CONTRACT DOCUMENTS FOR:

SMATHERS BEACH RENOURISHMENT

****

PROJECT # GR 0701
NOVEMBER 2010

MAYOR: CRAIG CATES

COMMISSIONERS:

TERI JOHNSTON

BARRY GIBSON

JIMMY WEEKLEY

CLAYTON LOPEZ

MARK ROSSI

BILLY WARDLOW

Prepared by:
City of Key West
Engineering Services

Copy No._____

CITY OF KEY WEST

KEY WEST, FLORIDA

CONTRACT DOCUMENTS

for

SMATHERS BEACH RENOURISHMENT

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CONSISTING OF:
BIDDING REQUIREMENTS
CONTRACT FORMS
CONDITIONS OF THE CONTRACT
SPECIFICATIONS
DRAWINGS

****

CITY OF KEY WEST

ENGINEERING SERVICES

KEY WEST, FLORIDA

Project No. GR 0701 Copy No._____

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PART 1

BIDDING REQUIREMENTS

INVITATION TO BID

Sealed Bids for the Construction of SMATHERS BEACH RENOURISHMENT, PR 0701, addressed to the City of Key West, will be received at the office of the City Clerk, City of Key West, 525 Angela St., Key West, Florida, until 3:00 p.m., local time, on the 31st day of January 2011 and then will be publicly opened and read. Any bids received after the time and date specified will not be considered.

The City retains the right to award bid to the bidder that best meet the needs of the City

The project contemplated consists of the placement of approximately 17,500 tons of sand at Smathers Beach. The sand will be placed above and below mean high water according to the attached drawings and permits.

Drawings and Specifications may be obtained from Demand Star by Onvia. Please contact Demand Star at www.demandstar.com or call 1-800-711-1712.

One (1) original and two (2) copies and two (2) CDs of Part 1 / Bidding Requirements are to be enclosed in a sealed envelope clearly marked on the outside

"SMATHERS BEACH RENOURISHMENT" and addressed to:

CITY CLERK
KEY WEST CITY HALL
525 ANGELA STREET
KEY WEST, FLORIDA 33040

Each Bid must be submitted on the prescribed forms and accompanied by bid security as prescribed in the Instructions to Bidders, payable to the City of Key West, Florida, in an amount not less than 5 percent of the amount bid.

THE BIDDER MUST BE A LICENSED CONTRACTOR BY THE STATE OF FLORIDA AND SUBMIT PROOF OF SUCH WITH THE BID.

The successful Bidder will be required to furnish the necessary additional bond(s) for the faithful performance of the Contract, as prescribed in the Bidding Documents. Within 10 days after the Notice of Award, the successful Bidder will also be required to furnish documentation showing that he is in compliance with the licensing requirements of the state and that the provisions of Chapter 66 Section 87 of the Code of Ordinances of the City of Key West. Compliance with these provisions is required before he can enter into the agreement contained in the Contract Documents. Specifically, within 10 days after the Notice of Award, the successful Bidder must demonstrate that he holds, as a minimum, the following licenses and certificates:

A. City of Key West License, as defined in Code of Ordinances, Chapter 66, enabling the Contractor to perform the work stated herein.

B. A valid Certificate of Competency issued by the Chief Building Official of Key West, Florida.

C. A valid occupational license issued by the City of Key West, Florida.

All bid bonds, contract bonds, insurance contracts, and certificates of insurance shall be either executed by or countersigned by a licensed resident agent of the Surety or insurance company having his place of business in the State of Florida, and in all ways complying with the insurance laws of the State of Florida. Further, the said Surety or Insurance Company shall be duly licensed and qualified to do business in the State of Florida.

Before a Contract will be awarded for the work contemplated herein, the OWNER will conduct such investigation as is necessary to determine the performance record and ability of the apparent low Bidder to perform the size and type of work specified under this Contract. Upon request, the Bidder shall submit such information as deemed necessary by the OWNER to evaluate the Bidder's qualifications.

For information concerning the proposed work or for an appointment to visit the site of the proposed work, contact Janet Muccino, Project Manager, @ (305) 809-3867.

At the time of the award, the successful Bidder must show satisfactory document of such State, County and City licenses as would be required. Any permit and/or license requirement and subsequent costs are located within the bid documents. The successful Bidder must also be able to satisfy the City Attorney as to such insurance coverage and legal requirements as may be demanded in Bid. The City may reject bids: (1) for budgetary reasons, (2) if the bidder misstates or conceals a material fact in its bid, (3) if the bid does not strictly conform to the law or is non-responsive to the bid requirements, (4) if the bid is conditional, (5) if a change of circumstances occurs making the purpose of the bid unnecessary, (6) or if such rejection is in the best interest of the City. The City may also waive any minor formalities or irregularities in any bid.

Dated this _____ day of,_____ 2011

CITY OF KEY WEST

By: _____
James Scholl, City Manager

INSTRUCTIONS TO BIDDERS

1. CONTRACT DOCUMENTS

A. FORMAT

The Contract Documents are divided into parts, divisions, and sections for convenient organization and reference. Generally, there has been no attempt to divide the Specification sections into work performed by the various building trades, work by separate subcontractors, or work required for separate facilities in the project.

B. DOCUMENT INTERPRETATION

The separate sections contained within these Contract Documents are intended to be mutually cooperative and to provide all details reasonably required for the execution of the proposed work.

Should there be any doubt as to the meaning or intent of said Contract Documents, the Bidder should request of the Engineer, in writing (at least eight (8) days prior to the Bid opening) an interpretation thereof. Any interpretation or change in said Contact Documents will be made only in writing, in the form of addenda to the Documents which will be furnished to all registered holders of Bidding Documents. Bidders shall submit with their PROPOSALS, or indicate receipt of, all Addenda. The Owner will not be responsible for any other explanation or interpretations of said Documents.

2. GENERAL DESCRIPTION OF THE PROJECT

A general description of the work to be done is contained in the Invitation to Bid and the scope is specified in applicable parts of these Contract Documents.

3. QUALIFICATION OF CONTRACTORS

The prospective Bidders must meet the statutorily prescribed requirements before award of the Contract by the Owner.

4. BIDDER'S UNDERSTANDING

Each Bidder must inform himself of the conditions relating to the execution of the work, and it is required that he will inspect the site and make himself thoroughly familiar with all the Contract Documents. Failure to do so will not relieve the successful Bidder of his obligation to enter into a Contract and complete the contemplated work in strict accordance with the Contract Documents. Each Bidder shall inform himself of, and the Bidder awarded a Contract shall comply with, federal, state, and local laws, statutes, and ordinances relative to the execution of the work.

This requirement includes, but is not limited to, applicable regulations concerning minimum wage rates, nondiscrimination in the employment of labor, protection of public and employee safety and health, environmental protection, the protection of natural resources, fire protection, burning and nonburning requirements, permits, fees, and similar subjects.

5. TYPE OF PROPOSAL

A. UNIT PRICE

The Proposal for the work is to be submitted on a unit price basis. Unit prices shall be submitted for all items of work set forth in the Proposal. All items required to complete the work specified or shown on the Drawings but not included in the Proposal shall be considered incidental to those set forth in the Proposal. The estimate of quantities of work to be done is tabulated in the Proposal and although stated with as much accuracy as possible is approximate only and is assumed solely for the basis of calculation upon which the award of Contract shall be made. Payment to the CONTRACTOR will be made on the measurement of the work actually performed by the CONTRACTOR.

6. PREPARATION OF PROPOSALS

A. GENERAL

All blank spaces in the Proposal form must be filled in, as required, in BLACK INK. All price information will be shown in both words and figures where required. No changes shall be made in the phraseology of the forms. Written amounts shall govern in case of discrepancy between amounts stated in writing and the amounts stated in figures.

Any Proposal shall be deemed informal which contains omissions erasures, alterations, or additions of any kind, or prices uncalled for, or in which any of the prices are obviously unbalanced, or which in any manner shall fail to conform to the conditions of the published Invitation to Bid.

Only one Proposal from any individual, firm, partnership, or corporation under the same or different names, will be considered. Should it appear to the Owner that any Bidder is interested in more than one Proposal for work contemplated; all Proposals in which such Bidder is interested will be rejected.

C. SIGNATURE

The Bidder shall sign his proposal in the blank space provided therefor. If Bidder is a corporation, the legal name of the corporation shall be set forth above, together with the signature of the officer or officers authorized to sign Contracts on behalf of the corporation. If the Bidder is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign Contracts on behalf of the partnership. If signature is by an

agent, other than an officer of a corporation or a member of a partnership, a notarized power of attorney must be on file with the Owner prior to opening of Proposals or submitted with the Proposal, otherwise the Proposal will be regarded as not properly authorized.

D. SPECIAL BIDDING REQUIREMENTS

THE BIDDER MUST BE A LICENSED CONTRACTOR BY THE STATE OF FLORIDA AND SUBMIT PROOF OF SUCH WITH THE BID.

The Bidder's attention is brought to the hiring practices and licenses and permits of the City of Key West. These are defined in the addition to Article 38, ORDINANCES, PERMITS, and LICENSES, as set forth in the Supplementary Conditions.

The Bidder shall submit with his Bid his experience record showing his experience and expertise in related work**.** Such experience record shall provide at least ten (10) current or recent projects of similar work, preferably within Florida or the Southeastern United States. For each project the following information will be provided:

1. Description and location of work
2. Contract amount
3. Dates work was performed
4. Owner
5. Name of Owner's contact person and phone number

E. ATTACHMENTS

Bidder shall complete and submit the following forms with his Bid:

Bid Security
Anti-Kickback Affidavit
Public Entity Crime Form
Key West Indemnification Form

7. STATE AND LOCAL SALES AND USE TAX

Unless the Supplementary Conditions contains a statement that the Owner is exempt from state sales tax on materials incorporated into the work due to the qualification of the work under this Contract; all state and local sales and use taxes as required by the laws and statutes of the state and its political subdivisions shall be paid by the Contractor. Prices quoted in the Proposal shall include all nonexempt sales and use taxes, unless provision is made in the Proposal form to separately itemize the tax.

8. SUBMISSION OF PROPOSALS

All Proposals must be submitted not later than the time prescribed, at the place, and in the manner set forth in the Invitation to Bid. Proposals must be made on the Proposal forms

provided herewith and submitted intact with the volume containing the Bidding requirements, Contract forms, and Conditions of the Contract.

Each Proposal must be submitted in a sealed envelope, so marked as to indicate the Bidder's name and its contents without being opened, and addressed in conformance with the instructions in the Invitation to Bid.

9. MODIFICATION OR WITHDRAWAL OF PROPOSALS

Prior to the time and date designated for receipt of Proposals, any Proposal submitted may be modified or withdrawn by notice to the party receiving Proposals at the place designated for the receipt of Proposals. Such notice shall be in writing over the signature of the Bidder or by telegram. If by telegram, written confirmation over the signature of the Bidder shall be mailed and postmarked on or before the date and time set for receipt of Proposals, and it shall be so worded as not to reveal the amount of the original Proposal. No Proposal may be withdrawn after the time scheduled for the opening of Proposals, unless the time specified in paragraph AWARD OF CONTRACT of these Instructions to Bidders shall have elapsed.

10. BID SECURITY

Proposals must be accompanied by cash, a certified check drawn on a bank in good standing, or a Bid Bond issued by a Surety authorized to issue such bonds in the state where the work is located, in the amount of five (5) percent of the total amount of the Proposal submitted. This Bid security shall be given as a guarantee that the Bidder will not withdraw his Proposal for a period of Sixty (60) days after Bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract within the time specified.

The attorney-in-fact who executes this bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of the execution of the bond. Where State Statute requires, certification by a resident agent shall also be provided.

If the Bidder elects to furnish a Bid Bond, he shall use the Bid Bond form bound herewith, or one conforming substantially thereto in form and content.

11. RETURN OF BID SECURITY

Within fifteen (15) days after the award of the Contract, the Owner will return the Bid securities to all Bidders whose Proposals are not to be further considered in awarding the Contract. Retained Bid securities will be held until the Contract has been finally executed, after which all Bid securities, other than Bidder's Bonds and any guarantees which have been forfeited, will be returned to the respective Bidders whose Proposals they accompanied.

12. AWARD OF CONTRACT

Within forty-five (45) calendar days after the opening of the Proposals, the Owner will accept one of the Proposals or will act in accordance with the following paragraphs. The acceptance of the Proposal will be by written notice of award, mailed to the office designated in the Proposal, or delivered to the Bidder's representative. In the event of failure of the lowest responsive Bidder to sign the Contract and provide acceptable insurance certificate(s), the Owner may award the Contract to the next lowest, responsive, responsible Bidder. Such award, if made, will be made within sixty (60) days after the opening of the Proposals.

The Owner reserves the right to accept or reject any and all Proposals, and to waive any informalities and irregularities in said Proposal.

13. BASIS OF AWARD

The award will be made by the Owner on the basis of that Proposal from the lowest responsive, responsible Bidder, which in the Owner's sole and absolute judgement, will serve the best interests of the Owner.

The Owner reserves the right to accept or reject any or all Proposals and to waive any informalities and irregularities in said Proposals.

If at the time this Contract is to be awarded, the total of the lowest acceptable Proposal exceeds the funds then estimated by the Owner as available, the Owner may reject all Proposals or take such other action as best serves the Owner's interest.

14. EXECUTION OF CONTRACT

The successful Bidder shall, within ten (10) working days after receiving notice of award, sign and deliver to the Owner a Contract in the form hereto attached together with the acceptable insurance certificates as required in these Documents. Within ten (10) working days after receiving the signed Contract, with acceptable insurance from the successful Bidder, the Owner's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

15. CONTRACT BONDS

A. PERFORMANCE AND PAYMENT BONDS

The successful Bidder shall file with the OWNER, at the time of delivery of the signed Contract, a Performance Bond and Payment Bond on the form bound herewith, each in the full amount of the Contract price in accordance with the requirements of Florida Statutes Section 255.05 or 713.23, as applicable, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the construction of the work and to cover all guarantees against defective workmanship or materials, or both, during the warranty period following the date of final acceptance of the work by the OWNER. The

Surety furnishing this bond shall have a sound financial standing and a record of service satisfactory to the OWNER, shall be authorized to do business in the State of Florida, and shall be listed on the current U.S. Department of Treasury Circular Number 570 or amendments thereto in the Federal Register of acceptable Sureties for federal projects. The CONTRACTOR shall supply the OWNER with phone numbers, addresses, and contacts for the Surety and their agents. Pursuant to Section 255.05(7), Florida Statutes, in lieu of the bond required by law, the contractor may file with the city an alternative form of security in the form of cash, a money order, a certified check, a cashier's check or an irrevocable letter of credit.

B. POWER-OF-ATTORNEY

The Attorney-in-Fact (Resident Agent) who executes this Performance and Payment Bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond.

All Contracts, Performance and Payment Bonds, and respective powers-of-attorney will have the same date.

16. FAILURE TO EXECUTE CONTRACT AND FURNISH BONDS

The Bidder who has a contract awarded to him and who fails to promptly and properly execute the contact shall forfeit the Bid security that accompanied his Bid, and the Bid security shall be retained as liquidated damages by the Owner, and it is agreed that said sum is a fair estimate of the amount of the damages the Owner will sustain in case the Bidder fails to enter into a Contract or furnish the required bonds. Bid security deposited in the form of cash, a certified check, or cashier's check shall be subject to the same requirements as a Bid Bond.

17. PERFORMANCE OF WORK BY CONTRACTOR

The Contractor shall perform on site and with his own organization, labor equivalent to at least forty (40) percent of the total amount of the work to be performed under this Contract. If, during the progress of the work hereunder, the Contractor requests a reduction of such percentage, and the Engineer determines that it would be to the client's advantage, the percentage of labor to be performed by the Contractor's own organization may be reduced; provided prior written approval of such reduction is obtained by the Contractor from the Engineer.

18. TIME OF COMPLETION

The time of the completion of the work to be performed under this contract is stated in the Proposal and is the essence of this Contract. Delays and extensions of time may be allowed in accordance with the provisions stated in the Contract Documents.

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PROPOSAL

TO: **CITY OF KEY WEST**

ADDRESS: 525 ANGELA STREET
P.O. BOX 1409
KEY WEST, FLORIDA 33041

PROJECT TITLE: SMATHERS BEACH RENOURISHMENT

PROJECT NUMBER: GR 0701

Bidder's person to contact for additional information on this proposal:

NAME:_____

TELEPHONE:_____

BIDDER'S DECLARATION AND UNDERSTANDING

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Proposal are those named herein, that this Proposal is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the proposal is made without any connection or collusion with any person submitting another Proposal on this Contract.

The Bidder further declares that he has carefully examined the Contract Documents for the construction of the project, that he has personally inspected the site, that he has satisfied himself as to the quantities involved, including materials and equipment, and conditions of work involved, including the fact that the description of the quantities of work and materials, as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the Contract Documents, and that this Proposal is made according to the provisions and under the terms of the Contract Documents, which Documents are hereby made a part of this Proposal.

The Bidder further agrees that he has exercised his own judgment regarding the interpretation of subsurface information and has utilized all data that he believes pertinent from the Engineer, Owner, and other sources in arriving at his conclusions.

The Bidder further agrees that the Owner may "non-perform" the work in the event that the low bid is in excess of available funding. Non-performance will be determined prior to Notice of Award.

CONTRACT EXECUTION AND BONDS

The Bidder agrees that if this Proposal is accepted, he will, within ten (10) days including Sundays and legal holidays, after Notice of Award, sign the Contract in the form annexed hereto, and will, at that time deliver to the Owner evidence of holding the required licenses and certificates, and will, to the extent of his Proposal, furnish all machinery, tools, apparatus, and other means of construction and do the work and furnish all the materials necessary to complete all work as specified or indicated in the Contract Documents.

CERTIFICATES OF INSURANCE

The Bidder agrees to furnish the Owner, before commencing the work under this Contract, the Certificates of Insurance as specified in these Documents.

START OF CONSTRUCTION AND CONTRACT COMPLETION TIME

The Bidder further agrees to begin work within ten (10) calendar days after the date of the Notice to Proceed, and to complete the construction, in all respects, within 30 calendar days.

This Contract will automatically expire and be terminated on final acceptance by the Owner and the FDEP.

LIQUIDATED DAMAGES

In the event the Bidder is awarded the Contract and shall fail to complete the work authorized by the Contract within the time limit or extended time limit agreed upon in that Contract, as more particularly set forth in the Contract Documents, liquidated damages shall be paid to the Owner at the rate of $250.00 per day for all work authorized under the Contract Documents, until the work shall have been satisfactorily completed as provided in the Contract Documents. Sundays and legal holidays shall be included in determining days in default.

The Bidder hereby acknowledges that he has received Addenda No._____ ,_____ ,

_____ _____ _____, _____, _____. (Bidder shall insert No. of each addendum received) and agrees that all addenda issued are hereby made part of the Contract Documents, and the Bidder further agrees that his proposal(s) includes all impacts resulting from said addenda.

SALES AND USE TAX

The Bidder agrees that all federal, state, and local sales and use taxes are included in the stated prices for the work.

UNIT PRICE ITEMS

The Bidder further proposes to accept as full payment for the work proposed herein the amounts computed under the provisions of the Contract Documents and based on the following unit price amounts, it being expressly understood that the unit prices are independent of the exact quantities

involved. The Bidder agrees that the unit prices represent a true measure of the labor and materials required to perform the work, including all allowances for overhead and profit for each type and unit of work called for in these Contract Documents. The amounts shall be shown in both words and figures. In case of a discrepancy, the amount shown in words shall govern.

NOTE: THE UNIT PRICES WILL BE THE BASIS FOR EVALUATING LOW BIDDER AND THE BASIS OF AWARD.

Item	Quant.	Unit	UP (Fig)	UP (Words)	Extended Total Amt.

PAYMENT AND PERFORMANCE BONDS

1. Payment & Performance Bonds Per / $1,000 worth of Construction

1 LS $_____ _____ $_____

2. MOBILIZATION AND DEMOBILIZATION, (includes M.O.T., Testing, Construction Layout, Field Engineering, General & Supplementary Conditions, AutoCAD As-builts, Protection of the Environment)

2a.) Mobilization / Field Engineering / Testing / Protection of the Environment / Construction layout (paid 25%, then on percentage of completion)

1 LS $_____ _____ $_____

2b.) General & Supplementary Conditions, (paid 25%, then on percentage of completion)

1 LS $_____ _____ $_____

2c.) M.O.T., (paid 25%, then on percentage of completion)

1 LS $_____ _____ $_____

2d.) As-Builts Survey (paid after submission and acceptance of as-builts)

1 LS $_____ _____ $_____

2e.) Demobilization (paid at completion of final punch list completion)

1 LS $_____ _____ $_____

3. SMATHERS BEACH SAND (includes purchase, delivery, placement, grading)

17,500 TONS $_____ _____ $_____

4. SMATHERS BEACH TILLING

1 LS $_____ _____ $_____

5. TURBIDITY BARRIERS

1 LS $_____ _____ $_____

TOTAL OF ALL UNIT PRICE ITEMS LISTED ABOVE (1,2a -e, 3, 4 & 5)

Total of extended unit price items: $ _____

_____ Dollars _____Cents
(Amount written in words has precedence)

SUBCONTRACTORS

The Bidder further proposes that the following subcontracting firms or businesses will be awarded subcontracts for the following portions of the work in the event that the Bidder is awarded the Contract:

Portion of Work:_____

Name:_____

Address:_____

Portion of Work:_____

Name:_____

Address:_____

Portion of Work:_____

Name:_____

Address:_____

Portion of Work:_____

Name:_____

Address:_____

Portion of Work:_____

Name:_____

Address:_____

Portion of Work:_____

Name:_____

Address:_____

SURETY

_____ whose address is

_____, _____, _____, _____
Street City State Zip

BIDDER

The name of the Bidder submitting this Proposal is

_____ doing business at

_____, _____, _____, _____
Street City State Zip

which is the address to which all communications concerned with this Proposal and with the Contract shall be sent.

The names of the principal officers of the corporation submitting this Proposal, or of the partnership, or of all persons interested in this Proposal as principals are as follows:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

If Sole Proprietor or Partnership

IN WITNESS hereto the undersigned has set his (its) hand this _____ day of _____ 2011

_____
Signature of Bidder

_____
Title

If Corporation

IN WITNESS WHEREOF the undersigned corporation has caused this instrument to be executed and its seal affixed by its duly authorized officers this _____ day of _____ 2011

(SEAL)

_____
Name of Corporation

By _____

Title _____

Attest_____
Secretary

EXPERIENCE OF BIDDER

The Bidder states that he is an experienced Contractor and has completed similar projects within the last 5 years.

(List similar projects, with types, names of clients, construction costs, and references with phone numbers. Use additional sheets if necessary.)

* * * * * *

FLORIDA BID BOND

BOND NO._____

AMOUNT: $_____

KNOW ALL MEN BY THESE PRESENTS, that _____

_____

hereinafter called the PRINCIPAL, and _____

a corporation duly organized under the laws of the State of_____having its principal place of business at _____ _____ in the State of _____and authorized to do business in the State of Florida, as SURETY, are held firmly bound unto hereinafter called the Obligee, in the sum of_____ _____DOLLARS ($ _____)

for the payment for which we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these present.

THE CONDITION OF THIS BOND IS SUCH THAT:

WHEREAS, the PRINCIPAL is herewith submitting his or its Bid or Proposal for: SMATHERS BEACH RENOURISHMENT / GR 0701, said Bid Proposal, by reference thereto, being hereby made a part hereof.

WHEREAS, the PRINCIPAL contemplates submitting or has submitted a bid to the OBLIGEE for the furnishing of labor, materials, (except those specifically furnished by the Owner), equipment, machinery, tools, apparatus, means of transportation for, and the performance of the work covered in the Proposal and the detailed Drawings and Specifications entitled:

SMATHERS BEACH RENOURISHMENT / GR 0701

WHEREAS, it was a condition precedent to the submission of said bid that a cashier's check, certified check, or bid bond in the amount of 5 percent of the base bid be submitted with said bid as a guarantee that the Bidder would, if awarded the Contract, enter into a written Contract with the Owner for the performance of said Contract, within 5 working days after written notice having been given of the award of the Contract.

NOW, THEREFORE, the conditions of this obligation are such that if the PRINCIPAL within 5 working days after written notice of such acceptance, enters into a written Contract with the OBLIGEE then this obligation shall be void: otherwise the sum herein stated shall be due and payable to the OBLIGEE and the Surety herein agrees to pay said sum immediately upon demand of the OBLIGEE in good and lawful money of the United States of America, as liquidated damages for failure thereof of said principal.

Signed and sealed this _____ day of _____, 2011.

_____
PRINCIPAL

By: _____

_____
SURETY

By: _____
Attorney-In-Fact

****

ANTI-KICKBACK AFFIDAVIT

STATE OF FLORIDA)
: SS
COUNTY OF MONROE)

I, the undersigned hereby duly sworn, depose and say that no portion of the sum herein bid will be paid to any employees of the City of Key West as a commission, kickback, reward or gift, directly or indirectly by me or any member of my firm or by an officer of the corporation.

By:_____

Sworn and subscribed before me this_____day of _____, 2011

NOTARY PUBLIC, State of Florida at Large

My Commission Expires:

* * * * * *

SWORN STATEMENT UNDER SECTION 287.133(3)(A)
FLORIDA STATUTES, ON **PUBLIC ENTITY CRIMES**

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted with Bid or Proposal for _____

_____

2. This sworn statement is submitted by _____
(name of entity submitting sworn statement)

whose business address is _____

_____

and (if applicable) its Federal Employer Identification Number (FEIN) is _____

_____

(If the entity has no FEIN, include the Social Security Number of the individual

signing this sworn statement _____

3. My name is _____
(please print name of individual signing)

and my relationship to the entity named above is _____

4. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including but not limited to, any bid or contract for goods or services to be provided to any public or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, material misrepresentation.

5. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication guilt, in any federal or state trial court of record relating to charges brought by indictment information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

6. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means

1. A predecessor or successor of a person convicted of a public entity crime; or

2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

7. I understand that a "person" as defined in Paragraph 287.133(1)(8), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

8. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Please indicate which statement applies).

____Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, nor any affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND (Please indicate which additional statement applies.)

_____There has been a proceeding concerning the conviction before a hearing of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. (Please attach a copy of the final order.)

_____The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of

Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. (Please attach a copy of the final order.)

_____The person or affiliate has not been put on the convicted vendor list. (Please describe any action taken by or pending with the Department of General Services.)

_____
(signature)

_____
(date)

STATE OF_____

COUNTY OF_____

PERSONALLY APPEARED BEFORE ME, the undersigned authority,

_____who, after first being sworn by me, affixed his/her
(name of individual signing)

signature in the space provided above on this _____day of _____ , 2011

My commission expires:

_____
NOTARY PUBLIC

CITY OF KEY WEST INDEMNIFICATION FORM

The CONTRACTOR shall indemnify and hold harmless the City of Key West, its officers, and employees, from liabilities, damages, losses and costs, including, but not limited to reasonable attorney's fees, to the extent caused by the negligence, recklessness or intentional wrongful misconduct of CONTRACTOR and persons employed or utilized by CONTRACTOR in the performance of this agreement. Except as specifically provided herein, this agreement does not require CONTRACTOR to indemnify the City of Key West, its employees, officers, directors, or agents from any liability, damage, loss, claim, action or proceeding.

These indemnifications shall survive the term of this agreement. In the event that any action or proceeding is brought against the City of Key West by reason of such claim or demand, CONTRACTOR shall, upon written notice from the City of Key West, resist and defend such action or proceeding by counsel satisfactory to the City of Key West.

The indemnification provided above shall obligate CONTRACTOR to defend at its own expense to and through appellate, supplemental or bankruptcy proceeding, or to provide for such defense, at the City of Key West's option, any and all claims of liability and all suits and actions of every name and description covered above which may be brought against the City of Key West whether performed by CONTRACTOR, or persons employed or utilized by CONTRACTOR.

The CONTRACTOR's obligation under this provision shall not be limited in any way by the agreed upon Contract Price as shown in this agreement, or the CONTRACTOR's limit of or lack of sufficient insurance protection.

CONTRACTOR: _____ SEAL:

_____
Address

_____
Signature

_____
Print Name

_____
Title

DATE: _____

BIDDER'S CHECKLIST

(Note: The purpose of this checklist is to serve as a reminder of major items to be addressed in submitting a bid and is not intended to be all inclusive. It does not alleviate the Bidder from the responsibility of becoming familiar with all aspects of the Contract Documents and proper completion and submission of his bid.)

1. All Contract Documents thoroughly read and understood ☐
2. All blank spaces in Proposal filled in, using black ink. ☐
3. Total and unit prices added correctly ☐
4. Addenda acknowledged ☐
5. Subcontractors are named as indicated in the Proposal ☐
6. Experience record included ☐
7. Proposal signed by authorized officer ☐
8. Bid Bond completed and executed, including power-of-attorney dated the same date as Bid Bond ☐
9. Bidder familiar with federal, state, and local laws, ordinances, rules and regulations affecting performance of the work ☐
10. Bidder must be a licensed contractor by the state of Florida and submit proof of such with the bid. ☐
11. Proposal submitted intact with the volume containing the Bidding Requirements. 1 original 2 copies and 2 CDs each with complete bid package. ☐
12. Bid Documents submitted in sealed envelope and addressed and labeled in conformance with the instructions in the Invitation to Bid ☐

* * * * * *

PART 2

CONTRACT FORMS

CONTRACT

This Contract, made and entered into this _____ day of _____ 2011

by and between the City of Key West, hereinafter called the "OWNER", and_____

_____

hereinafter called the "CONTRACTOR";

WITNESSETH:

The CONTRACTOR, in consideration of the sum to be paid him by the OWNER and of the covenants and agreements herein contained, hereby agrees at his own proper cost and expense to do all the work and furnish all the materials, tools, labor, and all appliances, machinery, and appurtenances for SMATHERS BEACH RENOURISHMENT, GR 0701, Key West, Florida to

the extent of the Proposal made by the CONTRACTOR, dated the _____ day of

_____2011 all in full compliance with the Contract Documents referred to herein.

The BIDDING REQUIREMENTS, including the signed copy of the Proposal, the CONTRACT FORMS, the PERFORMANCE AND PAYMENT BONDS, the CONDITIONS OF THE CONTRACT, the SPECIFICATIONS, and the DRAWINGS, and other items, dated November 2010, are hereby referred to and by reference made a part of this Contract as fully and completely as if the same were fully set forth herein and are mutually cooperative therewith.

In consideration of the performance of the work as set forth in these Contract Documents, the OWNER agrees to pay to the CONTRACTOR the amount bid in the Proposal as adjusted in accordance with the Contract Documents, or as otherwise herein provided, and to make such payments in the manner and at the times provided in the Contract Documents.

The CONTRACTOR agrees to complete the work within the time specified in the Contract Documents and to accept as full payment hereunder the amounts computed as determined by the Contract Documents and based on the said Proposal.

The CONTRACTOR agrees to remedy all defects appearing in the work or developing in the materials furnished and the workmanship performed under this Contract during the warranty period after the date of final acceptance of the work by the OWNER, and further agrees to indemnify and save the OWNER harmless from any costs encountered in remedying such defects.

It is agreed that the Contract, based upon the Proposal, shall be fully complete within the stated number of consecutive calendar days from the date the Notice to Proceed.

In the event that the CONTRACTOR shall fail to complete the work within the time limit or the extended time limit agreed upon, as more particularly set forth in the Contract Documents, liquidated damages shall be paid at the rate of $250 per day. Sundays and legal holidays shall be included in determining days in default.

This Contract will automatically expire upon completion of the project.

IN WITNESS WHEREOF, we, the parties hereto, each herewith subscribe the same this

_____ day of _____, A.D., 2011

CITY OF KEY WEST

By_____

Title_____

CONTRACTOR

By_____

Title_____

* * * * * *

PERFORMANCE BOND

BOND NO._____

AMOUNT: $_____

KNOW ALL MEN BY THESE PRESENTS, that in accordance with Florida Statutes Section 255.05, _____
with offices at _____
hereinafter called the CONTRACTOR (Principal), and

_____
with offices at _____
a corporation duly organized and existing under and by virtue of the laws of the State of Florida, hereinafter called the SURETY, and authorized to transact business within the State of Florida, as SURETY, are held and firmly bound unto **CITY OF KEY WEST,** represented by its _____, hereinafter called the CITY (Obligee), in the sum of:

_____DOLLARS ($_____), lawful money of the United States of America, for the payment of which, well and truly be made to the CITY, the CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract hereto attached, with the CITY, dated _____, 2011 to furnish at his own cost, charges, and expense all the necessary materials, equipment, and/or labor in strict and express accordance with said Contract and the Contract Documents as defined therein, all of which is made a part of said Contract by certain terms and conditions in said Contract more particularly mentioned, which Contract, consisting of the various Contract Documents is made a part of this Bond as fully and completely as if said Contract Documents were set forth herein;

NOW THEREFORE, the conditions of this obligation are such that if the above bounden CONTRACTOR:

1. Shall in all respects comply with the terms and conditions of said Contract and his obligation there under, including the Contract Documents (which include the plans, drawings, specifications, and conditions as prepared by the CITY, invitation to bid, instructions to bidders, the CONTRACTOR'S bid as accepted by the above CITY, the bid and contract performance and payment bonds, and all addenda, if any, issued prior to the opening of bids), being made a part of this bond by reference, at the times and in the manner prescribed in the contract; and

2. Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes, supplying PRINCIPAL with labor, materials, or supplies, used directly or indirectly by PRINCIPAL in the prosecution of the work provided for in the contract; and

3. Pays CITY all losses, costs, expenses, damages, attorney's fees, including appellate proceedings, injury or loss of whatever kind and however arising including, without limitation, delay damages to which said CITY may be subject by reason of any wrongdoing, misconduct, want of care or skill, negligence, failure of performance, breach, failure to petition within the prescribed time, or default, including patent infringements, on the part of said CONTRACTOR, his agents or employees, in the execution or performance of said Contract; and

4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this obligation shall be void; otherwise, to remain in full force and effect for the term of said Contract.

AND, the said Surety for value received, hereby stipulates and agrees that no change involving any extension of time, or addition to the terms of the Contract Documents, or to the work to be performed, or materials to be furnished there under shall affect said obligation of said Surety on this Bond, and the said Surety does hereby waive notice of any such changes, extension of time, alterations, or additions of the terms of the Contract Documents, or to the work.

Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.

IN WITNESS WHEREOF, the above parties bonded together have executed this instrument this _____ day of _____, 2011 the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By: _____

(SEAL)

ATTEST

SURETY

By: _____

(SEAL)
ATTEST

PAYMENT BOND

BOND NO._____

AMOUNT: $_____

KNOW ALL MEN BY THESE PRESENTS, that in accordance with Florida Statutes Section 255.05, _____

with offices at _____

hereinafter called the CONTRACTOR, (Principal), and _____

with offices at _____
a corporation duly organized and existing under and by virtue of the laws of the State of _____ , hereinafter called the SURETY, and authorized to transact business within the State of Florida, as SURETY, are held and firmly bound CITY OF KEY WEST**,** represented by its _____, hereinafter called the City (Obligee), in the sum of:

_____DOLLARS ($_____),
lawful money of the United States of America, for the payment of which, well and truly be made to the CITY, and the CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract for _____ attached hereto, with the CITY, dated _____,2011 to furnish at his own cost, charges, and expense the necessary materials, equipment, and/or labor in strict and express accordance with said Contract and the plans, drawings (if any), and specifications prepared by the CITY, all of which is made a part of said Contract by certain terms and conditions in said Contract more particularly mentioned, which Contract, consisting of the various Contract Documents specifically mentioned herein and relative hereto, is made a part of this Bond as fully and completely as if said Contract Documents were set forth herein.

NOW THEREFORE, the conditions of this obligation are such that if the above bounden CONTRACTOR shall in all respects comply with the terms and conditions of said Contract and his obligation thereunder, including the Contract Documents (which include the plans, drawings, specifications, and conditions prepared by the CITY, invitation to bid, instructions to bidders, the CONTRACTOR'S bid as accepted by the CITY, the bid and contract and payment bonds, and all addenda, if any, issued prior to the opening of bids), and further that if said CONTRACTOR

shall promptly make payments to all persons supplying materials, equipment, and/or labor, used directly or indirectly by said CONTRACTOR or subcontractors in the prosecution of the work for said contract is accordance with Florida Statutes, Section 255.05 or Section 713.23, then this obligation shall be void; otherwise to remain in full force and effect for the term of said contract, including and all guarantee periods as specifically mentioned in said Contract Documents.

AND, the said SURETY for value received, hereby stipulates and agrees that no change involving any extension of time, or addition to the terms of the Contract or to the work to be performed, or materials to be furnished thereunder, or in the Contract Documents and specifications accompanying the said contract shall affect said obligation of said SURETY on this Bond, and the said SURETY does hereby waive notice of any such changes, extension of time, alternations, or additions of the terms of the Contract, or to the work, to the Contract Documents, or to the specifications.

Claimant shall give written notice to the CONTRACTOR and the SURETY as required by Section 255.05 or Section 713.23, Florida Statutes. Any action instituted against the CONTRACTOR or SURETY under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2) or Section 713.23, Florida Statutes.

IN WITNESS WHEREOF, the above parties bounded together have executed this instrument

this _____ day of _____, 2011, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By:_____

(SEAL)

ATTEST

SURETY

By:_____

(SEAL)

ATTEST

PART 3

CONDITIONS OF THE CONTRACT

GENERAL CONDITIONS
CONTENTS

GENERAL CONDITIONS
CONTENTS

****

DEFINITIONS

Whenever in the Contract Documents the following terms are used, the intent and meaning shall be interpreted as follows:

1. AS APPROVED

The words "as approved", unless otherwise qualified, shall be understood to be followed by the words "by the ENGINEER for conformance with the Contract Document".

2. AS SHOWN, AND AS INDICATED

The words "as shown" and "as Indicated" shall be understood to be followed by the words "on the Drawings".

3. BIDDER

The person or persons, partnership, firm, or corporation submitting a Proposal for the work contemplated.

4. CONTRACT DOCUMENTS

The "Contract Documents" consist of the Bidding Requirements, Contract Forms, Conditions of the Contact, Specifications, Drawings, all modifications thereof incorporated into the Documents before their execution, Change Orders, and all other requirements incorporated by specific reference thereto. These form the Contract.

5. CONTRACTOR

The person or persons, partnership, firm, or corporation who enters into the Contract awarded him by the OWNER.

6. CONTRACT COMPLETION

The "Contract Completion" is the date the OWNER accepts the entire work as being in compliance with the Contract Documents, or formally waives nonconforming work to extent of nonconformity, and issues the final payment in accordance with the requirements set forth in Article, "Final Payment" of these General Conditions.

7. DAYS

Unless otherwise specifically stated, the term "days" will be understood to mean calendar days. Business day or working day means any day other than Saturday, Sunday, or legal holiday.

8. DRAWINGS

The term "Drawings" refers to the official Drawings, Profiles, cross sections, elevations, details, and other working drawings and supplementary drawings, or reproductions thereof, signed by the ENGINEER, which shows the location, character, dimensions, and details of the work to be performed. Drawings may either be bound in the same book as the balance of the Contract Documents, or bound in separate sets, and are a part of the Contract Documents, regardless of the method of binding.

9. ENGINEER

The person or organization identified as such in the Contract Documents. The Term "ENGINEER" means ENGINEER or his authorized representative.

10. NOTICE

The term "notice" or the requirement to notify, as used in the Contract Documents or applicable state or federal statutes, shall signify a written communication delivered in person or by registered mail to the individual, or to a member of the firm, or to an officer of the corporation for whom it is intended. Certified or registered mail shall be addressed to the last business address known to him who gives the notice.

11. OR EQUAL

The term "or equal" shall be understood to indicate that the "equal" Product is equivalent to or better than the Product named in function, performance, reliability, quality, and general configuration. Determination of equality in reference to the Project design requirements will be made by the ENGINEER. Such equal Products shall not be purchased or installed by the CONTRACTOR without written authorization.

12. OWNER

The person, organization, or public body identified as such in the Contract Documents.

13. PLANS (See Drawings)

14. SPECIFICATIONS

The term "Specifications" refers to those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the work and certain administrative details applicable thereto. Where standard specifications, such as those of ASTM, AASHTO, etc., have been referred to, the applicable portions of such standard specifications shall become a part of these Contract Documents. If referenced specifications conflict with specifications contained herein, the requirements contained herein shall prevail.

15. NOTICE TO PROCEED

A written notices given by the OWNER to the CONTRACTOR (with a copy to the ENGINEER) fixing the date on which the Contract time will commence to run and on which the CONTRACTOR shall start to perform his obligation under the Contract Documents. The Notice to Proceed will be given within 30 days following the execution of the Contract by the OWNER.

16. SUBSTANTIAL COMPLETION

"Substantial Completion" shall be that degree of completion of the Project or a defined portion of the Project, as evidenced by the ENGINEER's written notice of Substantial Completion, sufficient to Provide the OWNER, at his discretion, the full-time use of the Project or defined portion of the Project for the purposes for which it was intended. "Substantial Completion" of an operating facility shall be that degree of completion that has Provided a minimum of 7 continuous days of successful, trouble-free, operation, which period shall begin after all performance and acceptance testing has been successfully demonstrated to the ENGINEER. All equipment contained in the work, plus all other components necessary to enable the OWNER to operate the facility in a manner that was intended, shall be complete on the substantial completion date.

17. WORK

The word "work" within these Contract Documents shall include all material, labor, tools, and all appliances, machinery, transportation, and appurtenances necessary to perform and complete the Contract, and such additional items not specifically indicated or described which can be reasonably inferred as belonging to the item described or indicated and as required by good Practice to Provide a complete and satisfactory system or structure. As used herein, "Provide" shall be understood to mean, "furnish and install, complete in-place ".

CONTRACT DOCUMENTS

18. INTENT OF CONTRACT DOCUMENTS

The Contract Documents are complementary, and what is called for by one shall be as binding as if called for by all. The intent of the Documents is to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any work, materials, or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words, which have a well-known technical or trade meaning are used to describe work, materials, or equipment, such words shall be interpreted in accordance with that meaning.

Reference to standard specifications, manuals, or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect on the first published date of the Invitation to Bid, except as may be otherwise specifically stated. However, no Provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their

consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to ENGINEER, or any ENGINEER's consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the Provisions of Article LIMITATIONS ON ENGINEER'S RESPONSIBILITIES.

19. DISCREPANCIES AND OMISSIONS

Any discrepancies or omissions found in the Contract Documents shall be reported to the ENGINEER immediately. The ENGINEER will clarify discrepancies or omissions, in writing, within a reasonable time.

In resolving inconsistencies among two or more sections of the Contract Documents, Precedence shall be given in the following order:

A. CONTRACT
B. PROPOSAL
C. SUPPLEMENTARY CONDITIONS
D. INVITATION TO BID
E. INSTRUCTIONS TO BIDDERS
F. GENERAL CONDITIONS
G. SPECIFICATIONS
H. DRAWINGS
I.

Addenda shall take Precedence over all sections referenced therein. Figure dimensions on Drawings shall take Precedence over scale dimensions. Detailed Drawings shall take Precedence over general Drawings.

20. CHANGES IN THE WORK

The OWNER, without notice to the Sureties and without invalidating the Contract, may order changes in the work within the general scope of the Contract by altering, adding to, or deducting from the work, the Contract being adjusted accordingly. All such work shall be executed under the conditions of the original Contract, except as specifically adjusted at the time of ordering such change.

In giving instructions, the ENGINEER may order minor changes in the work not involving extra cost and not inconsistent with the purposes of the Project, but otherwise, except in an emergency endangering life and Property, additions or deductions from the work shall be performed only in pursuance of an approved Change Order from the OWNER, countersigned by the ENGINEER.

If the work is reduced by alterations, such action shall not constitute a claim for damages based on loss of anticipated Profits.

21. EXAMINATION & VERIFICATION OF CONTRACT DOCUMENTS

The CONTRACTOR shall thoroughly examine and become familiar with all of the various parts of these Contract Documents and determine the nature and location of the work, the general and local

conditions, and all other matters, which can in any way affect the work under this Contract. Failure to make an examination necessary for this determination shall not release the CONTRACTOR from the obligations of this Contract. No verbal agreement or conversation with any officer, agent, or employee of the OWNER, or with the ENGINEER either before or after the execution of this Contract shall affect or modify any of the terms or obligations herein contained.

22. DOCUMENTS TO BE KEPT ON THE JOBSITE

The CONTRACTOR shall keep one copy of the Contract Documents on the job- site, in good order, available to the ENGINEER and to his representatives.

The CONTRACTOR shall maintain on a daily basis at the jobsite, and make available to the ENGINEER on request, one current record set of the Drawings which have been accurately marked to indicate all modifications in the completed work that differ from the design information shown on the Drawings. Upon Substantial completion of the work, the CONTRACTOR shall give the ENGINEER one complete set of these marked up record Drawings.

23. ADDITIONALCONTRACT DOCUMENTS

Copies of Contract Documents or Drawings may be obtained on request from the ENGINEER and by paying the actual cost of reproducing the Contract Documents or Drawings.

24. OWNERSHIP OF CONTRACT DOCUMENTS

All portions of the Contract Documents, and copies thereof furnished by the ENGINEER are instruments of service for this Project. They are not to be used on other work and are to be returned to the ENGINEER on request at the completion of the work. Any reuse of these materials without specific written verification or adaptation by the ENGINEER will be at the risk of the user and without liability or legal expense to the ENGINEER. Such user shall hold the ENGINEER harmless from any and all damages, including reasonable attorneys' fees, from any and all claims arising from any such reuse. Any such verification and adaptation shall entitle the ENGINEER to further compensation at rates to be agreed upon by the user and the ENGINEER.

THE ENGINEER

25. AUTHORITY OF THE ENGINEER

The ENGINEER will be the OWNER's representative during the construction period. His authority and responsibility will be limited to the Provisions set forth in these Contract Documents. The ENGINEER will have the Authority to reject work that does not conform to the Contract Documents. However, neither the ENGINEER's authority to act under this Provision, nor any decision made by him in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the ENGINEER to the CONTRACTOR, any SubCONTRACTOR, their respective Sureties, any of their agents or employees, or any other person performing any of the work.

26. DUTIES AND RESPONSIBILITIES OF THE ENGINEER

The ENGINEER will make visits to the site at intervals appropriate to the various stages of construction to observe the Progress and quality of the work and to determine, in general, if the work is proceeding in accordance with the intent of the Contract Documents. He will not make comprehensive or continuous review or observation to check quality or quantity of the work, and he will not be responsible for construction means, methods, techniques, sequences, or Procedures, or for safety Precautions and Programs in connection with the work. Visits and observations made by the ENGINEER shall not relieve the CONTRACTOR of his obligation to conduct comprehensive inspections of the work and to furnish materials and perform acceptable work, and to provide adequate safety Precautions, in conformance with the intent of the Contract.

The ENGINEER will make recommendations to the OWNER, in writing, on all claims of the OWNER or the CONTRACTOR arising from interpretation or execution of the Contract Documents. Such recommendations will be of factual and/or technical nature, and will not include the legal interpretation of the Contract Documents. Any necessary legal interpretation of the Contract Document will be made by the OWNER. Such recommendation shall be necessary before the CONTRACTOR can receive additional money under the terms of the Contract. Changes in work ordered by the ENGINEER shall be made in compliance with Article CHANGES IN THE WORK.

One or more Project representatives may be assigned to observe the work. It is understood that such Project representatives shall have the authority to issue notice of nonconformance and make decisions within the limitations of the authority of the ENGINEER. The CONTRACTOR shall furnish all reasonable assistance required by the ENGINEER or Project representatives for Proper observation of the work. The above-mentioned Project representatives shall not relieve the CONTRACTOR of his obligations to conduct comprehensive inspections of the work and to furnish materials and perform acceptable work, and to provide adequate safety Precautions, in conformance with the intent of the Contract.

27. LIMITATIONS ON ENGINEER'S RESPONSIBILITIES

ENGINEER will not be responsible for CONTRACTOR's means, methods, techniques, sequences, or Procedures of construction, or the safety Precautions and Programs incident thereto, and ENGINEER will not be responsible for CONTRACTOR's failure to perform or furnish the work in accordance with the Contract Documents.

ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any SubCONTRACTOR, any supplier, or of any other person or organization performing or furnishing any of the work.

Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved", or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "Proper", or "satisfactory", or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of ENGINEER as to the work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or

direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the Provisions of this Article.

28. REJECTED WORK

Any defective work or nonconforming materials or equipment that may be discovered at any time prior to expiration of the warranty period shall be removed and replaced by work which shall conform to the Provisions of the Contract Documents. Any material condemned or rejected shall be removed at once from the Project site.

Failure on the part of the ENGINEER to condemn or reject bad or inferior work or to note nonconforming materials or equipment on CONTRACTOR submittals shall not be construed to imply acceptance of such work. The OWNER shall reserve and retain all of its rights and remedies at law against the CONTRACTOR and its Surety for correction of any and all latent defects discovered after the guarantee period.

29. LINES AND GRADES

Lines and grades shall be established as provided in the supplementary conditions. All stakes, marks, and other reference information shall be carefully Preserved by the CONTRACTOR, and in case of their careless or unnecessary destruction or removal by him or his employees, such stakes, marks, and other information shall be replaced at the CONTRACTOR's expense.

30. SUBMITTALS

After checking and verifying all field measurements and after complying with applicable Procedures specified in Division I, GENERAL REQUIREMENTS, CONTRACTOR shall submit to ENGINEER, in accordance with the schedule for submittals for review, shop drawings, electrical diagrams, and catalog cuts for fabricated items and manufactured items (including mechanical and electrical equipment), which shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submittal. All submittals shall be identified as ENGINEER may require. The data shown shall be complete with respect to quantities, dimensions specified, performance and design criteria, materials, and similar data to enable ENGINEER to review the information. CONTRACTOR shall also submit to ENGINEER for review, with such Promptness as to cause no delay in work, all samples required by the Contract Documents. All samples shall have been checked by and accompanied by a specific written indication that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submission and shall be identified clearly as to material, supplier, pertinent data such as catalog numbers and the use for which intended.

Before submission of each submittal, CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto and reviewed or coordinated each submittal with other submittals and with the requirements of the work and the Contract Documents.

At the time of each submission, CONTRACTOR shall give ENGINEER specific written notice of each variation that the submittal may have from the requirements of the Contract Documents, and, in

addition, shall cause a specific notation to be made on each shop drawing submitted to ENGINEER for review and approval of each variation.

ENGINEER will review submittals with reasonable Promptness, but ENGINEER's review will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences, or Procedures of construction (except where a specific means, method, technique, sequence, or Procedure of construction is indicated in or required by the Contract Documents) or to safety Precautions or Programs incident thereto. The review of a separate item as such will not indicate review of the assembly in which the item functions. CONTRACTOR shall make corrections required by ENGINEER, and shall return the required number of corrected copies of shop drawings and submit as required new samples for review. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on Previous submittals.

ENGINEER's review of submittals shall not relieve CONTRACTOR from the responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of submission and ENGINEER has given written approval of each such variation by a specific written notation thereof incorporated therein or accompanying the shop drawing or sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for errors or omissions in the shop drawings or from responsibility for having complied with the Provisions herein.

Where a shop drawing or sample is required by the specifications, any related work performed Prior to ENGINEER's review and approval of the pertinent submission shall be at the sole expense and responsibility of the CONTRACTOR.

31. DETAIL DRAWINGS AND INSTRUCTIONS

The ENGINEER will furnish, with reasonable Promptness, additional instructions by means of Drawings or otherwise, if, in the ENGINEER's opinion, such are required for the Proper execution of the work. All such Drawings and instructions will be consistent with the Contract Documents, true developments thereof, and reasonably inferable there from.

THE CONTRACTOR & HIS EMPLOYEES

32. CONTRACTOR, AN INDEPENDENT AGENT

The CONTRACTOR shall independently perform all work under this Contract and shall not be considered as an agent of the OWNER or of the ENGINEER, nor shall the CONTRACTOR's SubCONTRACTORs or employees be subagents of the OWNER or of the ENGINEER.

32. (a) ASSIGNMENT OF CONTRACT

Assignment of any part or the whole of this Contract shall be subject to review and approval of the City Commission.

33. SUBCONTRACTING

Unless modified in the Supplementary Conditions, within 10 days after the execution of the Contract, the CONTRACTOR shall submit to the ENGINEER the names of all SubCONTRACTORs Proposed for the work, including the names of any SubCONTRACTORs that were submitted with the Proposal. The CONTRACTOR shall not employ any subCONTRACTORs to which the OWNER may object to as lacking capability to properly perform work of the type and scope anticipated.

The CONTRACTOR is as fully responsible to the OWNER for the acts and omissions of his SubCONTRACTORs and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the Contract Documents shall create any contractual relationship between any SubCONTRACTOR and the OWNER or ENGINEER.

34. INSURANCE AND LIABILITY

A. GENERAL

The CONTRACTOR shall provide (from insurance companies acceptable to the OWNER) the insurance coverage designated hereinafter and pay all costs before commencing work under this Contract. The CONTRACTOR shall furnish the OWNER with certificates of insurance specified herein showing the type, amount class of operations covered, effective dates, and date of expiration of policies, and containing substantially the following statement:

"The insurance covered by this certificate shall not be canceled or materially altered, except after 30 days' written notice has been received by the OWNER."

In case of the breach of any Provision of this Article, the OWNER, at his option, may take out and maintain, at the expense of the CONTRACTOR, such insurance as the OWNER may deem Proper and may deduct the cost of such insurance from any monies which may be due or become due the CONTRACTOR under this Contract.

B. CONTRACTOR & SUBCONTRACTOR INSURANCE

The CONTRACTOR shall not commence work under this Contract until he has obtained all the insurance required hereunder and such insurance has been reviewed by the OWNER, nor shall the CONTRACTOR allow any SubCONTRACTOR to commence work on his subcontract until insurance specified below has been obtained. Review of the insurance by the OWNER shall not relieve or decrease the liability of the CONTRACTOR hereunder.

C. COMPENSATION & EMPLOYER'S LIABILITY INSURANCE

The CONTRACTOR shall maintain during the life of this Contract the statutory amount of Workmen's Compensation Insurance, in addition, Employer's Liability Insurance in an amount as specified in the Supplementary Conditions, for each occurrence, for all of his employees to be engaged in work on the Project under this Contract. In case any such work is subcontracted, the CONTRACTOR shall require

the SubCONTRACTOR to provide similar Workmen's Compensation and Employer's Liability Insurance for all of the SubCONTRACTOR's employees to be engaged in such work.

D. GENERAL LIABILITY INSURANCE (INCLUDING AUTOMOBILE)

The CONTRACTOR shall maintain during the life of this Contract such general liability, completed operations and Products liability, and automobile liability insurance as will Provide coverage for claims for damages for personal injury, including accidental death, as well as for claims for Property damage, which may arise directly or indirectly from performance of the work under this Contract. The general liability policy shall include contractual liability assumed by the CONTRACTOR under Article **INDEMNITY.** Coverage for Property damage shall be on a "broad form" basis with no exclusions for "X, C & U". The amount of insurance to be provided shall be as specified in the Supplementary Conditions.

In the event any work under this Contract is performed by a SubCONTRACTOR, the CONTRACTOR shall be responsible for any liability directly or indirectly arising out of the work performed by the SubCONTRACTOR to the extent such liability is not covered by the SubCONTRACTOR's insurance.

The OWNER and ENGINEER, their officers, agents, and employees shall be named as Additional Insured's on the CONTRACTOR's and any SubCONTRACTOR's general liability and automobile liability insurance policies for any claims arising out of work performed under this Contract.

E. BUILDERS RISK ALL RISK INSURANCE

Unless otherwise modified in the Supplementary Conditions, the CONTRACTOR shall secure and maintain during the life of this Contract, Builders Risk All Risk Insurance coverage in an amount equal to the full value of the facilities under construction. Such insurance shall include coverage for earthquake, landslide, flood, collapse, loss due to the results of faulty workmanship or design, and all other normally covered risks, and shall provide for losses to be paid to the CONTRACTOR, OWNER, and ENGINEER as their interests may appear.

The OWNER and ENGINEER, their officers, agents, and employees shall be named as additional insured's on the CONTRACTOR's and any subCONTRACTOR's Builders Risk All Risk insurance policies for any claims arising out of work performed under this Contract.

This insurance shall include a waiver of subrogation as to the ENGINEER, the OWNER, the CONTRACTOR, and their respective officers, agents, employees and subCONTRACTORs.

F. NO PERSONAL LIABILITY OF PUBLIC OFFICIALS

In carrying out any of the Provisions hereof in exercising any authority granted by the Contract, there will be no personal liability upon any public official.

35. INDEMNITY

To the maximum extent permitted by law, the CONTRACTOR shall indemnify and defend the OWNER and the ENGINEER, and their officers, employees, agents, and sub-consultants, from all

claims and losses, including attorney's fees and litigation costs arising out of Property losses or health, safety, personal injury, or death claims by the CONTRACTOR, its subCONTRACTORs of any tier, and their employees, agents, or invitees regardless of the fault, breach of Contract, or negligence of the OWNER or ENGINEER, excepting only such claims or losses that have been adjudicated to have been caused solely by the negligence of the OWNER or the ENGINEER and regardless of whether or not the CONTRACTOR is or can be named a party in a litigation. Nothing herein is intended to waive the sovereign immunity afforded to CITY pursuant to Florida Law, including section 768.28, Florida Statutes.

36. EXCLUSION OF CONTRACTOR CLAIMS

In performing its obligations, the ENGINEER and its consultants may cause expense for the CONTRACTOR or its subCONTRACTORs and equipment or material suppliers. However, those parties and their sureties shall maintain no direct action against the ENGINEER, its officers, employees, agents, and consultants for any claim arising out of, in connection with, or resulting from the Engineering services performed or required to be performed.

37. TAXES AND CHARGES

The CONTRACTOR shall withhold and pay any and all sales and use taxes and all withholding taxes, whether State or Federal, and pay all Social Security charges and also all State Unemployment Compensation charges, and pay or cause to be withheld, as the case may be, any and all taxes, charges, or fees or sums whatsoever, which are now or may hereafter be required to be paid or withheld under any laws.

38. REQUIREMENTS OF STATE LAW FOR PUBLIC WORKS PROJECTS

When the Contract Documents concern public works of the state or any county, municipality, or political subdivision created by its laws, the applicable statutes shall apply. All parties to this Contract shall determine the contents of all applicable statutes and comply with their Provisions throughout the performance of the Contract.

39. CODES, ORDINANCES, PERMITS AND LICENSES

The CONTRACTOR shall keep himself fully informed of all local codes and ordinances, as well as state and federal laws, which in any manner affect the work herein specified. The CONTRACTOR shall at all times comply with said codes and ordinances, laws, and regulations, and Protect and indemnify the OWNER, the ENGINEER and their respective employees, and its officers and agents against any claim or liability arising from or based on the violation of any such laws, ordinances, or regulations. All permits, licenses and inspection fees necessary for Prosecution and completion of the work shall be secured and paid for by the CONTRACTOR, unless otherwise specified.

40. SUPERINTENDENCE

The CONTRACTOR shall keep at the Project site, competent supervisory personnel. The CONTRACTOR shall designate, in writing, before starting work, a Project superintendent who shall be an employee of the CONTRACTOR and shall have complete authority to represent and to act for the

CONTRACTOR. ENGINEER shall be notified in writing prior to any change in superintendent assignment. The CONTRACTOR shall give efficient supervision to the work, using his best skill and attention. The CONTRACTOR shall be solely responsible for all construction means, methods, techniques, and Procedures, and for providing adequate safety Precautions and coordinating all portions of the work under the Contract. It is specifically understood and agreed that the ENGINEER, its employees and agents, shall not have control or charge of and shall not be responsible for the construction means, methods, techniques, Procedures, or for providing adequate safety Precautions in connection with the work under Contract.

41. RECEPTION OF ENGINEER'S COMMUNICATIONS

The superintendent shall receive for the CONTRACTOR all communications from the ENGINEER. Communications of major importance will be confirmed in writing upon request from the CONTRACTOR.

The ENGINEER may schedule Project meetings for the purposes of discussing and resolving matters concerning the various elements of the work. Time and place for these meetings and the names of persons required to be Present shall be as determined by the ENGINEER. CONTRACTOR shall comply with these attendance requirements and shall also require his SubCONTRACTORs to comply.

42. SAFETY

The CONTRACTOR shall be solely and completely responsible for conditions of the jobsite, including safety of all persons (including employees) and Property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. Safety Provisions shall conform to U.S. Department of Labor (OSHA), and all other applicable federal, state, county, and local laws, ordinances, codes, and regulations. Where any of these are in conflict, the more stringent requirement shall be followed. The CONTRACTOR's failure to thoroughly familiarize himself with the aforementioned safety Provisions shall not relieve him from compliance with the obligations and penalties set forth therein.

The CONTRACTOR shall develop and maintain for the duration of this Contract, a safety Program that will effectively incorporate and implement all required safety Provisions. The CONTRACTOR shall appoint an employee who is qualified and authorized to supervise and enforce compliance with the safety Program. The duty of the ENGINEER to conduct construction review of the work does not include review or approval of the adequacy of the CONTRACTOR's safety Program, safety supervisor, or any safety measures taken in, on, or near the construction site. The CONTRACTOR, as a part of his safety Program, shall maintain at his office or other well-known place at the jobsite, safety equipment applicable to the work as Prescribed by the aforementioned authorities, all articles necessary for giving first-aid to the injured, and shall establish the Procedure for the immediate removal to a hospital or a doctor's care of persons (including employees) who may be injured on the jobsite.

If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the ENGINEER and the OWNER. In addition, the CONTRACTOR must promptly report in writing to the ENGINEER all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.

If a claim is made by anyone against the CONTRACTOR or any SubCONTRACTOR on account of any accident, the CONTRACTOR shall promptly report the facts in writing to the ENGINEER, giving full details of the claim.

43. PROTECTION OF WORK AND PROPERTY

The CONTRACTOR shall at all times safely guard and Protect from damage the OWNER's Property, adjacent Property, and his own work from injury or loss in connection with this Contract. All facilities required for Protection by federal, state, or municipal laws and regulations and local conditions must be provided and maintained.

The CONTRACTOR shall Protect his work and materials from damage due to the nature of the work, the elements, carelessness of other CONTRACTORs, or from any cause whatever until the completion and acceptance of the work. All loss or damages arising out of the nature of the work to be done under these Contract Documents, or from any unforeseen obstruction or defects which may be encountered in the Prosecution of the work, or from the action of the elements, shall be sustained by the CONTRACTOR.

44. RESPONSIBILITY OF CONTRACTOR TO ACT IN AN EMERGENCY

In case of an emergency, which threatens loss or injury of Property, and/or safety of life, the CONTRACTOR shall act, without previous instructions from the OWNER or ENGINEER, as the situation may warrant. The CONTRACTOR shall notify the ENGINEER thereof immediately thereafter. Any claim for compensation by the CONTRACTOR, together with substantiating documents in regard to expense, shall be submitted to the OWNER through the ENGINEER and the amount of compensation shall be determined by agreement.

45. MATERIALS AND APPLIANCES

Unless otherwise stipulated, the CONTRACTOR shall Provide and pay for all materials, labor, water, tools, equipment, heat, light, fuel, power, transportation, construction equipment and machinery, appliances, telephone, sanitary facilities, temporary facilities and other facilities and incidentals necessary for the execution and completion of the work.

Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of good quality. The CONTRACTOR shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

In selecting and/or approving equipment for installation in the Project, the OWNER and ENGINEER assume no responsibility for injury or claims resulting from failure of the equipment to comply with applicable federal, state, and local safety codes or requirements, or the safety requirements of a recognized agency, or failure due to faulty design concepts, or defective workmanship and materials.

46. CONTRACTORS' AND MANUFACTURERS'COMPLIANCE WITH STATE SAFETY, OSHA, AND OTHER CODE REQUIREMENTS

The completed work shall include all necessary permanent safety devices, such as machinery guards

and similar ordinary safety items required by the state and federal (OSHA) industrial authorities and applicable local and national codes. Further, any features of the work subject to such safety regulations shall be fabricated, furnished, and installed (including OWNER-furnished equipment) in compliance with these requirements. CONTRACTORs and manufacturers of equipment shall be held responsible for compliance with the requirements included herein. CONTRACTORs shall notify all equipment suppliers and SubCONTRACTORs of the Provisions of this Article.

47. SUBSTITUTION OF MATERIALS

Except for OWNER-selected equipment items, and items where no substitution is clearly specified, whenever any material, article, device, Product, fixture, form, type of construction, or Process is indicated or specified by patent or Proprietary name, by name of manufacturer, or by catalog number, such specifications shall be deemed to be used for the purpose of establishing a standard of quality and facilitating the description of the material or Process desired. This Procedure
is not to be construed as eliminating from competition other Products of equal or better quality by other manufacturers where fully suitable in design, and shall be deemed to be followed by the words "or equal". The CONTRACTOR may, in such cases, submit complete data to the ENGINEER for consideration of another material, type, or Process that shall be
substantially equal in every respect to that so indicated or specified. Substitute materials shall not be used unless approved in writing. The ENGINEER will be the sole judge of the substituted article or material.

48. TESTS, SAMPLES, & OBSERVATIONS

The CONTRACTOR shall furnish, without extra charge, the necessary test pieces and samples, including facilities and labor for obtaining the same, as requested by the ENGINEER. When required, the CONTRACTOR shall furnish certificates of tests of materials and equipment made at the point of manufacture by a recognized testing laboratory.

The OWNER, ENGINEER, and authorized government agents, and their representatives shall at all times be Provided safe access to the work wherever it is in Preparation or Progress, and the CONTRACTOR shall Provide facilities for such access and for observations, including maintenance of temporary and permanent access.

If the Specifications, laws, ordinances, or any public authority require any work, to be specially tested or approved, the CONTRACTOR shall give timely notice of its readiness for observations. If any work should be covered up without approval or consent of the ENGINEER, it shall, if required by the ENGINEER, be uncovered for examination at the CONTRACTOR's expense.

Reexamination of questioned work may be ordered by the ENGINEER, and, if so ordered, the work shall be uncovered by the CONTRACTOR. If such work is found to be in accordance with the Contract Documents, the OWNER will pay the cost of uncovering, exposure, observation, inspection, testing and reconstruction. If such work is found to be not in accordance with the Contract Documents, the CONTRACTOR shall correct the defective work, and the cost of reexamination and correction of the defective work shall be paid by the CONTRACTOR.

49. ROYALTIES AND PATENTS

The CONTRACTOR shall pay all royalty and licenses fees, unless otherwise specified. The CONTRACTOR shall defend all suits or claims for infringement of any patent rights and shall save the OWNER and the ENGINEER harmless from any and all loss, including reasonable attorneys' fees, on account thereof.

50. CONTRACTOR'S RIGHT TO TERMINATE CONTRACT

If the work should be stopped under an order of any court or other public authority for a period of more than 3 months, through no act or fault of the CONTRACTOR, its SubCONTRACTORs, or respective employees or if the ENGINEER should fail to make recommendation for payment to the OWNER or return payment request to CONTRACTOR for revision within 30 days after it is due, or if the OWNER should fail to pay the CONTRACTOR within 30 days after time specified in Article PARTIAL PAYMENTS, any sum recommended by the ENGINEER, then the CONTRACTOR may, upon 15 days' written notice to the OWNER and the ENGINEER, stop work or terminate this Contract and recover from the OWNER payment for all acceptable work performed and reasonable termination expenses, unless said default has been remedied.

51. CORRECTION OF DEFECTIVE WORK DURING WARRANTY PERIOD

The CONTRACTOR hereby agrees to make, at his own expense, all repairs or replacements necessitated by defects in materials or workmanship, Provided under terms of this Contract, and pay for any damage to other works resulting from such defects, which become evident within 2 years after the date of final acceptance of the work or within 2 years after the date of substantial completion established by the ENGINEER for specified items of equipment, or within such longer period as may be Prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents. Un-remedied defects identified for correction during the warranty period but remaining after its expiration shall be considered as part of the obligations of the warranty. Defects in material, workmanship, or equipment which are remedied as a result of obligations of the warranty shall subject the remedied portion of the work to an extended warranty period of 2 years after the defect has been remedied.

The CONTRACTOR further assumes responsibility for a similar guarantee for all work and materials provided by SubCONTRACTORs or manufacturers of packaged equipment components. The effective date for the start of the guarantee or warranty period for equipment qualifying as substantially complete is defined in Article SUBSTANTIAL COMPLETION, AND Article SUBSTANTIAL COMPLETION DATE, in these General Conditions.

The CONTRACTOR also agrees to hold the OWNER and the ENGINEER harmless from liability of any kind arising from damage due to said defects. The CONTRACTOR shall make all repairs and replacements promptly upon receipt of written order for same from the OWNER. If the CONTRACTOR fails to make the repairs
and replacements Promptly, or in an emergency where delay would cause serious risk, or loss, or damage, the OWNER may have the defective work corrected or the rejected work removed and

replaced, and the CONTRACTOR and his Surety shall be liable for the cost thereof.

PROGRESS OF THE WORK

52. BEGINNING OF THE WORK

Following execution of the Contract, the CONTRACTOR shall meet with the OWNER and ENGINEER relative to his arrangements for prosecuting the work.

53. SCHEDULES AND PROGRESS REPORTS

Prior to starting the construction, the CONTRACTOR shall Prepare and submit to the ENGINEER, a Progress schedule showing the dates on which each part or division of the work is expected to be started and finished, and a Preliminary schedule for submittals. The Progress schedule for submittals shall be brought up to date and submitted to the ENGINEER at the end of each month or at such other times the ENGINEER may request.

The CONTRACTOR shall forward to the ENGINEER, at the end of each month, an itemized report of the delivery status of major and critical items of purchased equipment and material, including shop drawings and the status of shop and field fabricated work. These Progress reports shall indicate the date of the purchase order, the current percentage of completion, estimated delivery, and cause of delay, if any.

If the completion of any part of the work or the delivery of materials is behind the submitted Progress schedule, the CONTRACTOR shall submit in writing a plan acceptable to the OWNER and ENGINEER for bringing the work up to schedule.

The OWNER shall have the right to withhold Progress payments for the work if the CONTRACTOR fails to update and submit the Progress schedule and reports as specified.

54. PROSECUTION OF THE WORK

It is expressly understood and agreed that the time of beginning, rate of Progress, and time of completion of the work are the essence of this Contract. The work shall be prosecuted at such time, and in or on such part or parts of the Project as may be required, to complete the Project as contemplated in the Contract Documents and the Progress schedule.

If the CONTRACTOR desires to carry on work at night or outside the regular hours, he shall give timely notice to the ENGINEER to allow satisfactory arrangements to be made for observing the work in Progress.

55. OWNER'S RIGHT TO RETAIN IMPERFECT WORK

If any part or portion of the work completed under this Contract shall Prove defective and not in accordance with the Drawings and Specifications, and if the imperfection in the same shall not be of sufficient magnitude or importance as to make the work dangerous or unsuitable, or if the removal of

such work will create conditions which are dangerous or undesirable, the OWNER shall have the right and authority to retain such work but will make such deductions in the final payment therefore as may be just and reasonable.

56. OWNER'S RIGHT TO DO WORK

Should the CONTRACTOR neglect to Prosecute the work in conformance with the Contract Documents or neglect or refuse at his own cost to remove and replace work rejected by the ENGINEER, then the OWNER may notify the Surety of the condition, and after 10 days' written notice to the CONTRACTOR and the Surety, or without notice if an emergency or danger to the work or public exists, and without Prejudice to any other right which the OWNER may have under Contract, or otherwise, take over that portion of the work which has been improperly or non timely executed, and make good the deficiencies and deduct the cost thereof from the payments then or thereafter due the CONTRACTOR.

57. OWNER'S RIGHT TO TRANSFER EMPLOYMENT

If the CONTRACTOR should abandon the work or if he should persistently or repeatedly refuse or should fail to make Prompt payment to SubCONTRACTORs for material or labor, or to persistently disregard laws, ordinances, or to Prosecute the work in conformance with the Contract Documents, or otherwise be guilty of a substantial violation of any Provision of the Contract or any laws or ordinance, then the OWNER may, without Prejudice to any other right or remedy, and after giving the CONTRACTOR and Surety 10 days' written notice, transfer the employment for said work from the CONTRACTOR to the Surety. Upon receipt of such notice, such Surety shall enter upon the Premises and take possession of all materials, tools, and appliances thereon for the purpose of completing the work included under this Contract and employ by Contract or otherwise, any qualified person or persons to finish the work and Provide the materials therefore, in accordance with the Contract Documents, without termination of the continuing full force and effect of this Contract. In case of such transfer of employment to such Surety, the Surety shall be paid in its
own name on estimates according to the terms hereof without any right of the CONTRACTOR to make any claim for the same or any part thereof.

If, after the furnishing of said written notice to the Surety, the CONTRACTOR and the Surety still fail to make reasonable Progress on the performance of the work, the OWNER may terminate the employment of the CONTRACTOR and take possession of the Premises and of all materials, tools, and appliances thereon and finish the work by whatever method he may deem expedient and charge the cost thereof to the CONTRACTOR and the Surety. In such case, the CONTRACTOR shall not be entitled to receive any further payment until the work is finished. If the expense of completing the Contract, including compensation for additional managerial and administrative services, shall exceed such unpaid balance, the CONTRACTOR and the Surety shall pay the difference to the OWNER.

58. DELAYS AND EXTENSION OF TIME

If the CONTRACTOR is delayed in the Progress of the work by any act or neglect of the OWNER or the ENGINEER, or by any separate CONTRACTOR employed by the OWNER, or by strikes,

lockouts, fire, adverse weather conditions not reasonably anticipated, or acts of Nature, and if the CONTRACTOR, within 48 hours of the start of the occurrence, gives written notice to the OWNER of the cause of the potential delay and estimate of the possible time extension involved, and within 10 days after the cause of the delay has been remedied, the CONTRACTOR gives written notice to the OWNER of any actual time extension requested as a result of the aforementioned occurrence, then the Contract time may be extended by change order for such reasonable time as the ENGINEER determines. It is agreed that no claim shall be made or allowed for any damages, loss, or expense which may arise out of any delay caused by the above referenced acts or occurrences other than claims for the appropriate extension of time. No extension of time will be granted to the CONTRACTOR for delays occurring to parts of the work that have no measurable impact on the completion of the total work under this Contract. No extension of time will be considered for weather conditions reasonably anticipated for the area in which the work is being performed. Reasonably anticipated weather conditions will be based on official records of monthly Precipitation and other historical data. Adverse weather conditions, if determined to be of a severity that would impact Progress of the work, may be considered as cause for an extension of Contract completion time.

Delays in delivery of equipment or material purchased by the CONTRACTOR or his SubCONTRACTORs, including OWNER-selected equipment shall not be considered as a just cause for delay, unless the OWNER determines that for good cause the delay is beyond the control of the CONTRACTOR. The CONTRACTOR shall be fully responsible for the timely ordering; scheduling, complete the work is the per-diem rate, as stipulated in the Proposal. The said amount is hereby agreed upon as a reasonable estimate of the costs, which may be accrued by the OWNER after the expiration of the time of completion. It is expressly under- stood and agreed that this amount is not to be considered in the nature of a penalty, but as liquidated damages which have accrued against the CONTRACTOR. The OWNER shall have the right to deduct such damages from any amount due, or that may become due the CONTRACTOR, or the amount of such damages shall be due and collectible from the CONTRACTOR or Surety.

59. DIFFERING SITE CONDITIONS

The CONTRACTOR shall promptly, and before the conditions are disturbed, give a written notice to the OWNER and ENGINEER of:

A. Subsurface or latent physical conditions at the site which differ materially from those indicated in this contract,

B. Unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

The ENGINEER will investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the CONTRACTOR's cost of, or the time required for, performing any part of the work under this Contract, whether or not changed as a result of the conditions, and equitable adjustment shall be made under this Article and the Contract modified in writing accordingly.

No request by the CONTRACTOR for an equitable adjustment to the Contract under this Article will be allowed, unless the CONTRACTOR has given the written notice required; Provided that the time

Prescribed above for giving written notice may be extended by the OWNER.

No request by the CONTRACTOR for an equitable adjustment to the Contract for differing site conditions will be allowed if made after final payment under this Contract.

60. LIQUIDATED DAMAGES

Should the CONTRACTOR fail to complete the work, or any part thereof, in the time agreed upon in the Contract or within such extra time as may have been allowed for delays by extensions granted as Provided in the Contract, the CONTRACTOR shall reimburse the OWNER for the additional expense and damage for each calendar day, Sundays and legal holidays included, that the Contract remains uncompleted after the Contract completion date. It is agreed that the amount of such additional expense and damage incurred by reason of failure to
complete the work is the per-diem rate, as stipulated in the Proposal. The said amount is hereby agreed upon as a reasonable estimate of the costs which may be accrued by the OWNER after the expiration of the time of completion. It is expressly under- stood and agreed that this amount is not to be considered in the nature of a penalty, but as liquidated damages which have accrued against the CONTRACTOR. The OWNER shall have the right to deduct such damages from any amount due, or that may become due the CONTRACTOR, or the amount of such damages shall be due and collectible from the CONTRACTOR or Surety.

61. OTHER CONTRACTS

The OWNER reserves the right to let other Contracts in connection with the work. The CONTRACTOR shall afford other CONTRACTORs reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs.

If any part of the work under this Contract depends for Proper execution or results upon the work of any other CONTRACTOR, utility service company or OWNER, the CONTRACTOR shall inspect and Promptly report to the ENGINEER in writing any patent or apparent defects to deficiencies in such work that render it unsuitable for such Proper execution and results. The CONTRACTOR's failure to so report shall constitute and acceptance of the work by others as being fit and Proper for integration with work under this Contract, except for latent or non apparent defects and deficiencies in the work.

62. USE OF PREMISES

The CONTRACTOR shall confine his equipment, the storage of materials and the operation of his workers to limits shown on the Drawings or indicated by law, ordinances, permits, or directions of the ENGINEER, and shall not unreasonably encumber the Premises with his materials. The CONTRACTOR shall provide, at his own expense, the necessary rights-of-way and access to the work, which may be required outside the limits of the OWNER's Property and shall furnish the ENGINEER copies of permits and agreements for use of the Property outside that provided by the OWNER.

The CONTRACTOR shall not load nor permit any part of the structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the work or adjacent Property to stresses or Pressures that will endanger it.

63. SUBSTANTIAL COMPLETION DATE

The ENGINEER may issue a written notice of substantial completion for the purpose of establishing the starting date for specific equipment guarantees, and to establish the date that the OWNER will assume the responsibility for the cost of operating such equipment. Said notice shall not be considered as final acceptance of any portion of the work or relieve the CONTRACTOR from completing the remaining work within the specified time and in full compliance with the Contract Documents. See SUBSTANTIAL COMPLETION under DEFINITIONS of these General Conditions.

64. PERFORMANCE TESTING

Operating equipment and systems shall be performance tested in the Presence of the ENGINEER to demonstrate compliance with the specified requirements. Performance testing shall be conducted under the specified design operating conditions or under such simulated operating conditions as recommended or approved by the ENGINEER. Schedule such testing with the ENGINEER at least one week in advance of the planned date for testing.

65. OWNER'S USE OF PORTIONS OF THE WORK

Following issuance of the written notice of Substantial Completion, the OWNER may initiate operation of the facility. Such use shall not be considered as final acceptance of any portion of the work, nor shall such use be considered as cause for an extension of the Contract completion time, unless authorized by a Change Order issued by the OWNER.

66. CUTTING AND PATCHING

The CONTRACTOR shall do all cutting, fitting, or patching of his work that may be required to make its several parts come together Properly and fit it to receive or be received by work of other CONTRACTORs shown upon or reasonably implied by the Drawings.

67. CLEANING UP

The CONTRACTOR shall, at all times, keep Property on which work is in Progress and the adjacent Property free from accumulations of waste material or rubbish caused by employees or by the work. Upon completion of the construction, the CONTRACTOR shall remove all temporary structures, rubbish, and waste materials resulting from his operations.

PAYMENT

68. PAYMENT FOR CHANGE ORDERS

The OWNER's request for quotations on alterations to the work shall not be considered authorization to proceed with the work
expediting, delivery, and installation of all equipment and materials. Within a reasonable period after

the CONTRACTOR submits to the OWNER a written request for an extension of time, the ENGINEER will Present his written opinion to the OWNER as to whether an extension of time is justified, and, if so, his recommendation as to the number of days for time extension. The OWNER will make the final decision on all requests for extension of time.

Prior to the issuance of a formal Change Order, nor shall such request justify any delay in existing work. Quotations for alterations to the work shall include substantiating documentation with an itemized breakdown of CONTRACTOR and SubCONTRACTOR costs, including labor, material, rentals, approved services, overhead, and profit. OWNER may require detailed cost data in order to substantiate the reasonableness of the proposed costs.

Any compensation paid in conjunction with the terms of a Change Order shall comprise total compensation due the CONTRACTOR for the work or alteration defined in the Change Order. By signing the Change Order, the CONTRACTOR acknowledges that the stipulated compensation includes payment for the work or alteration plus all payment for the interruption of schedules, extended overhead, delay, or any other impact claim or ripple effect, and by such signing specifically waives any reservation or claim for additional compensation in respect to the subject Change Order.

At the OWNER's option, payment or credit for any alterations covered by a Change Order shall be determined by one or a combination of the methods set forth in A, B, or C below, as applicable:

A. UNIT PRICES

Those unit Prices stipulated in the Proposal shall be utilized where they are applicable. In the event the Change Order results in a change in the original quantity that is materially and significantly different from the original bid quantity, a new unit Price shall be negotiated upon demand of either party. Unit Prices for new items included in the Change Order shall be negotiated and mutually agreed upon.

B. LUMP SUM

A total lump sum for the work negotiated and mutually acceptable to the CONTRACTOR and the OWNER. Lump sum quotations for modifications to the work shall include substantiating documentation with an itemized breakdown of CONTRACTOR and SubCONTRACTOR costs, including labor, material, rentals, approved services, overhead, and Profit, all calculated as specified under "C" below.

C. COST REIMBURSEMENT WORK

The term "cost reimbursement" shall be understood to mean that payment for the work will be made on a time and expense basis, that is, on an accounting of the CONTRACTOR's forces, materials, equipment, and other items of cost as required and used to do the work.

If the method of payment cannot be agreed upon prior to the beginning of the work, and the OWNER directs by written Change Order that the work be done on a cost reimbursement basis, then the CONTRACTOR shall furnish labor, and furnish and install equipment and materials necessary to complete the work in a satisfactory manner and within a reasonable period of time. For the work

performed, payment will be made for the documented actual cost of the following:

1. Labor including foremen for those hours they are assigned and participating in the cost reimbursement work (actual payroll cost, including wages, fringe benefits as established by negotiated labor agreements, labor insurance, and labor taxes as established by law). No other fixed labor burdens will be considered, unless approved in writing by the OWNER.

2. Material delivered and used on the designated work, including sales tax, if paid by the CONTRACTOR or his SubCONTRACTOR.

3. Rental or equivalent rental cost of equipment, including necessary transportation for items having a value in excess of $100. Rental or equivalent rental cost will be allowed for only those days or hours during which the equipment is in actual use. Rental and transportation allowances shall not exceed the current rental rates prevailing in the locality. The rentals allowed for equipment will, in all cases, be understood to cover all fuel, supplies, repairs, and renewals, and no further allowances will be made for those items, unless specific agreement to that effect is made.

4. Additional bond, as required and approved by the OWNER.

5. Additional insurance (other than labor insurance) as required and approved by the OWNER.

In addition to items 1 through 5 above, an added fixed fee for general overhead and profit shall be negotiated and allowed for the Contractor (or approved Subcontractor) actually executing the Cost Reimbursement work.

An additional fixed fee shall be negotiated and allowed the CONTRACTOR for the administrative handling of portions of the work that are executed by an approved SubCONTRACTOR. No additional fixed fee will be allowed for the administrative handling of work executed by a SubCONTRACTOR of a SubCONTRACTOR, unless by written permission from the OWNER.

The added fixed fees shall be considered to be full compensation, covering the cost of general supervision, overhead, Profit, and any other general expense. The CONTRACTOR's records shall make clear distinction between the direct costs of work paid for on a cost reimbursement basis and the costs of other work. The CONTRACTOR shall furnish the ENGINEER report sheets in duplicate of each day's cost reimbursement work no later than the working day following the performance of said work. The daily report sheets shall itemize the materials used, and shall cover the direct cost of labor and the charges for equipment rental, whether furnished by the CONTRACTOR, SubCONTRACTOR or other forces. The daily report sheets shall provide names or identifications and classifications of workers, the hourly rate of pay and hours worked, and also the size, type, and identification number of equipment and hours operated.

Material charges shall be substantiated by valid copies of vendors' invoices. Such invoices shall be submitted with the daily report sheets, or, if not available, they shall be submitted with subsequent daily report sheets. Said daily report sheets shall be signed by the CONTRACTOR or his authorized agent.

The OWNER reserves the right to furnish such materials and equipment as he deems expedient and the

CONTRACTOR shall have no claim for Profit or added fees on the cost of such materials and equipment. To receive partial payments and final payment for cost reimbursement work, the CONTRACTOR shall submit to the ENGINEER, detailed and complete documented verification of the CONTRACTOR's and any of his SubCONTRACTORs' actual costs involved in the cost reimbursement work. Such costs shall be submitted within 30 days after said work has been performed.

69. PARTIAL PAYMENTS

A. GENERAL

Nothing in this Article shall be construed to affect the right, hereby reserved, to reject the whole or any part of the aforesaid work, should such work be later found not to comply with the Provisions of the Contract Documents. All estimated quantities of work for which partial payments have been made are subject to review and correction on the final estimate. Payment by the OWNER and acceptance by the CONTRACTOR of partial payments based on periodic estimates of quantities of work performed shall not, in any way, constitute acceptance of the estimated quantities used as a basis for computing the amounts of the partial payments.

B. ESTIMATE

At least 30 days before each Progress payment falls due, as specified in the Supplementary Conditions, the CONTRACTOR shall submit to the ENGINEER a detailed estimate of the amount earned during the Preceding month for the separate portions of the work, and request payment. As used in this Article, the words "amount earned" means the value, on the date of the estimate for partial payment, of the work completed in accordance with the Contract Documents, and the value of approved materials delivered to the Project site suitable stored and Protected Prior to incorporation into the work.

ENGINEER will, within 7 days after receipt of each request for payment, either indicate in writing a recommendation of payment and present the request to OWNER, or return the request to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may, within 7 days, make the necessary corrections and resubmit the request.

ENGINEER may refuse to recommend the whole or any part of any payment if, in his opinion, it would be incorrect to make such representations to OWNER. ENGINEER may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended to such an extent as may be necessary in ENGINEER's opinion to protect the OWNER from loss because:

1. The work is defective, or completed work has been damaged requiring correction or replacement;

2. Written claims have been made against OWNER or Liens have been filed in connection with the work;

3. The Contract Price has been reduced because of Change Orders;

4. OWNER has been required to correct defective work or complete the work in accordance with Article OWNER'S RIGHT TO DO WORK;

5. Of CONTRACTOR's unsatisfactory Prosecution of the work in accordance with the Contract Documents; or
6. CONTRACTOR's failure to make payment to SubCONTRACTORs or for labor, materials, or equipment.

C. DEDUCTION FROM ESTIMATE

Unless modified in the Supplementary Conditions, deductions from the estimate will be as described below:

1. The OWNER will deduct from the estimate, and retain as part security, 10 percent of the amount earned for work satisfactorily completed. A deduction and retainage of 10 percent will be made on the estimated amount earned for approved items of material delivered to and properly stored at the jobsite but not incorporated into the work. When the work is 50 percent complete, the OWNER may reduce the retainage to 5 percent of the dollar value of all work satisfactorily completed to date provided the CONTRACTOR is making satisfactory Progress and there is no specific cause for a greater retainage. The OWNER may reinstate the retainage up to 10 percent if the OWNER determines, at his discretion, that the CONTRACTOR is not making satisfactory Progress or where there is other specific cause for such withholding.

D. QUALIFICATION FOR PARTIAL PAYMENT FOR MATERIALS DELIVERED

Unless modified in the Supplementary Conditions, qualification for partial payment for materials delivered but not yet incorporated into the work shall be as described below:

1. Materials, as used herein, shall be considered to be those items which are fabricated and manufactured material and equipment. No consideration shall be given to individual purchases of less than $200 for any one item.

2. To receive partial payment for materials delivered to the site, but not incorporated in the work, it shall be necessary for the CONTRACTOR to include a list of such materials on the Partial Payment Request. At his sole discretion, the ENGINEER may approve items for which partial payment is to be made. Partial payment shall be based on the CONTRACTOR's actual cost for the materials as evidenced by invoices from the supplier. Proper storage and Protection shall be provided by the CONTRACTOR, and as approved by the ENGINEER. Final payment shall be made only for materials actually incorporated in the work and, upon acceptance of the work, all materials remaining for which advance payments had been made shall revert to the CONTRACTOR, unless otherwise agreed, and partial payments made for these items shall be deducted from the final payment for the work.

3. CONTRACTOR warrants and guarantees that title to all work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER at the time of payment free and clear of all liens, claims, security interests, and

encumbrances.

4. If requested by the ENGINEER, the CONTRACTOR shall provide, with subsequent pay requests, invoices receipted by the supplier showing payment in full has been made.

E. PAYMENT

After deducting the retainage and the amount of all previous partial payments made to the CONTRACTOR from the amount earned, the amount due will be made payable to the CONTRACTOR. Recommendations for payment received by the OWNER less than 9 days Prior to the scheduled day for payment will not be Processed or paid until the following month.

70. CLAIMS FOR EXTRA WORK

In any case where the CONTRACTOR deems additional time or compensation will become due him under this Contract for circumstances other than those defined in Article DELAYS AND EXTENSION OF TIME, the CONTRACTOR shall notify the ENGINEER, in writing, of his intention to make claim for such time or compensation before he begins the work on which he bases the claim, in order that such matters may be settled, if possible, or other appropriate action taken. The notice of claim shall be in duplicate, in writing, and shall state the circumstances and the reasons for the claim, but need not state the amount. If such notification is not given or if the ENGINEER is not afforded Proper facilities by the CONTRACTOR for keeping strict account of actual cost, then the CONTRACTOR hereby agrees to waive the claim for such additional time or compensation. Such notice by the CONTRACTOR, and fact that the ENGINEER has kept account of the cost as aforesaid, shall not in any way be construed as proving the validity of the claim.

No extension of time will be granted to the CONTRACTOR for delays resulting from extra work that have no measurable impact on the completion of the total Work under this Contract. Claims for additional time or compensation shall be made in itemized detail and submitted, in writing, to the OWNER and ENGINEER within 10 days following completion of that portion of the work for which the CONTRACTOR bases his claim. Failure to make the claim for additional compensation in the manner and within the time specified above shall constitute waiver of that claim. In case the claim is found to be just, it shall be allowed and paid for as provided in Article PAYMENT FOR CHANGE ORDERS.

71. RELEASE OF LIENS OR CLAIMS

The CONTRACTOR shall indemnify and hold harmless the OWNER from all claims for labor and materials furnished under this Contract. Prior to the final payment, the CONTRACTOR shall furnish to the OWNER, as part of his final payment request, a certification that all of the CONTRACTOR's obligations on the project have been satisfied and that all monetary claims and indebtedness have been paid. The CONTRACTOR shall furnish complete and legal effective releases or waivers, satisfactory to the OWNER, of all liens arising out of or filed in connection with the work.

72. FINAL PAYMENT

Upon completion of all the work under this Contract, the CONTRACTOR shall notify the ENGINEER,

in writing, that he has completed his part of the Contract and shall request final payment. Upon receipt of such notice the ENGINEER will inspect and, if acceptable, submit to the OWNER his recommendation as to acceptance of the completed work and as to the final estimate of the amount due the CONTRACTOR. Upon approval of this final estimate by the OWNER and compliance by the CONTRACTOR with Provisions in Article **RELEASE OF LIENS OR CLAIMS,** and other Provisions as may be applicable, the OWNER shall pay to the CONTRACTOR all monies due him under the Provisions of these Contract Documents.

73. NO WAIVER OF RIGHTS

Neither the inspection by the OWNER, through the ENGINEER or any of his employees, nor any order by the OWNER for payment of money, nor any payment for, or acceptance of, the whole or any part of the work by the OWNER or ENGINEER, nor any extension of time, nor any possession taken by the OWNER or its employees, shall operate as a waiver of any Provision of this Contract, or any power herein reserved to the OWNER, or any right to damages herein Provided, nor shall any waiver of any breach in this Contract be held to be a waiver of any other or subsequent breach. Acceptance or final payment shall not be final and conclusive with regards to latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the OWNER's rights under the warranty.

74. ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the CONTRACTOR of the final payment shall release the OWNER and the ENGINEER, as representatives of the OWNER, from all claims and all liability to the CONTRACTOR for all things done or furnished in connection with the work, and every act of the OWNER and others relating to or arising out of the work except claims Previously made in writing and still unsettled. No payment, however, final or otherwise, shall operate to release the CONTRACTOR or his Sureties from obligations under this Contract and the Performance Bond, Payment Bond, and other bonds and warranties, as herein provided.

SUPPLEMENTARY CONDITIONS

REVISIONS AND ADDITIONS TO THE GENERAL CONDITIONS

The General Conditions are hereby revised as follows:

ARTICLE 9 "ENGINEER"

Add the following:

Wherever in these Documents the word "Engineer" appears, it shall be understood to mean the GM Selby.Inc., Gerald Zadikoff, P.E., Engineer of Record or authorized representative, whose address is 6999 N.Waterway, Miami, FL, 33155.

ARTICLE 12 "OWNER"

Add the following:

Wherever in these Documents the word "Owner" appears, it shall be understood to mean the City of Key West whose address is 525 Angela Street, P.O. Box 1409, Key West, Florida 33041-1409.

ARTICLE 14 "SPECIFICATIONS"

Add the following:

FEDERAL, STATE, COUNTY, AND LOCAL STANDARD SPECIFICATIONS

Where portions of the work traverse or cross federal, state, county, or local highways, roads, or streets, and the agency in control of such property has established standard specifications governing items of work that differ from these Specifications, the most stringent requirements shall apply.

The Contractor shall comply with all regulations and requirements of the State Highway Department and the County Road Department wherever the work traverses or crosses state or county highways.

ARTICLE 29 "LINES AND GRADES"

Add the following:

It will be the Contractor's responsibility to layout the work and to transfer elevations from benchmarks. Where new construction connects to existing facilities, the Contractor shall check and establish the exact location prior to construction of the facilities.

The Contractor shall furnish all surveys, labor, and equipment, including setting all alignment and gradient, grade stakes, batter boards, and everything necessary to lay out his work. The Contractor shall be responsible for maintaining and re-establishing at his expense, all control points. After completion of his construction, he shall reset all permanent monuments at their original locations and elevations.

All layout work may be checked by the Engineer, and the Contractor shall furnish all necessary labor, equipment, and materials, and shall cooperate and assist the Engineer in making such checks.

The dimensions for lines and elevations for grades of the structures, appurtenances, and utilities will be shown on Drawings , together with other pertinent information required for laying out the work. If site conditions vary from those indicated, the Contractor shall notify the Engineer immediately, who will make any minor adjustment as required.

ARTICLE 34 "INSURANCE AND LIABILITY", SUBARTICLE C "WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE"

Add the following:

Provide Employer's Liability Insurance in an amount not less than $3,000,000.

ARTICLE 34 "INSURANCE AND LIABILITY", SUBARTICLE D "GENERAL LIABILITY INSURANCE (INCLUDING AUTOMOBILE)"

Add the following:

The amount of General Liability Insurance shall not be less than $3,000,000 for bodily injury for each occurrence, with coverage for property damage not less than $3,000,000. Comprehensive automobile liability shall not be less than $3,000,000 for each person and $3,000,000 for each occurrence. Contractual liability shall not be less than $3,000,000 for bodily injury per each occurrence with coverage for property damage not less than $3,000,000 for each occurrence. Additional umbrella excess liability coverage for the General Liability and Automobile Liability insurance shall be not less than $ 3,000,000 per occurrence in excess of the above stated primary limits. GM Selby, Inc. shall also be named on the policy with the City of Key West.

ARTICLE 34 "INSURANCE AND LIABILITY", SUBARTICLE E "BUILDERS RISK ALL RISK INSURANCE"

Delete the following coverages:

Loss caused by earthquake.
Loss caused by landslide.

ARTICLE 34 “INSURANCE AND LIABILITY"

Add the following Article:

G. SURETY AND INSURER QUALIFICATIONS

All bonds, insurance contracts, and certificates of insurance shall be either executed by or countersigned by a licensed resident agent of the Surety or insurance company, having his place of business in the State of Florida, and in all ways complying with the insurance laws of the State of Florida. Further, the said Surety or Insurance Company shall be duly licensed and qualified to do business in the State of Florida. If requested, Contractor shall Provide Proof of Florida Licensure for all insurance companies. GM Selby, Inc. shall also be named on the policy with the City of Key West.

H. WAIVER OF SUBROGATION

Insurance contracts and Certificates of Insurance required by this contract shall contain a “waiver of subrogation” provision whereas the contractor’s insurers waive any claim against the City of Key West.

ARTICLE 35 "INDEMNITY"

Add the following:

The obligation of the Contractor under this Article shall be limited to the contractual liability as specified in the Supplementary Conditions, Article INSURANCE AND LIABILITY.

ARTICLE 39 "CODES, ORDINANCES, PERMITS, AND LICENSES"

Add the following Subarticles:

A. PERMIT FOR WORK WITHIN LOCAL RIGHTS-OF-WAY

The Contractor shall obtain from the City of Key West the necessary permits for work within the rights-of-way. The Contractor shall abide by all regulations and conditions, including maintenance of traffic, FDOT Standard.

B. PUBLIC WORKS COMPLIANCE ACT

GENERAL

If the Contract amount exceeds $25,000, the Contractor shall abide by the requirements of the State Public Works Compliance Act, Section 446.101 Florida Statutes. The Act generally requires the Contractor to:

Participate in registered training programs with the State of Florida.

Hire for the duration of the Contract, a ratio of at least one registered apprentice or trainee to every five journeymen working on the project.

Prior to the commencement of the work, submit a letter of intent to the Bureau of Apprenticeship and to others as required by the Act.

Prepare and submit quarterly to the Bureau of Apprenticeship, records of employment on report form BAP-500.

ADMINISTRATION

Administration of the apprenticeship program for this Contract will be under the designated area field office of the Bureau of Apprenticeship.

C. NOISE ORDINANCE

The Contractor shall comply with the City of Key West Noise Ordinance.

D. LICENSES

THE BIDDER MUST BE A LICENSED CONTRACTOR BY THE STATE OF FLORIDA AND SUBMIT PROOF OF SUCH WITH THE BID.

A. Within 10 days of Notice of Award, the successful Bidder must represent that he holds all applicable, county, and City of Key West licenses and permits required to do business as a contractor with respect to the work described in the Contract Documents.

B. Further, the successful Bidder must, within 10 days of Notice of Award, furnish documentation showing that, as a minimum, he has complied with the provisions of Chapter 18 of the Code of Ordinances of the City of Key West in order to enter into the Agreement contained in the Contract Documents.

C. Specifically, within 10 days after Notice of Award, the successful Bidder must demonstrate that he holds, as a minimum, the following licenses and certificates:

1) City of Key West Tax License Receipt;

2) A valid Certificate of Competency issued by the Chief Building Official of Key West, Florida

3) A valid occupational license issued by the City of Key West, Florida.

FOLLOWING ARTICLE 40 "SUPERINTENDENCE"

Add the following Article:

40 A. CONTRACTOR'S RESPONSIBILITIES:

a. The Contractor shall employ such superintendents, foremen, and workmen as are careful and competent. Whenever the Engineer shall determine that any person employed by the Contractor is in his opinion, incompetent, unfaithful, disorderly or insubordinate, such person shall, upon notice, be discharged from the work and shall not again be employed on it except with the written consent of the Engineer.
Should the Contractor fail to remove such person or persons, or fail to furnish suitable or sufficient machinery, equipment or force for the proper prosecution of the work the Engineer may withhold all estimates which are, or may become due, or may suspend the work until such orders are complied with.

b. The Contractor shall provide qualified personnel to assist the Engineer in making field checks, measurements, asbuilt checks, inspection, test runs, and the necessary quality check work related to the project work. An english speaking superintendent or foreman shall be onsight at all times.

c. The Contractor shall provide and maintain at his own expense, in a sanitary condition, such accommodations for the use of his employees as is necessary to comply with the requirements and regulations of the State and City Boards of Health. He shall commit no public nuisance.

d. The Contractor shall conduct the work so as to insure the least obstruction to traffic practicable, and shall provide for the convenience of the general public and of the residents along and adjacent to the work in a manner satisfactory to the Engineer. Materials and equipment stored on the work site shall be placed so as to cause as little obstruction to the public as possible and shall be lighted and barricaded as hereinafter provided. Keep driveways and entramces serving the premises clear and available to the Owner and the Owner’s employees at all times. Do not use these areas for parking or storage of materials and equipment on site.

ARTICLE 42 "SAFETY"

Add the following paragraphs:

OWNERS RIGHT TO STOP WORK

If the Contractor or Subcontractor fails to provide adequate safety provisions as required by the contract documents the Owner has the right to stop all construction work at the location with inadequate safety provisions until adequate provisions are in place. The Owner shall not be liable for any delays caused by the Contractor's failure to provide and maintain required safety provisions.

CLEANUP PROCEDURES FOR HURRICANE WARNINGS AND HURRICANE WATCH

In the event the National Oceanographic and Atmospheric Administration(NOAA) issues a Tropical Storm Watch or a Hurricane Watch for the Keys the Engineer will Contact the Contractor informing him that the Watch has been established. Within 4 hours of the notice the Contractor shall provide the Engineer with a written plan and schedule describing how and when the Contractor will remove all unnecessary items from the work area and tie down all necessary supplies and barricades in the event a Tropical Storm Warning or a Hurricane Warning is issued. The Contractor shall remove all unnecessary items from work areas and shall tie down all movable objects (under 200 lbs.) The Engineer will determine "necessary" items. The Owner shall not be liable for any financial hardship or delays caused as a result of demobilization or remobilization of work due to the above.

Add the following subarticle:

A. OCCUPATIONAL SAFETY AND HEALTH

The Contractor shall observe and comply with all applicable local, state, and federal occupational safety and health regulations during the prosecution of work under this Contract. In addition, full compliance by the Contractor with the U.S. Department of Labor's Occupational Safety and Health Standards, as established in Public Law 91-596, will be required under the terms of this Contract.

FOLLOWING ARTICLE 43 "PROTECTION OF WORK AND PROPERTY"

Add the following Article:

ARTICLE 53 "SCHEDULES & PROGRESS REPORTS"

Add the following paragraph:

Unless specifically authorized by the Engineer work shall not be performed within 3 days prior to the Goombay Festival, Fantasy Fest, Thanksgiving, Christmas or the period from Christmas to New Year's Day.

FOLLOWING ARTICLE 55 "OWNERS RIGHT TO RETAIN IMPERFECT WORK"

Add the following Article:

55 OWNERS RIGHT TO STOP WORK

If the Contractor or any subcontractor should fail to provide adequate safety provisions required by the contract documents, including but not limited to maintenance of traffic, trench safety devices and procedures, safety fencing, barricading, signage or unsafe work practices, the Owner has the right to issue a Stop Work Notice and stop all construction work at the location with the inadequate safety provisions until such time that adequate safety provisions are in place. The Owner shall not be liable for delays caused by the Contractor's failure to provide and maintain required safety provisions. No extension of time will be granted to the Contractor for delays occurring due to a Stop Work Notice.

ARTICLE 60 "LIQUIDATED DAMAGES"

Delete Article "LIQUIDATED DAMAGES" in its entirety and substitute the following:

60. LIQUIDATED DAMAGES

Should the Contractor fail to complete the work, or any part thereof in the time agreed upon or within such extra time as may have been allowed for delays by extensions granted as provided in the Contract, the Contractor shall reimburse the Owner for the additional expense and damage for each calendar day, Sundays, and legal holidays included, that project remains uncompleted after the completion date. It is agreed that the amount of such additional expense and damage incurred by reason of failure to complete the work is the per diem rate, as stipulated in the Proposal. The said amount is hereby agreed upon as a reasonable estimate of the costs which may be accrued by the Owner after the expiration of the time of completion. It is expressly understood and agreed that this amount is not to be considered in the nature of a penalty, but as liquidated damages which have accrued against the Contractor. The Owner shall have the right to deduct such damages from any amount due, or that may become due the Contractor, or the amount of such damages shall be due and collectible from the Contractor or Surety.

ARTICLE 69 "PARTIAL PAYMENTS"

Delete the first paragraph of Subarticle B "ESTIMATE" and substitute the following:

No more than once each month, the Contractor shall submit to the Engineer a detailed estimate of the amount earned during the preceding month for the separate portions of the work, and request payment. As used in this Article, the words "amount earned" means the value, on the date of the estimate for partial payment, of the work completed in accordance with the Contract Documents, and the value of approved materials delivered to the project site suitably stored and protected prior to incorporation into the work.

Add the following subparagraph to Subarticle B "ESTIMATE"

Payment will be made by the Owner to the Contractor within 45 days receipt of the written recommendation of payment from the Engineer.

Delete Subarticle E. "PAYMENT" in its entirety and substitute the following:

E. PAYMENT

After deducting the retainage and the amount of all previous partial payments made to the Contractor from the amount earned, the amount due will be made payable to the Contractor. Recommendations for payment received by the Owner less than 45 days prior to the scheduled day for payment will not be processed or paid until the following month.

ARTICLE 72 "FINAL PAYMENT"

Delete Article 72 "FINAL PAYMENT" in its entirety and substitute the following:

72. FINAL PAYMENT

Upon completion of the work, the Contractor shall notify the Engineer, in writing, that he has completed it and shall request final payment for the project. The Contractor shall be responsible for keeping an accurate and detailed record of his actual construction. Upon completion of construction and before final acceptance and payment, the Contractor shall furnish the Engineer record drawings of his construction in the specified format. Upon receipt of a request for final payment and the record drawings, the Engineer will inspect and, if acceptable, submit to the Owner his recommendation as to acceptance of the completed work and as to the final estimate of the amount due the Contractor. Upon approval of this final estimate by the Owner and compliance by the Contractor with provisions in Article 71 RELEASE OF LIENS OR CLAIMS, and other provisions as may be applicable, the Owner shall pay to the Contractor all monies due him under the provisions of these Contract Documents.

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PART 4

SPECIFICATIONS

PART 1 PROJECT DESCRIPTION

1.1 GENERAL

A. A brief description of the work is stated in the Invitation to Bid. To determine the full scope of the project or any particular part of the project, coordinate the applicable information in the several parts of these Contract Documents.

B. The work under this Contract shall be performed by the CONTRACTOR as required by the OWNER. The CONTRACTOR will receive a Notice to Proceed for the work authorized in this contract. The CONTRACTOR shall complete all work within the number of calendar days stipulated in the Notice to Proceed unless an extension in the time of completion is granted by the ENGINEER, as stated in the Instructions to Bidders. Upon completion of the work and compliance with applicable provisions in the Contract Documents and acceptance by the FDEP the CONTRACTOR will receive final payment for all work done.

C. The following additional information, though not all-inclusive, is given to assist the CONTRACTOR in their evaluation of the work required to meet the project objectives.

D. This project will provide the OWNER with: The purchase, delivery, placement, grading, and tilling of specified sand, field engineering and environmental protection for Smathers Beach as directed by the Engineer. The sand must be placed as shown on the drawings and as stated in the permits.

E. The work is likely to be influenced by the tides. The tides can have an effect on the timing and work schedule. No extra claims shall be made for the tides or for other natural causes.

F. The CONTRACTOR shall become familiar with the site and take such into consideration in planning and scheduling work. No extra claims shall be made for work required to achieve conditions beyond those obtainable under normal operation to accomplish the work.

1.2 PERMITS

A. All conditions of the FDEP & USACE permits must be adhered to and acceptance of the project by the FDEP & USACE must be obtained before final payment will be made.

1.3 AS-BUILTS

A. The CONTRACTOR shall submit as-builts at all profiles and intermediate profiles, including toe of fill and mixing zone utilizing industry standard surveying techniques. Three (3) 24 x 36 hardcopies, three (3) 11 x 17 hardcopies and two (2) compact discs in auto-cad format must be submitted to the ENGINEER. The survey data must include all survey control information. All drawings and discs must be submitted and approved before final payment will be made.

1.4 ENGINEER

A. Questions should be directed to both Janet Muccino, Project Manager, at jmuccino@keywestcity.com and GM Selby, Engineer at gzadikoff@gmselby.com

PART 2 SEQUENCE OF OPERATIONS

2.1 MOBILIZATION AND DEMOBILIZATION

A. CONTRACTOR shall be responsible for mobilization and demobilization of labor, materials and equipment. Payment for mobilization and demobilization will be based on the unit price indicated in the Proposal for mobilization and demobilization.

2.2 SCHEDULING

A. A schedule of work shall be given to the OWNER stating: date work is to start and anticipated completion date. These dates shall be within the time frame established by the Contract Documents. All installation work shall be completed 30 days from Notice to Proceed. Plan the work and carry it out with minimum interference to the operation of the existing facilities. Prior to starting the work confer with the ENGINEER and OWNER's representative to develop an approved work schedule that will permit the facilities to function normally as practical. It may be necessary to do certain parts of the construction work outside normal working hours in order to avoid undesirable conditions. The CONTRACTOR shall do this work at such times and at no additional cost to the OWNER. Do not make connections between existing work and new work until necessary inspection and tests have been completed on the new work and it is found to conform in all respects to the requirements of the Contract Documents.

B. Work shall be performed on a schedule and in a manner that will permit the existing facility to operate continuously.

C. In order to meet the overall objectives of the project certain elements of work may have to be completed or substantially completed in a given sequence that will be outlined by the ENGINEER.

D. No work shall be started until the CONTRACTOR has sufficient manpower, equipment, and material to complete the project. No work shall commence without

express consent of the ENGINEER.

2.3 COORDINATION

A. CONTRACTOR shall cooperate in the coordination of their separate activities in a manner that will provide the least interference with the OWNER's operations and other SUB CONTRACTORS working in the area and in the interfacing and connection of the separate elements of the overall project work. CONTRACTOR shall coordinate with the beach cleaner to avoid interfering with his work.

B. If any difficulty or dispute should arise in the accomplishment of the above, the problem shall be brought immediately to the attention of the ENGINEER.

C. All CONTRACTORS working on the site are subject to this requirement for cooperation and all shall abide by the ENGINEER's decision in resolving project coordination problems without additional cost to the OWNER.

D. WORK MAY BE INFLUENCED BY TURTLE NESTING SEASON AND NO WORK SHALL BE PERFORMED BEFORE A REPRESENTATIVE OF SAVE – A-TURTLE HAS WALKED THE BEACH AND CLEARED IT FOR WORK.

E. Coordination between the City and Contractor concerning locations of wedding parties and times shall be performed to ensure work is not delayed.

PART 3 SITE CONDITIONS

3.1 SITE INVESTIGATION AND REPRESENTATION

A. The CONTRACTOR acknowledges satisfaction as to the general nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, availability of labor, water, electric power, roads, and uncertainties of weather, tides, or similar physical conditions, the character of equipment and facilities needed preliminary to and during the prosecution of the work, and all other matters which can in any way affect the work or the cost thereof under this contract.

B. Failure by the CONTRACTOR to become acquainted with the physical conditions and all the available information will not relieve the CONTRACTOR from responsibility for properly estimating the difficulty or cost of successfully performing the work.

C. The CONTRACTOR warrants that as a result of examination and investigation of all the aforesaid data, the CONTRACTOR can perform the work in a good and workmanlike manner and to the satisfaction of the OWNER. The OWNER assumes no responsibility for any representations made by any of it officers or agents during or prior to the execution of this Contract, unless (1) such

representations are expressly stated in the Contract, and (2) the Contract expressly provides that the responsibility therefore is assumed by the OWNER.

3.2 INFORMATION ON SITE CONDITIONS

A. General: Any information obtained by the ENGINEER regarding site conditions, subsurface information, groundwater elevations, existing construction of site facilities as applicable and similar data will be available for inspection at the office of the ENGINEER upon request. Such information is offered as supplementary information only. Neither the ENGINEER nor the OWNER assumes any responsibility for the completeness or interpretation of such supplementary information.

3.3 SUBSURFACE INVESTIGATION

A. No test holes or borings have been made by the OWNER; however, any information the OWNER may have concerning subsurface conditions will be made available to the CONTRACTOR upon request.

B. The CONTRACTOR shall examine the site and may make arrangements with the OWNER to conduct his own subsurface investigation.

3.4 UTILITIES

A. The CONTRACTOR shall be responsible for determining, at his cost, the locations and elevations of all utilities in each project areas and shall be responsible for contacting each utility for location and notification prior to commencing work.

3.5 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

A. Where the CONTRACTOR's operations could cause damage or inconvenience to telephone, television, power, water, or sewer systems, the operations shall be suspended until all arrangements necessary for the protection of these utilities and services have been made by the CONTRACTOR.

B. Notify all utility offices, which are affected by the construction operation at least 48 hours in advance. Under no circumstances expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted, locate, expose, and provide temporary support for all existing underground utilities. Hand digging is required in the tolerance zone. If the CONTRACTOR fails to adhere to State Statutes and the Florida Administrative Code the appropriate law enforcement agencies will be contacted

C. The CONTRACTOR shall be solely and directly responsible to the OWNER and operators of such properties for any damage, injury, expense, loss inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or

damage that may result from the construction operations under this Contract.

D. Neither the OWNER nor its officers or agents shall be responsible to the CONTRACTOR for damages as a result of the CONTRACTOR's failure to protect utilities encountered in the work.

E. In the event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental breakage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration of service as promptly as possible and bear all costs of repair. In no case shall interruption of any water or utility service be allowed to exist outside working hours unless prior approval is granted.

F. In the event the CONTRACTOR encounters water service lines that interfere with the work he may, by obtaining prior approval of the property OWNER, Florida Keys Aqueduct Authority or Fire Department, as applicable, and the ENGINEER cut the service, dig through, and restore the service with similar and equal materials at the CONTRACTOR's expense.

G. The CONTRACTOR shall replace, at his own expense, all existing utilities or structures removed or damaged during construction unless otherwise provided for in these Contract documents or ordered by the ENGINEER.

3.6 INTERFERING STRUCTURES

A. Take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground.

B. Protect underground and above ground existing structures from damage, whether or not they lie within the limits of the easements obtained by the OWNER. Where such existing fences, gates, sheds, buildings, or any other structure must be removed in order to properly carry out the construction, or are damaged during construction, restore to their original condition to the satisfaction of the property OWNER involved at the CONTRACTOR's own expense. Notify the ENGINEER of any damaged underground structure and make repairs or replacements before backfilling.

C. Without additional compensation the CONTRACTOR may remove and replace in a condition as good as or better than original such small miscellaneous structures as fences, mailboxes, and signposts that interfere with the CONTRACTOR's operations.

3.7 FIELD RELOCATION

A. During the progress of construction it is expected that minor relocations of the work will be necessary. Such relocations shall be made only by direction of the ENGINEER. If existing structures are encountered which prevent the construction

and which are not properly shown on any Drawings that may be issued, notify the ENGINEER before continuing with the construction that may be issued in order that the ENGINEER may make such field revisions as necessary to avoid conflict with the existing structures. If the CONTRACTOR shall fail to so notify the ENGINEER when an existing structure is encountered and shall proceed with the construction despite this interference he shall do so at his own risk.

3.8 LAND MONUMENTS:

A. The CONTRACTOR shall notify the ENGINEER prior to disturbing any existing federal, state, county, city, and private land monuments. CONTRACTOR shall hire a licensed land surveyor to research and reference all private and government land monuments prior to construction. Private and government land monuments shall be preserved or replaced by a licensed surveyor at the CONTRACTOR's expense. When government monuments are encountered the CONTRACTOR shall notify the ENGINEER at least 2 weeks in advance of the proposed construction in order that the ENGINEER will have ample opportunity to notify the proper authority to reference these monuments for later replacement.

PART 4 TEMPORARY CONSTRUCTION UTILITIES AND FACILITIES

4.1 TEMPORARY WATER

A. The CONTRACTOR shall make his own arrangements to obtain suitable water and shall pay all costs.

4.2 TEMPORARY ELECTRIC POWER

A. The CONTRACTOR shall make arrangements to obtain and pay for electrical power used until final acceptance by the OWNER.

4.3 SAFETY REQUIREMENTS FOR TEMPORARY ELECTRIC POWER

A. Temporary electric power installation shall meet the construction safety requirements of OSHA, state and other governing agencies.

4.4 SANITARY FACILITIES

A. The CONTRACTOR shall provide and maintain sanitary facilities for his employees and his SUB-CONTRACTORs' employees that will comply with the regulations of the local and state departments of health and as directed by the ENGINEER.

4.5 STORAGE OF MATERIALS

A. Materials shall be so stored as to ensure the preservation of their quality and fitness for the work. When considered necessary they shall be stored on the City's bridle Path across from Smathers beach as directed by the ENGINEER. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without the written permission of the OWNER or lessee.

B. Delicate instruments and materials subject to vandalism shall be placed under locked cover and, if necessary, provided with temperature control as recommended by the manufacturer.

PART 5 SAFETY AND CONVENIENCE

5.1 SAFETY EQUIPMENT

A. The CONTRACTOR shall do all work necessary to protect the general public from hazards, including but not limited to, surface irregularities or unramped grade changes in pedestrian sidewalk or walkway. Barricades, lanterns, and proper signs shall be furnished in sufficient amount to safeguard the public and the work. All barricades and signs shall be, in the opinion of the ENGINEER, clean and serviceable.

B. During construction the CONTRACTOR shall construct and at all times maintain satisfactory and substantial temporary chain link fencing, solid fencing, railing, barricades or steel plates, as applicable, at all openings, obstructions, or other hazards in sidewalks and walkways. All such barriers shall have adequate warning lights as necessary, or required, for safety. All lights shall be regularly maintained and in a fully operational state at all times. To be determined by Engineer.

5.2 ACCIDENT REPORTS

A. In addition, the CONTRACTOR must promptly report in writing to the ENGINEER all accidents whatsoever arising out of or in connection with the performance of the work whether on or adjacent to the site, giving full details and statements of witness. If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the ENGINEER.

B. If a claim is made by anyone against the CONTRACTOR or any SUB-CONTRACTOR on account of any accident the CONTRACTOR shall promptly report the facts in writing to the ENGINEER, giving full details of the claim.

5.3 SAFE ACCESS BY FEDERAL, STATE, AND LOCAL GOVERNMENT OFFICIALS

A. Authorized representatives of the state, federal, or local governmental agencies shall at all times have safe access to the work and the CONTRACTOR shall provide proper facilities for such access and inspection. (i.e. hard hats, safety glasses, hearing protection)

B. THE SIDEWALK ALONG SOUTH ROOSEVELT BLVD. MUST BE KEPT OPEN, CLEAN AND SAFE AT ALL TIMES. CLEANUP OPERATIONS SHALL FOLLOW IMMEDIATELY BEHIND THE WORKSITE AND SHALL BE KEPT IN AN ORDERLY AND CLEAN CONDITION AT ALL TIMES.

C. Comply with all rules and regulations of the state, county, and city authorities regarding closing or restricting the use of public streets or highways. No public or private road shall be closed, except by express permission of the OWNER. Conduct the work so as to assure the least possible obstruction to traffic and normal commercial pursuits. Protect all obstructions within traveled roadways by installing approved signs, barricades, and lights where necessary for the safety of the public. The convenience of the general public and residents adjacent to the project and the protection of person and property are of prime importance and shall be provided for in an adequate and satisfactory manner.

D. When flaggers and guards are required by regulation or when deemed necessary for safety, they shall be furnished with approved orange wearing apparel and other regulation traffic-control devices in accordance with FDOT provisions. To be determined by Engineer. All flaggers must be D.O.T. certified

5.5 TRAFFIC CONTROL

A. Traffic control on all city, county and state highway rights-of-way shall meet the requirements of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, as well as FDOT Standard Details for Maintenance of Traffic, in accordance with The Manual for Uniform Traffic Control and Safe Practices.

B. The CONTRACTOR shall provide an 11 x 17 engineered drawing of his intended maintenance of traffic scheme to the ENGINEER for approval prior to commencement of work. This shall include barrier details, barricade type, and location.

5.6 PROTECTION OF PROPERTY

A. Protect stored materials located adjacent to the proposed work. Notify property OWNERs affected by the construction at least 48 hours in advance of the time construction begins. During construction operations construct and maintain such facilities as may be required to provide access by all property OWNERs to their property. No person shall be cut off from access to his residence or place of business for a period exceeding 8 hours unless the CONTRACTOR has made special arrangements with the affected persons.

A. The CONTRACTOR shall identify and isolate his work zone in such a manner as to exclude all personnel not employed by him, the ENGINEER, and the OWNER.

5.7 FIRE PREVENTION AND PROTECTION

A. The CONTRACTOR shall perform all work in a fire-safe manner. He shall supply and maintain on the site adequate fire-fighting equipment capable of extinguishing incipient fires. The CONTRACTOR shall comply with applicable federal, state, and local fire-prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standard for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.

5.8 ACCESS FOR POLICE, FIRE, AND POSTAL SERVICE

A. Notify the City ENGINEER and City Liaison a minimum of 48 hours before closing any street, sidewalk or bike path or portion thereof. No closing shall be made without the OWNER's approval. Notify said departments when the streets are again passable for emergency vehicles. Do not block off emergency vehicle access to consecutive arterial crossings or dead-end streets in excess of 300 linear feet without special written permission from City ENGINEER. Conduct operations with the least interference to fire equipment access, and at no time prevent such access.

B. The CONTRACTOR shall leave a night emergency telephone number or numbers with the police department, the ENGINEER and the OWNER, so that contact may be made easily at all times in case of barricade and flare trouble or other emergencies.

PART 6 PRESERVATION, RESTORATION, AND CLEANUP

6.1 SITE RESTORATION AND CLEANUP

A. At all times during the work keep the premises clean and orderly. Upon completion of the day’s work repair all damage caused by equipment and leave the project clean and free of rubbish or excess materials of any kind.

B. Stockpile excavated materials in a manner that will cause the least damage to adjacent lawns, grassed areas, gardens, shrubbery, or fences, regardless of whether these are on private property or on state, county, or city rights-of-way. Remove all materials from storage areas and leave these surfaces in a condition equivalent to their original condition.

C. Upon completion of sand placement and grading the beaches must be tilled according to FDEP permit requirements and as directed by the ENGINEER.

6.2 FINISHING OF SITE, BORROW, AND STORAGE AREAS

A. Upon completion of the project all areas used by the CONTRACTOR shall be properly cleared of all temporary structures, rubbish, and waste materials and properly graded to drain and blend in with the abutting property. Areas used for the deposit of waste materials shall be finished to properly drain and blend with the

surrounding terrain. The finished surface shall conform to the original surface, and shall be free draining and free from holes, ruts, rough spots, or other surface features detrimental to the area.

6.3 STREET CLEANUP DURING CONSTRUCTION

A. Thoroughly clean all spilled dirt, gravel, or other foreign material caused by the construction operations from all streets, roads and bike paths at the conclusion of each day's operation. Sidewalks and bike paths, unless under construction, shall be kept clear of material and available for pedestrian use at all times.

6.4 DUST PREVENTION

A. Give all unpaved or disturbed areas used in the construction an approved dust-preventive treatment or periodically water to prevent dust. Applicable environmental regulations for dust prevention shall be strictly enforced.

PART 7 SUBMITTALS DURING CONSTRUCTION

7.1 GENERAL

A. Requirements in this section are in addition to any specific requirements for submittals specified in other sections of these Contract Documents. The CONTRACTOR is required to provide a submittal log at the pre-construction conference.

B. Submittals to the ENGINEER shall be addressed to:

1. GM Selby, Inc.
Attn: Gerald Zadikoff, P.E.
6999 N. Waterway Drive
Miami, Florida 33155

C. Submitted data shall be fully sufficient in detail for determination of compliance with the Contract Documents.

D. Review, acceptance, or approval of substitutions, or equal, schedules, shop drawings, lists of materials, and procedures submitted or requested by the CONTRACTOR shall not add to the Contract amount and all additional costs which may result there from shall be solely the obligation of the CONTRACTOR.

E. It shall not be the responsibility of the OWNER to provide Engineering or other services to protect the CONTRACTOR from additional costs accruing from such approvals.

F. No equipment or material for which listings, drawings, or descriptive material is required shall be installed until the ENGINEER has on hand copies of such approved lists and the appropriately stamped final shop drawings.

G. The review of drawings by the ENGINEER will be limited to general design requirements only and shall in no way relieve the CONTRACTOR from responsibility for errors or omissions contained therein.

H. Submittals will be acted upon by the ENGINEER as promptly as possible and returned to the CONTRACTOR not later than 20 working days.

I. Should the CONTRACTOR propose any item on his shop drawings or incorporate an item into the work and that item should subsequently prove to be defective or otherwise unsatisfactory, (regardless of the ENGINEER's preliminary review), the CONTRACTOR shall, at his own expense replace the item with another item that will perform satisfactorily.

7.1.5 SUBMITTALS

Submittals shall be provided within 15 days of Notice to Proceed

7.2 AS-BUILT DRAWINGS

The CONTRACTOR shall submit as-builts at all profiles and intermediate profiles, including toe of fill and mixing zone utilizing industry standard surveying techniques. Three (3) 24 x 36 hardcopies, three (3) 11 x 17 hardcopies and two (2) compact discs in auto-cad format must be submitted to the ENGINEER. The survey data must include all survey control information. All drawings and discs must be submitted and approved before final payment will be made.

PART 8 PAYMENT

GENERAL

A. Payment for the work in this section will be included as part of the applicable lump sum prices stated in the Proposal.

* * * * *

SCOPE OF WORK

1. GENERAL

1.1 DESCRIPTION:

A. Place approximately 17,500 tons of sand on Smathers Beach as specified in the drawings and permits and as directed by the Engineer. In addition to provisions stipulated in other portions of the Contract Documents, the Contractor shall:

1. The Contractor shall be responsible for securing approved maintenance of traffic plans from the state, county & city permits as necessary; and any other permits for proper execution and completion of the work.

2. Give required notices to everyone in the adjacent condominium complexes and hotel with times of work 5 days prior to mobilization.

B. The Contractor shall be totally responsible for all state, county & city permits required and shall ensure that construction complies with all applicable local, state, and federal codes. The Contractor must adhere to all FDEP and USACE permit requirements.

C. Provide an experienced, qualified, and competent Superintendent to oversee the work. Prior to starting construction, the proposed Superintendent's qualifications shall be submitted in writing to the City for approval. The approved Superintendent shall be expected to remain for the duration of the Project, unless the City or Engineer deem him inadequate and requests his removal or the Contractor cannot continue his services to the project for a reason or reasons that shall be communicated in writing to the City. A replacement Superintendent shall be required to follow the same approval process as required for the original.

D. It shall be the Contractor's responsibility to request approval for entrance to the site for work on Saturdays, Sundays, holiday, and weekday hours other than 8:00 am until 7:00 pm.

E. The Contractor shall submit a site Safety and Health Plan as per OSHA 1910.120.

F. The Contractor agrees to place additional sand on other Key West beaches as directed by the City at the proposed unit prices.

1.2 CONTRACTOR'S USE OF PREMISES

A. Work shall be scheduled as to not interfere with on-going area activities.

B. Assume full responsibility for the protection and safekeeping of products under this Contract.

C. Obtain and pay for the use of additional storage or work areas if needed for operation.

D. Contractor shall provide drinking water and toilet facilities for construction personnel; the City will not provide.

1.3 SITE PREPARATION

A. The Contractor is responsible for the removal and disposal of any trash or debris within the area of sand placement before construction begins.

1.4 SUBMITTALS: Submittals required for sand placement :

1. Submit technical data required by Engineer from sand source and sand grain size specification with sample.

2. The Contractor shall submit a proposed schedule and the completion date for the proposed work prior to or at the pre construction meeting.

3. Submittals for all equipment to be used for sand placement.

4. Submit a letter from Save-a-Turtle confirming coordination of work schedule not to conflict with their observation walks in the morning.

5. Submit a schedule of work showing coordination of sand placement on the beach and the beach cleaner.

6. Submit copies of all signs and permits/cards to be posted on the jobsite.

7. Submit quantity and manufacturer, manufacturer's instructions and installation methods for turbidity curtains.

8. Submit name of tilling sub contractor and methodology.

9. Environmental protection plan

10. Testing company at site and quarry.

11. All quarry sand testing

12. As-built drawings.

The submitted sand sample and documents shall be considered the contractor's certification of the material he will provide throughout the project.

B. ACCEPTANCE OF MATERIALS: All materials shall be subject to inspection for suitability, as the Engineer may elect, upon delivery, prior to, and during incorporation into the work. Moisture content of sand shall not exceed 5% as determined either by testing by the Contractor or inspection by the Engineer. Weight checks of all empty trucks will be conducted locally once by the Contractor and thereafter periodically at the Engineers request.

2. PRODUCTS :

2.1 SAND:

The mean grain size shall be 0.35 mm or greater and be quartz with a silt content less than 5% as specified in Part 5, Sand Specification, and must be from an FDEP & USACE approved source.

3. EXECUTION SITE PREPARATION:

A. The contractor shall fully acquaint himself with the site to preclude any misunderstanding and to facilitate a trouble free installation. It shall be the responsibility of the contractor to obtain all such information as it is made available as to not interfere with other work at the site

B. Layout: The Contractor shall layout sand placement according to attached plans and layout must be approved by the Engineer.

SAND PLACEMENT

A. Placement: The sand shall be placed according to the plans and as directed by the Engineer. The Contractor shall begin placement after the Engineer's approval of field-staked locations has been obtained and when favorable weather and seasonal conditions are normal and proper for such work. All sand placement and equipment operation shall be by experienced work persons, according to the best trade practices governed by the State of Florida as specified herein.

4. INSPECTION & ACCEPTANCE:

A. Acceptance: the Contractor shall notify the Engineer in writing of completion of construction. *Within 10 days* after completion of work, an inspection for acceptance will be made.

B. Final Acceptance: Before final acceptance, the terms of the Contract Documents must be met and the project site must be in the condition stipulated in the contract documents. No final acceptance or final payment will be issued until the Engineer receives and approves a set of record as-builts drawings in AutoCAD, as specified in section 7.2 As-Built Drawings.

5. PAYMENT

Payment for sand will be based on tons of sand placed according to the plans. Weight tickets will determine quantity of sand placed. Tickets must be given to Engineers representative at the time of delivery. All other items will be paid by the unit price bid upon completion.

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FIELD ENGINEERING

PART 1 – GENERAL

1.01 DESCRIPTION:

A. Work Included:

1. Provide field engineering services required for the Project, including:

a. Survey work, performed by a licensed surveyor, required in execution of the work.

b. Civil, Structural or other professional engineering services specified or required to execute the Contractor's construction methods.

B. Related Work:

1. General & Supplementary Conditions of the Contract

2. Scope of the Work

3. Field Engineering

4. Environmental Protection.

1.02 QUALITY ASSURANCE:

A. Qualifications of surveyor or engineer: Surveyor shall be fully knowledgeable in surveying methods and use the care and standards of the profession utilizing industry standard surveying techniques; surveyor may be a staff surveyor; a licensed surveyor is not required.

1.03 SUBMITTALS:

A. Submit name and address of proposed surveyor and/or Contractor’s Engineer to the City.

B. Upon request of the Engineer, submit documentation to verify accuracy of field engineering work.

C. Submit certificates signed by the contractor certifying that elevations and locations of the work of this Project are in conformance, or non-conformance, with the Contract Documents.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 SURVEY REFERENCE POINTS:

A. Verify all elevations before construction begins.

B. Require Surveyor to set project control points prior to starting site work. Preserve all benchmarks during construction. Make no changes or relocations without prior written notice to the Engineer.

3.02 PROJECT SURVEY REQUIREMENTS:

A. Establish a minimum of two permanent benchmarks on the Site, referenced to data by survey control points.

B. Locate and lay out by instrumentation lines and levels of:

1. Water level, mean high water.

2. Controlling lines and elevations levels required for placement.

C. Periodically verify layouts and locations as the work progresses.

D. Maintain a complete accurate log of all control and survey work as it progresses.

3.03 EXAMINATION AND PREPARATION OF SITE

A. Before starting operations, Contractor shall examine site of work to acquaint himself with conditions to be encountered.

B. Compare actual site with drawings and specifications.

C. Report discrepancies affecting work or cost thereof to the City.

D. Verify exact locations of sewers, water mains, gas mains, above or below ground electrical wires and conduits and structures, which may interfere with work.

E. No extra compensation will be allowed for any extra work made necessary due to conditions or obstacles encountered during progress of work, which could have been determined by examination of site or by contacting Owners of pipelines and conduits before starting operations.

3.04 LINES AND GRADES

A. Prior to staking out work, Contractor shall verify established base line, benchmarks, and control points.

B. Contractor shall furnish and maintain lines and grades.

C. Contractor shall take immediate steps to correct errors or inconsistencies in lines and grades of work to be in conformity with Contract Documents.

D. Contractor shall be fully responsible for accuracy of lines and grades of work and control and checking and immediate correction of it.

3.05 RESTORATION

A. Items to remain which are disturbed, damaged, or removed when performing required work or for convenience of Contractor or to expedite his operations shall be restored, repaired, reinstalled, or replaced with new work and refinished, as appropriate, so as to be left in as good condition as existed before work commenced and such restoration shall be considered incidental to the work.

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TESTING SERVICES

PART 1 GENERAL

1.1 WORK INCLUDED

A. The CONTRACTOR shall employ and pay for the services of a qualified commercial independent testing laboratory acceptable to the ENGINEER and the OWNER to perform specified services.

B. Inspection, sampling, and testing is required for:

1. Sand specification testing.
2. Additional quality checks as required by the ENGINEER.

C. Employment of a testing laboratory shall in no way relieve the CONTRACTOR of his obligation to perform work in accordance with the Contract.

PART 2 PRODUCTS

2.1 SUBMITTALS

A. Submit three copies of reports of inspections and tests to ENGINEER promptly upon completion of inspections and tests, including:

1. Date issued.
2. Project title and Engineer's job number.
3. Testing laboratory name and address.
4. Name and signature of inspector.
5. Date of inspection or sampling.
6. Record of temperature and weather.
7. Date of test.
8. Location of inspection or test.
9. Identification of product and specification section.
10. Type of inspection or test.
11. Observation regarding compliance with the Contract Documents.

B. This report shall be signed and sealed by a Registered Professional Engineer Licensed in the State of Florida and qualified to perform such service.

PART 3 EXECUTIONS

3.1 LABORATORY DUTIES - LIMITATIONS OF AUTHORITY

A. Cooperate with the ENGINEER and CONTRACTOR; provide qualified personnel promptly on notice.

B. Perform specified inspections, sampling, and testing of materials.

A. Notify the ENGINEER and CONTRACTOR immediately of irregularities or deficiencies of work, which are observed during performance of services.

PART 4 PAYMENTS

A. Payment for the work in this section will be made under the applicable line item in the proposal.

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ENVIRONMENTAL PROTECTION

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK:

A. Contractor shall be responsible for conducting all work in such a manner that any and all environmental impacts or damages not specifically authorized by the contract and its controlling State and Federal permits are avoided. Should accidental or incidental damages occur, CONTRACTOR shall be responsible for all corrective measures at CONTRACTOR'S expense. CONTRACTOR shall save and hold harmless the CITY from all such violations. CONTRACTOR shall adhere to the following sections at a minimum in order to avoid such environmental damages. CONTRACTOR shall be responsible for all actions and compliance of any Subcontractors to CONTRACTOR.

B. Permits: The CONTRACTOR shall comply with all conditions of the state and federal permits.

C. Environmental Damage: The CONTRACTOR shall immediately notify Engineer and City of any environmental damages or violations that may occur during project mobilization/demobilization and construction.

1.02 LOCAL SITE CONDTIONS:

A. The CONTRACTOR shall secure the work area limits from public access. CONTRACTOR shall cordon off resources within the work area that are to be protected. Such resources may include landscape material, structures, or utilities. CONTRACTOR shall be responsible for the replacement or repair of any damaged resources.

B. At no time shall the CONTRACTOR be permitted to excavate, place fill on, traverse in any way, or place or store any equipment or material below mean high water or on seagrass or hardbottom resources outside the area designated for construction.

C. CONTRACTOR shall avoid, contain, and control all other potential damages to the local resources including but not limited to fuel, oil, or other chemical or solid waste in the form of leaks, spills, or fugitive materials and trash. In the event of an impact of this type, CONTRACTOR shall take corrective actions immediately.

D. CONTRACTOR shall supply communications, sanitary facilities, fresh water, shade structure, and all other necessary actions immediately.

1.03 ENVIRONMENTAL PROTECTION PLAN:

A. Within 10 calendar days after the date of Notice of Award and prior to the Notice to Proceed to the CONTRACTOR, the CONTRACTOR shall submit in writing an

Environmental Protection Plan to the ENGINEER. The Notice to Proceed will not be issued until the Environmental Protection Plan is reviewed and approved by the ENGINEER. Approval of the CONTRACTOR'S plan will not relieve the CONTRACTOR of his responsibility for adequate and continuing control of pollutants and other environmental protection measures. The Environmental Protection Plan shall include but not be limited to the following:

(1) Methods for protection of features and habitats to be preserved within authorized work areas. The CONTRACTOR shall prepare a listing of methods to protect resources needing protection, i.e., all vegetation, trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archeological and cultural resources, sea grasses, sea turtles, intransigent/transient vertebrate/invertebrates at hardbottom, all coral formations, human beachgoers, manatees and all marine hardbottom areas.

(2) Procedures to be implemented to provide the required environmental protection and to comply with the applicable permits, laws and regulations, The CONTRACTOR shall provide written assurance that immediate corrective action will be taken to correct pollution of the environmental due to accident, natural causes or failure to follow the procedures set out in accordance with the Environmental Protection Plan.

(3) Drawings showing locations of any proposed material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials.

(4) A protection and avoidance plan for adjacent sea grasses and hardbottom areas.

(5) Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas.

(6) The location of the solid disposal area.

(7) A statement as to the person who shall be responsible for implementation of the Environmental Protection Plan. The CONTRACTOR personnel responsible shall report directly to the CONTRACTOR'S top management and shall have the authority to act for the CONTRACTOR in all environmental protection matters.

(8) A statement acknowledging that the CONTRACTOR shall be responsible for environmental protection, including all of the CONTRACTOR'S personnel and subcontractors.

(9) The Environmental Protection Plan shall be dated and endorsed by the individual of top management in charge of the construction.

1.05 PRECONSTRUCTION CONFERENCE:

A. At the pre-construction conference the Contractor shall present his proposed plans

and schedules for construction of the project in accordance with the requirements of this Section. The schedule shall be based on any analysis of project conditions and shall be in written form. The plan and schedule shall specifically indicate the sequence of operations, construction of environmental protection control features, the cleanup, and proposed project problem resolution remedies to achieve final acceptance of the project by the City. It shall also include proposed methods to prevent pollution of waters as the result of construction operations. The Contractor shall also outline his proposed methods of controlling and preventing pollution on haul roads, and areas used for disposal of waste materials from the project.

No work shall be started until the aforementioned plans and schedules have been accepted by the City. The Contractor will be responsible for accomplishment of the work in accordance with the accepted plans and schedules. The City may approve changes made necessary by unforeseen circumstances which are beyond the control of the Contractor.

1.06 SUPERSEDING REQUIREMENTS:

In the event of differences between these requirements and pollution control laws, rules or regulations of other State, Federal, or local agencies, the more restrictive laws, rules, or regulations shall apply.

PART 2 – PRODUCTS

Submittals for turbidity barriers, storm water protection (MS4), and manatee signs.

PART 3 – EXECUTION

3.01 TURBIDITY:

A. CONTRACTOR shall control and confine turbidity to the immediate work area. A turbidity control plan must be submitted with the proposal. The turbidity control plan must provide details of measures to control turbidity within the sand placement zone at the beach site. The turbidity control plan shall include monitoring sufficient to assure compliance with state water quality standards contained in Chapter 62-302 of the Florida Administrative Code.

B. Waters of the beach sites are within areas designated as Outstanding Florida Waters. Chapter 62-302 provides that turbidity not be allowed to exceed background levels for this classification of waters. Turbidity Barriers with floats and anchored bases shall be used to contain turbidity at the Smathers beach site.

C. Floating Turbidity Barriers and Staked Turbidity Barriers: This work shall consist of installing, maintaining, and removal of turbidity barriers necessary to contain turbidity that may occur as the result of filling or other construction activities which may cause

turbidity to occur in the waters of the State. This may entail the deployment of turbidity barriers around isolated areas of concern such as seagrass beds. Such areas will be identified by the City and barriers will be put in place prior to the commencement of any work that could impact the area of concern. The type barrier used, the deployment and maintenance of the barrier will be such as to minimize dispersion of turbid waters from the construction site. Alternate methods or materials may be approved by the City provided that compliance with applicable permit conditions and State water quality standards are maintained.

Turbidity barriers will be used on Smathers Beach surrounding all fill below MHW. Turbidity barriers can only be removed after turbidity is below required limits and when directed by the Engineer. This will not relieve the Contractor of the responsibility for operating in such a manner as to avoid or minimize the degradation of the water quality of the surrounding waters.

Installation of all control devices shall be in a timely manner to insure the control of silt and the protection of ocean waters, or any adjacent property.

3.02 EXTENT OF FUGITIVE MATERIALS:

A. CONTRACTOR shall control all fugitive materials including trash, chemicals, lubricants, oils, gas, debris, and dredged materials as noted above. Fugitive materials as applied herein shall include all materials at the beach site, the pier site or along the transit route. In the event of a fugitive materials event, including but not limited to, release due to automobile accidents and all other circumstances, CONTRACTOR shall take immediate corrective actions.

B. The Contractor shall take sufficient precautions to prevent pollution of waters, with fuels, oils, bitumens, calcium, chloride, or other harmful materials (in accordance with local, State and Federal Requirements). Also, he shall conduct and schedule his operations so as to avoid or otherwise minimize pollution or siltation of such waters, and to avoid damage or interference to marine plants and organisms.

3.03 TRANSIT:

A. Debris materials shall be hauled from the beach to the disposal site in sealed trucks. CONTRACTOR is responsible for assuring that such trucks do not leak or spill materials onto the public rights of way of the CITY or upon other non designated properties. CONTRACTOR is responsible for assuring that the size and weight of such loaded trucks do not exceed the load bearing capacity of all substrata along the transit route including curbs, inlet or manhole covers, roads, sidewalks and underground utilities.

3.04 MANATEES:

A. The CONTRACTOR shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel are responsible for observing water related activities for the

presence of manatees and shall implement appropriate precautions to ensure protection of the manatees.

B. All construction personnel are to be advised that there are civil and criminal penalties for harming, harassing, or killing manatees. The CONTRACTOR may be held responsible for any manatee harmed, harassed, or killed as a result of construction activities.

C. Prior to the commencement of construction, the CONTRACTOR shall construct and display at least two temporary signs in accordance with the criteria contained in the permit. If required by permit.

D. CONTRACTOR shall assure that turbidity barriers are properly secured so that manatees cannot become entangled and that the barriers are monitored frequently enough to avoid manatee entrapment.

E. If manatees are seen within 100 yards of the dredging activity all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include restricting the operation of all equipment to no closer than 50 feet from any manatee, up to and including the termination of operations until such time as the manatee has cleared the area.

F. Any collision or impact with a manatee shall be reported immediately to the CITY, the Florida Marine Patrol (1-800-dialfmp) and the FDEP (904-922-4330).

G. CONTRACTOR shall maintain a daily log of all activities pursuant to this section and shall prepare a report at the termination of operations. Submit such report to the CITY.

3.05 SEA TURTLES:

A. The Contractor shall comply with the Sea Turtle protection provisions of the permit and coordinate all work with Save-a-Turtle personnel.

3.06 MAINTENANCE:

A. General. The Contractor shall, at his expense, provide routine maintenance of permanent and temporary water pollution and turbidity control features until the project is completed and accepted. Control features shall be reconstructed due to the Contractor's negligence or carelessness or, in the case of temporary control features, failure by the Contractor to install permanent control features until the project is completed and accepted.

PART 5

SAND SPECIFICATION

Beach Fill Material

Definition of Sand (Material) Mean Grain Size. The design requires the contractor to provide clean, debris-free, rock-free sand of an average mean grain size in the range of 0.35 mm (minimum) to 0.65 mm (maximum). The city also requires the sand source used for the renourishment project to be relatively uniform throughout the project area. The term "mean" in these specifications refers to the measure of the individual grains in each and every sample or load used to nourish the beach, rather than to a comparison of distinct samples or loads. The contractor shall understand that by agreeing to provide a specified mean grain size, he is agreeing to provide material who's various individual grains average the specified grain size, as measured in individual random samples and quantified by the method of calculation (moment method) described in these specifications. The contractor shall understand that this requirement applies to all of the material provided, and that the material shall be considered unacceptable if some of the material features a mean grain size (as calculated by the moment method) which is lower or higher then the specified average grain size range. A sand source shall be considered unacceptable even if loads or samples of unacceptable material are balanced by volumes of acceptable material.

Characteristics of Fill Material. In order to provide the greatest stability on the beach as well as the best aesthetics and softness, the contractor must provide sand consisting entirely of the highest quality material. The sand must be rounded or semi-angular in shape and white or nearly white in color. Quarried (not manufactured) sand is the only acceptable material from the United States. The sand must be quarried from the Ortona mine of LaBelle, Florida, or must be quarried or mined sand of an equal or higher quality (as evaluated by the criteria detailed in this section) as compared to the sand contained in the Ortona mine. Aragonite may be used as an alternative provided the source is from outside the United States and is approved by the permitting agencies. All material used must meet all requirements of these plans and specifications.

At the time of bid, the contractor shall submit documentation to certify the type and source of material, including an analysis of the sand mean grain size as identified in the specifications (computed by the moment method). The contractor shall also certify that all of the sand to be used will be consistent with the analysis. The contractor shall provide samples of the proposed material with his or her bid, and designate the supplier and source location. No material that is inconsistent with the samples provided or that originates from another source may be used. In addition to the mean grain size standard discussed above, the characteristics of acceptable and are summarized below.

The material must satisfy the following criteria:

1. A mean grain size greater than or equal to 0.35 mm. and less than 0.65 mm.
2. Silt content (passing # 230 sieve) of less then 4%.
3. Ninety-nine percent (99%) of material must pass 3/8 inch sieve when tested and sand shall contain no material larger than ¾ inch sieve.
4. Moderately to well sorted (0.40ϕ to 1.50ϕ).
5. Free of debris, sharp rocks and pebbles, concrete rubble, and clay.
6. Moisture content less than 5%.
7. Sand color will be similar to, and not darker then, the existing beach.

Calculation of Grain Size. The Mean Grain Size and Phi Standard Deviation (sorting value) shall be determined by Method of Moments Statistics calculated from sieve analysis of the proposed sand source. A Certified Testing Laboratory shall perform laboratory testing in accordance with ASTM-D422. The mean grain size and phi standard deviation are statistical measures of the textural character of a sample of sand, corresponding to the mean and standard deviation of a statistically normal population (example: sand grain sizes). Laboratory sieving of sand provides the data for calculation of the mean grain size and phi standard deviation. There are several methods of calculating these statistics. For the purposes of this contract, Mean Grain Size and Phi Standard Deviation shall be calculated by the Method of Moments. The method of calculation is included in this section. The Average Mean Grain Size refers to the average of the Mean Grain Size calculated for individual samples sieved in the laboratory.

Grain Size Reporting. The grain size distribution information shall be based upon ASTM-D422, using U.S. Standard sieves of square mesh woven wire cloth separated at 0.5 ϕ intervals (-4.0 ϕ to 4.0 ϕ and also the No. 200 & 230 sieve). All title information shall be filled out with project name, date, sample number, location sample obtained, unified soil classification, percent silt passing the No. 200 sieve (0,074 mm), percent silt passing the No. 230 sieve (0.063mm) and Method of Moments Mean Grain Size and Phi Standard Deviation. Each curve shall state what Mean Grain Size class the sample meets. A tabulation of the laboratory results of the cumulative percent retained on each sieve by weight shall be provided with each gradation curve. Samples from the project site shall be identified with the Acceptance section, and a station and range location.

Certified Testing Laboratory. Certified Testing Laboratory refers to a geotechnical testing laboratory qualified under ASTM E329-95c standards and certified by AASHTO (American Association of State Highway and Transportation Officials) National Voluntary Accreditation Program; or MMRL (ASSHTO Material Reference Laboratory) accreditation; and personnel qualified by NICET (National Institute for Certification of Engineering Technicians).

Consistency of Material. The contractor shall obtain from the sand supplier certification that the material is consistent with the criteria. If the supplier moves to another source in the mine or quarry, then the contractor shall obtain a separate certification that the alternative material continues to be in compliance with the criteria. If the engineer believes he or she has noted a change in the sand consistency, the engineer can request certification from the contractor that the sand is consistent with the accepted sample(s). In addition, the contractor shall measure (at his or her expense) grain size (mean and sorting) on a random sample anytime at the request of the engineer. If any individual measurement fails to achieve these criteria, then another random sample from the same load shall be measured in the same manner, and if this fails then the sand and sand source shall be considered unacceptable and not eligible for payment. The contractor shall provide such material that all sand used for the beach nourishment shall be consistent with these specifications. The results of measurements on multiple loads may not be averaged in any manner in order to argue a composite measurement of the sand characteristics consistent with these specifications.

PART 6

FDEP PERMIT &
FWS BIOLOGICAL OPINION

THE US ARMY CORPS OF ENGINEERS HAVE NOT YET ISSUED A PERMIT FOR THIS PROJECT. THE CORPS PERMIT MAY INCLUDE ADDITIONAL CONDITIONS THAN THOSE IN THE ATTACHED FDEP PERMIT. ALL PERMIT CONDITIONS MUST BE ADHERED TO.

Department of
Environmental Protection

Lawton Chiles
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Virginia B. Wetherell
Secretary

CONSOLIDATED JOINT COASTAL PERMIT AND SOVEREIGN SUBMERGED LANDS AUTHORIZATION

PERMITTEE/AUTHORIZED ENTITY:
City of Key West
604 Simonton Street
Key West, Florida 33040

Permit/Authorization No.: 0129031-001-JC
(Formerly 44-296396-9)
Date of Issue: July 6, 1998
Expiration Date: July 6, 2011
County: Monroe
Project: Smathers Beach

This permit is issued under the authority of Chapter 161 and Part IV of Chapter 373, Florida Statutes (F.S.), and Title 62, Florida Administrative Code (F.A.C.). The activity is not exempt from the requirement to obtain a Joint Coastal Permit. Pursuant to Operating Agreements executed between the Department and the water management districts, as referenced in Chapter 62-113, F.A.C., the Department is responsible for reviewing and taking final agency action on this activity.

ACTIVITY DESCRIPTION:

The project involves the periodic placement of sand along 3000 feet of Smathers Beach located along south Roosevelt Boulevard on the southern coast of Key West Island. A final determination of the source of sand for the proposed project has not been made. A beach profile of elevation +6.0 feet NGVD, construction berm width of 85 feet, and construction slope of 1 vertical to 10 horizontal will be constructed. The initial restoration will involve the placement of 36,000 cubic yards of sand. The project will also involve the repair of three groins in the beach fill area. The applicant shall restore 5.2 acres of habitat colonized by seagrass as mitigation for impacts caused by the initial restoration activity.

ACTIVITY LOCATION:

The activity is located in Section 5, Township 68 South, Range 25 East; in Monroe County, within the Atlantic Ocean, Class III Waters, Outstanding Florida Waters.

This permit constitutes a finding of consistency with Florida's Coastal Zone Management Program, as required by Section 307 of the Coastal Zone Management Act. This permit also constitutes certification of compliance with state water quality standards pursuant to Section 404 of the Clean Water Act, 33 U.S.C. 1344.

This activity also requires a proprietary authorization, as the activity is located on sovereign submerged lands owned by the Board of Trustees of the Internal Improvement Trust Fund, pursuant to Article X, Section 11 of the Florida Constitution, and Sections 253.002 and 253.77, F.S. The activity is not exempt from the need to obtain a proprietary authorization. The Department has the responsibility to review and take final action on this request for proprietary authorization in accordance with Section 18-21.0051, F.A.C., and the Operating Agreements executed between the Department and the water management districts, as referenced in Chapter 62-113, F.A.C. In addition to the above, this proprietary authorization has been reviewed in accordance with Chapter 253 F.S., Chapter 18-21, Section 62-312.065, F.A.C., and the policies of the Board of Trustees.

As staff to the Board of Trustees, the Department has reviewed the activity described below, and has determined that the activity qualifies for a consent to use sovereign, submerged lands, as long as the work performed is located within the boundaries as described herein and is consistent with the terms and conditions herein. Therefore, consent is hereby granted, pursuant to Chapter 253.77, F.S., to perform the activity on the specified sovereign submerged lands.

The above named permittee is hereby authorized to construct the work shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof. **This permit and authorization to use sovereign submerged lands is subject to the limits, conditions, and locations of work shown in the attached drawings, and is also subject to the attached General and Specific Conditions, which are a binding part of this permit and authorization.** You are advised to read and understand these drawings and conditions prior to commencing the authorized activities, and to ensure the work is conducted in conformance with all the terms, conditions, and drawings. If you are utilizing a contractor, the contractor also should read and understand these drawings and conditions prior to commencing the authorized activities. Failure to comply with all drawings and conditions shall constitute grounds for revocation of the permit and appropriate enforcement action.

GENERAL CONDITIONS:

1. All activities authorized by this permit shall be implemented as set forth in the plans and specifications approved as a part of this permit, and all conditions and requirements of this permit. The permittee shall notify the Department in writing of any anticipated deviation from the permit prior to implementation so that the Department can determine whether a modification of the permit is required.

2. If, for any reason, the permittee does not comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Bureau of Beaches and Coastal Systems (Bureau) and the appropriate District office of the Department with a written report containing the following information: a description of and cause of noncompliance; and

the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

3. This permit does not eliminate the necessity to obtain any other applicable licenses or permits which may be required by federal, state, local or special district laws and regulations. This permit is not a waiver or approval of any other Department permit or authorization that may be required for other aspects of the total project which are not addressed in this permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of sovereignty land of Florida seaward of the mean high-water line, or, if established, the erosion control line, unless herein provided and the necessary title, lease, easement, or other form of consent authorizing the proposed use has been obtained from the State. The permittee is responsible for obtaining any necessary authorizations from the Board of Trustees of the Internal Improvement Trust Fund prior to commencing activity on sovereign lands or other state-owned lands.

5. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered specifically approved unless a specific condition of this permit or a formal determination under section 373.421(2), F.S., provides otherwise.

6. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee. The issuance of this permit does not convey any vested rights or any exclusive privileges.

7. This permit or a copy thereof, complete with all conditions, attachments, plans and specifications, modifications, and time extensions shall be kept at the work site of the permitted activity. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

8. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel with proper identification and at reasonable times, access to the premises where the permitted activity is located or conducted for the purpose of ascertaining compliance with the terms of the permit and with the rules of the Department and to have access to and copy any records that must be kept under conditions of the permit; to inspect the facility, equipment, practices, or operations regulated or required under this permit; and to sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules. Reasonable time may depend on the nature of the concern being investigated.

9. At least forty-eight (48) hours prior to commencement of activity authorized by this permit, the permittee shall submit to the Bureau and the appropriate District office of the Department a written notice of commencement of construction indicating the actual start date and the expected completion date.

10. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the State Historic Preservation Officer and the Bureau.

11. Within 30 days after completion of construction or completion of a subsequent maintenance event authorized by this permit, the permittee shall submit to the Bureau of Beaches and Coastal Systems and the appropriate District office of the Department a written statement of completion and certification by a licensed professional engineer registered in the state of Florida. This certification shall state that: all locations and elevations specified by the permit have been verified; the activities authorized by the permit have been performed in compliance with the plans and specifications approved as a part of the permit, and all conditions of the permit; or shall describe any deviations from the plans and specifications, and all conditions of the permit. When the completed activity differs substantially from the permitted plans, any substantial deviations shall be noted and explained on two copies of as-built drawings submitted to the Department.

SPECIFIC CONDITIONS:

1. A final determination of the source of sand for the proposed project has not been made. If fill material is to be hydraulically dredged from an offshore borrow area or fill material is be hydraulically placed on the beach, then the permittee shall obtain a major modification to this permit for authorization to conduct this activity.

2. Prior to commencement of construction of each beach nourishment event or groin repair activity, the permittee shall comply with the following requirements:

a. The permittee shall submit two copies of detailed final construction plans and specifications for all authorized activities, certified by an engineer duly registered pursuant to Chapter 471, Florida Statutes, or other appropriate individual. The plans shall include details of construction, including general construction procedures and equipment to be used.

b. The permitttee shall submit detailed geotechnical information on the material to be placed on the beach, including sediment grain size analyses from representative points throughout the borrow area(s) to be used. Fill material placed on the beach shall be sand that is similar to that already existing at the beach site in both coloration and grain size. All such fill material shall be free of construction debris, rocks, other foreign matter and shall not contain, on average, greater than 10 percent fines (i.e. silt and clay) passing a No. 200 sieve and shall not

contain coarse gravel or cobbles, exclusive of shell material retained by a No. 4 sieve.

c. The permittee shall conduct a preconstruction conference with all contractors, the engineer of record, the marine turtle permit holder, and a staff representative of the Department to establish an understanding among the parties as to the items specified in the special and standard conditions of the permit. The permittee shall provide a minimum of 10 days advance written notification to the Bureau of Beaches and Coastal Systems, the Bureau of Protected Species Management, the South District Branch Office in Marathon, and the Florida Keys National Marine Sanctuary - Lower Keys Regional Office of the date, time, and location of the pre-construction conference.

d. At least 48 hours prior to commencement of work authorized by this permit, the permittee shall provide written notification of the date of the commencement and proposed schedule of construction. All documents relating to the permit shall be sent to the DEP South District Branch Office in Marathon, 2796 Overseas Highway, Suite 221, Marathon, Florida 33050, phone no. (305) 289-2310, the Florida Keys National Marine Sanctuary - Lower Keys Regional Office, 216 Ann Street, Key West, Florida 33040, phone no. (305) 292-0311 and the DEP Bureau of Beaches and Coastal Systems, 3900 Commonwealth Boulevard, Mail Station 310, Tallahassee, Florida 32399-3000, phone no. (850) 487-4471.

3. Prior to commencement of construction of the beach restoration project, the permittee shall submit a detailed mitigation plan. Upon approval of the mitigation plan by the Department, the permittee may commence with construction of the beach restoration project. Implementation of the mitigation shall precede or be conducted concurrently with the construction of the beach restoration project .

a. The plan shall include maps of the restored blimp pad and/or other suitable sites with transplantation areas clearly delineated. The plan shall include a narrative that describes the methods, monitoring and performance standards that will be used to determine success.

b. The beach fill is expected to impact 2.6 acres of seagrass habitat within the project area. In order to offset these impacts, the permittee shall be required to perform mitigation at a 2:1 ratio (mitigation area: impact area). Therefore, the permittee shall perform the restoration of 5.2 acres of habitat colonized by seagrasses.

c. The 0.3 acres of successful seagrass colonization documented from the requirements of Specific Condition No. 7 of Permit No. 44-167075-9 is considered mitigation credit for the current project. Therefore, the remaining mitigation required by the permittee is the restoration of 4.9 acres of habitat colonized by seagrasses. The following mitigation and monitoring shall be performed to complete the restoration of 4.9 acres:

i. The permittee shall transplant the 2.6 acres of seagrass within the beach fill template to suitable locations at the restored blimp pad site.

ii. Monitor the restored blimp pad site to document and quantify the success of transplanted seagrasses and the colonization of new seagrasses.

iii. Monitor the White Street Pier Project study area to document and quantify the ongoing colonization of seagrasses.

d. The applicant shall monitor the mitigation sites for 4 years or until 4.9 acres of restored habitat has been colonized by seagrasses. If 4.9 acres cannot be documented within 4 years then the applicant shall be required to perform additional restoration of seagrass habitat as mitigation.

4. The permittee shall conduct a topographic monitoring program is accordance with the following requirements:

a. Topographic surveys of the project area shall be conducted immediately following completion of construction, approximately six months following completion of construction and annually thereafter for a period of four (4) years following the last beach nourishment event. These surveys shall include profiles at reference monuments 1 through 9 established in 1990, and reference monuments 4A, 5, 5A, and 9 established pre-1990. All profiles shall be measured along the same azimuths previously surveyed by the U. S. Army Corps of Engineers and commence at the reference monument and extend seaward at least 350 feet or to wading depth (approximately -4.0 feet MLW), whichever is further.

b. The permittee shall submit an engineering report and the monitoring data to the bureau within 90 days of completion of each survey. The survey data should be submitted on floppy disk in an ASCII format stored according to the department's standards for file structure (contact the bureau staff for additional information on specific requirements) and include all survey control information. The report should summarize the performance of the beach fill project, identify erosion and accretion patterns within the project limits and along the adjacent shorelines, verify the analyses that were conducted in the development of the design of the project, and identify any adverse impacts, which would be attributable to the project. Specifically, the report shall verify the direct impacts of seagrass burial by the project. Appendices should include plots of survey profiles and graphical presentations of volumetric and shoreline position changes for both the monitoring area and at each profile survey. Results should be analyzed for changes between annual surveys and cumulatively since project construction.

5. The following conditions are required to minimize impacts to marine turtles:

a. If the beach nourishment project will be conducted during the marine turtle nesting season (May 1 - October 31), daily early morning surveys for sea turtle nests shall occur from May 1 or 65 days prior to project initiation and through October 31 under the following mark and avoid conditions:

1) All nesting surveys shall be conducted only by persons with prior experience and training in these activities and duly authorized to conduct such activities through a valid permit issued by the Department, Division of Marine Resources, pursuant to Florida Administrative Code Rule 62R-1. Please contact Bureau of Protected Species Management at (850) 922-4330 for a list of available marine turtle permit holders.

2) Nest surveys shall be conducted daily between sunrise and 9a.m. during marine turtle nesting season (May 1 - October 31). All construction activity shall be confined to daylight hours and shall not occur in any location prior to completion of the necessary marine turtle protection measures.

3) It is the responsibility of the permittee to ensure that the project area and access sites are surveyed for marine turtle nesting activity. Nests deposited within the construction area shall be marked and left in place unless natural factors threaten the success of the nest. Any nests left in the active construction zone shall be clearly marked, and the actual location of the clutch determined. A circle with a radius of ten (10) feet, centered at the clutch, shall be marked by stake and survey tape or string. No construction activities shall enter this circle and no adjacent construction shall be allowed which might directly or indirectly disturb the area within the staked circle. No sand shall be placed seaward of the circle until the nest has successfully hatched.

4) Reports on all nesting activity and marine turtle protection measures taken during construction shall be provided. Monitoring shall include daily surveys and any additional measures for turtle protection authorized by the Department. Reports shall be submitted to the Department monthly, and shall include daily report sheets noting all activity, nesting success rates, hatching success of all nests, dates of construction, and names of all personnel involved in nest surveys. All such personnel shall be qualified as in (1) above.

b. Reports on all nesting activity and marine turtle protection measures taken during construction shall be provided for the initial nesting season following the completion of construction, and for a minimum of two additional nesting seasons. Monitoring shall include daily surveys and any additional measures for turtle protection authorized by the Department. Reports shall be submitted to the Department no later than 30 days after the completion of all monitoring activities, and shall include daily report sheets noting all activity, nesting success rates, hatching success of all relocated nests, hatching success of a statistically valid sample of

nests left in place, dates of construction, and names of all personnel involved in nest surveys and relocation activities. All such personnel shall be qualified as in 5.a.(1) above.

c. Immediately after the completion of the beach nourishment project the renourished area shall be tilled to a depth of 36 inches, or as close as practicable to the rock core, whichever is deeper.

d. Additional compaction monitoring and tilling prior to May 1 for three subsequent years may be required if fill material is deemed to be unsuitable for marine turtle nesting by BPSM due to compaction. The permittee shall contact BPSM by April1 to determine if sand compaction monitoring or tilling is required in the area of restoration. At a minimum, the protocol provided under (1) & (2) below shall be followed. If required, the area shall be tilled to a depth of 36 inches. All tilling activity must be completed prior to May 1. A report on the results of compaction monitoring (if required) shall be faxed to the Bureau of Protected Species Management, (850) 921-4369, prior to any tilling actions being taken. An annual summary of compaction surveys and the actions taken shall be submitted to the FDEP.

1) Compaction sampling stations shall be located at 500-foot intervals along the project area. One station shall be at the seaward edge of the dune/bulkhead line (when material is placed in this area); one station shall be midway between the dune line and the high water line (normal wrack line); and one station shall be located just landward of the high water line. At each
station, the cone penetrometer shall be pushed to a depth of 6, 12, and 18 inches three times (three replicates). Material may be removed from the hole if necessary to ensure accurate readings of successive levels of sediment. The penetrometer may need to be reset between pushes, especially if sediment layering exists. Layers of highly compact material could cover less compact layers. Replicates shall be located as close to each other as possible, without interacting with the previous hole and/or disturbed sediments. The three replicate compaction values for each depth shall be averaged to produce final values for each depth at each station. Reports shall include all 27 values for each transect line, and the final nine averaged compaction values.

2) If the final averaged compaction value for any depth (as defined above) exceeds 500 psi for any two or more adjacent stations, then that area shall be tilled to a depth of 36 inches prior to May 1. If the final averaged compaction value for any depth (as defined above) exceeds 500 psi for any two or more non-adjacent stations, then consultation with FDEP, Bureau of Protected Species Management, shall be required to determine if tilling is required.

f. Visual surveys for escarpments along the project area shall be made immediately after completion of the project and prior to May 1 for three subsequent years. Results of the surveys shall be faxed to the Bureau of Protected Species Management, (850) 921-4369, prior to any action being taken. Escarpments that interfere with sea turtle nesting or that exceed 18

inches in height for a distance of 100 feet shall be leveled to the natural beach contour by May 1. The Department shall be contacted immediately if subsequent reformation of escarpments that can interfere with sea turtle nesting or that exceed 18 inches in height for a distance of 100 feet occurs during the nesting and hatching season to determine the appropriate action to be taken. An annual summary of escarpment surveys and actions taken shall be submitted to the Department.

g. A pre-work conference shall be held between the representatives of the contractor (initial construction year only), the permittee, the marine turtle permit holder, and the Department at least 30 days prior to commencement of work or surveys. At least 10 days advance notice shall be provided prior to conducting this meeting. This will provide an opportunity for explanation and/or clarification of the sea turtle protection measures.

h. During marine turtle nesting season (May 1 - October 31), staging and storage areas for construction equipment shall be located offsite to minimize disturbance to marine turtle nesting and hatching activities.

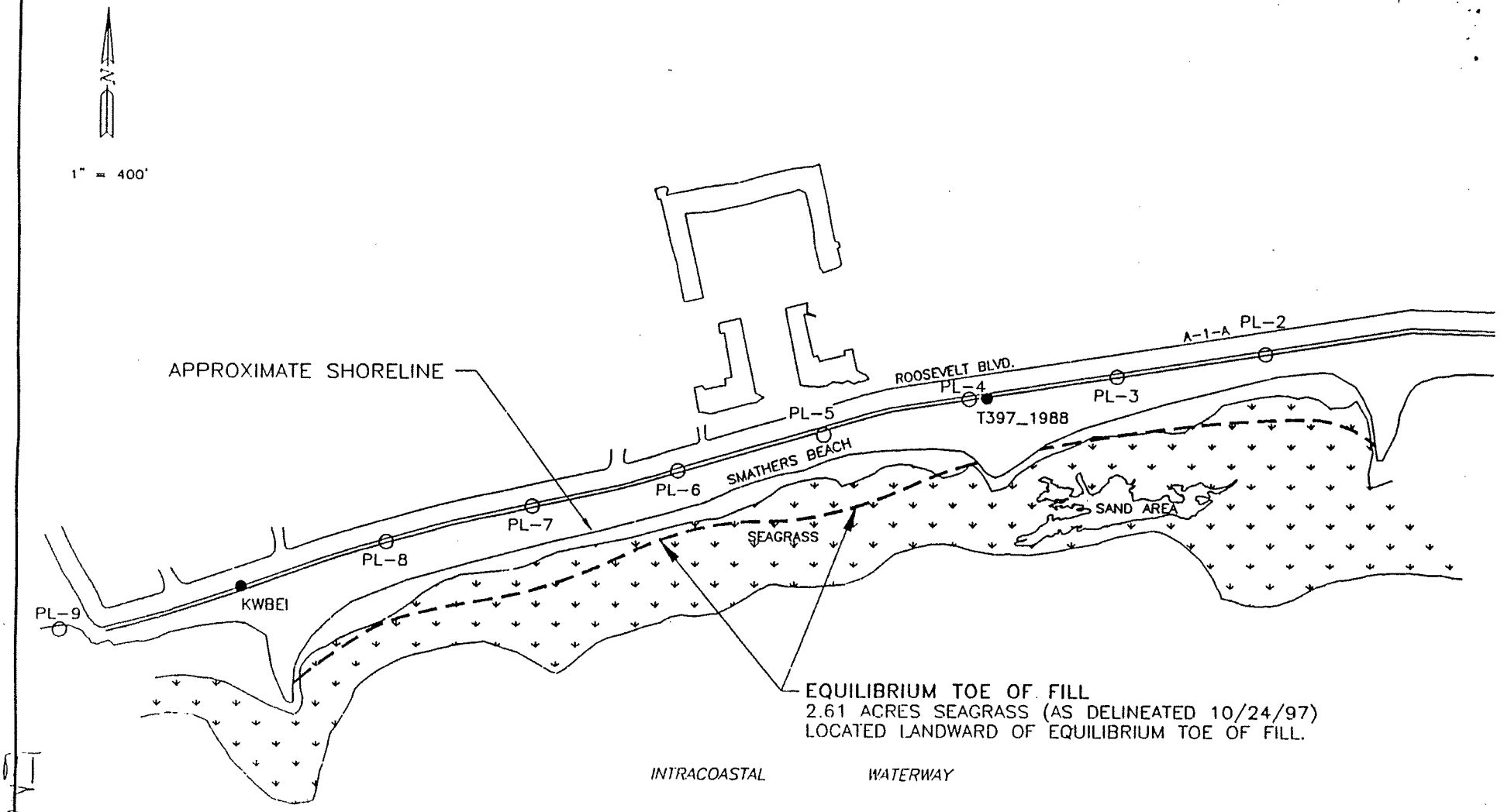
i. All safety or security lighting equipment shall be low-pressure sodium vapor lamps only. No permanent lighting is authorized.

j. In the event an unmarked marine turtle nest or a dead, injured, or sick marine turtle is discovered during construction activities, the marine turtle permit holder and the Bureau of Protected Species Management shall be notified immediately such that appropriate conservation measures can be taken.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Kirby B. Green, III, Deputy Secretary



SHEET: 1 OF 1	COMM. NO. 5500.02	BY: AMB	DATE: 2/16/98	COASTAL PLANNING & ENGINEERING, INC.	2481 N.W. BOCA RATON BLVD. BOCA RATON, FL. 33431

TITLE :
SMATHERS BEACH
MONROE COUNTY SHORE PROTECTION PROJECT
EQUILIBRIUM TOE OF FILL

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Lucy A Dolar 7/16/98

Deputy Clerk Date

Department of
Environmental Protection

Jeb Bush
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 26, 1999

Ms. Annalise Mannix-Lachner
City of Key West
604 Simonton Street
Key West, Florida 33040

Dear Ms. Mannix:

Permit No. 0129031-001-JC Monroe County
Smathers Beach Shore Protection Project

Your request to modify this permit has been received and reviewed by Department staff. The proposed modification is to revise the mitigation plan.

The above referenced permit indicates that 2.6 acres of habitat colonized by seagrass would be directly impacted by the beach fill. This assessment was based on a sand source utilizing a mean grain size of approximately 0.25 mm. The permittee has since modified the beach design to minimize impacts by utilizing sand with an average grain size of 0.35 mm or greater. Use of the coarser grain size material will result in an equilibrium toe profile closer to shore and will result in only 0.70 acres of seagrass impact.

As mitigation, the permittee is required to transplant seagrasses from the beach fill template to the restored blimp pad site. Monitoring of the site is required until a 2:1 ratio (mitigation area: impact area) of transplanted or newly colonized seagrass habitat has been documented. The original mitigation plan requires that 4.9 acres of transplanted and/or newly colonized seagrass habitat be documented within 4 years. This acreage was determined based upon the 2:1 ratio for 2.6 acres of impact (5.2 acres) minus 0.3 acres of seagrass mitigation credit documented from the requirements of the White Street Pier project. In accordance with the revised beach fill design, the permittee has proposed the restoration of 1.4 acres of seagrass habitat (2:1 ratio for 0.7 acres) at the Blimp Pad Site. In addition, the permittee has requested to use the 0.3 acres of successful colonization at White Street Pier to offset any impacts which may exceed the projected 0.7 acres of impact from the equilibration of the beach fill.

A Deminimus Exemption (File No. 44-302896-5) for the blimp pad restoration project was issued by the Department on June 6, 1997 to remove 6.5 acres of fill and restore elevations and substrate conditions to suitable levels for colonization of seagrasses and mangroves. The

permittee has proposed to excavate the western 2.0 acres of the Blimp Pad site to –3.0 feet NGVD with the replacement of 1 foot of sediment layer over any exposed rock. The –3.0 feet excavation for the western portion of the blimp pad is needed in order to enhance the success of the mitigation by reducing thermal stress on the seagrasses. The sediment for replacement will be excavated from the Smathers Beach seagrass site. Excavation of the remaining 4.5 acres will involve the removal of the surface fill material in order to establish elevations that existed at the blimp pad site prior to its filling.

In addition to the excavation of the blimp pad site, the permittee has requested to excavate a channel between Riviera Canal and the blimp pad salt pond to increase water exchange. This is anticipated to increase the viability of the transplanted seagrass and increase the productivity of the habitat within the salt pond system through enhanced tidal circulation. The channel shall be located northwest of blimp pad site and adjacent to the former navy missle base. The channel dimensions will be 300 feet long, 30 feet wide and 4 feet deep.

The project description shall be revised as follows:

The project involves the periodic placement of sand along 3000 feet of Smathers Beach located along south Roosevelt Boulevard on the southern coast of Key West Island. A final determination of the source of sand for the proposed project has not been made <u>but the material will have a mean grain size of 0.35 mm or greater</u>. A beach profile of elevation +6.0 feet NGVD, construction berm width of 85 feet, and construction slope of 1 vertical to 10 horizontal will be constructed. The initial restoration will involve the placement of 36,000 cubic yards of sand. The project will also involve the repair of three groins in the beach fill area. The applicant shall restore ~~5.2~~ <u>1.4</u> acres of habitat colonized by seagrass as mitigation for impacts caused by the initial restoration activity.

The specific conditions shall be revised as follows:

3. Prior to commencement of construction of the beach restoration project, the permittee shall submit a detailed mitigation plan. Upon approval of the mitigation plan by the Department, the permittee may commence with construction of the beach restoration project. Implementation of the mitigation shall precede or be conducted concurrently with the construction of the beach restoration project .

a. The plan shall include maps of the restored blimp pad and/or other suitable sites with transplantation areas clearly delineated. The plan shall include a narrative that describes the methods, monitoring and performance standards that will be used to determine success.

b. The beach fill is expected to impact ~~2.6~~ <u>0.7</u> acres of seagrass habitat within the project area. In order to offset these impacts, the permittee shall be required to perform

mitigation at a 2:1 ratio (mitigation area: impact area). Therefore, the permittee shall perform the restoration of ~~5.2~~ 1.4 acres of habitat colonized by seagrasses.

c. The 0.3 acres of successful seagrass colonization documented from the requirements of Specific Condition No. 7 of Permit No. 44-167075-9 is considered mitigation credit for ~~the~~ impacts exceeding the projected impact of 0.7 acres of seagrass habitat within the equilibrium toe of fill ~~current project~~. ~~Therefore, the remaining mitigation required by the permittee is the restoration of 4.9 acres of habitat colonized by seagrasses.~~ The following mitigation and monitoring shall be performed to complete the restoration of ~~4.9~~ 1.4 acres:

i. The permittee shall transplant the ~~2.6~~ 0.7acres of seagrass within the beach fill template to suitable locations at the restored blimp pad site.

ii. Monitor the restored blimp pad site to document and quantify the success of transplanted seagrasses and the colonization of new seagrasses.

iii. Monitor the White Street Pier Project study area to document and quantify the ongoing colonization of seagrasses.

d. The applicant shall monitor the mitigation sites for 4 years or until ~~4.9~~ 1.4 acres of restored habitat has been colonized by seagrasses. If ~~4.9~~ 1.4 acres cannot be documented within 4 years then the ~~applicant~~ permittee shall be required to perform additional restoration of seagrass habitat as mitigation.

Since the proposed modification is not expected to result in any water quality degradation or environmental resource impacts, the permit is hereby modified as requested. By copy of this letter we are notifying all necessary parties of the modification.

This letter of approval does not alter the July 6, 2011 expiration date, other Specific or General Conditions, or monitoring requirements of the permit. This letter and accompanying drawings must be attached to the original permit.

This permit is hereby modified unless a sufficient petition for an administrative hearing is timely filed under sections 120.569 and 120.57, Florida Statutes, as provided below. The procedures for petitioning for a hearing are set forth below. Mediation under Section 120.573, F.S., is not available for this proceeding.

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received by the clerk) in the Office of

General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000.

Because the administrative hearing process is designed to redetermine final agency action on the application, the filing of a petition for an administrative hearing may result in further modification of the permit or even a denial of the application. If a sufficient petition for an administrative hearing or request for an extension of time to file a petition is timely filed, this permit modification automatically becomes only proposed agency action on the application subject to the result of the administrative review process. Accordingly, the applicant is advised not to commence construction or other activities under this permit modification until the deadlines noted below for filing a petition for an administrative hearing or request for an extension of time has expired.

Under rule 62-110.106(4), Florida Administrative Code, a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon. If a request is filed late, the Department may still grant it upon a motion by the requesting party showing that the failure to file a request for an extension of time before the deadline was the result of excusable neglect.

In the event that a timely and sufficient petition for an administrative hearing is filed, other persons whose substantial interests will be affected by the outcome of the administrative process have the right to petition to intervene in the proceeding. Any intervention will be only at the discretion of the presiding officer upon the filing of a motion in compliance with rule 28-106.205, F.A.C.

In accordance with rules 28-106.111(2) and 62-110.106(3)(a)(4), F.A.C., petitions for an administrative hearing by the applicant must be filed within 21 days of receipt of this written notice. Petitions filed by any persons other than the applicant, and other than those entitled to written notice under section 120.60(3), F.S., must be filed within 21 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first.

Under section 120.60(3), F.S., however, any person who has asked the Department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication.

The petitioner shall mail a copy of the petition to the applicant at the address indicated above at

the time of filing. The failure of any person to file a petition for an administrative hearing within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57, F.S.

A petition that disputes the material facts on which the Department's action is based must contain the following information:

(a) The name and address of each agency affected and each agency's file or identification number, if known;
(b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;
(c) A statement of when and how the petitioner received notice of the agency decision;
(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
(e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;
(f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action; and
(g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts on which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301, F.A.C. Under sections 120.569(2)(c) and (d), F.S., a petition for administrative hearing must be dismissed by the agency if the petition does not substantially comply with the above requirements or is untimely filed.

This action is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above. Upon the timely filing of a petition this order will not be effective until further order of the Department.

This permit modification constitutes an order of the Department. The applicant has the right to seek judicial review of the order under section 120.68, F.S., by the filing of a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee,

Florida 32399-3000; and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date when the final order is filed with the Clerk of the Department. The applicant, or any party within the meaning of section 373.114(1)(a), F.S., may also seek appellate review of this order before the Land and Water Adjudicatory Commission under section 373.114(1), F.S. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when the final order is filed with the Clerk of the Department.

When there has been no publication of notice of agency action or notice of proposed agency action as prescribed in rule 62-103.150, F.A.C., a person who has actual knowledge of the agency action or has knowledge which would lead a reasonable person to conclude that the Department has taken final agency action, has a duty to make further inquiry within 21 days of obtaining such knowledge by contacting the Department to ascertain whether action has occurred. The Department shall upon receipt of such an inquiry, if agency action has occurred, promptly provide the person with notice as prescribed by rule 62-103.150, F.A.C. The Department does not require notice of this agency action to be published. However, the applicant may elect to publish notice as prescribed in rule 62-103.150, F.A.C., which constitutes notice to the public and establishes a time period for submittal of any petition.

If you have any questions regarding this matter, please contact me at the letterhead address or by telephone at (850) 487-4471, ext. 122.

Sincerely,

Alfred B. Devereaux, Jr., Chief
Bureau of Beaches and Coastal Systems

ABD/rvl
cc:
Corps of Engineers, Jacksonville - CESAJ-RD-A
Lauri MacGlaughlin, DEP, National Marine Sanctuary
Randy Grau, DEP, South Florida District Branch Office
Robin Trindell, DEP, BPSM
Mark Thompson, National Marine Fisheries Service
Rick Spadoni, Coastal Planning and Engineering

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Deputy Clerk — Date: 5/26/99

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

May 13, 2010

Alfred A. Pantano, Jr.
District Commander
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Service Federal Activity Code:	41420-2008-FA-0185
Corps Application No:	SAJ-1998-1677 (IP-MLC)
Date Received:	November 14, 2007
Formal Consultation Initiation Date:	December 9, 2009
Project:	Sand Placement
Applicant:	City of Key West
County:	Monroe

Dear Colonel Pantano:

This document transmits the Fish and Wildlife Service's (Service) biological opinion based on our review of a proposal to place sand along approximately 0.57 mile of shoreline in Monroe County, Florida. The U.S. Army Corps of Engineers (Corps) determined on September 22, 2009, the proposed project "may affect" the threatened loggerhead sea turtle (*Caretta caretta*), the endangered leatherback sea turtle (*Dermochelys coriacea*), the endangered green sea turtle (*Chelonia mydas*), the endangered hawksbill sea turtle (*Eretmochelys imbricata*), and the endangered Kemp's ridley sea turtle (*Lepidochelys kempii*), and we concur with your determination. This document is provided in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C. 1531 *et seq.*).

In the November 8, 2007, Public Notice, the Corps also determined the proposed action will have "no effect," on the endangered West Indian manatee (*Trichechus manatus*). In order to protect this species, the Corps will ensure specific construction safety precautions are implemented as outlined in the *Standard Manatee Conditions for In-Water Work* (Florida Fish and Wildlife Conservation Commission [FWC] 2009a). No impacts to critical habitat are anticipated. Based upon implementation of the above stated conditions, the Service concurs with the Corps' determination in regard to the West Indian manatee.

This Biological Opinion is based on information provided in the Corps' Public Notice dated November 8, 2007, and correspondence with the Corps, National Marine Fisheries Service (NOAA Fisheries), FWC, and the City of Key West (Applicant). A complete administrative record of this consultation is on file at the South Florida Ecological Services Office, Vero Beach, Florida.

Hardbottom Reef Habitat and Seagrasses

The proposed project is expected to impact approximately 2.61 acres of seagrasses. The Applicant did not submit a mitigation plan for the current proposed project because the Applicant mitigated for similar seagrass impacts during the original nourishment project completed in 1999. Mitigation consisted of scraping down the 6.5 acre Blimp Pad Site (BPS), transplanting seagrasses from Smathers Beach, and restoring BPS to its natural state as a salt pond, seagrass and mangrove habitat. Seagrass transplantation was completed in March 2000, and the final monitoring report completed in 2004. In addition, the Applicant was given mitigation credit for improvements made to the White Street Pier which resulted in the recolonization of approximately 0.3 acre of seagrass habitat. Both the Florida Department of Environmental Protection (DEP) and NOAA Fisheries have accepted the past mitigation for the currently proposed project.

We recommend the Corps consult with NOAA Fisheries concerning potential impacts to nearshore hardbottom reef habitat and seagrasses adjacent to the sand placement fill template and the shoreline downdrift and updrift areas.

CONSULTATION HISTORY

On November 14, 2007, the Service received a copy of the Corps' Public Notice dated November 8, 2007, and a letter from the Corps dated October 22, 2008, requesting informal consultation concerning nesting sea turtles and the West Indian manatee.

Between December 4, 2007, and November 4, 2009, the Service sent numerous emails to the Corps requesting additional information.

On September 22, 2009, the Corps sent the Service an email stating that they had determined that the proposed project "may affect" nesting sea turtles.

On December 9, 2009, the Service received the last of the requested information from the Corps and initiated formal consultation.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The Applicant proposes to place beach compatible sand along Smathers Beach, Monroe County, Florida (Figure 1). The project area consists of a 0.57 mile long fill template where approximately 12,891 cubic yards (cy) of beach compatible sand will be placed. The proposed design berm template will provide a height of +6.0 feet National Geodetic Vertical Datum and a 1 vertical:5 horizontal slope. The intent of the project is to renourish and improve the shoreline for recreational use, and reduce shoreline erosion.

Beach compatible sand will be obtained from the ER Jahna Ortona Sand Mine, Moore Haven, Florida, and must be approved by DEP and meet all requirements as outlined in the Florida Administrative Code subsection 62B-41.007. Sand excavated from the sand mine will be trucked to the sand placement fill template using conventional triaxle dump trucks and deposited at the staging area at the east end of the project area (Figure 1). Front end loaders will load the sand into all-terrain dump trucks, delivered to the fill template, and graded to the permitted design fill profile using a bulldozer. No upland habitat impacts associated with the beach access corridor is anticipated.

Sand placement is scheduled to commence as soon as all regulatory authorizations are in place. The Applicant anticipates the project will take approximately 4 to 6 weeks to complete. If construction extends into the sea turtle nesting season (March 1 to November 30), no work will commence until daily nesting surveys have been completed. Construction activities will take place only during daylight hours.

The action area is defined as all areas to be affected directly or indirectly by the action and not merely the immediate area involved in the action. The Service identifies the action area to include the sand placement fill template (0.57 mile), the staging area, and the all-terrain dump truck shoreline corridor. Due to the relatively small quantity of sand placed in the fill template, and past postconstruction results, downdrift and updrift effects are considered negligible. The project is located along the Atlantic Ocean, at Smathers Beach, Monroe County, Florida at latitude 24.5517 and longitude -81.7708.

STATUS OF THE SPECIES/CRITICAL HABITAT

Species/critical habitat description

Loggerhead Sea Turtle

The loggerhead sea turtle, listed as a threatened species on July 28, 1978 (43 Federal Register [FR] 32800), inhabits the continental shelves and estuarine environments along the margins of the Atlantic, Pacific, and Indian Oceans. Loggerhead sea turtles nest within the continental United States (U.S.) from Louisiana to Virginia. Major nesting concentrations in the U.S. are found on the coastal islands of North Carolina, South Carolina, and Georgia, and on the Atlantic and Gulf coasts of Florida (Hopkins and Richardson 1984).

No critical habitat has been designated for the loggerhead sea turtle.

Green Sea Turtle

The green sea turtle was federally listed on July 28, 1978 (43 FR 32800). Breeding populations of the green turtle in Florida and along the Pacific Coast of Mexico are listed as endangered; all other populations are listed as threatened. The green turtle has a worldwide distribution in tropical and subtropical waters. Major green turtle nesting colonies in the Atlantic occur on Ascension Island, Aves Island, Costa Rica, and Suriname. Within the U.S., green turtles nest in

small numbers in the U.S. Virgin Islands and Puerto Rico, and in larger numbers along the east coast of Florida, particularly in Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward Counties (NOAA Fisheries and Service 1991a). Nesting has also been documented along the Gulf coast of Florida on Santa Rosa Island (Okaloosa and Escambia Counties) and from Pinellas County through Collier County. Green turtles have been known to nest in Georgia, but only on rare occasions, and sporadically in North Carolina and South Carolina. Unconfirmed nesting of green turtles in Alabama has also been reported.

Critical habitat for the green sea turtle has been designated for the waters surrounding Culebra Island, Puerto Rico, and its outlying keys (63 FR 46693).

Leatherback Sea Turtle

The leatherback sea turtle, listed as an endangered species on June 2, 1970 (35 FR 8491), nests on shores of the Atlantic, Pacific and Indian Oceans. Nonbreeding animals have been recorded as far north as the British Isles and the Maritime Provinces of Canada and as far south as Argentina and the Cape of Good Hope (Pritchard 1992). Nesting grounds are distributed worldwide, with the Pacific Coast of Mexico supporting the world's largest known concentration of nesting leatherbacks in the Pacific. The largest nesting colony in the wider Caribbean region is found in French Guiana, but nesting occurs frequently, although in lesser numbers, from Costa Rica to Columbia and in Guyana, Suriname, and Trinidad (National Research Council 1990; NOAA Fisheries and Service 1992).

The leatherback regularly nests in the U.S. in Puerto Rico, the U.S. Virgin Islands, and along the Atlantic coast of Florida as far north as Georgia (NOAA Fisheries and Service 1992). Leatherback turtles have been known to nest in Georgia, South Carolina, and North Carolina, but only on rare occasions. Leatherback nesting has also been reported on the northwest coast of Florida (LeBuff 1990); a false crawl (nonnesting emergence) has been observed on Sanibel Island (LeBuff 1990).

Marine and terrestrial critical habitat for the leatherback sea turtle has been designated at Sandy Point on the western end of the island of St. Croix, U.S. Virgin Islands (44 FR 17710).

Hawksbill Sea Turtle

The hawksbill sea turtle was listed as an endangered species on June 2, 1970 (35 FR 8491). The hawksbill is found in tropical and subtropical seas of the Atlantic, Pacific, and Indian Oceans. The species is widely distributed in the Caribbean Sea and western Atlantic Ocean. Within the continental U.S., hawksbill sea turtle nesting is rare and is restricted to the southeastern coast of Florida (Volusia through Miami-Dade Counties) and the Florida Keys (Monroe County) (Meylan 1992; Meylan et al. 1995). However, hawksbill tracks are difficult to differentiate from those of loggerheads and may not be recognized by surveyors. Therefore, surveys in Florida likely underestimate actual hawksbill nesting numbers (Meylan et al. 1995). In the U.S. Caribbean, hawksbill nesting occurs on beaches throughout Puerto Rico and the U.S. Virgin Islands (NOAA Fisheries and Service 1993).

Critical habitat for the hawksbill sea turtle has been designated for selected beaches or waters of Mona, Monito, Culebrita, and Culebra Islands, Puerto Rico (63 FR 46693).

Kemp's Ridley Sea Turtle

The Kemp's ridley sea turtle was listed as endangered on December 2, 1970 (35 FR 18320). The range of the Kemp's ridley includes the Gulf of Mexico coasts of Mexico and the U.S., and the Atlantic coast of North America as far north as Nova Scotia and Newfoundland. Most Kemp's ridleys nest on the coastal beaches of the Mexican states of Tamaulipas and Veracruz, although a very small number of Kemp's ridleys nest consistently along the Texas coast (Turtle Expert Working Group 1998). In addition, rare nesting events have been reported in Florida, Alabama, South Carolina, and North Carolina. Outside of nesting, adult Kemp's ridleys are believed to spend most of their time in the Gulf of Mexico, while juveniles and subadults also regularly occur along the eastern seaboard of the U.S. (Service and NOAA Fisheries 1992).

No critical habitat has been designated for the Kemp's ridley sea turtle.

Life history

Loggerhead Sea Turtle

Loggerheads are known to nest from one to seven times within a nesting season (Talbert et al. 1980; Lenarz et al. 1981; Richardson and Richardson 1982); the mean is approximately 4.1 (Murphy and Hopkins 1984). The interval between nesting events within a season varies around a mean of about 14 days (Dodd 1988). Mean clutch size varies from about 100 to 126 eggs along the southeastern U.S. coast (NOAA Fisheries and Service 1991b). Incubation ranges from about 45 to 95 days. Nesting migration intervals of 2 to 3 years are most common in loggerheads, but the number can vary from 1 to 7 years (Dodd 1988). Age at sexual maturity is believed to be about 20 to 30 years (Turtle Expert Working Group 1998).

Green Sea Turtle

Green turtles deposit from one to nine clutches within a nesting season, but the overall average is 3.3. The mean interval between nesting events within a season is 13 days (Hirth 1997). Mean clutch size varies widely among populations. Average clutch size reported for Florida was 136 eggs in 130 clutches (Witherington and Ehrhart 1989). Incubation ranges from about 45 to 75 days. Only occasionally do females produce clutches in successive years. Usually 2 or more years intervene between breeding seasons (NOAA Fisheries and Service 1991a). Age at sexual maturity is believed to be 20 to 50 years (Hirth 1997).

Leatherback Sea Turtle

Leatherbacks nest five to seven times within a nesting season, with an observed maximum of 11 (NOAA Fisheries and Service 1992). The interval between nesting events within a season is about 10 days. Clutch size averages 80 to 85 yolked eggs, with the addition of usually a few

dozen smaller, yolkless eggs, mostly laid toward the end of the clutch (Pritchard 1992). Incubation ranges from about 55 to 75 days. Nesting migration intervals of 2 to 3 years were observed in leatherbacks nesting on Sandy Point National Wildlife Refuge, St. Croix, U.S. Virgin Islands (McDonald and Dutton 1996). Leatherbacks are believed to reach sexual maturity in 6 to 10 years (Zug and Parham 1996).

Hawksbill Sea Turtle

Hawksbills nest on average four and one half times per season at intervals of approximately 14 days (Corliss et al. 1989). In Florida and the U.S. Caribbean, clutch size is approximately 140 eggs, although several records exist of over 200 eggs per nest (NOAA Fisheries and Service 1993). Incubation lasts for about 60 days. On the basis of limited information, nesting migration intervals of 2 to 3 years appear to predominate. Hawksbills are recruited into the reef environment at about 14 inches in length and are believed to begin breeding about 30 years later. The time required to reach 14 inches in length however, is unknown, and growth rates vary geographically. As a result, actual age at sexual maturity is not known.

Kemp's Ridley Sea Turtle

Nesting occurs from April into July during which time the turtles appear off the Tamaulipas and Veracruz coasts of Mexico. Precipitated by strong winds, the females swarm to mass nesting emergences, known as *arribadas* or *arribazones*, to nest during daylight hours. Clutch size averages 100 eggs (Service and NOAA Fisheries 1992). The incubation period ranges from 45 to 70 days. Hatchlings, after leaving the nesting beach, are believed to become entrained in eddies within the Gulf of Mexico, where they are dispersed within the Gulf and Atlantic by oceanic surface currents until they reach about 8 inches in length, at which size they enter coastal shallow water habitats (Ogren 1989). Some females breed annually and nest an average of one to four times in a season at intervals of 10 to 28 days. Age at sexual maturity is believed to be between 7 to 15 years (Turtle Expert Working Group 1998).

Population dynamics

Loggerhead Sea Turtle

The loggerhead occurs throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans. However, the majority of loggerhead nesting is at the western regions of the Atlantic and Indian Oceans. The most recent reviews show that only two loggerhead nesting beaches (South Florida [U.S.] and Masirah [Oman]) have greater than 10,000 females nesting per year (Baldwin et al. 2003; Ehrhart et al. 2003; Kamezaki et al. 2003; Limpus and Limpus 2003; Margaritoulis et al. 2003). Beaches with 1,000 to 9,999 females nesting each year are Georgia through North Carolina (U.S.), Quintana Roo and Yucatán (Mexico), Cape Verde Islands (Cape Verde, eastern Atlantic off Africa), and Western Australia (Australia). Smaller nesting aggregations with 100 to 999 nesting females annually occur in the Northern Gulf of Mexico (U.S.), Dry Tortugas (U.S.), Cay Sal Bank (Bahamas), Sergipe and Northern Bahia (Brazil), Southern Bahia to Rio de Janerio (Brazil), Tongaland (South Africa), Mozambique, Arabian Sea

Coast (Oman), Halaniyat Islands (Oman), Cyprus, Peloponnesus (Greece), Island of Zakynthos (Greece), Turkey, Queensland (Australia), and Japan.

The loggerhead is commonly found throughout the North Atlantic including the Gulf of Mexico, the northern Caribbean, the Bahamas archipelago, and eastward to West Africa, the western Mediterranean, and the west coast of Europe.

The major nesting concentrations in the U.S. are found in South Florida; however, loggerheads nest from Texas to Virginia. Total estimated nesting in the U.S. has fluctuated between 47,000 and 90,000 nests per year over the last decade (FWC, unpublished data; Georgia and South Carolina Department of Natural Resources, unpublished data; North Carolina Wildlife Resources Commission, unpublished data). About 80 percent of loggerhead nesting in the southeast U.S. occurs in six Florida counties (Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward Counties). Adult loggerheads are known to make considerable migrations between foraging areas and nesting beaches (Schroeder et al. 2003; Foley et al. 2008). During nonnesting years, adult females from U.S. beaches are distributed in waters off the eastern U.S. and throughout the Gulf of Mexico, Bahamas, Greater Antilles, and Yucatán.

From a global perspective, the U.S. nesting aggregation is of paramount importance to the survival of the species as is the population that nests on islands in the Arabian Sea off Oman (Ross 1982; Ehrhart 1989). The status of the Oman loggerhead nesting population, reported to be the largest in the world (Ross 1979), is uncertain because of the lack of long-term standardized nesting or foraging ground surveys and its vulnerability to increasing development pressures near major nesting beaches and threats from fisheries interaction on foraging grounds and migration routes. The loggerhead nesting aggregations in Oman and the U.S. account for the majority of nesting worldwide.

Green Sea Turtle

About 150 to 2,750 females are estimated to nest on beaches in the continental U.S. annually. In the U.S. Pacific, over 90 percent of nesting throughout the Hawaiian archipelago occurs at the French Frigate Shoals, where about 200 to 700 females nest each year (NOAA Fisheries and Service 1998a). Elsewhere in the U.S. Pacific, nesting takes place at scattered locations in the Commonwealth of the Northern Marianas, Guam, and American Samoa. In the western Pacific, the largest green turtle nesting group in the world occurs on Raine Island, Australia, where thousands of females nest nightly in an average nesting season (Limpus et al. 1993). In the Indian Ocean, major nesting beaches occur in Oman where 30,000 females are reported to nest annually (Ross and Barwani 1995).

Leatherback Sea Turtle

A dramatic drop in nesting numbers has been recorded on major nesting beaches in the Pacific. Spotila et al. (2000) have highlighted the dramatic decline and possible extirpation of leatherbacks in the Pacific.

The East Pacific and Malaysia leatherback populations have collapsed. Spotila et al. (1996) estimated that only 34,500 females nested annually worldwide in 1995, which is a dramatic decline from the 115,000 estimated in 1980 (Pritchard 1982). In the eastern Pacific, the major nesting beaches occur in Costa Rica and Mexico. At Playa Grande, Costa Rica, considered the most important nesting beach in the eastern Pacific, numbers have dropped from 1,367 leatherbacks in 1988-1989 to an average of 188 females nesting between 2000-2001 and 2003-2004. In Pacific Mexico, 1982 aerial surveys of adult female leatherbacks indicated this area had become the most important leatherback nesting beach in the world. Tens of thousands of nests were laid on the beaches in the 1980s, but during the 2003-2004 seasons a total of 120 nests were recorded. In the western Pacific, the major nesting beaches lie in Papua New Guinea, Papua, Indonesia, and the Solomon Islands. These are some of the last remaining significant nesting assemblages in the Pacific. Compiled nesting data estimated approximately 5,000 to 9,200 nests annually with 75 percent of the nests being laid in Papua, Indonesia.

However, the most recent population size estimate for the North Atlantic alone is a range of 34,000 to 94,000 adult leatherbacks (Turtle Expert Working Group 2007). In Florida, an annual increase in number of leatherback nests at the core set of index beaches ranged from 27 to 498 between 1989 and 2008. Under the Core Index Nesting Beach Survey (INBS) program, 198.8 miles of nesting beach have been divided into zones, know as core index zones, averaging 0.5 mile in length. Annually, between 1989 and 2008, these core index zones were monitored daily during the 109-day sea turtle index nesting season (May 15 to August 31). On all index beaches, researchers recorded nests and nesting attempts by species, nest location, and date.

Nesting in the Southern Caribbean occurs in the Guianas (Guyana, Suriname, and French Guiana), Trinidad, Dominica, and Venezuela. The largest nesting populations at present occur in the western Atlantic in French Guiana with nesting varying between a low of 5,029 nests in 1967 to a high of 63,294 nests in 2005, which represents a 92 percent increase since 1967 (Turtle Expert Working Group 2007). Trinidad supports an estimated 6,000 nesting leatherbacks annually, which represents more than 80 percent of the nesting in the insular Caribbean Sea. Leatherback nesting along the Caribbean Central American coast takes place between Honduras and Colombia. In Atlantic Costa Rica, at Tortuguero, the number of nests laid annually between 1995 and 2006 was estimated to range from 199 to 1,623. Modeling of the Atlantic Costa Rica data indicated that the nesting population has decreased by 67.8 percent over this time period.

In Puerto Rico, the main nesting areas are at Fajardo on the main island of Puerto Rico and on the island of Culebra. Between 1978 and 2005, nesting increased in Puerto Rico with a minimum of 9 nests recorded in 1978 and a minimum of 469 to 882 nests recorded each year between 2000 and 2005. Recorded leatherback nesting on the Sandy Point National Wildlife Refuge on the island of St. Croix, U.S. Virgin Islands between 1990 and 2005, ranged from a low of 143 in 1990 to a high of 1,008 in 2001. In the British Virgin Islands, annual nest numbers have increased in Tortola from 0 to 6 nests per year in the late 1980s to 35 to 65 nests per year in the 2000s.

The most important nesting beach for leatherbacks in the eastern Atlantic lies in Gabon, Africa. It was estimated there were 30,000 nests along 60 miles of Mayumba Beach in southern Gabon

during the 1999-2000 nesting season. Some nesting has been reported in Mauritania, Senegal, the Bijagos Archipelago of Guinea-Bissau, Turtle Islands and Sherbro Island of Sierra Leone, Liberia, Togo, Benin, Nigeria, Cameroon, Sao Tome and Principe, continental Equatorial Guinea, Islands of Corisco in the Gulf of Guinea and the Democratic Republic of the Congo, and Angola. In addition, a large nesting population is found on the island of Bioko (Equatorial Guinea).

Hawksbill Sea Turtle

About 15,000 females are estimated to nest each year throughout the world with the Caribbean accounting for 20 to 30 percent of the world's hawksbill population. Only five regional populations remain with more than 1,000 females nesting annually (Seychelles, Mexico, Indonesia, and two in Australia) (Meylan and Donnelly 1999). Mexico is now the most important region for hawksbills in the Caribbean with about 3,000 nests per year (Meylan 1999). Other significant but smaller populations in the Caribbean still occur in Martinique, Jamaica, Guatemala, Nicaragua, Grenada, Dominican Republic, Turks and Caicos Islands, Cuba, Puerto Rico, and U.S. Virgin Islands. In the U.S. Caribbean, about 150 to 500 nests per year are laid on Mona Island, Puerto Rico and 70 to 130 nests per year are laid on Buck Island Reef National Monument, U.S. Virgin Islands. In the U.S. Pacific, hawksbills nest only on main island beaches in Hawaii, primarily along the east coast of the island of Hawaii. Hawksbill nesting has also been documented in American Samoa and Guam (NOAA Fisheries and Service 1998b).

Kemp's Ridley Sea Turtle

Most Kemp's ridleys nest on the coastal beaches of the Mexican states of Tamaulipas and Veracruz, although a small number of Kemp's ridleys nest consistently along the Texas coast (Turtle Expert Working Group 1998). In addition, rare nesting events have been reported in Alabama, Florida, Georgia, South Carolina, and North Carolina. Historical information indicates that tens of thousands of Kemp's ridleys nested near Rancho Nuevo, Mexico, during the late 1940s (Hildebrand 1963). The Kemp's ridley population experienced a devastating decline between the late 1940s and the mid 1980s. The total number of nests per nesting season at Rancho Nuevo remained below 1,000 throughout the 1980s, but gradually began to increase in the 1990s. In 2007, 11,268 nests were documented along the 18.6 miles of coastline patrolled at Rancho Nuevo, and the total number of nests documented for all the monitored beaches in Mexico was 15,032 (Service 2007). During the 2007 nesting season, an arribada with an estimated 5,000 turtles was recorded at Rancho Nuevo from May 20 to May 23. In addition, 128 nests were recorded during 2007 in the U.S., primarily in Texas.

Status and distribution

Loggerhead Sea Turtle

Five recovery units (subpopulations) have been identified in the Northwest Atlantic based on genetic differences and a combination of geographic distribution of nesting densities and geographic separation (NOAA Fisheries and Service 2008):

1. Northern Recovery Unit (NRU) - defined as loggerheads originating from nesting beaches from the Florida-Georgia border through southern Virginia (the northern extent of the nesting range).

2. Peninsula Florida Recovery Unit (PFRU) - defined as loggerheads originating from nesting beaches from the Florida-Georgia border through Pinellas County on the west coast of Florida, excluding the islands west of Key West, Florida.

3. Dry Tortugas Recovery Unit (DTRU) - defined as loggerheads originating from nesting beaches throughout the islands located west of Key West, Florida.

4. Northern Gulf of Mexico Recovery Unit (NGMRU) - defined as loggerheads originating from nesting beaches from Franklin County on the northwest Gulf coast of Florida through Texas.

5. Greater Caribbean Recovery Unit (GCRU) - composed of loggerheads originating from all other nesting assemblages within the Greater Caribbean (Mexico through French Guiana, Bahamas, Lesser Antilles, and Greater Antilles).

Mitochondrial DNA (mtDNA) analyses show that there is limited exchange of females among these recovery units (Ehrhart 1989; Foote et al., 2000; NOAA Fisheries 2001; Hawkes et al. 2005. Based on the number of haplotypes, the highest level of loggerhead mtDNA genetic diversity in the Northwest Atlantic has been observed in females of the GCRU that nest at Quintana Roo, Mexico (Encalada et al. 1999; Nielsen et al. in press).

Nuclear DNA analyses show that there are no substantial subdivisions across the loggerhead nesting colonies in the southeastern U.S. Male-mediated gene flow appears to be keeping the subpopulations genetically similar on a nuclear DNA level (Francisco-Pearce 2001).

Historically, the literature has suggested that the northern U.S. nesting beaches (NRU and NGMRU) produce a relatively high percentage of males and the more southern nesting beaches (PFRU, DTRU, and GCRU) a relatively high percentage of females (Mrosovsky and Provancha 1989; Hanson et al. 1998; NOAA Fisheries 2001). The NRU and NGMRU were believed to play an important role in providing males to mate with females from the more female-dominated subpopulations to the south. However, in 2002 and 2003, researchers studied loggerhead sex ratios for two of the U.S. nesting subpopulations, the northern and southern subpopulations (NGU and PFRU, respectively) (Blair 2005; Wyneken et al. 2005). In 2002, the northern beaches produced more females and the southern beaches produced more males than previously believed. However, the opposite was true in 2003, in keeping with prior literature. Wyneken et al. (2005) speculated that the 2002 result may have been anomalous; however, the study did point out the potential for males to be produced on the southern beaches. Although this study revealed that more males may be produced on southern recovery unit beaches than previously believed, the Service maintains that the NRU and NGMRU play an important role in the production of males to mate with females from the more southern recovery units.

The NRU is the second largest loggerhead nesting aggregation in the Northwest Atlantic. Annual nest totals from northern beaches averaged 5,215 nests from 1989 to 2008, a period of near-complete surveys of NRU nesting beaches (NOAA Fisheries and Service 2008), representing approximately 1,272 nesting females per year (4.1 nests per female, Murphy and Hopkins 1984). The loggerhead nesting trend from daily beach surveys showed a significant decline of 1.3 percent annually. Nest totals from aerial surveys conducted by the South Carolina Department of Natural Resources showed a 1.9 percent annual decline in nesting in South Carolina since 1980. Overall, there is strong statistical data to suggest the NRU has experienced a long-term decline.

The PFRU is the largest loggerhead nesting assemblage in the Northwest Atlantic. A near-complete nest census of the PFRU undertaken from 1989 to 2007 revealed a mean of 64,513 loggerhead nests per year representing approximately 15,735 females nesting per year (4.1 nests per female, Murphy and Hopkins 1984). This near-complete census provides the best statewide estimate of total abundance, but because of variable survey effort, these numbers cannot be used to assess trends. Loggerhead nesting trends are best assessed using standardized nest counts made at INBS sites surveyed with constant effort over time. In 1979, the Statewide Nesting Beach Survey (SNBS) program was initiated to document the total distribution, seasonality and abundance of sea turtle nesting in Florida. In 1989, the INBS program was initiated in Florida to measure seasonal productivity, allowing comparisons between beaches and between years. Of the 190 SNBS surveyed areas, 33 participate in the INBS program (representing 30 percent of the SNBS beach length).

An analysis of these data has shown a decline in nesting from 1989 to 2008 (Witherington et al. 2009). The analysis that reveals this decline uses nest count data from 345 representative Atlantic coast index zones (total length = 187 miles) and 23 representative zones on Florida's southern Gulf Coast (total length = 14.3 miles). The spatial and temporal coverage (annually, 109 days and 368 zones) accounted for an average of 70 percent of statewide loggerhead nesting activity between 1989 and 2008. Negative binomial regression models that fit restricted cubic spline curves to aggregated nest counts were used in trend evaluations. Results of the analysis indicated that there had been a decrease of 26 percent over the 20-year period and a 41 percent decline since 1998. The mean annual rate of decline for the 20-year period was 1.6 percent.

The NGMRU is the third largest nesting assemblage among the four U.S. recovery units. Nesting surveys conducted on approximately 186 miles of beach within the NGMRU (Alabama and Florida only) were undertaken between 1995 and 2007 (statewide surveys in Alabama began in 2002). The mean nest count during this 13-year period was 906 nests per year, which equates to approximately 221 females nesting per year (4.1 nests per female, Murphy and Hopkins 1984). Evaluation of long-term nesting trends for the NGMRU is difficult because of changed and expanded beach coverage. Loggerhead nesting trends are best assessed using standardized nest counts made at INBS sites surveyed with constant effort over time. There are 12 years (1997-2008) of Florida INBS data for the NGMRU. A log-linear regression showed a significant declining trend of 4.7 percent annually.

The DTRU, located west of the Florida Keys, is the smallest of the identified recovery units. A near-complete nest census of the DTRU undertaken from 1995 to 2004, excluding 2002, (9 years surveyed) revealed a mean of 246 nests per year, which equates to approximately 60 females nesting per year (4.1 nests per female, Murphy and Hopkins 1984). Surveys after 2004 did not include principal nesting beaches within the recovery unit. The nesting trend data for the DTRU are from beaches that are not part of the INBS program, but are part of the SNBS program. There are nine years of data for this recovery unit. A simple linear regression accounting for temporal autocorrelation revealed no trend in nesting numbers. Because of the annual variability in nest totals, a longer time series is needed to detect a trend.

The GCRU is composed of all other nesting assemblages of loggerheads within the Greater Caribbean. Statistically valid analyses of long-term nesting trends for the entire GCRU are not available because there are few long-term standardized nesting surveys representative of the region. Additionally, changing survey effort at monitored beaches and scattered and low-level nesting by loggerheads at many locations currently precludes comprehensive analyses. The most complete data are from Quintana Roo andYucatán, Mexico, where an increasing trend was reported over a 15-year period from 1987 to 2001 (Zurita et al. 2003). However, since 2001, nesting has declined and the previously reported increasing trend appears not to have been sustained (NOAA Fisheries and Service 2008). Other smaller nesting populations have experienced declines over the past few decades (Amorocho 2003).

Threats include incidental take from channel dredging and commercial trawling, longline, and gill net fisheries; loss or degradation of nesting habitat from coastal development and beach armoring; disorientation of hatchlings by beachfront lighting; excessive nest predation by native and nonnative predators; degradation of foraging habitat; marine pollution and debris; watercraft strikes; and disease. There is particular concern about the extensive incidental take of juvenile loggerheads in the eastern Atlantic by longline fishing vessels from several countries.

Green Sea Turtle

Total population estimates for the green turtle are unavailable, and trends based on nesting data are difficult to assess because of large annual fluctuations in numbers of nesting females. For instance, in Florida, where the majority of green turtle nesting in the southeastern U.S. occurs, estimates range from 150 to 2,750 females nesting annually. Populations in Suriname and Tortuguero, Costa Rica, may be stable, but there is insufficient data for other areas to confirm a trend.

A major factor contributing to the green turtle's decline worldwide is commercial harvest for eggs and food. Fibropapillomatosis, a disease of sea turtles characterized by the development of multiple tumors on the skin and internal organs, is also a mortality factor and has seriously impacted green turtle populations in Florida, Hawaii, and other parts of the world. The tumors interfere with swimming, eating, breathing, vision, and reproduction, and turtles with heavy tumor burdens may die. Other threats include loss or degradation of nesting habitat from coastal development and beach armoring; disorientation of hatchlings by beachfront lighting; excessive nest predation by native and nonnative predators; degradation of foraging habitat; marine pollution and debris; watercraft strikes; and incidental take from channel dredging and commercial fishing operations.

Leatherback Sea Turtle

Declines in leatherback nesting have occurred over the last 2 decades along the Pacific coasts of Mexico and Costa Rica. The Mexican leatherback nesting population, once considered to be the world's largest leatherback nesting population (historically estimated to be 65 percent of the worldwide population), is now less than 1 percent of its estimated size in 1980. Spotila et al. (1996) estimated the number of leatherback sea turtles nesting on 28 beaches throughout the world from the literature and from communications with investigators studying those beaches. The estimated worldwide population of leatherbacks in 1995 was about 34,500 females on these beaches with a lower limit of about 26,200 and an upper limit of about 42,900. This is less than one third the 1980 estimate of 115,000. Leatherbacks are rare in the Indian Ocean and in very low numbers in the western Pacific Ocean. Presently, the largest population is in the western Atlantic. Using an age-based demographic model, Spotila et al. (1996) determined leatherback populations in the Indian Ocean and western Pacific Ocean cannot withstand even moderate levels of adult mortality and even the Atlantic populations are being exploited at a rate that cannot be sustained. They concluded leatherbacks are on the road to extinction and further population declines can be expected unless we take action to reduce adult mortality and increase survival of eggs and hatchlings.

The crash of the Pacific leatherback population is believed primarily to be the result of exploitation by humans for the eggs and meat, as well as incidental take in numerous commercial fisheries of the Pacific. Other factors threatening leatherbacks globally include loss or degradation of nesting habitat from coastal development; disorientation of hatchlings by beachfront lighting; excessive nest predation by native and nonnative predators; degradation of foraging habitat; marine pollution and debris; and watercraft strikes.

Hawksbill Sea Turtle

The hawksbill sea turtle has experienced global population declines of 80 percent or more during the past century and continued declines are projected (Meylan and Donnelly 1999). Most populations are declining, depleted, or remnants of larger aggregations. Hawksbills were previously abundant, as evidenced by high-density nesting at a few remaining sites and by trade statistics. The decline of this species is primarily due to human exploitation for tortoiseshell. While the legal hawksbill shell trade ended when Japan agreed to stop importing shell in 1993, a significant illegal trade continues. It is believed individual hawksbill populations around the world will continue to disappear under the current regime of exploitation for eggs, meat, and tortoiseshell, loss of nesting and foraging habitat, incidental capture in fishing gear, ingestion of and entanglement in marine debris, oil pollution, and boat collisions. Hawksbills are closely associated with coral reefs, one of the most endangered marine ecosystems.

Kemp's Ridley Sea Turtle

The decline of this species was primarily due to human activities, including the direct harvest of adults and eggs and incidental capture in commercial fishing operations. Today, under strict protection, the population appears to be in the early stages of recovery. The recent nesting

increase can be attributed to full protection of nesting females and their nests in Mexico resulting from a binational effort between Mexico and the U.S. to prevent the extinction of the Kemp's ridley, and the requirement to use turtle excluder devices in shrimp trawls in both nations.

The Mexican government also prohibits harvesting, and is working to increase the population through more intensive law enforcement, by fencing nest areas to reduce natural predation, and by relocating all nests into corrals to prevent poaching and predation. While relocation of nests into corrals is currently a necessary management measure, this relocation and concentration of eggs into a "safe" area is of concern since it makes the eggs more susceptible to reduced viability due to movement-induced mortality, disease vectors, catastrophic events like hurricanes, and marine predators once the predators learn where to concentrate their efforts.

Analysis of the species/critical habitat likely to be affected

The proposed action has the potential to adversely affect nesting sea turtles, their nests, and hatchlings within the action area. The effects of the proposed action on sea turtles will be considered further in the remaining sections of this biological opinion. Potential effects include destruction of nests deposited within the boundaries of the proposed project, harassment in the form of disturbing or interfering with female sea turtles attempting to nest within the construction area or on adjacent beaches as a result of construction activities, and behavior modification of nesting females due to escarpment formation within the action area during the nesting season that could result in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs. In addition, the quality of the placed sand could affect the ability of female sea turtles to nest, the suitability of the nest incubation environment, and the ability of hatchlings to emerge from the nest.

Critical habitat has not been designated for any sea turtle in the continental U.S.; therefore, the proposed action would not result in an adverse modification to critical habitat.

ENVIRONMENTAL BASELINE

Climate Change

According to the Intergovernmental Panel on Climate Change Report (IPCC 2007), warming of the earth's climate is unequivocal, as is now evident from observations of increases in average global air and ocean temperatures, widespread melting of snow and ice, and rising sea level. The IPCC Report (2007) describes changes in natural ecosystems with potential widespread effects on many organisms, including marine mammals, reptiles, and migratory birds. The potential for rapid climate change poses a significant challenge for fish and wildlife conservation. Species abundance and distribution are dynamic, relative to a variety of factors, including climate. As climate changes, the abundance and distribution of fish and wildlife will also change. Highly specialized or endemic species are likely to be most susceptible to the stresses of changing climate. Based on these findings and other similar studies, the Department of the Interior requires agencies under its direction to consider potential climate change effects as part of their long-range planning activities (Service 2008).

Climate change at the global level drives alterations in weather at the regional level, although weather is also strongly affected by season and local effects (*e.g.*, elevation, topography, latitude, proximity to the ocean). Average temperature is predicted to rise from 36°F to 41°F for North America by the end of this century (IPCC 2007). Other processes to be affected by this projected warming include rainfall (amount, seasonal timing, and distribution), storms (frequency and intensity), and sea level rise. However, the exact magnitude, direction, and distribution of these changes at the regional level are not well understood or easy to predict. Seasonal change and local geography make prediction of the effects of climate change at any location variable. Climatic changes in south Florida could amplify current land management challenges involving habitat fragmentation, urbanization, invasive species, disease, parasites, and water management (Pearlstine 2008).

Air Temperature

Current models predict changes in mean global temperature in the range of 4°F to 8°F by 2100. How this manifests at the regional and local scale is uncertain. A change of just a couple degrees can have profound effects, particularly at temperature extremes. For example, in Florida, winter frost, a 2-degree transition from 33°F to 31°F, greatly affects vegetation. While predicted changes in average annual temperature appear small, local and seasonal temperature variation may be greater. It is also important to consider that an increase in the temperature of the global atmosphere may manifest as an increase or a decrease in local means and extremes. We do not currently know either the direction or anticipated size of temperature change in Florida, but the following possibilities at the local level should be considered:

1. Changes (likely small) in mean annual temperature.
2. Greater extremes of temperature in summer (average highs) and winter (average lows).
3. More prolonged and seasonally extended frosts.
4. Shifts in the distribution of temperature regimes (*e.g.*, isotherms and growing zones).
5. Changes in the seasonal onset of temperature changes (*e.g.*, earlier spring).
6. Changes in the duration of temperature regimes (*e.g.*, longer and warmer summers).
7. Changes in both air and water (lake, river, ocean) temperature.

Most organisms have preferred ranges of temperature and lethal temperature limits they cannot survive. Many organisms require temperature signals or suitable temperature regimes to successfully complete life cycle activities such as nesting and winter dormancy. Some organisms are sensitive to temperature for incubation, sex determination (*e.g.*, sea turtles, alligators), or seed germination. The oxygen content of water (affecting fish) and the water content of vegetation (affecting fire combustion) are temperature-dependent. Some noxious or undesirable organisms may proliferate under different temperature regimes (*e.g.*, blue green algae in lakes and exotic species). Changes in temperature will likely affect fish and wildlife resources in many ways depending on the direction, amount, timing, and duration of the changes.

Rainfall

Ecosystems in Florida are sensitive to variation in rainfall. Well-drained soils, rapid runoff, and high plant transpiration quickly redistribute water available to organisms. Despite a high average rainfall, much of Florida experiences seasonal drought that profoundly affects fish and wildlife

resources. Florida's rain depends on both global and regional climate factors (*e.g.*, jet stream, El Niño, frontal progression, storms and hurricanes) and local weather (*e.g.*, thunderstorms, sea breezes, lake effects and local circulation) that are likely affected by climate change. The following possibilities at the local level should be considered:

1. Changes in average annual rainfall (*e.g.*, higher or lower).
2. Changed seasonal distribution of rainfall (*e.g.*, when rain falls).
3. Changed regional distribution of rainfall (*e.g.*, where rain falls).
4. Changed intensity (*e.g.*, more severe storm rain, or dispersed "misty" rain).

Rainfall changes are affected by temperature. The affects of changes in rainfall will likely be mediated through responses by vegetation and the changed availability of surface water (*e.g.*, lakes, ponds, rivers, swamps, and wet prairies) on which many organisms depend. In the longer term, changes in deposition or recharge to surficial and deep aquifers may affect spring flow. Florida has an unusually large area of wetland habitats supporting wildlife. If climate change reduces rainfall, then desertification of much of Florida is possible and it may come to resemble "desert islands" such as much of the Bahamas that occur at the same latitude. Rainfall changes may have the most profound effects on Florida's fish and wildlife resources.

Storms

Another predicted effect of climate change is to increase the frequency and intensity of severe storms, particularly tropical cyclones (hurricanes). Higher sea temperatures and high atmosphere conditions generate energy and conditions suitable for storms. There is some controversy about whether this effect is already discernible against the background of natural variation and cycles of hurricane occurrence.

Hurricanes are generally considered detrimental to human interests and may directly cause wildlife mortality. However, their effect in natural systems is generally transient; plants and animals tend to rapidly recover. Hurricanes do have significant secondary effects, reshaping coastal habitat structure (barrier islands, beaches, salt/freshwater intrusion to marshes, and estuaries), replenishing water bodies and aquifers and renewing plant succession, which are not completely negative for wildlife. Hurricane effects will interact with rainfall and sea level changes, possibly exacerbating coastal flooding. Hurricanes also redistribute organisms, particularly plants, by spreading seeds and other propagules. The following possibilities at the local level should be considered:

1. Changes in storm intensity and frequency.
2. Changes in the possibility of more concentrated storm tracks leading to more frequent storm landfall.
3. Interaction of surge and sea level for more severe coastal and adjacent inland effects.
4. Distribution of invasive species.

Sea Level Rise

All current predictions suggest sea level will rise due to melting of continental and glacial ice and thermal expansion of the oceans. Florida, with its extensive coastline and low topography is

highly vulnerable to sea level rise. The magnitude of the predicted rise is currently unknown and estimates vary from a few inches to yards. Modeled predictions using median consensus sea level rise estimates indicate that significant portions of Florida's coastline will be inundated and a major redistribution of coastal habitats is likely. However, to put this in context, Florida's coast currently experiences sea level fluctuations of 2 to 6 feet twice daily as tides and is exposed to storm surges of 10 to 16 feet in occasional hurricanes. Sea level changes will be superimposed on these normal, larger fluctuations. While these changes will likely be disastrous to human structures and activities, the effect on wildlife and its habitat may be less damaging. In essence, coastal habitats will migrate inland and Florida's flat coastal topography, a result of previous sea level changes, will mitigate the effect. Current coastal forests, dunes and beaches will migrate inland and be displaced by marsh, while current marsh will become sea grass, barrier islands will become sandbars and new barrier islands arise. The primary effect for wildlife will be redistribution, and possibly increase in some habitats at the expense of others.

More profound changes in the coastal and marine environment may be driven by the temperature and rainfall effects that may promote the distribution of mangroves and coral reefs into the expanded coastal zone. The main hazard to wildlife from sea level rise will arise from efforts to protect human structures from these changes by dikes, seawalls, dredging, beach nourishment and similar engineering responses. Changes in temperature regimes in the ocean may cause shifts in distribution of marine species, and profound but entirely unpredictable effects may be generated if climate changes causes large scale change in ocean circulation such as the Florida Current. The following possibilities at the local level should be considered:

1. Transient but damaging effects on vulnerable coastal species (*e.g.*, beach nesting shorebirds, and sea turtles).
2. Redistribution of coastal habitats with disruptions of productivity.
3. Sedimentation effects during the transition.
4. Interactive synergy with other climate effects (*e.g.*, temperature, and storm frequency) to generate unanticipated second order effects.
5. Disruption of coastal migration patterns, particularly "passive" migrations of larvae driven by local water movement effects.
6. Secondary effects of protection of human structures.
7. Migration zones and corridors available to allow changes in distribution.

To summarize, effects of climate change on wildlife in Florida are likely to be widespread and profound, and occur over a variety of dimensions and variables. As these effects cannot be prevented or delayed under current circumstances, a practical response will be to identify key areas and key species and habitats that are vulnerable to irreversible change and develop policy and planning to mitigate effects on these vulnerable entities.

Global warming will be a particular challenge for endangered, threatened, and other "at risk" species. It is difficult to estimate, with any degree of precision, which species will be affected by climate change or exactly how they will be affected. However, as it relates to nesting sea turtles, if predictions about global warming are realized, increased storms and rising sea levels could damage or destroy nests and nesting habitat, and temperature changes could skew sex ratios. In

regard to piping plovers, increased storms and rising sea levels could damage, destroy, or otherwise alter foraging and roosting habitat. Consequently, the Service will use Strategic Habitat Conservation planning, an adaptive science-driven process that begins with explicit trust resource population objectives, as the framework for adjusting our management strategies in response to climate change (Service 2006).

Status of the species/critical habitat within the action area

Sea Turtles

In 2009, Monroe County beaches supported approximately 0.5 percent of the overall sea turtle nesting along the east coast of Florida (FWC 2009b). In total, 305 loggerhead and green sea turtle nests were recorded in 2009, along the 28.3 miles of County beaches included in the FWC's Florida SNBS (Table 1). The distribution of nests among species in 2009 included 199 loggerhead sea turtles and 106 green sea turtles (Table 1). From 2005 to 2009, there was an average of 100 loggerhead, 40 green, and zero leatherback sea turtle nests laid within the County annually (Table 1).

In Monroe County, 10.8 sea turtle nests were laid per mile in 2009 (Table 1). The nesting density along 1 mile of shoreline including Smathers Beach was 1 nest per mile in 2009 (Table 2).

Loggerhead Sea Turtle

Of the counties along the east coast of Florida, Monroe County supported the eleventh highest nesting of loggerhead sea turtles with 199 nests or 7 nests per mile in 2009 (FWC 2009b; Table 1). In 2009, loggerhead sea turtles laid 1 nest or 1 nest per mile along 1 mile of shoreline including Smathers Beach (Table 2). In 2009, loggerhead sea turtles made 198 false crawls in Monroe County (FWC 2009b; Table 1). Along 1 mile of shoreline including Smathers Beach, loggerhead turtles made 3 false crawls in 2009 (Table 2).

Green Sea Turtle

In 2009, Monroe County had a green sea turtle nesting density of 3.7 nests per mile (FWC 2009b; Table 1). In 2009, no occurrences of green sea turtle nesting or false crawls were documented along the 1 mile of shoreline encompassing Smathers Beach (Table 2). In Monroe County, 80 false crawls were documented in 2009 (FWC 2009b; Table 1).

Leatherback Sea Turtle

Between 2005 and 2009, no leatherback sea turtle nests or false crawls were documented along Monroe County (FWC 2009b; Tables 1 and 2).

Hawksbill Sea Turtle

No occurrences of hawksbill nesting have been documented in Monroe County. The majority of nesting surveys conducted in Florida occur during the morning hours and are based on

interpretation of the tracks left by the turtles as they ascend and descend the beach; the turtles themselves are rarely observed. Because hawksbill turtle tracks are difficult to discern from loggerhead tracks, it is likely that nesting by hawksbill turtles is underreported (Meylan et al. 1995).

Kemp's Ridley Sea Turtle

No nesting has been reported in Monroe County for Kemp's ridley turtles. The majority of nesting surveys conducted in Florida occur during the morning hours and are based on interpretation of the tracks left by the turtles as they ascend and descend the beach; the turtles themselves are rarely observed. Because Kemp's ridley turtle tracks are difficult to discern from loggerhead tracks, it is likely that nesting by Kemp's ridley turtles is underreported (Meylan et al. 1995).

Factors affecting the species habitat within the action area

First constructed in the early 1960s, Smathers Beach has been renourished several times from upland sand sources to replenish sand lost to storms and other erosion events. Between 1988 and 2009, Smathers Beach has been renourished nine times as follows:

1. 5,555 tons in 1988.
2. 1,390 tons in 1996.
3. 4,235 tons as a result of Hurricane Georges.
4. 8,630 tons as a result of Hurricane Irene.
5. 23,600 cy in 2000.
6. 4,643 cy in 2001 and groins rebuilt.
7. 1,200 tons in 2003.
8. 3,550 tons in 2006 as a result of the 2005 hurricane season.
9. 3,350 tons in 2009 as a result of the 2008 hurricane season.

Beach Maintenance And Pollution

Regular beach maintenance in the form of tractor tilling may disrupt or impact deposited nests and nesting sea turtles. Plastics, styrofoam, and fishing line are pollutants that may negatively impact nesting success and nearshore foraging. In the project area, beach maintenance (raking) is performed daily.

Lighting

A primary anthropogenic threat to sea turtles along nesting shorelines includes hatchling disorientation as a result of artificial lighting along the beach. Typically, sea turtle hatchlings will emerge from the nest and orient themselves towards the brighter, open horizon of the ocean (Salmon et al. 1992). If artificial lights are visible from the beach, sea turtle hatchlings tend to travel toward the artificial lights instead of the ocean. Disorientation events often result in hatchling mortality as a result of dehydration, predation, and in some cases, motor vehicle strikes.

The proposed project area is subject to the City of Key West Sea Turtle Protection Ordinance, which includes measures to reduce impacts of coastal lighting on nesting sea turtles and hatchlings.

Predation

Depredation of sea turtle eggs and hatchlings by natural and introduced species occurs on almost all nesting beaches. Depredation by a variety of predators can considerably decrease sea turtle nest hatching success. The most common predators in the southeastern U.S. are ghost crabs (*Ocypode quadrata*), raccoons (*Procyon lotor*), feral hogs (*Sus scrofa*), foxes (*Urocyon cinereoargenteus* and *Vulpes vulpes*), coyotes (*Canis latrans*), armadillos (*Dasypus novemcinctus*), cats (*Felis catus)*, dogs (*Canis lupus familiaris*), and fire ants (*Solenopsis* spp.) (Dodd 1988; Stancyk 1995; Indian River County 2008). Raccoons are particularly destructive on the Atlantic coast and may take up to 96 percent of all nests deposited on a beach (Davis and Whiting 1977; Hopkins and Murphy 1980; Stancyk et al. 1980; Talbert et al. 1980; Schroeder 1981; Labisky et al. 1986).

Shoreline Equilibration

As restored beaches equilibrate to a more natural profile, steep vertical escarpments often form along the seaward edge of the constructed beach berm and this presents a physical barrier to nesting turtles. Additionally, as beach profiles equilibrate, losses of nests laid in the seaward portions of the renourished beach due to erosion may be high. Steinitz et al. (1998) following long-term studies at Jupiter Island indicated that at 2 years postrenourishment, nesting success was considerably higher than prerenourishment levels and similar to densities found on nearby noneroded beaches. However, the nesting success declined as the renourished beach eroded and narrowed until the next renourishment event.

EFFECTS OF THE ACTION

The analysis of the direct and indirect effects of the proposed action on sea turtles and the interrelated and interdependent activities of those effects was based on beneficial and detrimental factors.

Factors to be considered

The proposed action has the potential to adversely affect nesting sea turtles and their nests, and hatchlings within the proposed action area during the construction activities associated with sand placement along Smathers Beach, Monroe County, Florida. The effects of the proposed action on sea turtles will be considered further in the remaining sections of this biological opinion.

Potential effects include destruction or damage to sea turtle nests, developing embryos, and hatchlings within the boundaries of the proposed project, harassment in the form of disturbing or interfering with female turtles attempting to nest within the construction area or on adjacent beaches as a result of construction activities, behavior modification of nesting sea turtles that could result in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs, reduced hatching success due to egg mortality during relocation and adverse conditions at the relocation site, disorientation of female and hatchling sea turtles on beaches in and adjacent to the construction area as a result of coastal lighting that becomes visible on the wider beach, and the loss of nesting habitat.

Analyses for effects of the action

Beneficial effects

The placement of sand on a beach with reduced dry foredune habitat may increase sea turtle nesting habitat if the placed sand is highly compatible (*e.g.,* grain size, shape, color) with naturally occurring beach sediments in the area, and compaction and escarpment remediation measures are incorporated into the project. In addition, a nourished beach that is designed and constructed to mimic a natural beach system may be more stable than the eroding one it replaces, thereby benefiting sea turtles.

Direct effects

Sand Placement

Placement of approximately 12,891 cy of sand along 0.57 mile of beach in and of itself may not provide suitable nesting habitat for sea turtles. Although placement of beach compatible material may increase the potential nesting area, significant negative impacts to sea turtles may result if protective measures are not incorporated during project construction. Sand placement during the nesting season, particularly on or near high density nesting beaches, can cause increased loss of eggs and hatchlings and along with other mortality sources, may impact the long-term survival of the species. For example, projects conducted during the nesting and hatching season could result in the loss of sea turtles through disruption of adult nesting activity and by burial or crushing of nests or hatchlings. Potential adverse effects during the project construction phase include disturbance of existing nests, which may have been missed, disturbance of females attempting to nest, and disorientation of emerging hatchlings. In addition, heavy equipment will be required to distribute the sand to the design fill template. This equipment will have to traverse the action area, which could result in harm to nesting sea turtles, their nests, and emerging hatchlings.

Nest relocation

Besides the risk of missing nests during a nest relocation program, there is a potential for eggs to be damaged by their movement, particularly if eggs are not relocated within 12 hours of deposition (Limpus et al. 1979). Nest relocation can have adverse impacts on incubation temperature (and hence sex ratios), gas exchange parameters, hydric environment of nests, hatching success, and hatchling emergence (Limpus et al. 1979; Ackerman 1980; Parmenter 1980; Spotila et al. 1983; McGehee 1990). Relocating nests into sands deficient in oxygen or moisture can result in mortality, morbidity, and reduced behavioral competence of hatchlings.

Nest moisture content is known to influence the incubation environment of the embryos and hatchlings of turtles with flexible-shelled eggs, which has been shown to affect nitrogen excretion (Packard et al. 1984), mobilization of calcium (Packard and Packard 1986), mobilization of yolk nutrients (Packard et al. 1985), hatchling size (Packard et al. 1981; McGehee 1990), energy reserves in the yolk at hatching (Packard et al. 1988), and locomotory ability of hatchlings (Miller et al. 1987). In a 1994 Florida study comparing loggerhead hatching

and emergence success of relocated nests with *in situ* nests, Moody (1998) found hatching success was lower in relocated nests at 9 of 12 beaches evaluated and emergence success was lower in relocated nests at 10 of 12 beaches surveyed in 1993 and 1994.

Missed nests

Although a nesting survey and nest marking program would reduce the potential for sea turtle nests to be impacted by construction activities, nests may be inadvertently missed (when crawls are obscured by rainfall, wind, or tides) or misidentified as false crawls during daily patrols. Even under the best of conditions, about 7 percent of the nests can be misidentified as false crawls by experienced sea turtle nest surveyors (Schroeder 1994).

Equipment

The placement of construction materials, as well as the use of heavy machinery or equipment on the beach during a construction project, may have adverse effects on sea turtles. They can create barriers to nesting sea turtles emerging from the surf and crawling up the beach, causing a higher incidence of false crawls and unnecessary energy expenditure. The equipment can also create impediments to hatchling sea turtles as they crawl to the ocean.

Indirect effects

Many of the direct effects of sand placement may persist over time and become indirect impacts. These indirect effects include increased susceptibility of relocated nests to catastrophic events during the construction period, the consequences of potential increased beachfront development, changes in the physical characteristics of the beach, and the formation of escarpments.

Increased susceptibility to catastrophic events

Relocation of sea turtle nests may concentrate eggs in an area making them more susceptible to catastrophic events. Hatchlings released from concentrated areas may also be subject to greater predation rates from both land and marine predators, because the predators learn where to concentrate their efforts (Glenn 1998; Wyneken et al. 1998).

Increased beachfront development

Pilkey and Dixon (1996) state that beach replenishment frequently leads to more development in greater density within shorefront communities that are then left with a future of further replenishment or more drastic stabilization measures. Dean (1999) also notes that the very existence of a sand placement project can encourage more development in coastal areas. Following completion of a sand placement project in Miami during 1982, investment in new and updated facilities substantially increased tourism in the area (National Research Council 1995). Increased building density immediately adjacent to the beach often resulted as older buildings were replaced by much larger ones that accommodated more beach users. Overall, shoreline management creates an upward spiral of initial protective measures resulting in more expensive development which leads to the need for more and larger protective measures. Increased shoreline development may adversely affect sea turtle nesting success. Greater development

may support larger populations of mammalian predators, such as foxes and raccoons, than undeveloped areas (National Research Council 1990), and can also result in greater adverse effects due to artificial lighting, as discussed above.

Changes in the physical environment

Sand placement activities may result in changes in sand density (compaction), beach shear resistance (hardness), beach moisture content, beach slope, sand color, sand grain size, sand grain shape, and sand grain mineral content if the placed sand is dissimilar from the original beach sand (Nelson and Dickerson 1988a). These changes could result in adverse impacts on nest site selection, digging behavior, clutch viability, and emergence by hatchlings (Nelson and Dickerson 1987; Nelson 1988).

Beach compaction and unnatural beach profiles that may result from sand placement activities could negatively impact sea turtles regardless of project timing. Very fine sand or the use of heavy machinery can cause sand compaction on nourished beaches (Nelson et al. 1987; Nelson and Dickerson 1988a). Significant reductions in nesting success (*e.g.*, increase in false crawls) have been documented on severely compacted nourished beaches (Fletemeyer 1980; Raymond 1984; Nelson and Dickerson 1987; Nelson et al. 1987), and increased false crawls may result in increased physiological stress to nesting females. Sand compaction may increase the length of time required for female sea turtles to excavate nests and also cause increased physiological stress to the animals (Nelson and Dickerson 1988b). Nelson and Dickerson (1988c) concluded that, in general, beaches nourished from offshore borrow sites are harder than natural beaches, and while some may soften over time through erosion and accretion of sand, others may remain hard for 10 years or more.

These impacts can be minimized by using suitable sand and tilling compacted sand after project completion. The level of compaction of a beach can be assessed by measuring sand compaction using a cone penetrometer (Nelson 1987). Tilling of a nourished beach with a root rake may reduce the sand compaction to levels comparable to unnourished beaches. However, a pilot study by Nelson and Dickerson (1988b) showed that a tilled nourished beach will remain uncompacted for up to 1 year. Therefore, the Service requires multiyear beach compaction monitoring and, if necessary, tilling to ensure project impacts on sea turtles are minimized.

A change in sediment color on a beach could change the natural incubation temperatures of nests in an area, which, in turn, could alter natural sex ratios. To provide the most suitable sediment for nesting sea turtles, the color of the nourished sediments must resemble the natural beach sand in the area. Tilling, natural reworking of sediments, and bleaching from exposure to the sun would help to lighten dark nourishment sediments; however, the timeframe for sediment mixing and bleaching to occur could be critical to a successful sea turtle nesting season.

Escarpment formation

On nourished beaches, steep escarpments may develop along their waterline interface as they adjust from an unnatural construction profile to a more natural beach profile (Coastal Engineering Research Center 1984; Nelson et al. 1987). These escarpments can hamper or

prevent access to nesting sites (Nelson and Blihovde 1998). Researchers have shown that female turtles coming ashore to nest can be discouraged by the formation of an escarpment, leading to situations where they choose marginal or unsuitable nesting areas to deposit eggs (*e.g.*, in front of escarpments, which often results in failure of nests due to prolonged tidal inundation). This impact can be minimized by leveling any escarpments prior to the nesting season.

Species' response to a proposed action

Ernest and Martin (1999) conducted a comprehensive study to assess the effects of sand placement on loggerhead nesting and reproductive success. The following findings illustrate sea turtle responses to and recovery from a nourishment project. A significantly larger proportion of turtles emerging on nourished beaches abandoned their nesting attempts than turtles emerging on control or prenourished beaches. This reduction in nesting success was most pronounced during the first year following project construction and is most likely the result of changes in physical beach characteristics associated with the nourishment project (*e.g.*, beach profile, sediment grain size, beach compaction, and frequency and extent of escarpments). During the first postconstruction year, the time required for turtles to excavate an egg chamber on the untilled, hard packed sands of one treatment area increased significantly relative to control and background conditions. However, in another treatment area, tilling was effective in reducing sediment compaction to levels that did not significantly prolong digging times. As natural processes reduced compaction levels on nourished beaches during the second postconstruction year, digging times returned to background levels.

During the first postconstruction year, nests on the nourished beaches were deposited significantly farther from both the dune toe and the tide line than nests on control beaches. Furthermore, nests were distributed throughout all available habitat and were not clustered near the dune toe as they were in the control area. As the width of nourished beaches decreased during the second year, among treatment differences in nest placement diminished. More nests were washed out on the wide, flat beaches of the nourished treatments than on the narrower steeply sloped beaches of the control beach. This phenomenon persisted through the second postconstruction year monitoring and resulted from the placement of nests near the seaward edge of the beach berm where dramatic profile changes, caused by erosion and scarping, occurred as the beach equilibrated to a more natural contour.

As with other sand placement projects, Ernest and Martin (1999) found the principal effect of nourishment on sea turtle reproduction was a reduction in nesting success during the first year following project construction. Although most studies have attributed this phenomenon to an increase in beach compaction and escarpment formation, Ernest and Martin (1999) indicate changes in beach profile may be more important. Regardless, as a nourished beach is reworked by natural processes in subsequent years and adjusts from an unnatural construction profile to a more natural beach profile, beach compaction and the frequency of escarpment formation decline, and nesting and nesting success return to levels found on natural beaches.

Similar short-term effects to listed sea turtle species and their habitat are anticipated to occur as a result of sand placement activities related to the proposed project. Generally, these adverse effects are limited to the first year after construction. Nonetheless, an increase in sandy beach may not necessarily equate to an increase in suitable sea turtle nesting habitat.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

No additional activities other than the sand placement action outlined in this biological opinion are anticipated in the foreseeable future.

CONCLUSION

It is the Service's biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of loggerhead, green, leatherback, hawksbill, and Kemp's ridley sea turtles. This conclusion is based on the following:

1. The proposed sand placement event will directly impact 0.57 mile of shoreline. This represents 0.04 and 0.05 percent of the approximately 1,400 and 1,166 miles of available sea turtle nesting habitat in the southeastern United States, and in the PFRU, respectively.

2. Research has shown that the principal effect of sand placement on sea turtle reproduction is a reduction in nesting success, and this reduction is most often limited to the first year following the initial nourishment and subsequent renourishment events.

3. Research has shown that the impacts of a nourishment project on sea turtle nesting habitat are typically short-term because a nourished beach will be reworked by natural processes in subsequent years, and beach compaction and the frequency of escarpment formation will decline.

4. Take of sea turtles will be minimized by implementation of the Reasonable and Prudent Measures, and Terms and Conditions outlined below. These measures have been shown to help minimize adverse impacts to sea turtles.

5. The Service's review of the current status of sea turtles, the environmental baseline for the action area, the effects of the proposed sand placement, and the cumulative effects.

6. No critical habitat has been designated for the loggerhead, green, leatherback, Kemp's Ridley, and hawksbill sea turtles in the continental U.S.; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered or threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to

listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are nondiscretionary, and must be implemented by the Corps so they become binding conditions of any permit issued to the Applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the Terms and Conditions or, (2) fails to adhere to the Terms and Conditions of the incidental take statement through enforceable terms that are added to the permit, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps must ensure that the permittee reports the progress of the action and its impacts on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

Sea Turtles

The Service anticipates approximately 0.57 mile of sea turtle nesting habitat could be taken as a result of the proposed action; however, incidental take of sea turtles will be difficult to detect for the following reasons:

1. Turtles nest primarily at night and all nests are not located because:
   a. Natural factors, such as rainfall, wind, and tides may obscure crawls; and
   b. Human-induced factors, such as pedestrian and vehicular traffic, may obscure crawls, and result in nests being destroyed because they were missed during a nesting survey and egg relocation program.
2. The total number of hatchlings per undiscovered nest is unknown.
3. The reduction in percent hatching and emerging success per relocated nest over the natural nest site is unknown.
4. An unknown number of females may avoid the project beach and be forced to nest in a less than optimal area.
5. Escarpments may form and obstruct an unknown number of females from accessing a suitable nesting site.
6. The number of nests lost due to erosion of the nourished beach template is unknown.

However, the level of take of these species can be anticipated by the disturbance and nourishment of suitable turtle nesting beach habitat because of the following:

1. Turtles nest within the project area.
2. Project construction may occur during a portion of the nesting season.
3. Sand placement will modify the incubation substrate, beach slope, and sand compaction.

Take is expected to be in the form of:

1. Destruction of all sea turtle nests that may be constructed and eggs that may be deposited and missed by a nest survey and egg relocation program within the boundaries of the proposed project.
2. Destruction of all sea turtle nests deposited during the period when a nest survey and egg relocation program is not required to be in place within the boundaries of the proposed project.
3. Reduced hatching success due to egg mortality during relocation and adverse conditions at the relocation site.
4. Harassment in the form of disturbing or interfering with sea turtles attempting to nest within the project area or on adjacent beaches as a result of construction activities.
5. Behavior modification of nesting sea turtles due to escarpment formation within the project area during a nesting season, resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs.
6. Destruction of nests from escarpment leveling within a nesting season when such leveling has been approved by the Service.
7. Misdirection of nesting sea turtles or hatchling turtles on beaches adjacent to the construction area as they emerge from the nest and crawl to the water as a result of lights from beachfront development that reach the elevated berm postconstruction.

The amount or extent of incidental take for sea turtles will be considered exceeded if the project results in more than a one-time placement of sand on the 0.57 mile of beach identified for sand placement. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Corps must ensure that the permittee immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

EFFECT OF THE TAKE

Sea Turtles

In this accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the loggerhead, green, leatherback, hawksbill, or Kemp's ridley sea turtles. Critical habitat has not been designated in the project area; therefore, the project will not result in destruction or adverse modification of critical habitat for any of the sea turtle species.

Incidental take of nesting and hatchling sea turtles is anticipated to occur during project construction and during the life of the project. Take will occur on nesting habitat along 0.57 mile of beach within the action area.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of loggerhead, green, leatherback, hawksbill, and Kemp's ridley sea turtles in the proposed action area.

1. Beach quality sand suitable for sea turtle nesting, successful incubation, and hatchling emergence must be used on the project site.

2. If sand placement activities are conducted during the nesting season (March 1 through November 30), surveys for nesting sea turtles must be conducted. If nests are constructed in the project area, the eggs must be relocated.

3. Immediately after completion of the project and prior to the next three nesting seasons, beach compaction must be monitored and tilling must be conducted as required by March 1 to reduce the likelihood of impacting sea turtle nesting and hatching activities. The March 1 deadline is required to reduce impacts to leatherbacks that nest in greater frequency along the South Atlantic coast of Florida than elsewhere in the continental U.S.

4. Immediately after completion of the project and prior to the next three nesting seasons starting March 1, monitoring must be conducted to determine if escarpments are present and escarpments must be leveled as required to reduce the likelihood of impacting sea turtle nesting and hatching activities.

5. The Applicant must ensure that contractors performing the sand placement work fully understand the sea turtle protection measures detailed in this incidental take statement.

6. During the nesting season (March 1 through November 30) construction equipment and supplies must be stored in a manner that will minimize impacts to sea turtles to the maximum extent possible.

7. Lighting surveys along the project area will be conducted.

8. The sea turtle permit holder must be notified immediately upon excavation of a sea turtle nest.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Corps must ensure that the permittee complies with the following terms and conditions, which implement the reasonable and prudent measures, described above, and outline required reporting and monitoring requirements. These terms and conditions are nondiscretionary.

Protection of sea turtles

1. In accordance with the 2001 rule change under subsection 62B-41.007, Florida Administrative Code, all fill material placed on the beach must be analogous to that which

naturally occurs within the project location or vicinity in quartz to carbonate ratio, color, median grain size, and median sorting. Specifically, such material shall be predominately of carbonate, quartz, or similar material with a particle size distribution ranging between 0.062 mm and 4.76 mm (classified as sand by either the Unified Soil Classification System or the Wentworth classification). The material shall be similar in color, grain size distribution (sand grain frequency, mean and median grain size, and sorting coefficient) to the material in the existing coastal system at the nourishment site and shall not contain:

1a. Greater than 5 percent, by weight, silt, clay, or colloids passing the #230 sieve.
1b. Greater than 5 percent, by weight, fine gravel retained on the #4 sieve.
1c. Coarse gravel, cobbles, or other material retained on the 0.75-inch sieve in a percentage size greater than found on the native beach.
1d. Construction debris, toxic material or other foreign matter; and not result in contamination or cementation of the beach.

These standards must not be exceeded in any 10,000 square foot section, extending through the depth of the nourished beach. If the natural beach exceeds any of the limiting parameters listed, then the fill material must not exceed the naturally occurring level for that parameter.

2. Daily early morning surveys for sea turtles will be required if any portion of the sand placement construction occurs during the nesting season (March 1 through November 30). Nesting surveys must be initiated 65 days prior to construction activities, or by March 1, whichever is later. Nesting surveys must continue through the end of the project or through September 30, whichever is earlier. If nests are constructed in areas where they may be affected by sand placement activities, eggs must be relocated per the following requirements:

2a. Nesting surveys and egg relocations will only be conducted by personnel with prior experience and training in nesting survey and egg relocation procedures. Surveyors must have a valid FWC Permit. Nesting surveys must be conducted daily between sunrise and 9 a.m. The contractor must not initiate work until daily notice has been received from the sea turtle permit holder that the morning survey has been completed. Surveys must be performed in such a manner so as to ensure that sand placement activities do not occur in any location prior to completion of the necessary sea turtle protection measures.

2b. Only those nests that may be affected by sand placement activities will be relocated. Nests requiring relocation must be moved no later than 9 a.m. the morning following deposition to a nearby self-release beach site in a secure setting where artificial lighting will not interfere with hatchling orientation. Nest relocations in association with sand placement activities must cease when these activities no longer threaten nests.

2c. Nests deposited within areas where construction activities have ceased or will not occur for 65 days must be marked and left in *in situ* unless other factors threaten the success of the nest. The sea turtle permit holder must install an on-beach marker at the nest site and a secondary marker at a point landward as possible to assure the future location of the

nest will be possible should the on-beach marker be lost. A series of stakes and highly visible survey ribbon or string must be installed to establish a 10-foot radius around the nest. No activity will occur within this area nor will any activity occur which could result in impacts to the nest. Nest sites must be inspected daily to assure nest markers remain in place and that the nest has not been disturbed by the sand placement activity.

3. Immediately after completion of sand placement and prior to March 1 for 3 consecutive years, sand compaction must be monitored in the area of sand placement. The requirement for compaction monitoring can be eliminated if the decision is made to till regardless of postconstruction compaction levels. In addition, out-year compaction monitoring and remediation are not required if the Applicant can demonstrate that placed sand no longer remains above the mean high water line. If required, the area must be tilled to a depth of 36 inches, and all tilling activity must be completed prior to March 1. Each pass of the tilling equipment must be overlapped to allow more thorough and even tilling. Compaction monitoring should at a minimum include:

   3a. Compaction sampling stations must be located at 500-foot intervals along the project area. One station must be at the dune toe (when material is placed in this area), and one station must be midway between the dune toe and the high water line (normal wrack line).

   At each station, the cone penetrometer will be pushed to a depth of 6, 12, and 18 inches three times (three replicates). Material may be removed from the hole if necessary to ensure accurate readings of successive levels of sediment. The penetrometer may need to be reset between pushes, especially if sediment layering exists. Layers of highly compact material may lie over less compact layers. Replicates will be located as close to each other as possible, without interacting with the previous hole or disturbed sediments. The three replicate compaction values for each depth will be averaged to produce final values for each depth at each station. Reports will include all 18 values for each transect line, and the final six averaged compaction values.

   3b. If the average value for any depth exceeds 500 pounds per square inch (psi) for any two or more adjacent stations, then that area must be tilled prior to March 1. If values exceeding 500 psi are distributed throughout the project area, but in no case do those values exist at two adjacent stations at the same depth, then consultation with the Service will be required to determine if tilling is required. If a few values exceeding 500 psi are present randomly within the project area, tilling will not be required.

4. Visual surveys for escarpments along the project area must be made immediately after completion of the project and prior to March 1 for 3 consecutive years. All escarpments shall be leveled, or the beach profile shall be reconfigured, to minimize escarpment formation. In addition, weekly surveys of the project area shall be conducted during the three consecutive nesting seasons following completion of sand placement as follows:

4a. The number of escarpments and their location relative to DEP reference monuments shall be recorded during each weekly survey and reported relative to the length of the beach survey (e.g., 50 percent escarpments). Notations on the height of these escarpments shall be included (0 to 2 feet, 2 to 4, and 4 feet or higher) as well as the maximum height of all escarpment; and

4b. Escarpments that interfere with sea turtle nesting or that exceed 18 inches in height for a distance of 100 feet must be leveled to the natural beach contour by March 1. An escarpment removal shall be reported relative to DEP reference monument locations. The Service and FWC must be contacted immediately if subsequent reformation of escarpments that interfere with sea turtle nesting or that exceed 18 inches in height for a distance of 100 feet occurs and persist for more than one week during the peak nesting and hatching season (May 1 to October 31) to determine the appropriate action to be taken. If it is determined escarpment leveling is required during the nesting season, the Service and FWC will provide written authorization that describes methods to be used to reduce the likelihood of impacting existing nests.

5. The Applicant must arrange a meeting between representatives of the contractor, the Service, the FWC, and the sea turtle permit holder responsible for egg relocation at least 30 days prior to the commencement of work on this project. At least 10 days advance notice must be provided prior to conducting this meeting. This will provide an opportunity for explanation or clarification of the sea turtle protection measures.

6. During the nesting season (March 1 through November 30), staging areas for construction equipment must be located off the beach to the maximum extent possible. Nighttime storage of construction equipment not in use must be off the beach to minimize disturbance to sea turtle nesting and hatching activities.

7. A preconstruction lighting survey shall be conducted followed by a lighting survey 30 days postconstruction to ensure no lights or light sources are visible from the project area. Additional lighting surveys shall be conducted annually prior to March 1 in perpetuity.

8. In the event a sea turtle nest is excavated during construction activities, the sea turtle permit holder responsible for egg relocation for the project must be notified so the eggs can be moved to a designated relocation site.

Reporting

9. A report describing the actions taken to implement the terms and conditions of this incidental take statement must be submitted to the FWC, Imperiled Species Management Section, Tallahassee office and the Service's South Florida Ecological Services Office, Vero Beach, Florida within 60 days postconstruction. This report will include the dates of actual construction activities, names and qualifications of personnel involved in nest surveys and relocation activities, descriptions and locations of self-release beach sites, nest survey and relocation results, hatching success of nests, preconstruction lighting survey results, postconstruction escarpment and sand compaction survey results, tilling activity, and both the presconstruction and 30-day postconstruction lighting survey results.

Additionally, a monitoring report will be submitted for three consecutive nesting seasons postconstruction by December 31 that will include sand compaction survey or tilling activities, and escarpment survey results. Also, a report summarizing all lights visible, using standard survey techniques for such surveys, shall be submitted by March 1 documenting compliance with the Monroe County beach lighting ordinance and enforcement action.

All reports will be submitted electronically to the Corps, FWC, and the Service on standard electronic media (*e.g.*, compact disc).

10. Upon locating a dead, injured, or sick endangered or threatened sea turtle specimen, initial notification must be made to the Service's Office of Law Enforcement (10426 NW 31st Terrace, Miami, Florida 33172; 305-526-2610). Additional notification must be made to FWC at 1-888-404-3922 and the Service's South Florida Ecological Services Office (1339 20th Street, Vero Beach, Florida 32960-3559; 772-562-3909). Care should be taken in handling sick or injured specimens to ensure effective treatment and care and in handling dead specimens to preserve biological materials in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered or threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to ensure evidence intrinsic to the specimen is not unnecessarily disturbed.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Surveys for nesting success of sea turtles should be continued for a minimum of 3 years following sand placement to determine whether sea turtle nesting and hatchling success has been adversely impacted.

2. To increase public awareness about sea turtles, informational signs should be placed at beach access points where appropriate. The signs should explain the importance of the beach to sea turtles and the life history of sea turtle species that nest in the area.

3. Appropriate native salt-resistant dune vegetation should be established on restored dunes. The DEP Office of Beaches and Coastal Systems can provide technical assistance on the specifications for design and implementation.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the action outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if:

1. The amount or extent of incidental take is exceeded.

2. New information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion.

3. The agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion.

4. A new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Should you have additional questions or require clarification, please contact Jeff Howe at 772-562-3909, extension 283.

Sincerely yours,

Paul Souza
Field Supervisor
South Florida Ecological Services Office

cc: electronic only
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Table 1. Summary of sea turtle nesting data along Monroe County, Florida (28.3 miles survey length) from 2005 to 2009 (FWC 2009b).

Year	Loggerhead Nests	Loggerhead False Crawls	Green Nests	Green False Crawls	Leatherback Nests	Leatherback False Crawls
2005	77	161	21	32	0	0
2006	66	101	18	19	0	0
2007	85	122	37	11	0	0
2008	73	195	16	18	0	0
2009	199	198	106	80	0	0
Mean	**100**	**155**	**40**	**32**	**0**	**0**

Table 2. Summary of sea turtle nesting data from 2005 to 2009[1], for a 3.5-mile section of shoreline encompassing the Smathers Beach sand placement action area in Monroe County, Florida.

Year	Loggerhead Nests	Loggerhead False Crawls
2005	2	0
2006	5	3
2007	11	5
2008	1	0
2009	1	3
Mean	**4**	**2**

[1] From 2005 to 2007, beach length surveyed was approximately 3.5 miles. For 2008 and 2009, beach length surveyed was approximately 1.0 miles.

Figure 1. Location of the proposed sand placement project on 0.57 mile of shoreline along Smathers Beach, Monroe County, Florida.

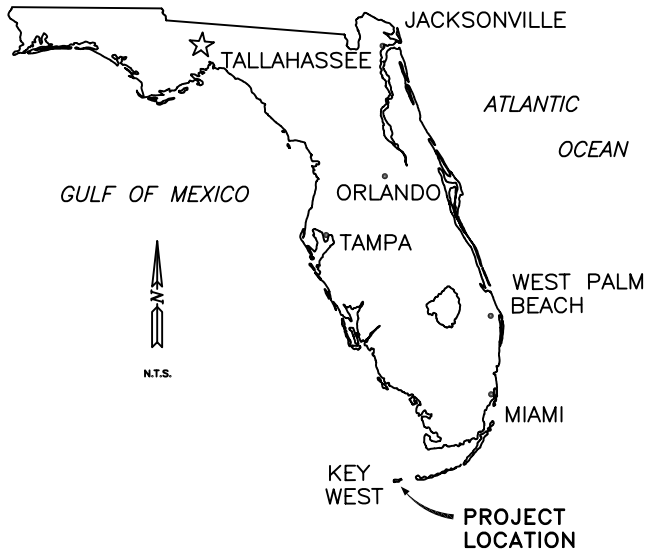
PART 7

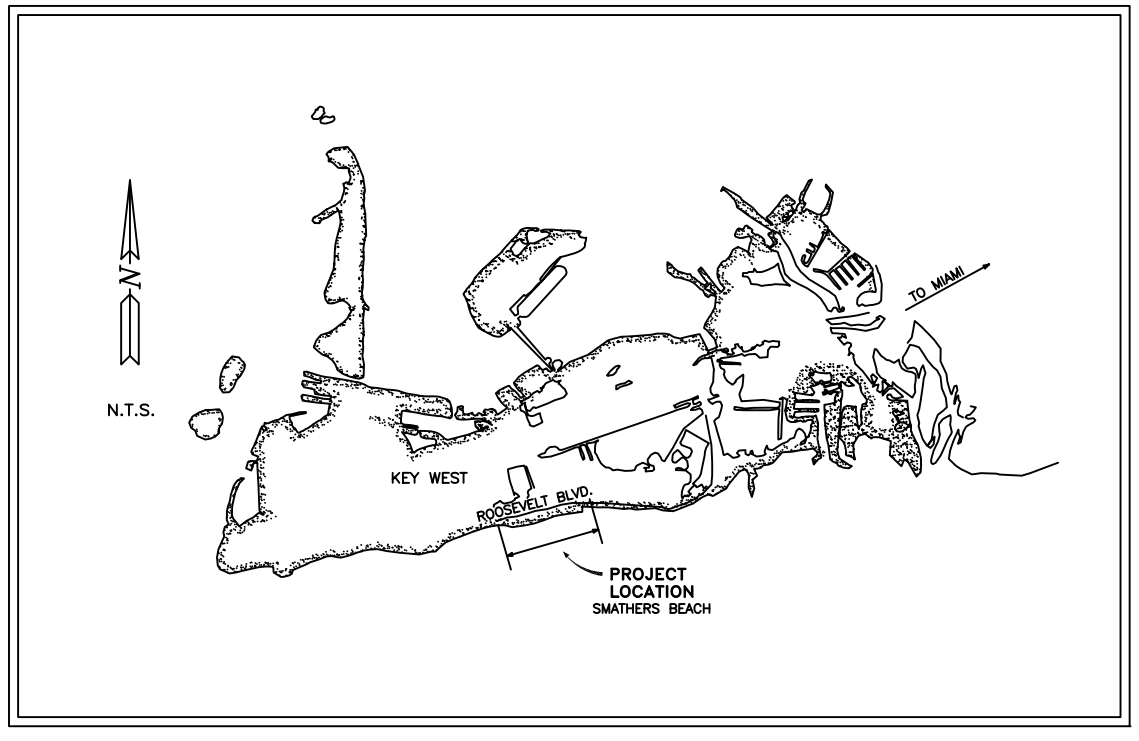
DRAWINGS

CITY OF KEY WEST ENGINEERING DEPARTMENT
STATE OF FLORIDA

PLANS OF PROPOSED

SMATHERS BEACH
RENOURISHMENT PROJECT





SHEET INDEX

SHEET NO.	SHEET DESCRIPTION
T1	COVER SHEET
C1–C4	PROJECT PLAN VIEW
C5–C8	BEACH FILL CROSS SECTIONS

I CERTIFY THAT THESE PLANS ARE IN COMPLIANCE WITH THE APPLICABLE SECTIONS OF 62B–41,F.A.C.

GERALD ZADIKOFF, PE. — DATE

BASE DATA/DESIGN (1999) PER:

COASTAL PLANNING & ENGINEERING, INC.
BOCA RATON (561) 391-8102 · SARASOTA · JACKSONVILLE · FLORIDA

SEAL OF THE CITY OF KEY WEST, FLORIDA

G. M. SELBY Inc.

6999 N. WATERWAY
DR. MIAMI, FL 33155
TEL. : (305) 262–0715
FAX : (305) 262–0724

G.M. SELBY NO:	KWC240300
DRAWN BY: F.C.	DATE: 10–19–09
CHECKED BY:	
ENGINEER:	GERALD ZADIKOFF
LICENSE NO.:	CIVIL PE# 44206 FL
SEAL:	

REVISIONS

NO.	DATE	DESCRIPTION
	10–19–09	REVISION

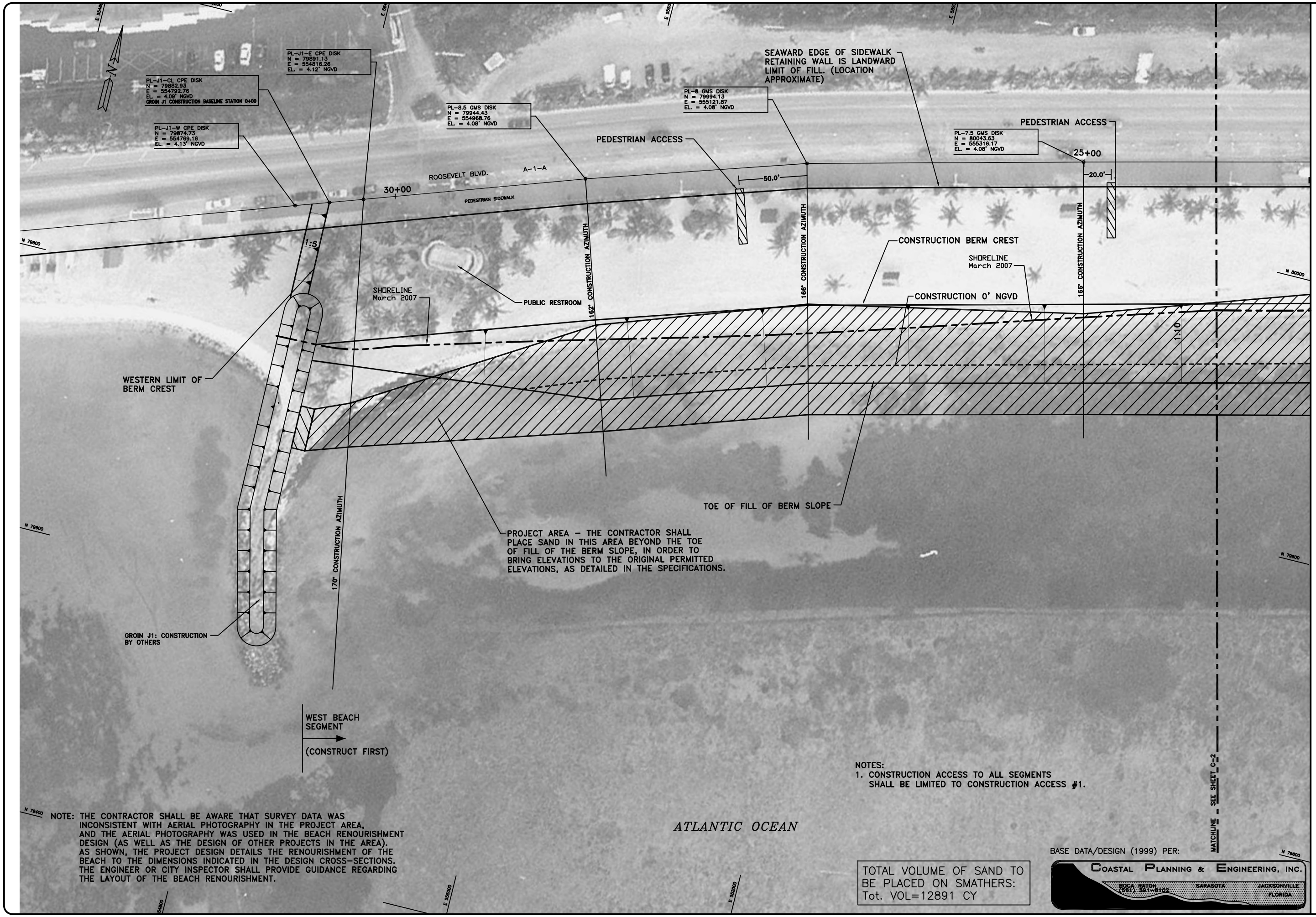
SMATHERS BEACH

SHEET TITLE:

COVER SHEET

SHEET NO:

T-1



NOTE: THE CONTRACTOR SHALL BE AWARE THAT SURVEY DATA WAS INCONSISTENT WITH AERIAL PHOTOGRAPHY IN THE PROJECT AREA, AND THE AERIAL PHOTOGRAPHY WAS USED IN THE BEACH RENOURISHMENT DESIGN (AS WELL AS THE DESIGN OF OTHER PROJECTS IN THE AREA). AS SHOWN, THE PROJECT DESIGN DETAILS THE RENOURISHMENT OF THE BEACH TO THE DIMENSIONS INDICATED IN THE DESIGN CROSS-SECTIONS. THE ENGINEER OR CITY INSPECTOR SHALL PROVIDE GUIDANCE REGARDING THE LAYOUT OF THE BEACH RENOURISHMENT.

NOTES:
1. CONSTRUCTION ACCESS TO ALL SEGMENTS SHALL BE LIMITED TO CONSTRUCTION ACCESS #1.

TOTAL VOLUME OF SAND TO BE PLACED ON SMATHERS:
Tot. VOL=12891 CY

BASE DATA/DESIGN (1999) PER:
COASTAL PLANNING & ENGINEERING, INC.
BOCA RATON (561) 391-8102 SARASOTA JACKSONVILLE FLORIDA

SEAL OF THE CITY OF KEY WEST, FLORIDA

G. M. SELBY Inc.

6999 N. WATERWAY
DR. MIAMI, FL 33155
TEL. : (305) 262-0715
FAX : (305) 262-0724

G.M. SELBY NO:	KWC240300
DRAWN BY: F.C.	DATE: 10-19-09
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ENGINEER:	GERALD ZADIKOFF
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SEAL	

REVISIONS

NO.	DATE	DESCRIPTION
	10-19-09	REVISION

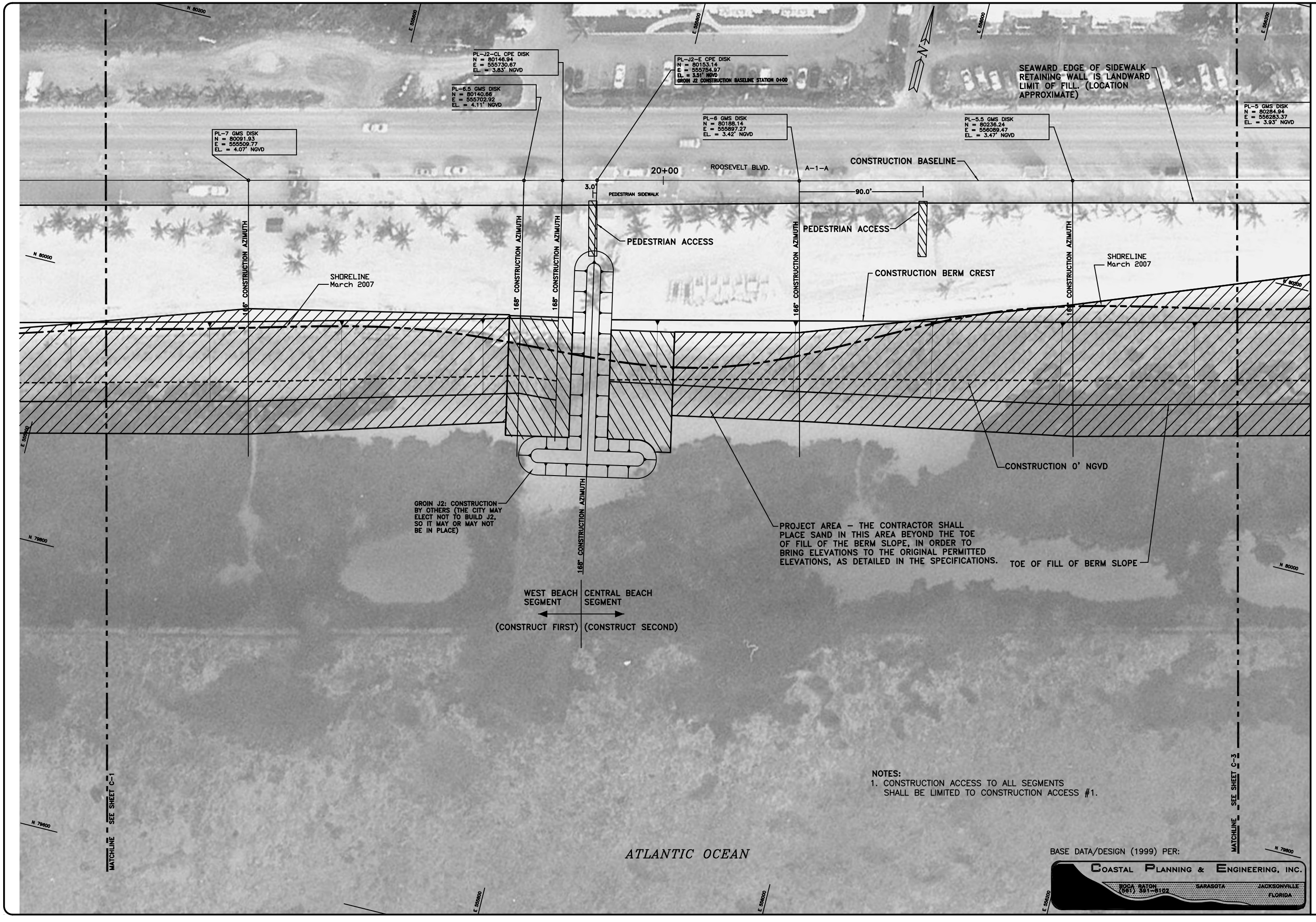
SMATHERS BEACH

SHEET TITLE:

PLAN VIEW

SHEET NO:

C-1



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REVISIONS

NO.	DATE	DESCRIPTION
	10-19-09	REVISION

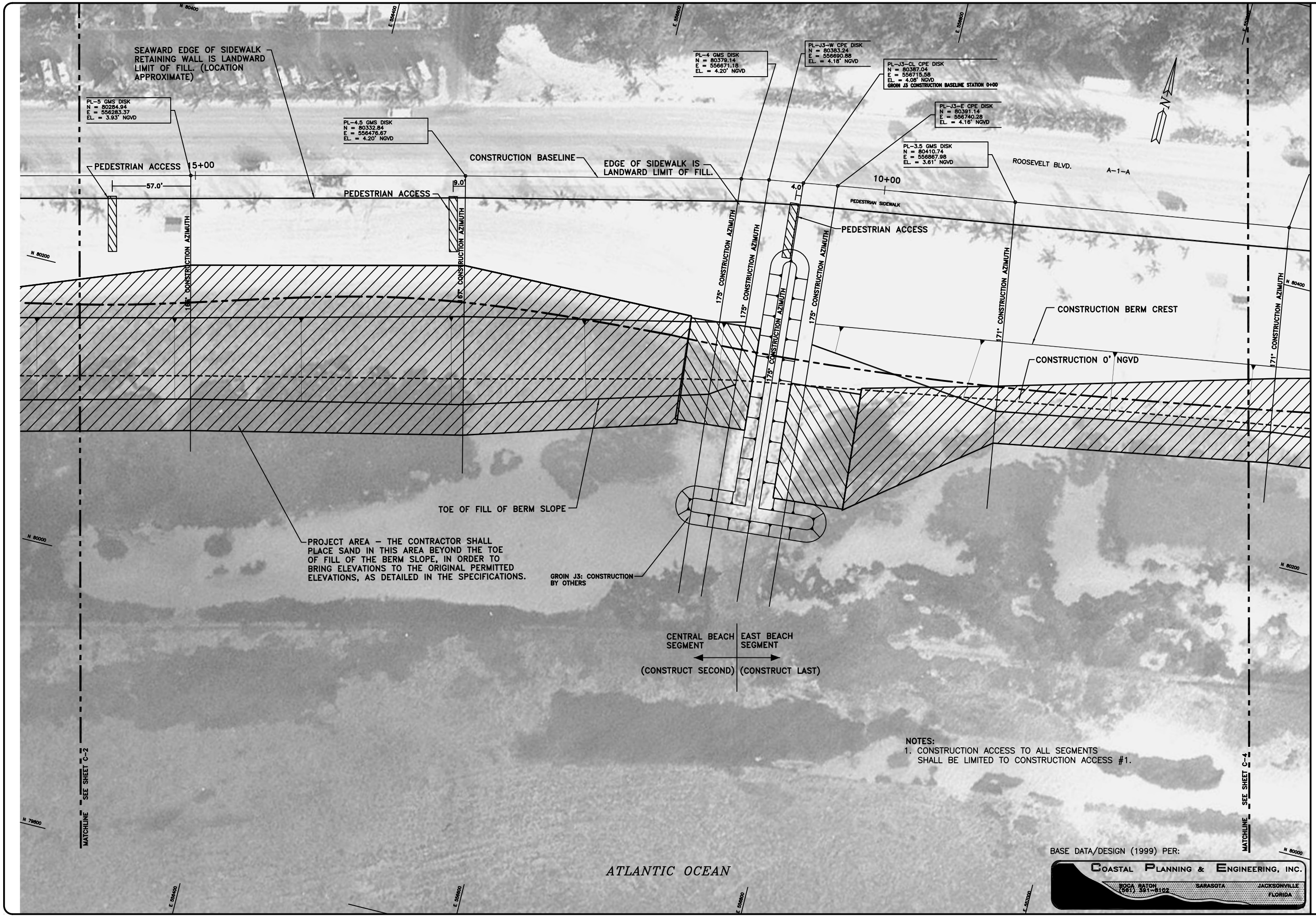
SMATHERS BEACH

SHEET TITLE:

PLAN VIEW

SHEET NO:

C-2



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ENGINEER:	GERALD ZADIKOFF
LICENSE NO.:	CIVIL PE# 44206 FL
SEAL:	

REVISIONS

NO.	DATE	DESCRIPTION
	10-19-09	REVISION

SMATHERS BEACH

SHEET TITLE:

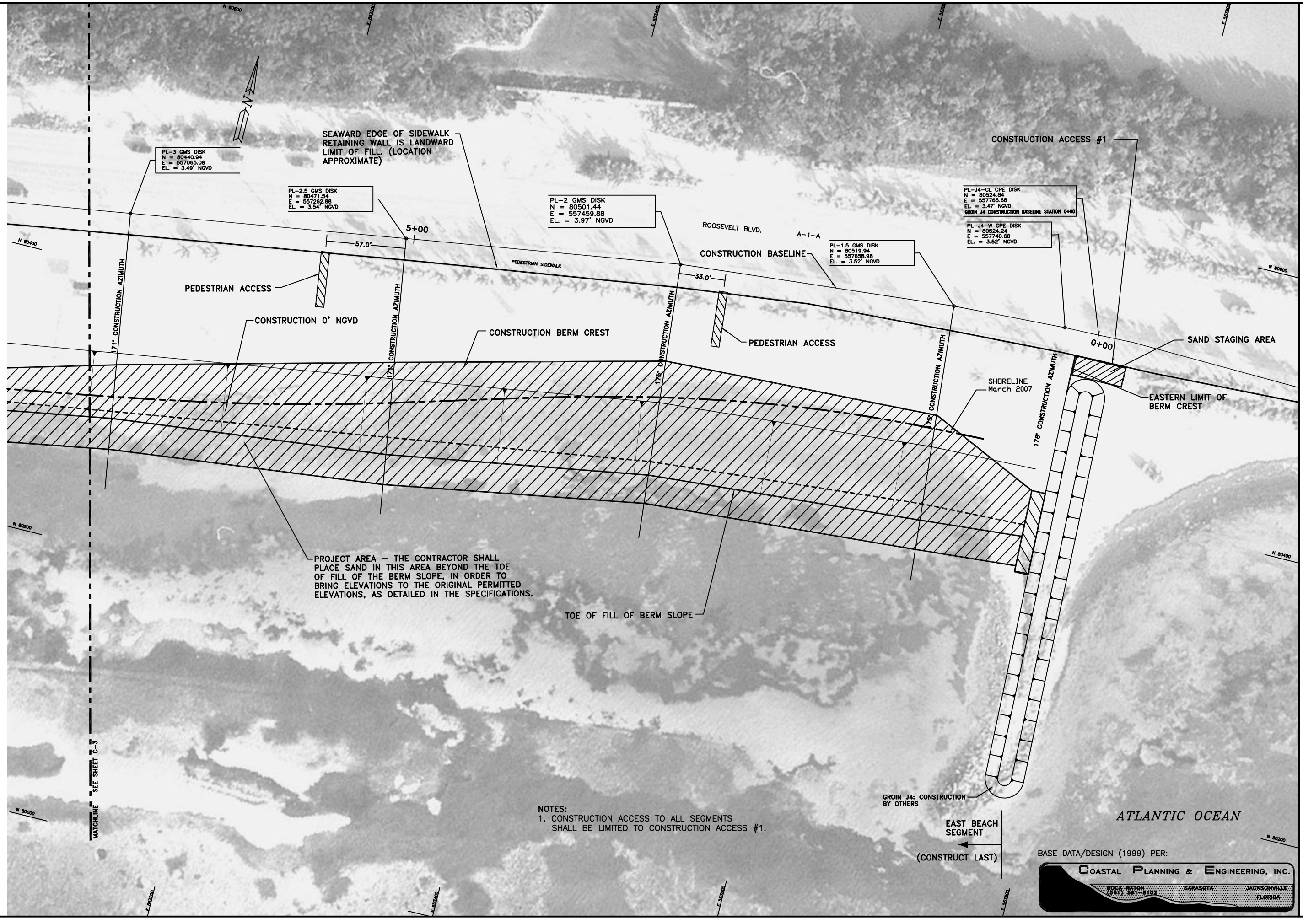
PLAN VIEW

SHEET NO:

C-3

BASE DATA/DESIGN (1999) PER:

COASTAL PLANNING & ENGINEERING, INC.
BOCA RATON (561) 391-8102 SARASOTA JACKSONVILLE FLORIDA



NOTES:
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BASE DATA/DESIGN (1999) PER:

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SEAL	

REVISIONS

NO.	DATE	DESCRIPTION
	10-19-09	REVISION

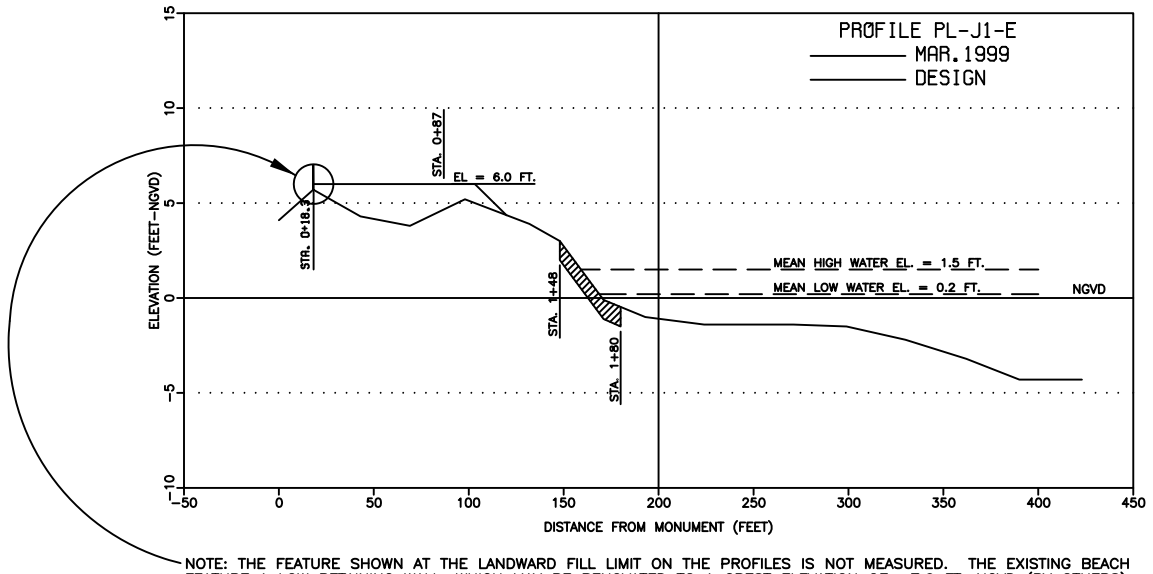
SMATHERS BEACH

SHEET TITLE:

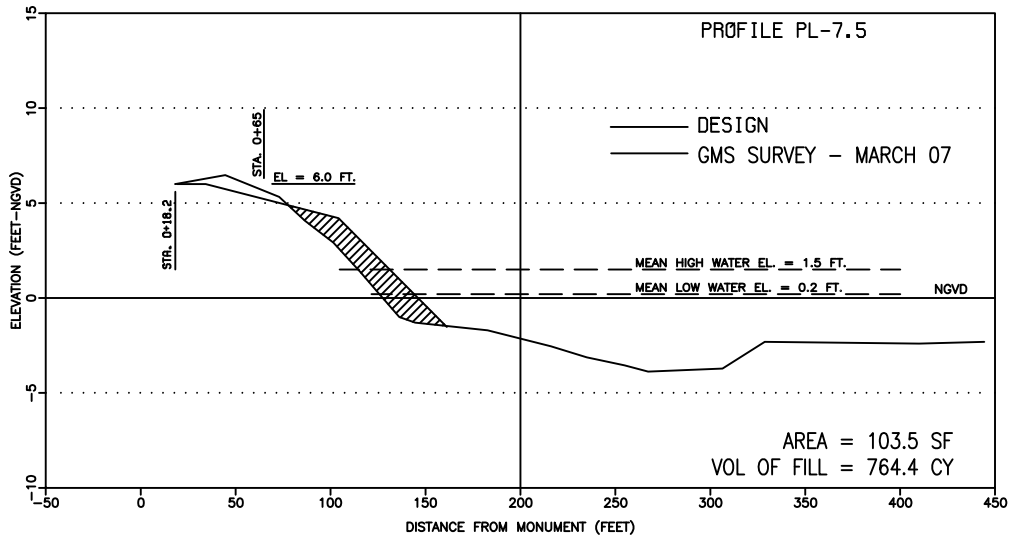
PLAN VIEW

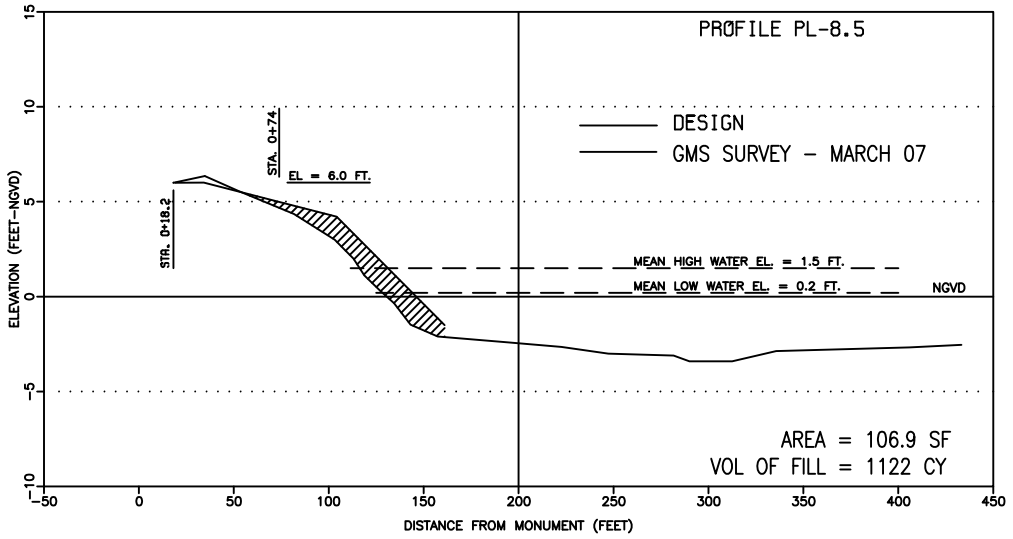
SHEET NO:

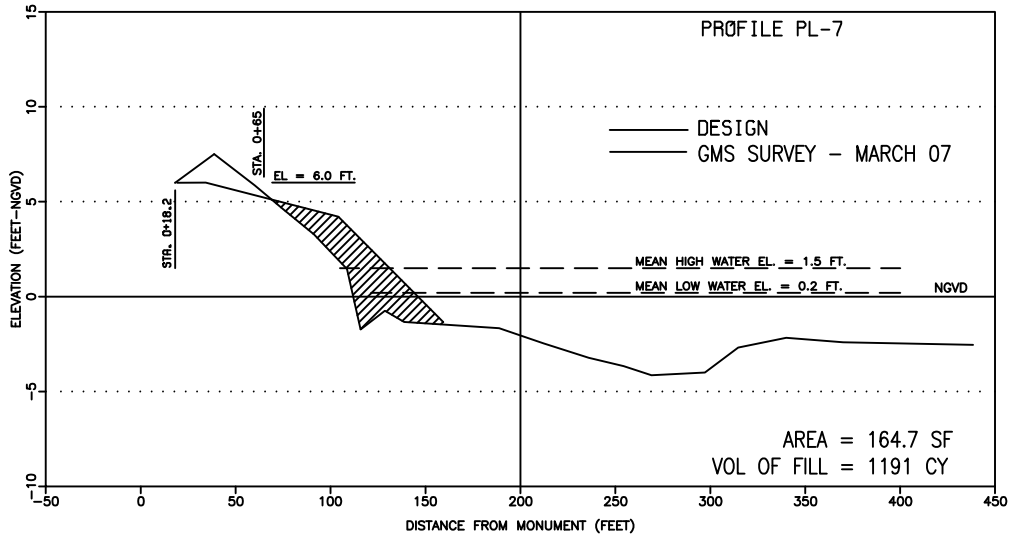
C-4

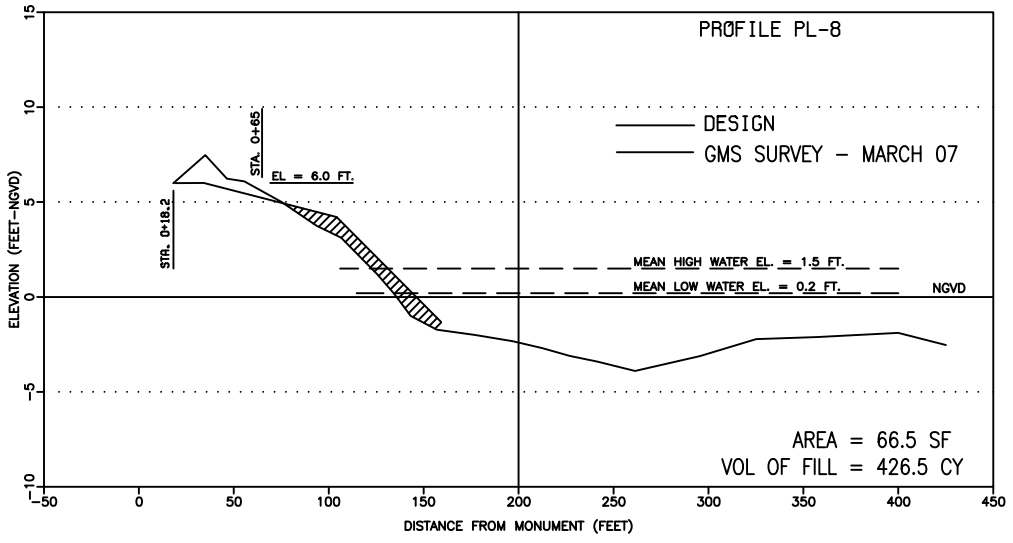


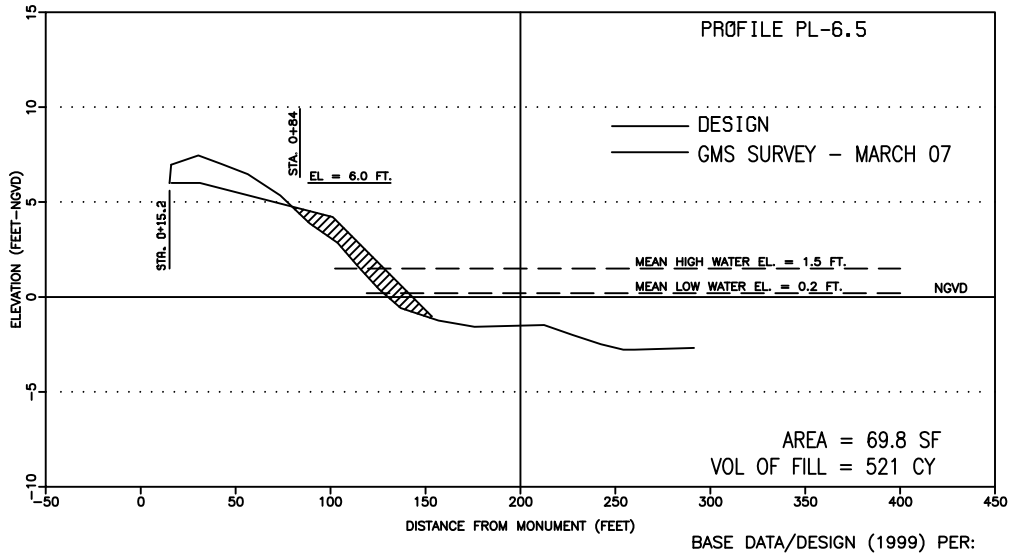
NOTE: THE FEATURE SHOWN AT THE LANDWARD FILL LIMIT ON THE PROFILES IS NOT MEASURED. THE EXISTING BEACH FEATURE A LOW RETAINING WALL, WHICH MAY BE RENOVATED TO A CREST ELEVATION OF +7.0 FT. NGVD (BY OTHERS) PRIOR TO THE BEACH FILL. (TYP.) IF THE ELEVATION OF THE RETAINING WALL IS LOWER THAN THE ELEVATION OF THE DESIGN BEACH, THEN THE CONTRACTOR SHALL CONSTRUCT A 1V:5H LANDWARD SLOPE FROM THE DESIGN BERM CREST TO THE PEAK OF THE RETAINING WALL.











DENOTES FILL AREA

BASE DATA/DESIGN (1999) PER:

COASTAL PLANNING & ENGINEERING, INC.
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REVISIONS		
NO.	DATE	DESCRIPTION
	10-19-09	REVISION

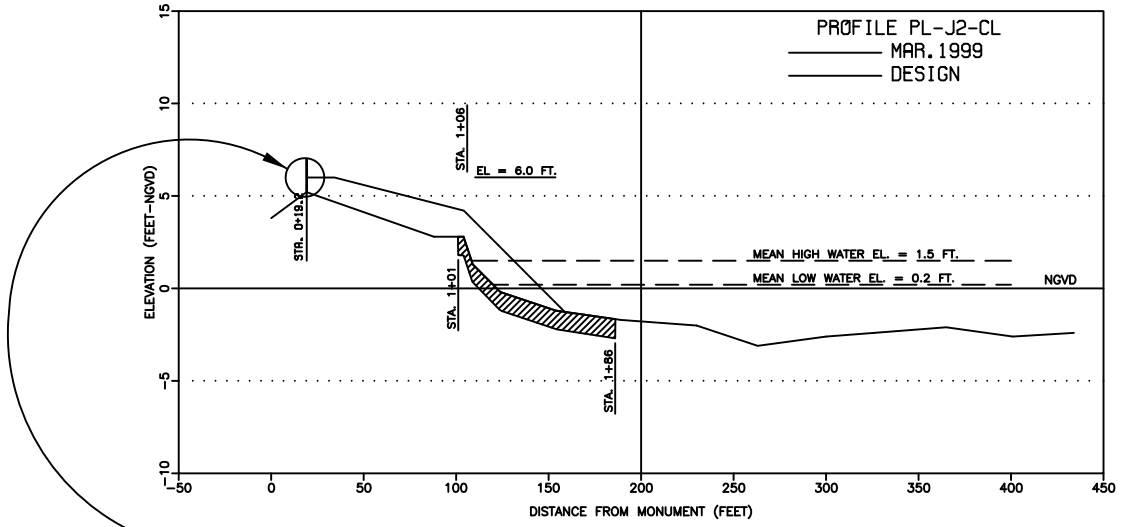
SMATHERS BEACH

SHEET TITLE:

BEACH FILL CROSS SECTIONS

SHEET NO:

C-5



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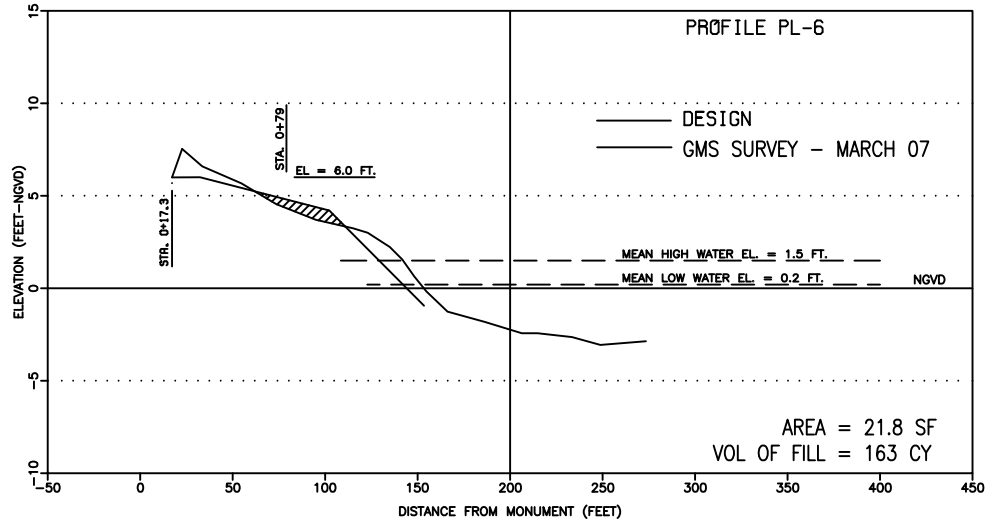

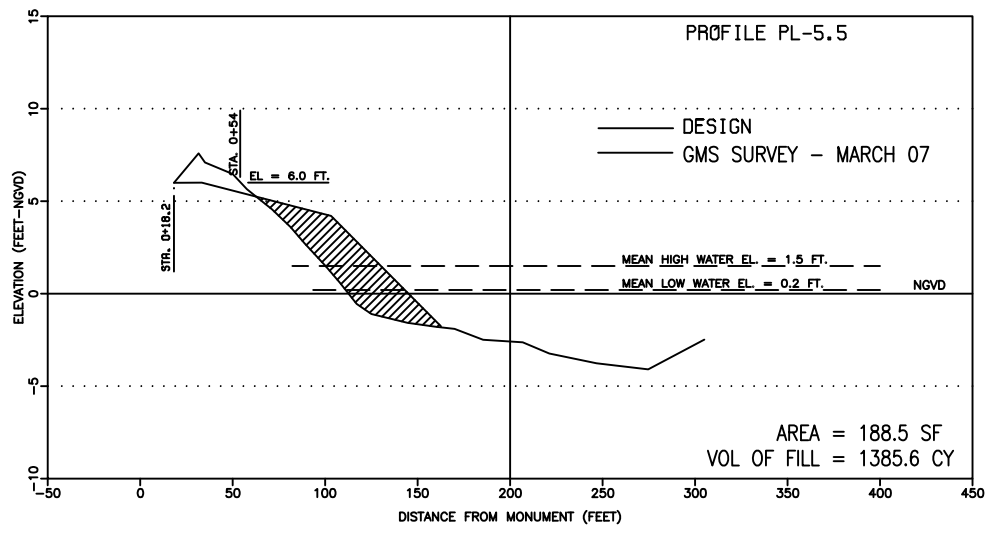

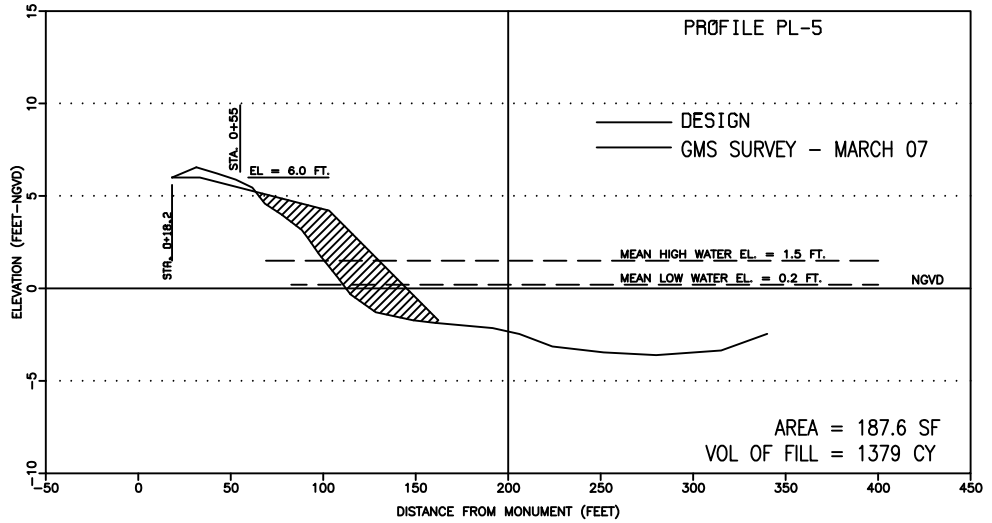

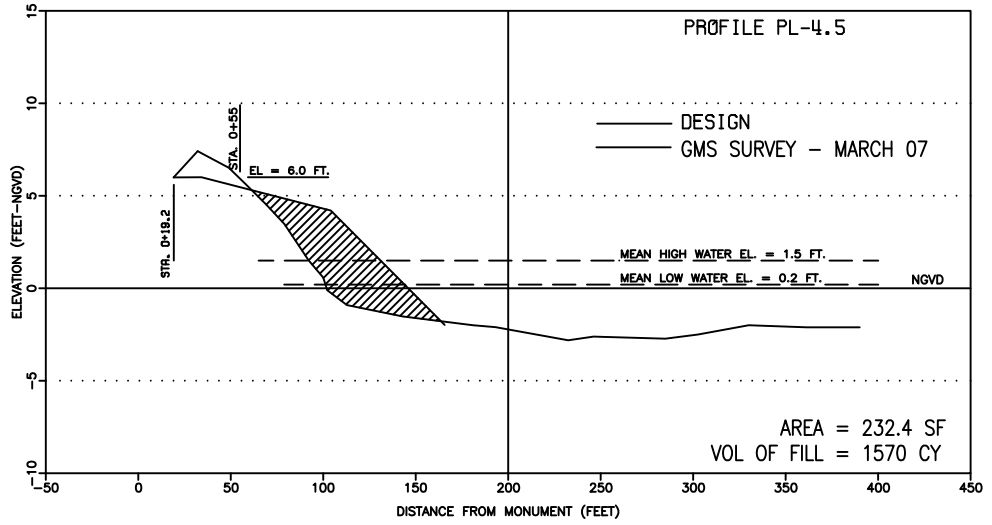

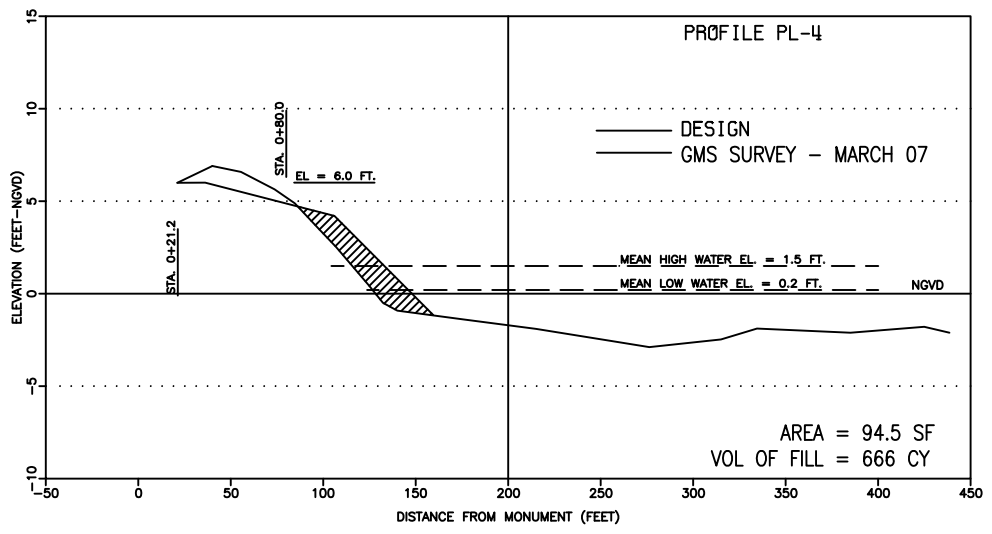

DENOTES FILL AREA

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SEAL:	

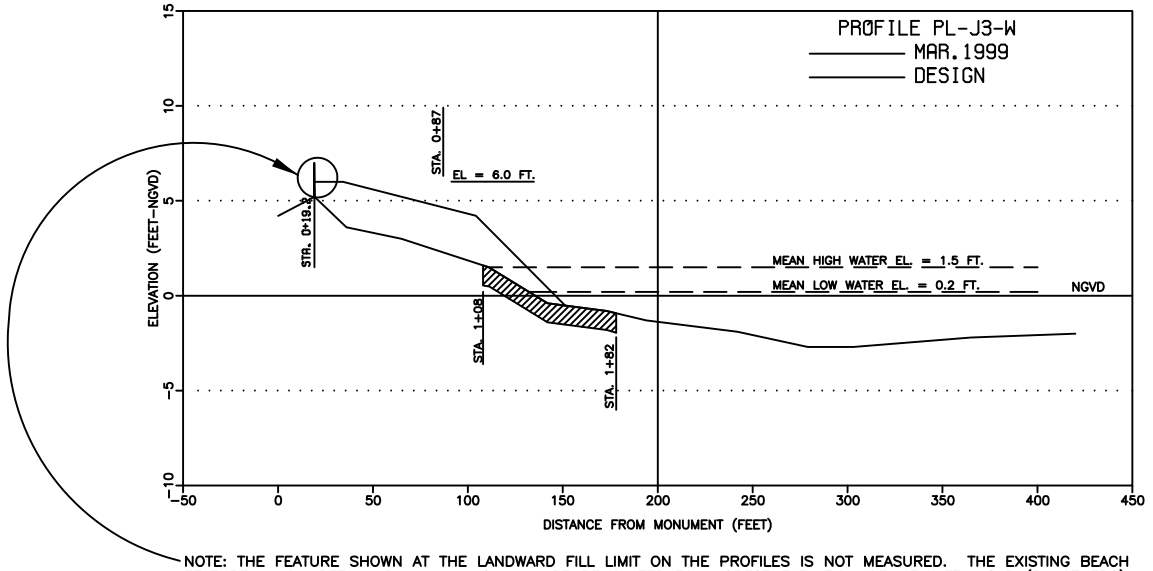
REVISIONS

NO.	DATE	DESCRIPTION
	10-19-09	REVISION

SMATHERS BEACH

SHEET TITLE:
BEACH FILL CROSS SECTIONS

SHEET NO:
C-6



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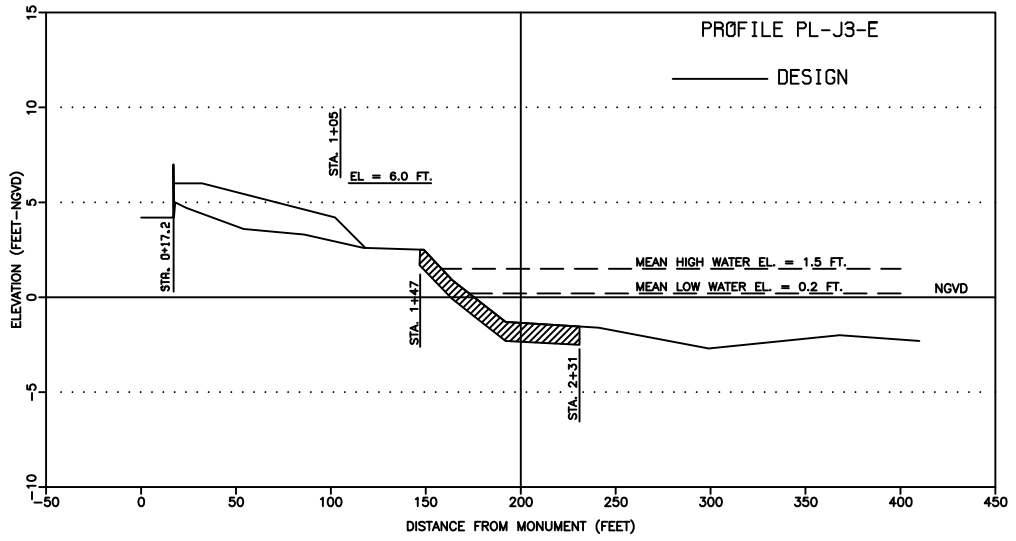

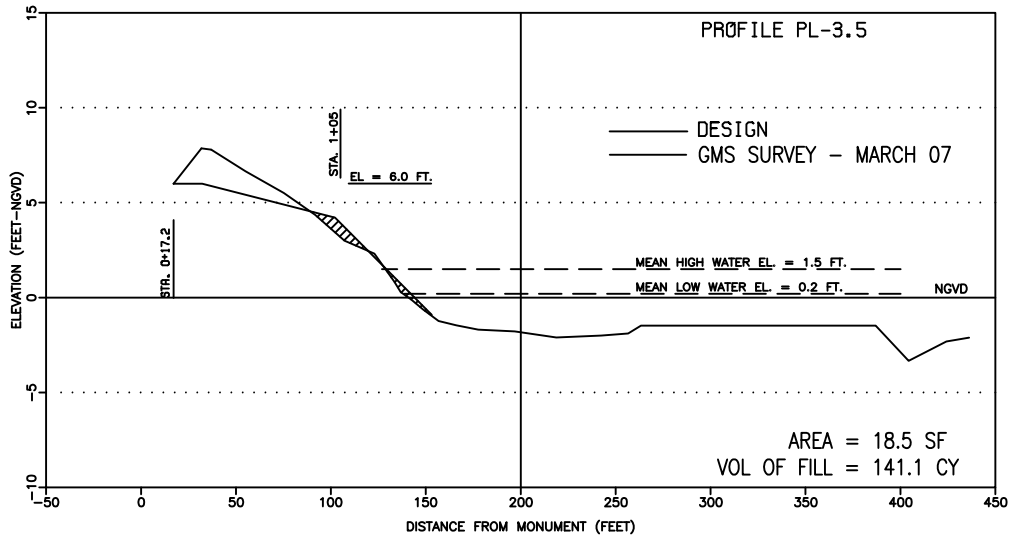

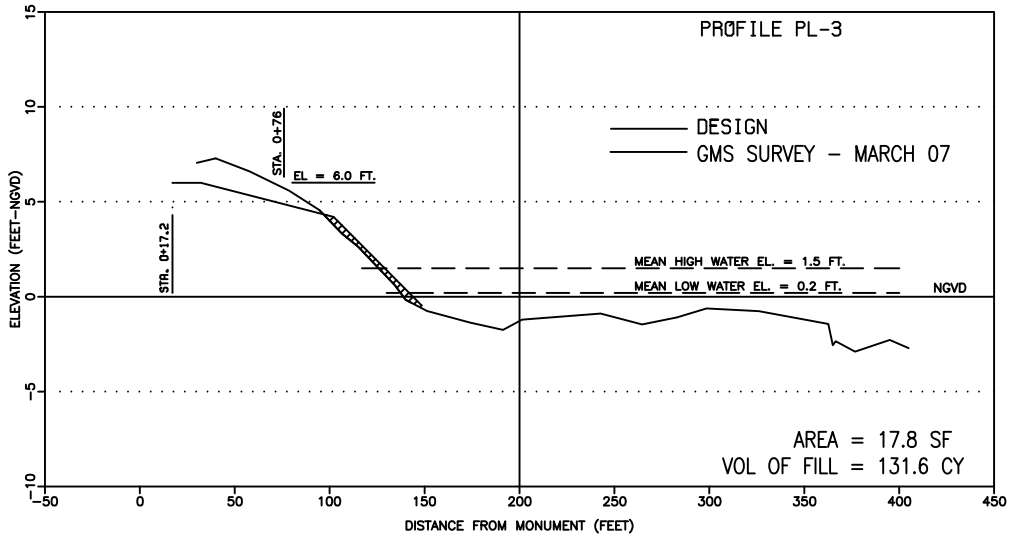

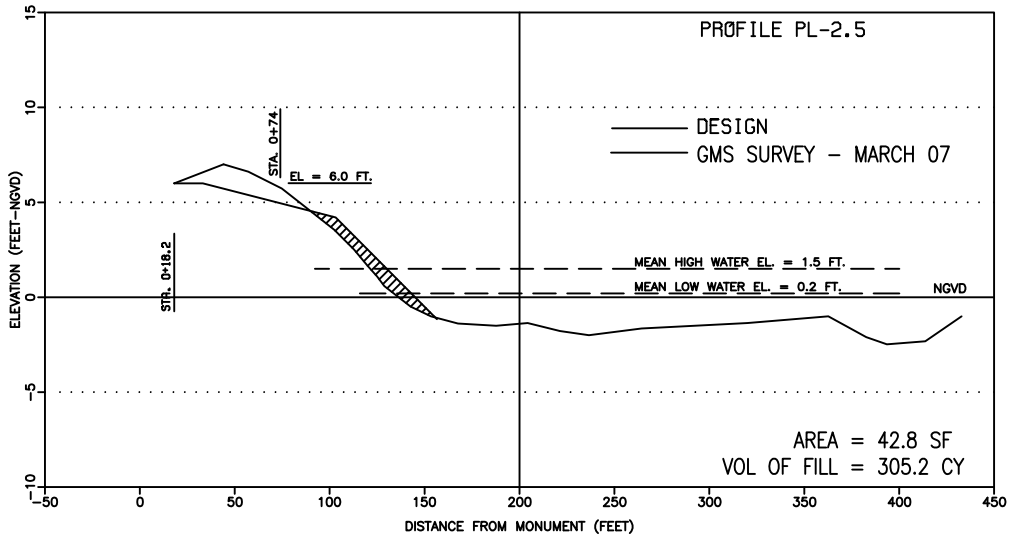

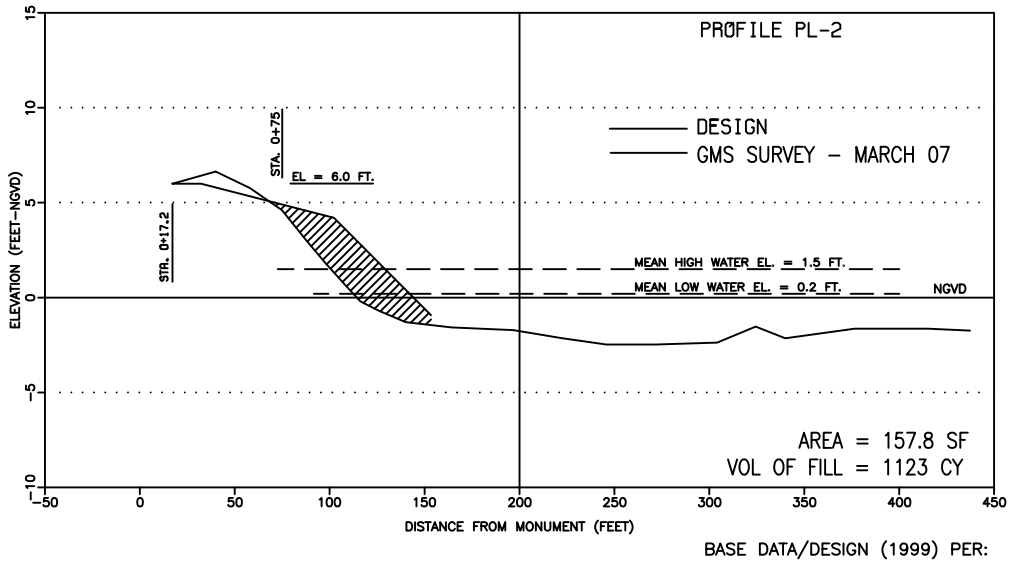

DENOTES FILL AREA

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SEAL	

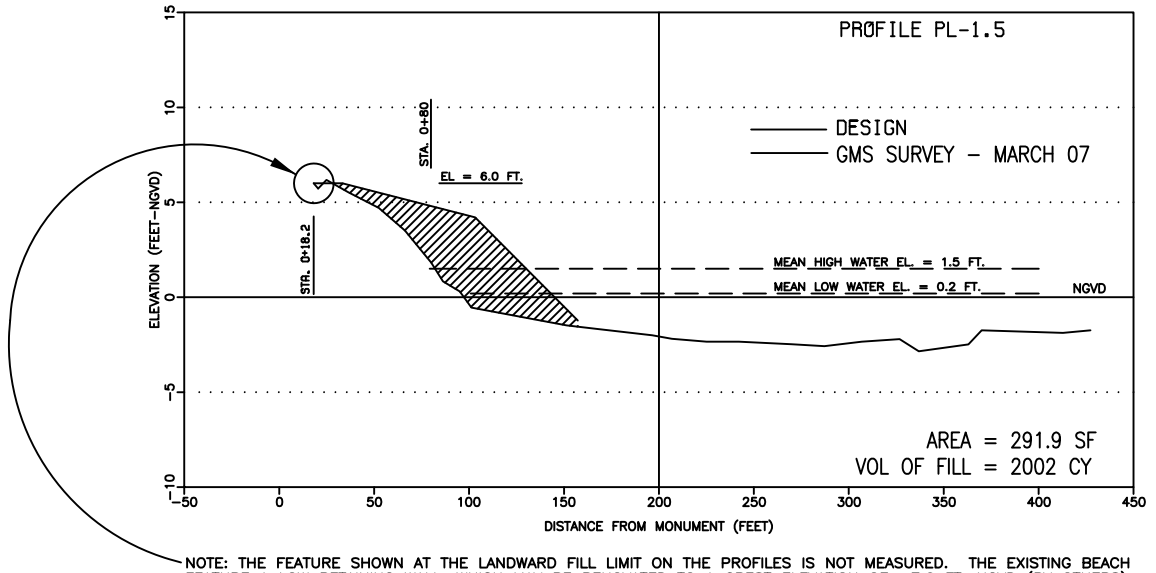
REVISIONS

NO.	DATE	DESCRIPTION
	10-19-09	REVISION

SMATHERS BEACH

SHEET TITLE:
BEACH FILL CROSS SECTIONS

SHEET NO:
C-7



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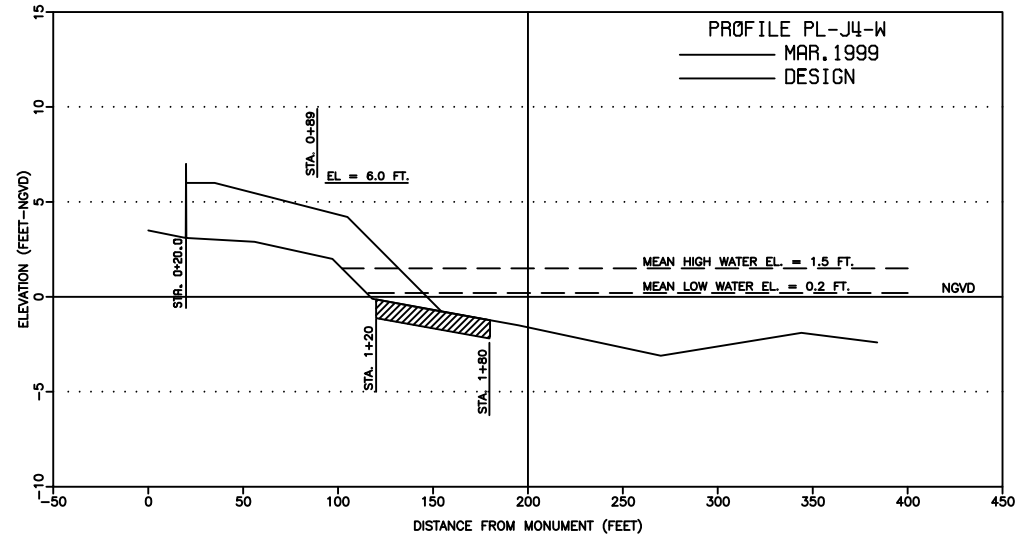

DENOTES FILL AREA

TOTAL VOLUME OF SAND TO BE PLACED ON SMATHERS:
Tot. VOL=12891 CY

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REVISIONS

NO.	DATE	DESCRIPTION
	10-19-09	REVISION

SMATHERS BEACH

SHEET TITLE:
BEACH FILL CROSS SECTIONS

SHEET NO:
C-8