the Contractor's daily report.

(g) All material must be released in the designated ocean disposal area. This disposal area, as well as the dump buoy and route to be followed from the site of work to the disposal area, is shown on the contract drawings.

(h) Debris Disposal. The Contractor may encounter wood and other debris within the dredging limits. The wooden debris may consist of tree trunks, stumps, roots, and limbs. Debris is to be placed in a separate barge of conveyance and disposed of in a public or private upland disposal area. Bidders are expected to investigate the cost and availability of disposal areas and any restrictions associated with each, prior to submitting their bids. Any costs associated with disposal of debris is the responsibility of the Contractor and shall be included in the contract unit price for dredging. Debris other than wood may be disposed of in new ODMDS.

### 3.20 TIDE DATA

#### 3.20.1 Real Time Kinematic (RTK) GPS

Real Time Kinematic (RTK) GPS will be used by the Corps of Engineers to determine real time water levels (tide corrections) in the Wilmington Harbor Project. If the Contractor desires to obtain these corrections, he will be responsible for providing navigation equipment capable of utilizing the transmitted signals from the Corps-owned RTK GPS base station at the Oak Island Lighthouse located on Oak Island. Radio frequencies and information on the Corps-owned equipment can be obtained from Mr. Marc Reavis at (910 251-4489). Corps personnel will instruct the contractor as to the proper use of this system.

#### 3.20.2 Kinematic Tidal Datum

A file listing the separations between the Reference Ellipsoid and the Chart Datum (Mean Lower Low Water) will be provided to the Contractor for entry into the hydrographic survey software. A Tidal Datum Diagram showing the relationship between NAVD 88 and Mean Lower Low Water will be provided upon request.

#### 3.20.3 Non-Operational Reference Station

In the event that the reference station becomes non-operational, the Contractor shall contact Mr. Marc Reavis at the telephone number shown above. The Government will take measures to ensure correction of any problems with the GPS equipment.

### 3.21 SURFACE TRANSPORT OF DREDGED MATERIAL

a. Transportation of dredged material by barges and scows to the new Ocean Dredged Material Disposal Site (ODMDS) disposal zone will be allowed for this contract. All disposal vessels shall be equipped with draft and position measuring and recording devices. These instruments shall be kept in good working order. Vessel draft and vessel position data shall be obtained and recorded in accordance with paragraph, OCEAN DISPOSAL VERIFICATION.

b. All scows shall be kept in good condition and the coamings kept in good repair. All scows shall have their pockets provided with proper doors or appliances to prevent leakage of material. Failure to repair leaks will result in suspension of dredging. If suspension occurs, dredging will not be allowed to resume until the Contractor has promptly repaired the scow to the satisfaction of the Contracting Officer. Overflow of scows to obtain an economic load will be allowed. All scows shall be equipped with radio control dump mechanisms.

### 3.22 HAWSER LENGTH

The Contractor shall be required to document the length of cable or hawser released during the tow of each scow or barge to the disposal site. The distance between the scow and the towing vessel shall be noted for each disposal event and made a part of the daily report of operations. A digital compass shall be used to provide an azimuth to the scow.

### 3.23 OCEAN DISPOSAL VERIFICATION

#### 3.23.1 Hopper Dredge, Barge, or Scow

(a) The Contractor shall prepare and operate under an approved ocean disposal verification plan. This plan shall include an automated system that will record the horizontal location and draft condition of the disposal vessel or scow from the time dredging ceases and the transit to the disposal area begins until dredging begins again. Vessel positioning as a minimum shall use either a microwave line-of-sight system or differential global positioning. Required digital data to be collected and recorded for each load is as follows:

(1) Sequential load number

(2) Date

(3) Time, disposal vessel position, and draft in one (1) minute intervals for the disposal cycle specified previously, positioning in North Carolina State Plane Coordinates, draft in feet.

(4) Begin and end dump event times and positions

(b) This data shall be maintained by the Contractor and made available to the Contracting Officer's Representative upon request, in ASCII digital format on a 3.5 inch, 1.44 MB diskette or other format agreed to by the Contracting Officer.

(c) To document that dredged material is being appropriately placed within the disposal area, the Contractor shall provide a track plot for each days event. The interval of events actually plotted or listed herein

may be adjusted for clarity after coordination and agreement by the Contracting Officer's Representative. The track plot must indicate the start and stop dump times. These records shall be submitted in a complete, neat and orderly manner on a daily basis to the Contracting Officer's Representative.

(d) The Contractor shall also maintain a manually documented dump event log on the form provided or equivalent agreed upon by the Contracting Officer. This log shall contain the following and be submitted, on a daily basis to the Contractor's Officer's Representative.

- (1) Sequential load number
- (2) Scow or disposal number (or name)
- (3) Date
- (4) End dump event time and state plane coordinates

(e) The Contractor shall maintain an electronic spreadsheet data record of the ocean dumping project information. The spreadsheet shall be prepared in a form readily exportable to Microsoft Excel 5.0 and shall be similar to the sample form provided in Attachment 1. The spreadsheet shall contain the following:

- (1) Vessel Name
- (2) Sequential Load Number
- (3) Date (month/date/year)
- (4) Start Dump Time (24 hour clock)
- (5) Start Dump Position (x position NC State Plane Coordinate)
- (6) Start Dump Position (y position NC State Plane Coordinate)
- (7) Observed depth at dump location
- (8) Responsible party on watch
- (9) Estimated quantity in load (cy) (10) Dredging range or location

(f) This spreadsheet shall be updated and submitted weekly in digital (electronic file) format to the Contracting Officer. The dump positions reported in the spreadsheet shall come from the silent inspector (Automated Navigation Recording).

(g) The verification plan shall be in operation throughout the project. The Contractor shall provide an example of the ocean disposal verification submittals prior to the disposal of the first load. If for any reason the verification data devices stop functioning, they shall be repaired or replaced immediately upon return to the work site. No vessel shall leave for the disposal site without the ability to collect and record the ocean disposal verification data specified. Material placed without the specified verification data shall be considered misplaced materials under

this contract.

(h) Horizontal location shall have an accuracy equal to or better than  $\pm 10$  feet (horizontal repeatability). Vertical data (draft) shall have an accuracy of  $\pm 1/2$  foot. Horizontal and vertical data shall be collected in sets and each data set shall be referenced to local date and time (to the nearest minute) and shall be referenced to the same geographic reference system used for the survey(s) shown in the contract drawings.

### 3.23.2 Pipeline Dredge

If a pipeline dredge is used to pump dredged material to the new Ocean Dredged Material Disposal Site (ODMDS), the Contractor shall maintain an electronic spreadsheet data record of dredging and disposal information. The spreadsheet shall be prepared in a form readily exportable to Microsoft Excel 5.0 and be similar to the sample form provided in Attachment 2. The spreadsheet shall contain the following:

1. Dredge Name
2. Date (Month/day/year)
3. Hour of record (in 1 hour intervals)
4. Dredging this hour (yes/no)
5. Pipeline discharge position (x position NC State Plane Coordinate)
6. Pipeline discharge position (y position NC State Plane Coordinate)
7. Estimated discharge (pump) time for prior hour (minutes)
8. Dredging range or location
9. Responsible party on watch

This spreadsheet shall be maintained and submitted weekly in digital (electronic file) format to the Contracting Officer.

### 3.24 SITE SPECIFIC INFORMATION

#### 3.24.1 Geology and Character of Materials

##### 3.24.1.1 Subsurface Data

Subsurface and laboratory data are presented in Volume II, Appendices A and B. Boring and probe locations are shown on the drawings.

##### 3.24.1.2 Drilling Logs

Drilling logs of borings applicable to the subsurface investigation of the project site are provided in Appendix A. Drilling logs of other borings in the vicinity of the project site not provided in Appendix A are available upon request, as indicated on SF 1442, block 9.

Drilling logs data are representative of subsurface conditions at their respective locations and for their respective vertical range of drilled depth, local variations in the subsurface materials are to be expected and, if encountered, will not be considered as being materially different within the purview of FAR 52.236-2, Differing Site Conditions of the contract.

In the drilling logs the soil and top of rock contact (Top of Rock) is determined by splitspoon refusal and geologic criteria. Splitspoon refusal is that point in which a splitspoon does not penetrate a foot of material with one hundred blows of the 140-pound hammer falling 30-inches, and geologically, the material is not Recent age alluvium, is in situ, and at some point in time had been or is indurated. In other borings top of rock may be tentatively defined (Assumed Top of Rock) by fishtail bit refusal or jet probe refusal. Fishtail bit refusal is the point that, while drilling, overburden material resistance to drilling action stresses the drilling equipment, drilling penetration rate decreases, and to continue drilling with the fishtail bit could cause damage to the bit, rods, or drill rig. Jet probe refusal is that point in which the advancement of an opened end string of drill rods being jetted down with water encounters a solid resistance and upon bouncing the end of the rods on the resistant material produces the sound and vibration interpreted by geotechnical technicians or professionals as steel striking indurated material and lacking physical characteristics associated with soils.

#### 3.24.1.3 Sieve Analyses

Sieve analyses of selected soil samples are provided in Appendix B. Visual classifications based on the sieve data are included on the gradation form.

#### 3.24.1.4 Excavated Materials

The majority of the material to be excavated is described in subparagraph Site Geology and Soils. The material varies in sand and shell content dependent upon location. Refer to the drilling logs and the laboratory sieve data. Although there was extensive sampling done some variations in materials may exist.

#### 3.24.2 General Geology

##### 3.24.2.1 Physiographic Province

The project site is in the Coastal Plain Physiographic Province (Coastal Plain) of the Eastern United States. The Coastal Plain is composed of sand, gravel, clay, and/or silt or admixtures of these sediments, which range from unconsolidated to various stages of induration, and poorly to well cemented carbonate and other sedimentary rock. The Coastal Plain deposition is wedge-shaped with the thin edge in the west overlying the eastern Piedmont Physiographic Province and the thickened edge in the east covered by the Atlantic Ocean. This Coastal Plain deposition overlies crystalline basement rock. In the Cape Fear area the depth to crystalline basement rock is approximately 1,500 feet.

##### 3.24.2.2 Geomorphology

The historical geological development of the Cape Fear area includes cycles

of erosion and deposition, transgressions and regressions of the antediluvian ocean, and the evolution of the Cape Fear River. During the geomorphological development of the area, sediments were deposited and then all or portions of the deposition may have been removed or scoured by transgressions and regressions of the ocean or the meandering developing Cape Fear River. Subsequently, these scoured areas or channels may have been filled in with younger material. Some of this material may have been indurated while other remained soil-like in character. As the Cape Fear River meandered across the area depositing and eroding sediments and rock, it developed and abandoned river channels through geologic time. The combined geologic processes produced irregular rock surfaces of the geologic formations underlying the ocean sediments in the project area. The primary area of deposition of the sediments carried by the Cape Fear River was and is in the vicinity of the mouth of the river. Recent alluvium overlies geologically older sediments and rock.

#### 3.24.2.3 Area Distribution of the Rock Surface

With respect to the existing Baldhead Shoal Channel, the rock surface is approximately at elevation -70 feet Mean Lower Low Water (or -70 MLLW) at existing station 0+00 to about existing station 125+00 where the rock surface begins to rise to about elevation -38 MLLW to about existing station 305+00. Seaward of existing station 305+00, the elevation of the rock surface varies. Southeast of the existing Baldhead Shoal Channel, the rock surface begins to dip toward the southeast. The rock surface dips consistently in such a fashion that a northeast-southwest trend is delineated. It is thought this depression or trough is the result of a buried channel incised by the Cape Fear River in the geologic past. The new alignment of Baldhead Shoal Channel is located on the northwestern side of the trough.

#### 3.24.3 Site Geology and Soils

##### 3.24.3.1 Rock

Rock types encountered in borings in the Baldhead Shoal Channel area consist of predominantly mudstone and limestone of Paleocene to Eocene age. The respective types of rocks may be silty, calcareous, dolomitic, or sandy. The limestone, in places, is fossiliferous. Rock encountered in borings in the project area varied from poorly to well cemented. The geomorphological development of the area generally produced lithologies having uncomformable contacts. When well cemented rock was encountered in borings, it was in or in the vicinity of the uncomformable contacts. Rock was encountered in borings at elevations as described in the drilling logs. Pinnacles of rock may exist in the area. Description of rock encountered in borings in Baldhead Shoal Channel area are on drilling logs in Appendix A.

##### 3.24.3.2 Soils

The types of materials that are to be excavated from the channels are described on the drilling logs in Appendix A. These types of materials are comprised of predominantly alluvium and geologically older sediments. In the drilling logs the alluvium and older sediments are not differentiated by age or origin. The soils present consist of inorganic silts (ML & MH), inorganic clays (CL & CH), silty sand (SM), poorly graded sand (SP), poorly graded silty sand (SP-SM), clayey sand (SC), and organic silts and clays

(OH). Wood, cemented sand, silt and clay, and well cemented rock with high compressive strength may also be encountered.

### 3.24.3.3 Geologic Formations

From oldest to youngest the geologic formations consist of the Yaupon Beach Formation (formerly called Olive Sand), Bald Head Shoals Formation (formerly called Turritellid Limestone), Castle Hayne Limestone (Unit A), Castle Hayne Limestone (Unit B), and the Waccamaw Formation. General descriptions of the geologic formations of the project area are from Harris, W. B. and Laws, R. A., 1994, "Paleocene Sediments on the Axis of the Cape Fear Arch, Long Bay, North Carolina," Southeastern Geology, V.34, No.4, p. 185-199.

### 3.24.3.4 Yaupon Beach Formation (Paleocene)

This formation is "predominantly comprised of an olive green to gray, glauconitic, very fine to fine-grained slightly silty bioturbated quartz sand."

### 3.24.3.5 Bald Head Shoals Formation (Paleocene)

The Bald Head Shoals Formation is "medium to dark gray, sandy molluscan-mold mudstone, wackestone, to packstone." Characteristic of its composition is turritellid gastropod molds.

### 3.24.3.6 Castle Hayne Limestone Formation, Unit A (Middle Eocene)

Unit A usually is a "well-indurated, cross-bedded, bryozoan limestone."

### 3.24.3.7 Castle Hayne Limestone Formation, Unit B (Upper/Middle Eocene)

Unit B is generally "fossiliferous with some gravel size brachiopods, sand dollars, and pelecypod fossils. Some lenses of medium grained limestone similar in appearance to that found in Unit A occurs but is poorly lithified or unlithified and is not cross-bedded."

### 3.24.3.8 Waccamaw Formation

This unit consists of fossiliferous, phosphatic, calcareous quartz sand. This material is tentatively identified as Waccamaw Formation.

## 3.25 DISPOSAL OF MATERIAL ON BIRD ISLANDS

Disposal of material on Ferry Slip and South Pelican Islands shall be in strict accordance with conditions of the permits for disposal on these islands in Section 01355 and the conditions described on the drawings. Dredged material not able to be placed on bird islands will be disposed of in Disposal Area No. 4 shown on drawings. Contractor shall submit a work plan that complies with the permits and drawings and minimizes scouring. Work plan shall define the following:

- (1) size of dredge pipe;
- (2) flow rate of disposal material; and

(3) controls and best management practices to be used.

### 3.26 QUALITY CONTROL

The Contractor shall establish and maintain quality control for the berm work and all other operations in connection therewith to assure compliance with contract requirements. The Contractor shall inspect for compliance with contract requirements and record the inspection of all operations including but not limited to the following:

The fill material is placed within the tolerances specified.

Dredging is confined within the limits of the designated channel.

The dredge effluent does not flow landward of the fill section or other limits established by the Contracting Officer.

Damage to the existing berm and dune is held to the minimum possible.

Adequate control is provided to prevent unnecessary loss of material by seaward flow of pipeline effluent.

The pipeline is periodically inspected for leakage as specified.

All joints of pipe for discharge line are tight and sound.

Plan addressing the use and removal of construction stakes. The plan shall include the proposed material to be used for the construction stakes and a proposed accounting method for inventorying the stakes. A daily log of those stakes deployed and removed shall be maintained by the Contractor and submitted to the Contracting Officer.

A copy of these quality control records, as well as the records of corrective action taken will be furnished the Government as directed by the Contracting Officer.

-- End of Section --