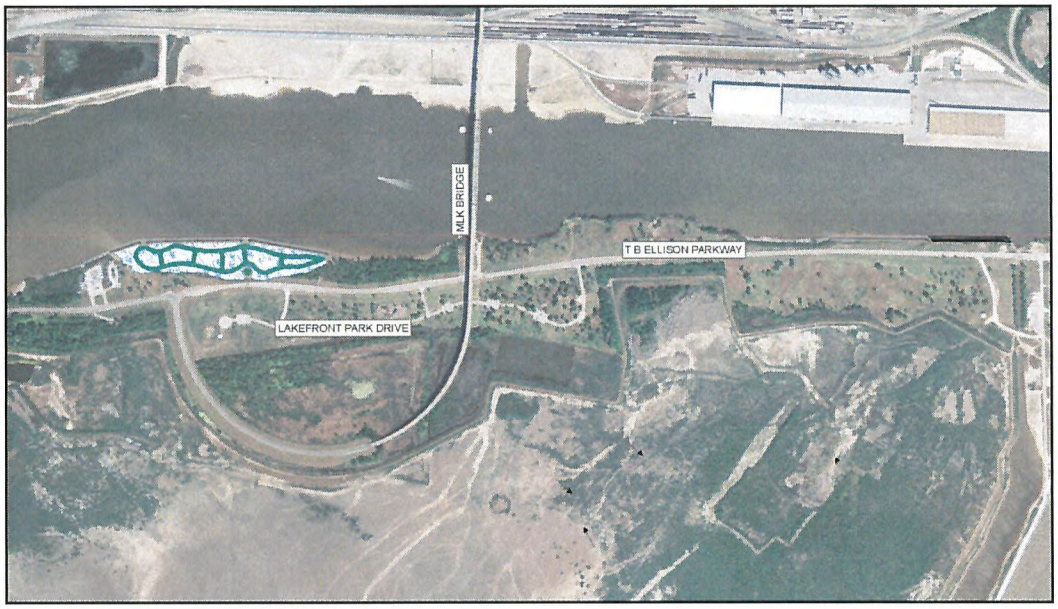
JEFFERSON COUNTY

PLEASURE ISLAND REVISED BREAKWATER
CAJUN CABINS TO MLK BRIDGE

CONTRACT DOCUMENTS
FEBRUARY 06, 2013



CIAP GRANT AWARD NO. M11AF00066
PLEASURE ISLAND-SHIP CHANNEL EROSION PROTECTION

STATE OF TEXAS
WILLIAM L. WORSHAM
83153
LICENSED
PROFESSIONAL ENGINEER
exp 9-30-13

W. L. Worsham, P.E.
2/6/2013

JEFFERSON COUNTY

PLEASURE ISLAND REVISED BREAKWATER
CAJUN CABINS TO MLK BRIDGE

CONTRACT DOCUMENTS
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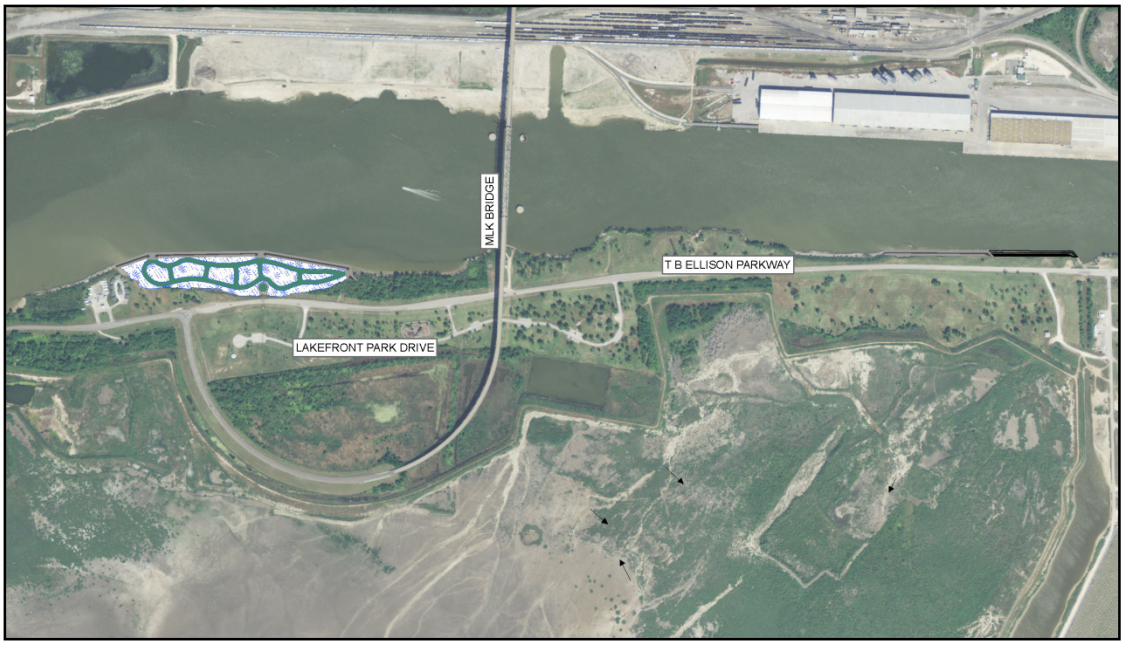

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PLEASURE ISLAND-SHIP CHANNEL EROSION PROTECTION

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JEFFERSON COUNTY

STANDARD FORM OF AGREEMENT
FOR OWNER-CONTRACTOR PROJECTS

STATE of TEXAS}

JEFFERSON COUNTY}

THIS AGREEMENT, made and entered into this ____ day of March, A.D. 2013, by and between the COUNTY of JEFFERSON in the STATE OF TEXAS, thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and _____ of the City of _____ County of _____ in the State of Texas, Party of the Second Part, hereinafter termed CONTRACTOR.

WITNESSETH: That for and inconsideration of the payments and agreements hereinafter mentioned, to be made and performed by the Party of the First Part (OWNER) and under the conditions expressed in the bond bearing even date herewith, the said Party of the Second Part (CONTRACTOR), hereby agrees with the said Party of the First Part (OWNER) to commence and complete the construction of certain improvements described as follow:

Pleasure Island Shore Protection, Revised Breakwater-Marsh Restoration Project, Cajun Cabins to MLK Bridge

and all work in connection therewith, under the terms as stated in the General Conditions of the Agreement and at his (or their) own proper cost and expense to furnish all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said construction, in accordance with the Notice to Contractors, General and Special Conditions of Agreement, Plans and other drawings and printed or written explanatory matter thereof, and the Specifications and addenda therefore, as prepared by LJA Engineering, Inc , herein entitled the ENGINEER, each of which has been identified by the CONTRACTOR and the ENGINEER, together with the CONTRACTOR'S written proposal, the General Conditions of the Agreement, the Performance and Payment Bonds hereto attached; all of which are made a part hereof and collectively evidence and constitute the entire contract.

The CONTRACTOR hereby agrees to commence work within ten (10) calendar days after the date written notice to do so shall have been given to him, and to **substantially complete within 120** consecutive calendar days after issuance of the "Notice to Proceed" and to be at **Final Completion within 135** consecutive calendar days after the issuance of the "Notice to Proceed", subject to such extensions of time as are provided by the General and Special Conditions.

The OWNER agrees to pay the CONTRACTOR in current funds the price or prices shown in the proposal, which forms a part of this contract, such payments to be subject to the General and Special Conditions of the contract.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in the year and day first above written.

JEFFERSON COUNTY	_____
Party of the First Part (OWNER)	Party of the Second Part (CONTRACTOR)
By: _____	By: _____
Jeff R. Branick, Jefferson County Judge	PRINT: _____
ATTEST:_____	ATTEST: _____

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____

(Name of Contractor or Company)

_____

(Address)

a _____, hereinafter called Principal,
(Corporation / Partnership)

and _____
(Name of Surety Company)

_____

(Address)
hereinafter called Surety, are held and firmly bound unto

_____

(Name of Recipient)

_____

(Recipient's Address)

hereinafter called OWNER, in the penal sum of $ _____

Dollars, $ _____ in lawful money of the United States, for this payment of
which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONFIDENTIALITY OF THIS OBLIGATION is such that whereas, the Principal entered into a
certain contract with the OWNER, dated the _____ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

_____

(Project Name)

_____

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUB-CONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said

WORK, and for all labor, performed in such WORK whether by SUB-CONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counter-parts, each on of (Number)
which shall be deemed an original, this the _____ day of _____.

ATTEST: _____
(Principal)

_____ By _____ (s)
(Principal Secretary)

(SEAL)

_____
(Witness as to Principal) (Address)

_____ _____
(Address)

ATTEST: _____
(Surety)

_____ By _____
(Witness as to Surety) (Attorney in Fact)

_____ _____
(Address) (Address)

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____

(Name of Contractor or Company)

_____

(Address)

a _____ hereinafter called Principal, and

_____

(Name of Surety Company

_____

(Address)

hereinafter called Surety, are held and firmly bound unto

_____

(Name of Recipient)

_____

(Recipient's Address)

hereinafter called OWNER, in the penal sum of $ _____Dollars ($ _____) in lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, successors, and assigns, jointly and severally, firmly in these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER dated the _____ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

_____

_____

_____

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties in all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____.

ATTEST: _____
(Principal)

_____ By _____(s)
(Principal Secretary)

(SEAL)

_____ _____
(Witness as to Principal) (Address)

_____ _____
(Address)

_____

ATTEST: _____
(Surety)

_____ By _____
(Witness as to Surety) (Attorney in Fact)

_____ _____
(Address) (Address)

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

ATTORNEY'S REVIEW CERTIFICATION

I, the undersigned, _____, the duly authorized and acting legal representative of the _____, do hereby certify as follows:

I have examined the attached contract(s) and surety bonds and am of the opinion that each of the agreements may be duly executed by the proper parties, acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties; and that the agreements shall constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

Attorney's signature: _____ Date: _____

_____

Print Attorney's Name: _____

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

BID FORM

PROPOSAL

Proposal of _____, (hereinafter called "Bidder") organized and existing under the State of Texas and doing business as* _____, to the Jefferson County (hereinafter called "Owner").

In compliance with your Call for Bids dated _____ 20__, Bidder hereby proposes to furnish all materials and equipment and to perform all work for Jefferson County, in strict accordance with the Contract Documents at the prices stated below.

By submission of this Bid, each Bidder certifies, and in case of a joint Bid, each party thereto certifies as to his own organization, that this Bid has been received independently, without consultation, communication, or agreement as to any matter relating to this Bid with any other Bidder or with any competitor.

Bidder hereby agrees to commence work under this contract on or before date to be specified in the NOTICE TO PROCEED and to fully complete the project within the time specified below. Bidder further agrees to pay as liquidated damages, the sum of (Five Hundred Dollars, $500.00), for each consecutive calendar day thereafter, as provided in the Contract Documents.

Bidder acknowledges receipt of the following ADDENDA:

Addendum No. 1, Project Extension Additive Alternate Bids_____

_____

_____

_____

_____

Bidder has carefully examined the Instructions to Bidders, General Conditions, Technical Specifications, and Construction Drawings.

Bidder has secured and enclosed the Bid Security as required.

Bidder agrees to perform all work described in the CONTRACT DOCUMENTS for the following Schedule of Quantities and Prices:

*insert "a corporation", "a partnership", or "an individual" as applicable, or leave blank without DBA designation.

SCHEDULE OF QUANTITIES AND PRICES

Pleasure Island Breakwater

Bid Item	Description	Estimated Qty's	Units	Installed Unit Price	Total
Typical Section	**L =**	**1500**			
35 20 23 Dredging					
352023-1	Excavate toe channel	2263	CY	$_____	$_____
31 35 00 Geotextile					
313500-1	Composite Geogrid and Geotextile	8333	SY	$_____	$_____
35 30 00 Stone (Core)					
353000-1	Core stone	2106	TONS	$_____	$_____
35 30 00 Stone (Bedding)					
353000-2	Bedding stone	5078	TONS	$_____	$_____
35 30 00 Stone (Armor)					
353000-3	Armor stone	8832	TONS	$_____	$_____
				Subtotal =	**$**_____
Type A Circulation Gap	**Units =**	**3**			
35 20 23 Dredging					
352023-1	Excavate toe channel	1851	CY	$_____	$_____
31 35 00 Geotextile					
313500-1	Composite Geogrid and Geotextile	2621	SY	$_____	$_____
35 30 00 Stone (Core)					
353000-1	Core stone	260	TONS	$_____	$_____
35 30 00 Stone (Bedding)					
353000-2	Bedding stone	1460	TONS	$_____	$_____
35 30 00 Stone (Armor)					
353000-3	Armor stone	3277	TONS	$_____	$_____
				Subtotal =	**$**_____
Transition Section	**L =**	**27**			
35 20 23 Dredging					
352023-1	Excavate toe channel	68	CY	$_____	$_____
31 35 00 Geotextile					
313500-1	Composite Geogrid and Geotextile	110	SY	$_____	$_____
35 30 00 Stone (Core)					
353000-1	Core stone	20	TONS	$_____	$_____
35 30 00 Stone (Bedding)					
353000-2	Bedding stone	69	TONS	$_____	$_____
35 30 00 Stone (Armor)					
353000-3	Armor stone	15	TONS	$_____	$_____
				Subtotal =	$_____
				Base Bid Subtotal:	$_____
01 71 13 – Mobilization and Demobilization					
017113-1	Mob / Demob	1	LS	$_____	$_____
				Base Bid Grand Total:	$_____

ADDITIVE ALTERNATE 1

Bid Item	Description	Estimated Qty's	Units	Installed Unit Price	Total
Typical Section	**L =**	**800**			
35 20 23 Dredging					
352023-1	Excavate toe channel	1207	CY	$_____	$_____
31 35 00 Geotextile					
313500-1	Composite Geogrid and Geotextile	4444	SY	$_____	$_____
35 30 00 Stone (Core)					
353000-1	Core stone	1123	TONS	$_____	$_____
35 30 00 Stone (Bedding)					
353000-2	Bedding stone	2708	TONS	$_____	$_____
35 30 00 Stone (Armor)					
353000-3	Armor stone	4711	TONS	$_____	$_____
				Subtotal =	$_____
				Base Bid & Add Alt 1 Grand Total:	**$**_____

ADDITIVE ALTERNATE 2

Bid Item	Description	Estimated Qty's	Units	Installed Unit Price	Total
Typical Section	**L =**	**500**			
35 20 23 Dredging					
352023-1	Excavate toe channel	754	CY	$_____	$_____
31 35 00 Geotextile					
313500-1	Composite Geogrid and Geotextile	2778	SY	$_____	$_____
35 30 00 Stone (Core)					
353000-1	Core stone	702	TONS	$_____	$_____
35 30 00 Stone (Bedding)					
353000-2	Bedding stone	1693	TONS	$_____	$_____
35 30 00 Stone (Armor)					
353000-3	Armor stone	2944	TONS	$_____	$_____
				Subtotal =	$_____
				Base Bid, Add Alt 1 & Add Alt 2 Grand Total:	**$**_____

Notes:

1. Mobilization/Demobilization is 10% of Base Bid Subtotal only.
2. Quantities are estimated based on bathymetric data shown on the Drawings.
3. QUANTITIES SHOWN ARE TO BE USED FOR EVALUATING THIS PROPOSAL ONLY. Payment will be made in accordance with the payment section as described in a particular bid item's specification reference section.
4. The Owner reserves the right to increase or decrease the unit priced quantities by up to 25 percent at the stated unit price.
5. Bidder understands and agrees that all work must be substantially completed WITHIN 120 CALENDAR DAYS from Notice to Proceed and final completion within 135 CALENDAR DAYS. Bidder understands that failure to complete work within that time period will subject him to LIQUIDATED DAMAGES.
6. Bidder shall submit with its bid a list of all subcontractors proposed for the Work.
7. The prices mentioned herein shall be full compensation for furnishing all materials, equipment, labor, and all other expenses necessary to perform work in accordance with these drawings, specifications and contract documents.

SUBMITTED BY:

Company Bidding: _____

Name of Bidder: _____

Address of Bidder: _____

_____

Dated at: _____this _____ day of _____, 20__.

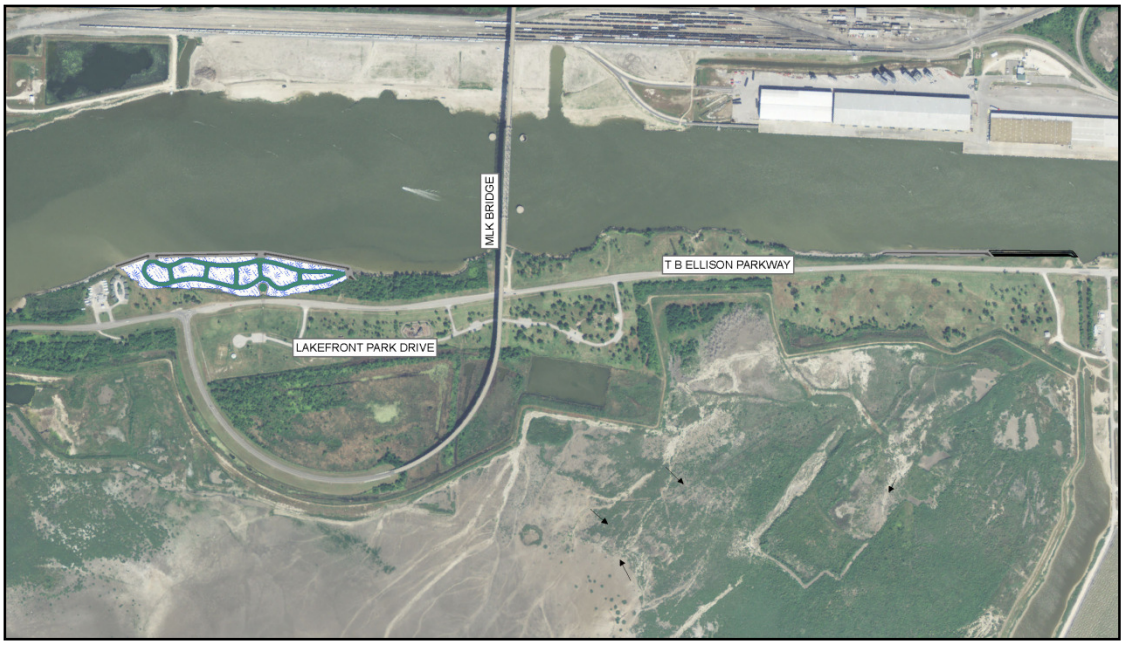
Signature of Authorized Agent: _____

Title: _____

JEFFERSON COUNTY

PLEASURE ISLAND REVISED BREAKWATER
CAJUN CABINS TO MLK BRIDGE

TECHNICAL SPECIFICATIONS
FEBRUARY 06, 2013



CIAP GRANT AWARD NO. M11AF00066
PLEASURE ISLAND-SHIP CHANNEL EROSION PROTECTION

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 00 00
SPECIAL CONDITIONS

PART 1. GENERAL

In general, LJA Engineering, Inc will act as Engineer. Engineer shall consult with and advise Jefferson County (Owner) and act as Owners representative. All of Owner's instructions to the Contractor will be issued through the Engineer. The Engineer may direct the Contractor to maintain the worksite per contact conditions, but the presence of the Engineer shall not relieve the Contractor of responsibility for the proper execution of the work in accordance with the specifications.

The Engineer shall not supervise, direct or have control over Contractor(s) work nor shall Engineer have authority over or responsibility for the means, methods, techniques, sequences or procedures of construction selected by Contractor, for safety precautions and programs incident to the work of Contractor or for any failure of Contractor to comply with laws, rules, regulations, ordinances, codes or orders applicable to Contractor furnishing and performing the work.

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General Conditions, Instructions to Bidders, and other Technical Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

Refer to Section 01 10 00, Summary of Work.

1.3 EXAMINATION OF SITE

Bidders should visit the site and be thoroughly familiar with job conditions prior to submitting a bid. Failure to give proper consideration to these conditions when preparing bids will not constitute grounds for additional compensation.

1.4 INTENT OF THE CONTRACT DOCUMENTS

The intent of the Contract Documents is to include all of the work for the contract price and within the contract time. Contract Documents are to be considered as cooperative. All work not specified and/or not shown on the drawings but which is necessary for the completion and/or functioning and operation of the project, shall be understood and implied as part of the contract to be performed by the Contractor for the contract price. Such work shall be executed by the Contractor in the same manner and with the same character of material as other portions of the contract without extra compensation.

1.4.1 It is the intention of the Contract Documents to call for finished work, tested, and ready for operation.

1.4.2 Any apparatus, material or work described in the Contract Documents and any incidental accessories necessary to make the work complete in all respects and ready for operation (even though not particularly specified) shall be furnished, delivered, and installed by the Contractor without additional expense to the Owner.

1.4.3 Minor details not usually shown or specified but necessary for proper installation and operation are included in the work just as if herein specified or shown.

1.4.4 The agreement and each of the Contract Documents are complementary; and they shall be interpreted so that what is called for by one shall be as binding as if called for by all. Should the Contractor observe conflicts in or omission from the Contract Documents, Contractor shall bring them to the Engineer's attention for decision, inclusion, and revision as soon as possible after originally observed. Regardless, such work shall be performed and furnished by the Contractor in

accordance with accepted construction industry practices. In the event of duplications or conflicts in the Contract Documents after the contract has been executed, the greater quality and/or the most expensive method of work, materials, and equipment shall be construed as the requirement, with a credit for all costs saved accruing to the Owner in the event the least expensive method of work is directed. A duplication of work is not intended by the contract documents and any duplications specified shall not become a basis for extra cost to the Owner. Technical specifications shall take precedence over conflicting drawings. Explanatory notes on the drawings shall take precedence over conflicting drawn-out indications. Large-scale details will take precedence over small-scale drawings and figured dimensions to scale measurements. Where figures are lacking, scale measurements may be followed, but in all cases the measurements are to be checked from the work in place. Should variations be found, they must be referred to the Engineer for instructions prior to proceeding with the work.

1.4.5 The drawings consist of all project drawings and any drawings issued by addenda. In all cases, measured dimensions taken at the site shall take precedence over scale dimensions.

1.5 SPECIFIED MATERIALS & SUBSTITUTIONS

It is not the intent of the Specifications or Contract Documents to limit materials, equipment, or fixtures to the product of any particular manufacturer. Where definite materials, equipment and/or fixtures have been specified by name, manufacturer or catalog number, it has been done to set a definite standard and a reference for comparison as to quality, application, physical conformity, and other characteristics. It is the Owner's or Architect/Engineer's intention to not discriminate against or prevent any dealer, jobber or manufacturer from furnishing materials, equipment, and/or fixtures which meet or exceed the characteristics of the specified items. Substitution of materials shall not be made without prior written approval from the Architect/Engineer and Owner.

1.5.1 The Owner shall be the final judge of whether a proposed substitution meets the required characteristics of a specified item and such decisions of the Owner shall be final and conclusive.

1.6 UNAUTHORIZED SUBSTITUTIONS AT CONTRACTOR'S RISK

All proposed substitution of materials, equipment, or fixtures shall be presented through the submittal process. The Contractor shall be financially responsible for any additional costs or delays resulting from using materials, equipment, or fixtures other than those specified, and shall reimburse the Owner for any increased design or contract administration costs

1.7 ADDENDA

Any addenda issued in writing by the Engineer during the period of bidding shall be included in the bid and Bidder's receipt of addenda shall be acknowledged in the Contractor's Bid Form. Such addenda shall become a part of the contract and shall modify the Contract Documents accordingly. Oral changes in the work made during the time of bidding will not be binding.

1.8 PERMITS AND LAWS

The Contractor shall comply with all federal, state, and municipal laws, rules regulations, and ordinances applicable to the work of this contract, and shall obtain and pay for all permits required in connection with the execution of the work. The Engineer shall be furnished with certified copies of these permits if the Engineer so requests. Refer to Section 01 35 40 – Environmental Management of the Technical Specifications.

If such laws, rules, regulations or ordinances conflict with the Contract Documents, then such laws, rules, regulations, or ordinances shall govern instead of the Contract Documents, except in such cases where the Contract Documents exceed them in quality of materials or labor, then the Contract Documents shall be followed.

1.9 INSURANCE REQUIREMENTS

Insurance requirements are independent of all other obligations of the Contractor pursuant to these Contract Documents and apply whether or not required by any provision of the contract documents. Contractor shall cease work immediately upon the expiration of any insurance coverage required by the Contract Documents. Contractor shall provide the following additional insurance coverage:

- U.S. Longshore and Harbor Workers' Insurance – Statutory amount in compliance with the United States Longshore and Harbor Workers' Act if required.
- Maritime Employers Liability Insurance – Any employees who may fall under the Death on High Seas Act, Jones Act, or any other federal or state acts relating to maritime employment must be covered by Maritime Employers Liability Insurance of not less than $500,000.00. Such coverage will include but not be limited to transportation, wages, maintenance and cure, as well as any other liabilities arising under such maritime employment.

All insurance must be written by an insurer licensed to conduct business in the State of Texas, unless otherwise permitted by Owner. The Contractor shall, at his own expense, purchase, maintain and keep in force such insurance as will protect against injury and/or damages which may arise out of or result from operations under this contract, whether such operations be by himself or by any subcontractor or by any one directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, of the following types and limits. (No insurance policy or certificate of insurance required below shall contain any aggregate policy year limit unless a specific dollar amount (or specific formula for determining a specific dollar amount) aggregate policy year limit is expressly provided in the specification below which covers the particular insurance policy or certificate of insurance).

1.9.1 Standard Worker's Compensation Insurance (with waiver of subrogation in favor of Jefferson County, its officers, agents and employees). (City and Contract and all persons providing services shall comply with the workers compensation insurance requirements of Section 406.096 of the Texas Labor Code and 28 TAC Section 110.110, a copy of which is hereby incorporated by reference).

1.9.2 Commercial General Liability occurrence type insurance. No. "XCU" Restriction shall be applicable. Products/completed operations coverage must be included, and Jefferson County, City of Port Arthur, and LJA Engineering Inc., its officers, agents, and employees must be named as an additional Insured.

1.9.2.1 Bodily Injury $500,000 single limit per occurrence or $500,000 each person/$500,000 per occurrence for contracts of $100,000 or less, or,

1.9.2.2 Bodily Injury $1,000,000 single limit per occurrence of $1,000,000 each person/$1,000,000 per occurrence for contracts in excess of $100,000; and,

1.9.2.3 Property Damage $100,000 per occurrence regardless of Contract amount; and,

1.9.2.4 Minimum aggregate policy year limit of $1,000,000 of contracts of $100,000 or less; or,

1.9.2.5 Minimum aggregate policy year limit of $2,000,000 for contracts in excess of $100,000.

1.9.3 Comprehensive Automobile Liability (Including owned, non-owned, and hired vehicles coverage).

1.9.3.1 Minimum combined single limit of $500,000 per occurrence for bodily injury and property damage.

1.9.3.2 If individual limits are provided, minimum limits are $300,000 per person, $500,000 per occurrence for bodily injury and $100,000 per occurrence for property damage.

1.9.4 Contractual Liability Insurance covering the indemnity provision of this Contract in the same amount and coverage provided for Commercial General Liability Policy, specifically referring to this Contract by date, job number, and location.

1.9.5 Contractor shall cause Contractor's insurance company or insurance agent to fill in all information required (including names of insurance agency, Contractor and insurance companies, and policy numbers, effective dates and expiration dates) and to date and sign and do all other things

necessary to complete and make into a valid certificate of insurance.

1.9.6 The Certificate of Insurance form attached to and made a part of the Information to Bidders, and pertaining to the above Insurance Requirements; and before commencing any of the work and within the time otherwise specified. Contractor shall file said completed Form with the Owner. None of the provisions in said Form shall be altered or modified in any respect except as herein expressly authorized.

Said Certificate of Insurance Form contains a provision that coverage's afforded under the policy will not be altered, modified or cancelled unless AT LEAST THIRTY (30) DAYS PRIOR written notice has been given to the Owner. Contractor shall also file with the Owner valid Certificate(s) of Insurance on like form from or for all Subcontractors and showing the Subcontractor(s) as the Insured. Said completed Certificate of Insurance Form(s) shall in any event be filed with Owner NOT MORE THAN TEN (10) DAYS after execution of this Contract.

1.10 PERFORMANCE AND PAYMENT BONDS

All performance and payment bonds shall be executed by sureties which are licensed to do business in the State of Texas and which are included in the list of companies in the current U. S. Department of the Treasury Circular 570, "Companies holding Certificates of Authority as Acceptable Sureties on Federal Bonds and Acceptable Reinsuring Companies," Sections 9304 through 9308 of Title 31 of the U. S. Code Annotated.

1.11 QUALITY ASSURANCE

The Owner and Engineer will periodically observe the construction progress, procedures, and materials of the Contractor. The Contractor shall offer full cooperation to facilitate these observation activities, and shall be responsive to questions regarding methods, equipment, materials, and intentions in pursuing the work or any particular thereof. Such observation by the Engineer is for the express purpose of verifying compliance by the Contractor with the Contract Documents and shall not be construed as construction supervision nor indication of approval of the manner or location in which the work is being performed as being a safe practice or place. The safety of the workers on the site is the responsibility of the Contractor. By entering the site, the Contractor and its employees relieve the Owner and/or Engineer of any responsibility for their safety and accept complete responsibility for any unsafe acts or procedures which may cause them harm.

If the Engineer rejects work and/or materials incorporated into the work, Contractor shall bear all expenses associated with testing to prove compliance with the Contract Documents, including but not limited to engineering expenses associated with such testing. Any and all such expenses that are paid directly by Owner will be deducted or withheld from subsequent payment(s) to the Contractor.

1.12 CONTRACT COMPLETION

1.12.1 Contract Period:

This contract must be completed within the specified number of days commencing on the date cited in the Notice to Proceed letter. The Contractor's Bid form for this project has been written to reflect this completion requirement.

Unless specifically stated as "working day," the term "day" or "calendar day" shall mean every day of the calendar year. Along with the work progress schedule, the Contractor shall submit his schedule for normal working days.

1.12.2 Liquidated Damages:

The Owner has determined that the completion of the work in this contract is critical to the proper operation of the facility, and the Contractor's failure to complete the work within such time will cause damage to the Owner. Liquidated Damages will be deducted from the money due or to become due to the Contractor, not as a penalty but as liquidated damages from added

expense, including administrative and inspection costs, for each and every calendar day the work or any portion thereof remains incomplete after the expiration of the time limit set in the contract or authorized extension. Charges for liquidated damages will begin accumulating on the first calendar day following the final contract completion date, established from the Notice to Proceed, and continue until the date of final acceptance as established by the Owner.

Final acceptance will not be issued until all punch list items have been completed.

1.13 CONTRACT CLOSE-OUT

1.13.1 Notification

The Contractor shall provide the Engineer 10 DAYS WRITTEN NOTICE requesting final inspection.

1.13.2 Final Submittals

At the time of the Contractor's request for final inspection, Contractor shall provide to Engineer the following material which the Contractor shall have accumulated and retained during the course of the project:

1.13.2.1 One set of all project submittals and all equipment and material warranties/guarantees as provided by all appropriate suppliers or manufacturers.

1.13.2.2 One set of "record drawings" showing all revisions to the original Contract Documents. Drawings shall also show routing of underground outside utilities and conduits with actual dimensions from buildings or other known landmarks.

1.13.2.3 Any and all other documents, keys, manuals, etc. required by the SPECIFICATIONS.

1.13.2.4 Clean-up: At completion of the job, the Contractor shall remove all waste products, dust, dirt, debris, packaging, trash, fingerprints, grease containers, and other deleterious materials and marks from the site. Refer to individual specification sections for special cleaning required by that section. Contractor is expected to leave the project in spotless, "like new" condition.

1.13.2.5 Final Payment: The Contractor's final payment requisition shall include Consent of Surety Company to Final Payment form and Contractor's Final Payment Affidavit.

1.14 CONTRACTOR'S RESPONSIBILITY DURING THE WARRANTY PERIOD

1.14.1 Warranties

The Contractor shall guarantee all work against defects in materials, equipment, or workmanship for a period of one year from the date of final acceptance. The Contractor shall also provide any additional warranties and guarantees of work items and components as hereinafter specified.

1.14.2 Correction of Defects

The Contractor will receive no additional compensation for work performed during the one year warranty period.

1.15 STANDBY TIME PROVISIONS

At any time during the contract performance period, the Owner may terminate the contract for unforeseen causes. However, in lieu of terminating the contract, the Owner may opt to issue a temporary stop work order and activate standby time provisions.

If activated, standby time will be paid to the Contractor based on quantities and unit prices provided in the Contractors Bid Schedule.

The Owner reserves the right to activate, or not to activate, standby time provisions, as it deems appropriate. Activation must be in the form of a change order to the contract.

1.16 HOLD HARMLESS AND INDEMNIFICATION

The Owner nor Engineer shall not be liable or responsible for and the Contractor shall indemnify and hold harmless the Owner and/or Engineer from and against any and all claims and damages of every kind, for injury to or death of any person or persons and from damage to or loss of property arising out of or attributed, directly or indirectly, to the Contractor. This indemnity and hold harmless provision shall not be limited by the specification of insurance coverage required to be maintained by the Contractor. Contractor further agrees to obtain in writing from his contractors, subcontractors, and consultants, the same indemnity and agreement to hold harmless as stated above. Contractor shall procure contractual liability insurance covering contractor's obligations set forth in these Technical Specifications.

1.17 DISPUTES

Any dispute concerning a question of fact arising under this contract, not disposed of by agreement, shall be resolved in accordance with the Conditions of the Contract and the dispute resolution process set forth in Chapter 2260, Government Code, V.T.C.A.

PART 2. PRODUCTS

2.1 CONSTRUCTION MATERIALS

2.1.1 Materials

All materials shall be new and of the quality specified. Materials shall be free from defects. Where manufacturer's names are mentioned in the specifications, it has been done in order to establish a standard of quality and construction, not to preclude the use of equal or superior materials or products of other manufacturers. However, substitutions must have Engineer's prior approval. Unless otherwise indicated in the specifications or drawings, equipment and material shall be installed in accordance with the manufacturer's recommendations and shall include such tests as manufacturer recommends.

2.1.2 Storage and Protection of Materials:

All materials shall be suitably stored to be protected from damage. Watertight storage facilities of suitable size with floors raised above the ground shall be provided for all materials subject to damage from exposure to the weather. Other materials shall be stored on blocks off the ground. Materials shall be stored to permit easy access for inspection and identification. Any material which has deteriorated, become damaged or otherwise unfit for use shall not be used in the work (as judged by Engineer). Upon completion of all work, or when directed, the Contractor shall remove storage facilities from the site.

PART 3. EXECUTION

3.1 CONSTRUCTION SITE AND JOB CONDITIONS

3.1.1 Supervision

The Contractor's Superintendent shall be on site at all times that work is in progress. The Contractor shall not allow any unsafe or unsanitary conditions to develop as a result of Contractor's operations.

3.1.2 Site Maintenance

The Contractor shall not allow trash or debris to accumulate on the site. At the end of the contract, Contractor shall clean the entire area of any litter resulting from Contractor's operations. The Contractor shall maintain the premises as clean and presentable as good construction practices will allow at all times.

3.1.3 Utilities

Water and electrical power will not be furnished by the Owner. Any temporary connections or appurtenances shall be provided by the Contractor at no cost to the Owner and removed from the premises at the conclusion of the contract.

3.1.4 Employee Records

The Contractor and each subcontractor shall keep, or cause to be kept, on the jobsite an accurate record showing names and occupations of all laborers, workmen, and mechanics employed by Contractor in connection with the project and the sum per hour paid in dollars and cents. The Engineer shall be allowed to inspect such records pursuant to V.T.C.A., Gov. Code, Section 2258.024.

3.1.5 Temporary Toilets

The Contractor shall provide and maintain in neat, sanitary condition toilets and other necessary accommodations for employees' use to comply with the regulations of the State Department of Health or other jurisdictions.

3.1.6 Fire Protection

The Contractor shall take stringent precautions against fire. Open fires are not allowed unless approved in writing by Engineer.

3.2 OCCUPATIONAL SAFETY AND HEALTH STANDARDS

The work and the Contractor's operational activities shall comply with the applicable provisions of the U. S. Department of Labor, Occupational Safety and Health Administration's safety and health regulations for construction and with applicable Occupational Safety and Health Standards.

3.3 PROTECTION OF PUBLIC

The Contractor shall be responsible for public safety at the construction site. All temporary fencing, barricades, warning lights, signs, and flagmen shall be provided and maintained by Contractor as needed. The Contractor shall maintain security of the construction site.

3.4 SITE PHYSICAL DATA

Information furnished below is for the Contractor's review. However, it is expressly understood that the Engineer is not responsible for any interpretation or conclusion drawn there from by the Contractor. The Engineer also is not responsible for any lack of information herein pertaining to physical conditions at the site. The Contractor shall make every effort possible to familiarize himself with and research the conditions to be expected at the site.

3.4.1 Tidal Conditions:

Under ordinary conditions, the tidal range is about 1.09 ft. However, the height of tide is largely dependent on the force, direction, and duration of the wind, and other atmospheric conditions experienced during adverse weather.

Additionally, tidal bores occur due to passing draw-down from passing shipping traffic. The tidal bore is on the order of 1 - 3 ft.

3.4.2 Groundwater:

Subsurface groundwater conditions and elevations may change. Changes in groundwater elevations shall not be just cause for increased compensation.

3.5 PROTECTION OF SITE

The Contractor is notified that construction will occur adjacent to active public recreational facilities, private property, and environmentally sensitive areas. The Contractor is hereby notified that adverse working conditions may exist, and the necessary allowances and precautions shall be made to avoid

damaging public and private property and vegetation of adjacent property. Unauthorized damage to any existing roadways, utilities, building facilities, structures, or plant life shall be repaired by the Contractor at no expense to the Owner. All work shall be within the project boundary described in the Contract Documents.

Contractor shall be present during the pre and post video survey of the site, roadway, offloading and transporting areas. Contractor is liable for any damages evident in the post-video survey and shall repair the damaged areas at no expense to the Owner. This includes, but is not limited to, reseeding damaged areas of vegetation, replanting/replacing damaged trees and landscaping, and repairing damaged roadways, parking lots, surfaces, and curbs.

The Contractor shall protect all vegetation adjacent to the construction site. If Contractor's work will require removal or destruction of vegetation, the Contractor shall obtain approval of Engineer prior to removal. The Contractor shall be held liable for removal of vegetation without Engineer’s prior approval.

The drawings show the locations of all known surface structures pertinent to the work. The locations of surface and subsurface features shown on the drawings are not exact. In the case of underground or underwater obstructions such as existing water, sewer, storm sewer, gas, electrical lines, piling, debris, or partial structures that are not shown on the drawings, their location is not guaranteed.

The Engineer assumes no responsibility for failure to show any or all these structures on the drawings or to show them in their exact location. Failure to show these in the Contract Documents will not be considered sufficient basis for claims for additional compensation for extra work in any manner whatsoever, unless the obstruction encountered is such as to necessitate substantial changes in the lines or grades, or requires the building of special work for which no provision is made.

It is assumed that as elsewhere provided the Contractor has thoroughly inspected the site, is informed as to the correct location of surface structures, has included the cost of such incidental work in the price bid, and has considered and allowed for all foreseeable incidental work due to variable subsurface conditions, whether such conditions and such work are fully and properly described on the drawings or not. Minor changes and variations of the work specified and shown on the drawings shall be expected by the Contractor and allowed for as incidental to the satisfactory completion of a whole and functioning work or improvement.

3.6 LAYOUT OF WORK AND SURVEYS

The Contractor, at Contractor’s expense and using electronic surveying equipment, shall be responsible for establishing base lines, and bench marks if applicable, and staking structure layout for the limits of the project. The Contractor shall also be responsible for all measurements that may be required for the execution of the work to the location and limit marks prescribed in the specifications or on the drawings. It is Contractor’s responsibility to maintain and preserve all stakes and other marks if such marks are destroyed by Contractor through Contractor’s negligence prior to their authorized removal.

The Contractor shall establish a Tide Staff, referenced to NAVD88, which is visible from the project site for the purpose of monitoring water levels during all construction operations.

3.7 ARCHEOLOGICAL MONITORING

The Antiquities Code of Texas, established by Article 6145-9 of Vernon’s Texas Civil Statutes, applies to this project. Violations of the Code are subject to penalties as provided by the Code. Copies of the Code may be obtained from the Texas Antiquities Committee, P. O. Box 12276, Austin, Texas.

3.8 UNDERGROUND OBSTACLES

Pipelines and/or other existing underground installations and structures in the vicinity of the work may be present. The Contractor shall make every effort to locate all underground obstacles and/or

pipelines by prospecting in advance of all trench excavation. Any damage to pipelines, including any resulting environmental contamination, caused by the construction activities shall be repaired/cleaned-up by the Contractor. Any delay or extra cost to the Contractor shall not constitute a claim for extra work, additional payment, or damages.

3.9 CUTTING AND PATCHING

Where indicated in the Contract Documents, this project requires cutting into existing construction for the performance of the work and requires subsequent fitting and patching to restore the existing work to original condition.

3.9.1 Utilities

Contractor shall not cut or patch utilities until all necessary approvals and coordination requirements are accomplished.

Before cutting services that are to remain permanently or temporarily in service, Contractor shall provide bypass system as necessary to maintain service.

After bypass and cutting, Contractor shall cap, valve or plug and tightly seal remaining portion of service piping or conduit to prevent entrance of moisture and foreign matter.

3.9.2 Removing and Replacing Pavement

Unless otherwise directed by the Engineer, the Contractor shall saw cut to remove pavement. The Contractor shall not cut or patch pavement in a manner that would result in a reduction of load-carrying capacity. The Contractor shall replace all pavements, driveways, sidewalks, and curb and gutters with like or better pavement sections.

3.9.3 Inspection

Before cutting, Contractor shall examine items to be cut and patched and the conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, Contractor shall take corrective action before proceeding with the work.

Contractor shall meet at the work site with all trades involved in cutting and patching. Contractor shall review areas of potential interference and conflict between the various trades and shall coordinate layout of the work and resolve potential conflicts before proceeding with the work.

3.10 RECORD DRAWINGS

The Contractor shall maintain on a separate set of the Contract Documents, a record of all changes made during construction. The Contractor shall be responsible for keeping these records and neatly noting with colored pencil or ink all changes. Progress payments will not be made to the Contractor unless such records are maintained.

Record Drawings shall be turned over to the Engineer at the completion of the project. Final payment will not be made until "Record Drawings" have been received and accepted by the Engineer.

END OF SECTION 01 00 00

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 10 00
SUMMARY OF WORK

PART 1. GENERAL

1.1 DEFINITIONS

Definitions pertaining to sustainable development are as defined in ASTM E2114, Section 01 35 40.00 20 ENVIRONMENTAL MANAGEMENT, and as specified.

- "Environmentally preferable products" have a lesser or reduced effect on the environment in comparison to conventional products and services. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product.
- "Sustainability" is the balance of environmental, economic, and societal considerations.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

1.2.1 Project Description

The Contractor shall provide all plant, labor, equipment, supplies, and materials to perform all operations in connection with excavating, transporting, placing and grading, as indicated on the Drawings and specified herein.

1.2.2 Location

The project site lies adjacent to the SH 82 and is located on the shoreline immediately north and adjacent to the Cajun Cabins Hotel/Motel. The Cajun Cabins Site is located on Pleasure Island (Port Arthur), Jefferson County, Texas just south of the State Highway 82 bridge which crosses the Sabine-Neches Ship Channel.

1.2.3 Construction Access

Access to the project Site is via SH 82 on Pleasure Island or by boat via the Sabine-Neches Channel.

The Engineer shall have unlimited access to the project work site including, but not limited to: all equipment, staging areas and work areas until final project closeout. For any equipment not accessible from shore, the Contractor shall be required to furnish, at the request of the Engineer or Owner, suitable transportation from the shore to and from the various pieces of plant, to and from the placement site, as required in the Contract Documents.

The Engineer or his representative is to have free access to the materials and the work at all times for laying out, measuring and inspecting and the Contractor is to afford him all necessary facilities, transportation and assistance for doing so. Should the Contractor refuse, neglect or delay compliance with these requirements, the specific facilities may be furnished and maintained by the Engineer and the cost thereof will be deducted from any amounts due or to become due the Contractor.

1.2.4 Project Site Conditions

It is the Contractor’s responsibility to familiarize himself with the project site prior to bidding, and to verify to his satisfaction the accuracy of the information provided. The information depicted on the site plans represents the results of surveys made on the dates indicated on the plans and can only be considered as indicating the general conditions existing at that time.

1.2.5 Owner Obtained Permits

USACE Permit 22285 applies to this project.

1.2.6 Contractor Obtained Permits

Any necessary permits not mentioned previously shall be the responsibility of the Contractor.

The Contractor shall make application for and pay for any necessary building/construction permits, material hauling permits, permit fees, temporary or permanent utility interruptions and relocations fees, and any other permits required for project completion.

1.2.7 Correspondence

All correspondence is preferred to be sent via email, otherwise, all mail pertinent to the Work shall be sent by express mail, unless delivery by regular mail can be accomplished within three (3) days or by facsimile transmission followed by regular mail of the original copies. Receipt of such mail will be promptly acknowledged when acknowledgment is requested. Address all correspondence in duplicate to:

Attn: W. L. "Bill" Worsham, PE
LJA Engineering, Inc.
5316 Hwy 290 W., Suite 150
Austin, TX 78735
bworsham@ljaengineering.com

1.3 CONTRACT DRAWINGS

An electronic copy of contract drawings, maps, and specifications will be furnished to the Contractor. Upon request, two (2) sets of full size contract drawings, maps, and specifications will be furnished to the Contractor without charge. Reference publications will not be furnished.

Contractor shall immediately check furnished drawings and notify the Engineer of any discrepancies.

1.4 WORK RESCHEDULING

The Contractor shall notify the ENGINEER 24 hours prior to (or as soon as practical) any change in construction activities, project schedule, and for any occurrences that modify or change field work.

1.5 PROJECT ENVIRONMENTAL GOALS

The overall goal for design, construction, and operation is to produce a project that meets the functional program needs and incorporates the principles of sustainability. Specifically:

- Preserve and restore the site ecosystem and biodiversity; avoid site degradation and erosion. Minimize offsite environmental impact.
- Use the minimum amount of energy, water, and materials feasible to meet the design intent. Select energy and water efficient equipment and strategies.
- Use environmentally preferable products and decrease toxicity level of materials used.
- Use renewable energy and material resources.
- Optimize operational performance (through commissioning efforts) in order to ensure energy efficient equipment operates as intended.
- Manage construction site and storage of materials to ensure no negative impact.
- Reduce construction waste through reuse, recycling, and supplier take-back.

1.6 OCCUPANCY OF PREMISES

Before work is started, the Contractor shall arrange with the OWNER and ENGINEER a sequence of procedure, means of access, space for storage of materials and equipment, and use of approaches, corridors, and stairways.

1.7 EXISTING WORK

In addition to "FAR 52.236-9, Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements":

- Remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work which remain.
- Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as approved by the ENGINEER. At the completion of operations, existing work shall be in a condition equal to or better than that which existed before new work started.

1.8 ON-SITE PERMITS

1.8.1 Utility Outage Requests and Utility Connection Requests

The Contractor shall verify the elevations of existing piping, utilities, and any type of underground obstruction not indicated or specified to be removed

1.8.2 Borrow, Excavation, Welding, and Burning Permits

Permits shall be posted at a conspicuous location in the construction area

BURNING OF TRASH OR RUBBISH IS NOT PERMITTED AT THE PROJECT SITE.

1.9 LOCATION OF UNDERGROUND FACILITIES

Verify the elevations of existing piping, utilities, and any type of underground (or encased) obstruction not indicated to be specified or removed but indicated or discovered during scanning in locations to be traversed by piping, ducts, and other work to be conducted or installed.

1.10 NOTIFICATION PRIOR TO EXCAVATION

Notify the Engineer at least 48 hours prior to starting excavation work. Contractor is responsible for marking all utilities.

1.11 REMOVED MATERIAL AND EQUIPMENT

Unless otherwise specified, all removed items shall remain the property of the Contractor.

Contractor shall maintain property control records for material or equipment designated as salvage. Contractor's system of property control may be used if approved by the ENGINEER. All salvaged items which, are not designated to stay on site, shall be removed from the project site prior to final project closeout.

PART 2. PART 2 PRODUCTS

Not used.

PART 3. PART 3 EXECUTION

Not used.

END OF SECTION 01 10 00

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES

Part 1. GENERAL

1.1 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 - Preconstruction Submittals:

Schedule of Prices as indicated on the BID FORM

Payment Request Invoice Template

1.2 SCHEDULE OF PRICES

1.2.1 Data Required

On the BID FORM, provide a detailed breakdown of the contract price, giving quantities for each of the various kinds of work, unit prices, and extended prices. Costs shall be summarized, unit prices indicated, and totals provided for each construction category.

The prices on the BID FORM shall be considered full compensation for furnishing all materials, equipment, labor, appurtenances and all other expenses necessary to perform work in accordance with these drawings, specifications and contract documents.

1.2.2 Schedule Instructions

Payments will be made at unit prices indicated on the BID FORM.

1.3 CONTRACT MODIFICATIONS

The Owner reserves the right to increase or decrease the unit priced quantities by up to 25 percent at the stated unit price, as for each of the bid quantities, as indicated in the Contractor submitted BID FORM.

1.3.1 Content of Invoice

Requests for payment will be processed and submitted for payment. The requests for payment shall include the documents listed below.

- The Contractor's invoice, showing in summary form, the basis for arriving at the amount of the invoice.
- Updated Project Schedule and reports required by the contract.
- Other supporting documents as requested.
- Updated copy of submittal register.
- Invoices not completed in accordance with contract requirements will be returned to the Contractor for correction of the deficiencies.

1.3.2 Submission of Invoices

All invoices for payment shall be submitted to Engineer for review and approval. Invoices shall be submitted for work completed and accepted by Engineer. Invoiced shall be approved by Engineering and submitted to OWNER recommending payment for work completed.

1.3.3 Final Invoice

- If the Contractor is incorporated, the Final Release shall contain the corporate seal. An officer of the corporation shall sign and the corporate secretary shall certify the Final Release.
- For final invoices being submitted, the original Contractor's Final Release Form must be provided directly to the Engineer prior to submission of the final invoice.
- Final invoices not accompanied by the Contractor's Final Release Form will be considered incomplete and will be returned to the Contractor.

1.4 PAYMENTS TO THE CONTRACTOR

Payments will be made on submission of itemized requests by the Contractor which comply with the requirements of this section and will be subject to reduction for overpayments or increase for underpayments made on previous payments to the Contractor.

1.4.1 Obligation of Engineer Recommendation for Payments

The obligation of the OWNER to make payments required under the provisions of this contract shall, at the discretion of the Engineer, be subject to reductions and/or suspensions:

- Reasonable deductions due to defects in material or workmanship;
- Claims which the OWNER may have against the Contractor under or in connection with this contract;
- Unless otherwise adjusted, repayment to the OWNER upon demand for overpayments made to the Contractor; and
- Failure to provide up to date record drawings not current.

Part 2. PRODUCTS

Not Used

Part 3. EXECUTION

Not Used

END OF SECTION 01 20 00

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 22 00
MEASUREMENT AND PAYMENT

Part 1. GENERAL

1.1 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 - Product Data

SD-07 - Weight Certificates

1.2 LUMP SUM PAYMENT ITEMS

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the BID FORM and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.2.1 Mobilization and Demobilization

1.2.1.1 Payment

Payment will be made for costs associated with mobilization and demobilization, as defined in BID FORM for PAYMENT FOR MOBILIZATION AND DEMOBILIZATION. The total cost for mobilization and Demobilization shall not exceed 10% of the total project cost.

1.2.1.2 Unit of Measure

Unit of measure: lump sum.

1.3 UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BID FORM and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items.

1.3.1 Dredging

1.3.1.1 Measurement

Offshore survey elevations will be measured to the nearest 0.1 foot referenced to NAVD88. To ensure this accuracy is maintained, the fathometer shall be calibrated at the start of each survey day, after every third profile line, at the end of each paper roll and at the end of each day. Survey vessel settlement and squat must be determined at survey speeds and applied to correct the water depth measurements.

The pre-construction and post-construction surveys shall be conducted in the presence of the Engineer or his representative. The Contractor shall provide 24 hour advance notice to

the Engineer prior to conducting pre- or post- construction surveys.

1.3.1.2 Payment

Payment for the Dredging work will be made at the unit price for Bid Item No. 352023-1x. This price shall include the cost of all dredging and placement of dredged material.

1.3.1.3 Unit of Measure

Unit of measure: cubic yard.

1.3.2 Geotextile

1.3.2.1 Measurement

Measurement of Geotextile work will be based on the square yardage of composite geogrid/geotextile represented in the Drawings without regard to required overlaps or other overages as may be part of construction means and methods.

1.3.2.2 Payment

Payment for the Geotextile work of this section will be made at the square yard price for Bid Item No. 313500-x in the Schedule of Quantities and Prices.

1.3.2.3 Unit of Measure

Unit of measure: square yard

1.3.3 Stone

1.3.3.1 Measurement

Measurement for payment of Stone work as specified in this Section will be based on the number of TONS (2000 pounds) of material placed within the lines and grades shown on the Drawings and as specified herein. Measurement of installed stone material will be determined by barge displacement if delivered by barge. Measurement of installed stone material will be determined by Certified Scale approved by Owner and Engineer if delivered by truck. No measurement for payment will be made for increase or decrease in quantities caused by the filling of over excavated areas or for material placed outside the lines and grades shown on the Drawings, unless directed by the Engineer.

Vehicle Measurement:

All material delivered by vehicle shall be weighed on public scales or scales provided by the Contractor and approved by the Engineer. The scales shall be of sufficient capacity to permit weighing the transporting vehicle both empty and full. Types of material shall not be mixed in any given load. Scales shall be of the type that prints weight tickets which shall include the date, time, type of material, unloaded and loaded weights, and contractors name and job number. A duplicate copy of each weight ticket shall be furnished to the Engineer. The Contractor's weighmaster shall be subject to the approval of the Engineer. All cost for providing acceptable weighing devices shall be borne by the Contractor and shall be included in the contract unit prices for the material.

In the event of over or under placement of material with respect to the lines and grades shown on the Drawings, the following conversion for pay quantities shall be used. When the quantity of material is determined by weight and must be computed by the volume, the weight will be determined by calculating the in-place gross volume of material and multiplying that volume by the specific gravity of the material as measured in laboratory

tests. The weight will then be reduced by 28 percent to account for voids in the gross volume for the Stone.

1.3.3.2 Payment

Payment for the Core Stone work of this Section shall be made at the unit price for Bid Item No. 353000-1, Core Stone, in the Schedule of Quantities and Prices.

Payment for the Bedding Stone work of this Section shall be made at the unit price for Bid Item No. 353000-2, Bedding Stone, in the Schedule of Quantities and Prices.

Payment for the Armor Stone work of this Section shall be made at the unit price for Bid Item No. 353000-3, Armor Stone, in the Schedule of Quantities and Prices.

1.3.3.3 Unit of Measure

Unit of measure: tons

1.3.4 Mobilization and Demobilization

1.3.4.1 Measurement

No measurement for Work of this Section will be made.

1.3.4.2 Payment

Payment for Mobilization and Demobilization Work of this Section will be made at the lump sum (LS) price for Bid Item No. 017013-1, Mobilization and Demobilization, in the Schedule of Quantities and Prices, which shall not exceed 10% of the Bid Subtotal. Payment for mobilization will be made with the first progress payment and will be equal to 90% of the amount bid for Bid Item No. 017013-1.

The remaining 10% will be paid with the final project payment and will be proportional to the amount of the Contractor Use Areas that have been cleaned and restored to their original condition in a total amount of 10% of the amount bid.

1.3.4.3 Unit of Measure

Unit of measure: lump sum

Part 2. PART 2 PRODUCTS

Not Used

Part 3. PART 3 EXECUTION

Not Used

END OF SECTION 01 22 00

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 31 00
PROJECT SCHEDULE

Part 1. GENERAL

1.1 DESCRIPTION

1.1.1 Scope:

This section covers the construction project schedule requirements, submittals of project schedule, and required completion date.

1.2 PROJECT SCHEDULE

The Work shall be substantially completed WITHIN 120 DAYS and completed WITHIN 135 DAYS from Notice to Proceed unless otherwise directed by the Engineer.

1.3 CONSTRUCTION SCHEDULE

WITHIN FIVE DAYS after issuance of the Notice to Proceed, the Contractor shall submit, for review by the Engineer, a Construction schedule for all components of the construction operations.

Part 2. PRODUCTS

Not applicable.

Part 3. EXECUTION

Not applicable.

END OF SECTION 01 31 00

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 33 00
SUBMITTAL PROCEDURES

Part 1. GENERAL

1.1 SUMMARY

The Engineer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections of the Technical Specifications.

Units of weights and measures used on all submittals are to be the same as those used in the Contract Documents.

Each submittal is to be complete and in sufficient detail to allow ready determination of compliance with contract requirements.

Proposed deviations from the contract requirements are to be clearly identified. Include within submittals items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals.

Submittals requiring ENGINEER'S approval are to be scheduled and made prior to the acquisition of the material or equipment covered thereby. Pick up and dispose of samples not incorporated into the work in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

1.2 SUBMITTAL PROCEDURES

Materials furnished by the Contractor shall not be incorporated into construction before review by Engineer, except as specified herein.

Materials shall be submitted for review in the manner specified herein and under the applicable specific technical provisions. The methods of review may include submission of samples, shop drawings (including stock prints), catalogs (including cuts and descriptive literature), schedules, certificates, or field inspection. All materials for which no specific method of review is specified shall be subject to field inspection and review.

The Contractor shall certify on all submittals that the material being proposed conforms to Contract requirements. The Contractor shall present all materials for each specification section at the same time as one submittal, titled with project title and contract number. Incomplete submittals and submittals with inadequate data will be rejected.

The following detailed instructions include various methods of material review that shall be followed in submitting requests for review. Review will be made by returning one copy appropriately stamped and signed. Items returned stamped "Conforms to Design Concept" or "Conforms to Design Concept With Revisions As Noted" shall be considered as adequate to incorporate into the construction. Should the Contractor desire the return of more than one copy, photocopy reproductions or ammonia prints will be returned in the additional number desired, up to three copies.

Review time: All requests for material review shall be submitted in sufficient time so as not to delay the progress of the work, allowing five days after receipt by the Engineer for review.

Mailing address: Unless specified elsewhere, all requests for materials review shall be forwarded in duplicate to:

Attn: Bill Worsham, PE

LJA Engineering, Inc
5316 Highway 290 West, Suite 150
Austin, TX 78735
Fax (512) 439-4716
bworsham@ljaengineering.com

Requests shall be accompanied by a transmittal letter from the Contractor stating that the items of material submitted are the Contractor's selection for construction under the Contract and requesting review. Additionally, the Contractor shall forward to the Engineer one copy of the transmittal letter and one copy of the submittal data.

1.3 DEFINITIONS

1.3.1 Submittal Descriptions

Submittals requirements are specified in the technical sections. Submittals are identified by Submittal Description (SD) numbers and titles as follows:

SD-01 Preconstruction Submittals

Submittals which are required prior to start of construction (work) issuance of contract notice to proceed or commencing work on site or the start of the next major phase of the construction on a multi-phase contract, includes schedules, tabular list of data, or tabular list including location, features, or other pertinent information regarding products, materials, equipment, or components to be used in the work.

Certificates of insurance

Surety bonds

List of proposed Subcontractors

List of proposed products

Construction Progress Schedule

Network Analysis Schedule (NAS)

Submittal register

Schedule of prices

Health and safety plan

Work plan

Quality Control (QC) plan

Environmental protection plan

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials, systems or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

Fabricated or unfabricated physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

Design calculations, mix designs, analyses or other data pertaining to a part of work.

Design submittals, design substantiation submittals and extensions of design submittals.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports.

Daily logs and checklists.

Final acceptance test and operational test procedure.

SD-07 Certificates

Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a manufacturer, supplier, installer or Subcontractor through Contractor, the purpose of which is to further quality of

orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

Confined space entry permits.

Text of posted operating instructions.

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and (MSDS)concerning impedances, hazards and safety precautions.

SD-09 Manufacturer's Field Reports

Documentation of the testing and verification actions taken by manufacturer's representative at the job site, in the vicinity of the job site, or on a sample taken from the job site, on a portion of the work, during or after installation, to confirm compliance with manufacturer's standards or instructions. The documentation must be signed by an authorized official of a testing laboratory or agency and must state the test results; and indicate whether the material, product, or system has passed or failed the test.

Factory test reports.

SD-10 Operation and Maintenance Data

Data that is furnished by the manufacturer, or the system provider, to the equipment operating and maintenance personnel, including manufacturer's help and product line documentation necessary to maintain and install equipment. This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

This data is intended to be incorporated in an operations and maintenance manual or control system.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

Special requirements necessary to properly close out a construction contract. For example, Record Drawings and as-built drawings. Also, submittal requirements necessary to properly close out a major phase of construction on a multi-phase contract.

1.4 SUBMITTALS

Submit the following in accordance with this section.

SD-01 Preconstruction Submittals

Submittal Register

1.5 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.5.1 Engineer Approved

Engineer approval is required for extensions of design, critical materials, deviations,

equipment whose compatibility with the entire system must be checked, and other items as designated by the Engineer. Approval is required for any deviations from the Contract Documents or Accepted Proposal and other items as designated by the Engineer. Within the terms of the Contract Clause entitled, "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.5.2 Conformance Review of Design (CR)

Review will be only for conformance with the applicable codes, standards and contract requirements. Generally, design submittals should be identified as SD-05 Design Data submittals.

1.5.2.1 Substitutions

Unless prohibited or provided for otherwise elsewhere in the Contract, where the accepted contract proposal named products, systems, materials or equipment by manufacturer, brand name and/or by model number or other specific identification, and the Contractor desires to substitute manufacturer or model after award, submit a requested substitution for Engineer concurrence. Include substantiation identifying information as meeting the contract requirements and that it is equal in function, performance, quality and salient features to that in the accepted contract proposal. If the Contract otherwise prohibits substitutions of equal named products, systems, materials or equipment by manufacturer, brand name and/or by model number or other specific identification, the request is considered a "variation" to the contract. Variations are discussed below in paragraphs: "Engineer Approved" and "VARIATIONS"

1.5.3 Engineer Approved

In addition to the above stated requirements for proposed deviations to the accepted design, Engineer Approval and, where applicable, a contract modification are required before the Contractor is authorized to proceed with material acquisition or installation for any proposed variation to the contract (the solicitation and/or the accepted proposal), which constitutes a change to the contract terms. Within the terms of the Contract Clause entitled, "Specifications and Drawings for Construction," they are considered to be "shop drawings." The Engineer reserves the right to accept or reject any such proposed deviation at its discretion.

1.6 Forwarding Submittals Requiring Engineer Approval

1.6.1 Submittals Required from the Contractor

As soon as practicable after award of contract, and before procurement of fabrication, forward to submittals required in the technical sections of this specification, including shop drawings, product data and samples. One copy of the transmittal form for all submittals shall be forwarded to the ENGINEER.

Engineer will review and approve those submittals to verify submittals comply with the contract requirements.

1.6.1.1 Shop Drawing Submittals

Submittals may be provided for review via electronic delivery methods as appropriate. All costs associated with the regular mail service, courier service, overnight express mail service or other delivery methods shall be borne by the construction Contractor. Costs associated with the delivery of submittals related to proposed submittal variances of resubmittals necessary as a result of noncompliant or incomplete Contractor submittals shall be the responsibility of the Contractor.

1.7 PREPARATION

1.7.1 Transmittal Form

Transmit each submittal, except sample installations and sample panels to ENGINEER. Transmit submittals with transmittal form and standard for project. On the transmittal form identify Contractor, indicate date of submittal, and include information prescribed by transmittal form and required in paragraph entitled, "Identifying Submittals," of this section.

1.7.2 Identifying Submittals

When submittals are provided by a Subcontractor, the Prime Contractor is to prepare, review and stamp with Contractor's approval all specified submittals prior to submitting for ENGINEER approval.

Identify submittals, except sample installations and sample panels, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

1.7.2.1 Project title and location.

1.7.2.2 Construction contract number.

1.7.2.3 Date of the drawings and revisions.

1.7.2.4 Name, address, and telephone number of subcontractor, supplier, manufacturer and any other subcontractor associated with the submittal.

1.7.2.5 Section number of the specification section by which submittal is required.

1.7.2.6 Submittal description (SD) number of each component of submittal.

1.7.2.7 When a resubmission, add alphabetic suffix on submittal description, for example, submittal 18 would become 18A, to indicate resubmission.

1.7.2.8 Product identification and location in project.

1.7.3 Format for SD-02 Shop Drawings

Shop drawings are not to be less than 8 1/2 by 11 inches nor more than 30 by 42 inches, except for full size patterns or templates. Prepare drawings to accurate size, with scale indicated, unless other form is required. Drawings are to be suitable for reproduction and be of a quality to produce clear, distinct lines and letters with dark lines on a white background.

Present 8 1/2 by 11 inches sized shop drawings as part of the bound volume for submittals required by section. Present larger drawings in sets.

Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph entitled, "Identifying Submittals," of this section.

Number drawings in a logical sequence. Contractors may use their own number system, but they shall clearly indicate the corresponding Sheet Number of the Contract Drawings. Each drawing is to bear the number of the submittal in a uniform location adjacent to the title block. Place the contract number in the margin, immediately below the title block, for each drawing.

Dimension drawings, except diagrams and schematic drawings; prepare drawings

demonstrating interface with other trades to scale. Use the same unit of measure for shop drawings as indicated on the contract drawings. Identify materials and products for work shown.

Include the nameplate data, size and capacity on drawings. Also include applicable federal, military, industry and technical society publication references.

1.7.4 Format of SD-03 Product Data and SD-08 Manufacturer's Instructions

Present product data submittals for each section as a complete, bound volume. Include table of contents, listing page and catalog item numbers for product data.

Indicate, by prominent notation, each product which is being submitted; indicate specification section number and paragraph number to which it pertains.

Supplement product data with material prepared for project to satisfy submittal requirements for which product data does not exist. Identify this material as developed specifically for project, with information and format as required for submission of SD-07 Certificates.

Include the manufacturer's name, trade name, place of manufacture, and catalog model or number on product data. Also include applicable federal, military, industry and technical society publication references. Should manufacturer's data require supplemental information for clarification, submit as specified for SD-07 Certificates.

Where equipment or materials are specified to conform to industry and technical society reference standards of the organizations such as American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), and Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the ENGINEER. State on the certificate that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.

Collect required data submittals for each specific material, product, unit of work, or system into a single submittal and marked for choices, options, and portions applicable to the submittal. Mark each copy of the product data identically. Partial submittals will not be accepted for expedition of construction effort.

Submit manufacturer's instructions prior to installation.

1.7.5 Format of SD-04 Samples

Furnish samples in sizes below, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately same size as specified:

1.7.5.1 Sample of Equipment or Device: Full size.

1.7.5.2 Sample of Materials Less Than 2 by 3 inches: Built up to 8 1/2 by 11 inches.

1.7.5.3 Sample of Materials Exceeding 8 1/2 by 11 inches: Cut down to 8 1/2 by 11 inches and adequate to indicate color, texture, and material variations.

1.7.5.4 Sample of Linear Devices or Materials: 10 inch length or length to be supplied, if less than 10 inches. Examples of linear devices or materials are conduit and handrails.

1.7.5.5 Sample of Non-Solid Materials: Pint. Examples of non-solid materials are sand and paint.

1.7.5.6 Color Selection Samples: 2 by 4 inches. Where samples are specified for selection of color, finish, pattern, or texture, submit the full set of available choices for the material or product specified. Sizes and quantities of samples are to represent their respective standard unit.

1.7.5.7 Sample Panel: 4 by 4 feet.

1.7.5.8 Sample Installation: 100 square feet.

Samples Showing Range of Variation: Where variations in color, finish, pattern, or texture are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range. Mark each unit to describe its relation to the range of the variation.

Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples are to be in undamaged condition at time of use.

Recording of Sample Installation: Note and preserve the notation of area constituting sample installation but remove notation at final clean up of project.

1.7.6 Format of SD-05 Design Data and SD-07 Certificates

Provide design data and certificates on 8 1/2 by 11 inches paper. Provide a bound volume for submittals containing numerous pages.

1.7.7 Format of SD-06 Test Reports and SD-09 Manufacturer's Field Reports

Provide reports on 8 1/2 by 11 inches paper in a complete bound volume.

Indicate by prominent notation, each report in the submittal. Indicate specification number and paragraph number to which it pertains.

1.7.8 Format of SD-01 Preconstruction Submittals and SD-11 Closeout Submittals

When submittal includes a document which is to be used in project or become part of project record, other than as a submittal, do not apply Contractor's approval stamp to document, but to a separate sheet accompanying document.

1.8 QUANTITY OF SUBMITTALS

1.8.1 Number of Copies of SD-02 Shop Drawings

Submit two (2) copies of submittals of shop drawings requiring review and approval only by QC organization and two (2) copies of shop drawings requiring review and approval by Engineer.

1.8.2 Number of Copies of SD-03 Product Data and SD-08 Manufacturer's Instructions

Submit in compliance with quantity requirements specified for shop drawings.

1.8.3 Number of Samples SD-04 Samples

1.8.3.1 Submit one sample panel or provide one sample installation where directed. Include components listed in technical section or as directed.

1.8.3.2 Submit one sample installation, where directed.

1.8.3.3 Submit one sample of non-solid materials.

1.8.4 Number of Copies SD-05 Design Data and SD-07 Certificates

Submit in compliance with quantity requirements specified for shop drawings.

1.8.5 Number of Copies SD-06 Test Reports and SD-09 Manufacturer's Field Reports

Submit in compliance with quantity and quality requirements specified for shop drawings other than field test results that will be submitted with QC reports.

1.8.6 Number of Copies of SD-01 Preconstruction Submittals and SD-11 Closeout Submittals

Unless otherwise specified, submit two (2) sets of administrative submittals.

1.9 INFORMATION ONLY SUBMITTALS

The ENGINEER reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the ENGINEER from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the ENGINEER or for check testing by the ENGINEER in those instances where the technical specifications so prescribe.

1.10 VARIATIONS

Variations from contract requirements require both OWNER and ENGINEER approval and will be considered where advantageous to OWNER.

1.10.1 Considering Variations

Discussion with ENGINEER prior to submission, will help ensure functional and quality requirements are met and minimize rejections and re-submittals. When contemplating a variation which results in lower cost, consider submission of the variation as a Value Engineering Change Proposal (VECP).

Specifically point out variations from contract requirements in transmittal letters. Failure to point out deviations may result in the ENGINEER requiring rejection and removal of such work at no additional cost to the OWNER.

1.10.2 Proposing Variations

When proposing variation, deliver written request to the Engineer with documentation of the nature and features of the variation and why the variation is desirable and beneficial to OWNER. If lower cost is a benefit, also include an estimate of the cost savings. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

Set forth in writing the reason for any deviations and annotate such deviations on the submittal. The ENGINEER reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

1.10.3 Warranting That Variations Are Compatible

When delivering a variation for approval, Contractor warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.10.4 Review Schedule Is Modified

In addition to normal submittal review period, a period of ten (10) working days will be allowed for consideration by the ENGINEER of submittals with variations.

1.11 SUBMITTAL REGISTER AND DATABASE

Prepare and maintain submittal register, as the work progresses. Use electronic submittal register program furnished by the ENGINEER or any other format. A submittal register showing items of equipment and materials for which submittals are required by the specifications is provided as an attachment. This list may not be all inclusive and additional submittals may be required. The Engineer will provide the initial submittal register in electronic , thereafter, the Contractor is to track all submittals by maintaining a complete list, including completion of all data columns, including dates on which submittals are received and returned by the Engineer.

1.11.1 Action Codes

Entries for the Submittal Register are to be used are as follows (others may be prescribed by Transmittal Form):

1.11.1.1 Engineer Review Action Codes

"A" - "Approved as submitted"; "Completed"

"B" - "Approved, except as noted on drawings"; "Completed"

"C" - "Approved, resubmission required"; "Resubmit"

"D" - "Returned by correspondence"; "Completed"

"E" - "Disapproved (See attached)"; "Resubmit"

"F" - "Receipt acknowledged"; "Completed"

"G" - "Other (Specify)"; "Resubmit"

"X" - "Receipt acknowledged, does not comply"; "Resubmit"

1.11.1.2 Contractor Action Codes

NR - Not Received

AN - Approved as noted

A - Approved

RR - Disapproved, Revise, and Resubmit

1.12 SCHEDULING

WITHIN 15 CALENDAR DAYS of Notice to Proceed, provide, for approval by the ENGINEER, the following schedule of submittals:

1.12.1 A schedule of shop drawings and technical submittals required by the specifications and drawings. Indicate the specification or drawing reference requiring the submittal; the material, item, or process for which the submittal is required; the "SD" number and identifying title of the submittal; the Contractor's anticipated submission date and the approval need date.

1.12.2 A separate schedule of other submittals required under the contract but not listed in the specifications or drawings. Schedule will indicate the contract requirement reference; the type or title of the submittal; the Contractor's anticipated submission date and the

approved need date (if approval is required).

1.12.3 Constraints

Conform to provisions of this section, unless explicitly stated otherwise for submittals listed or specified in this contract.

When acceptability of a submittal is dependent on conditions, items, or materials included in separate subsequent submittals, submittal will be returned without review.

Approval of a separate material, product, or component does not imply approval of assembly in which item functions.

1.13 DISAPPROVED (OR REJECTED) SUBMITTALS

Contractor shall make corrections required by the Engineer.

If changes are necessary to submittals, the Contractor shall make such revisions and submission of the submittals in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.14 APPROVED (OR ACCEPTED) SUBMITTALS

The Engineer's approval or acceptance of submittals is not to be construed as a complete check, and indicates only that the general method of construction, materials, detailing and other information are satisfactory and design, general method of construction, materials, detailing and other information appear to meet the Accepted Proposal.

Approval or acceptance will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work design, dimensions, all design extensions, such as the design of adequate connections and details, etc., and the satisfactory construction of all work.

After submittals have been approved or accepted by the ENGINEER, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.15 APPROVED SAMPLES

Approval of a sample is only for the characteristics or use named in such approval and is not be construed to change or modify any contract requirements. Before submitting samples, the Contractor to assure that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been approved.

Match the approved samples for materials and equipment incorporated in the work. If requested, approved samples, including those which may be damaged in testing, will be returned to the Contractor, at his expense, upon completion of the contract. Samples not approved will also be returned to the Contractor at its expense, if so requested.

Failure of any materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make of that material. Owner/Engineer reserves the right to disapprove any material or equipment which previously has proved unsatisfactory in service.

Samples of various materials or equipment delivered on the site or in place may be taken by the Engineer/Owner for testing. Samples failing to meet contract requirements will automatically void previous approvals. Contractor to replace such materials or equipment to meet contract

requirements.

Approval of the Contractor's samples by the Engineer/Owner does not relieve the Contractor of his responsibilities under the contract.

1.16 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained. No payment for materials incorporated in the work will be made if all required or required approvals have not been obtained. No payment will be made for any materials incorporated into the work for any conformance review submittals or information only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

1.17 PROGRESS SCHEDULE

1.17.1 Bar Chart

1.17.1.1 Submit the progress chart, for approval by ENGINEER, at the Preconstruction Conference in one reproducible and 2 copies.

1.17.1.2 Prepare the progress chart in the form of a bar chart utilizing form "Construction Progress Chart" or comparable format acceptable to the ENGINEER.

1.17.1.3 Include no less than the following information on the progress chart:

- Break out by major headings for primary work activity.
- A line item break out under each major heading sufficient to track the progress of the work.
- A line item showing contract finalization task which includes punch list, clean-up and demolition, and final construction drawings.
- Separate line items for mobilization and drawing submittal and approval. (These items are to show no associated costs.)

1.17.1.4 Update the progress schedule in one reproduction every 30 calendar days throughout the contract performance period or upon submittal of payment request.

Part 2. PRODUCTS

Not Used

Part 3. EXECUTION

Not Used

END OF SECTION 01 33 00

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 35 26
SAFETY REQUIREMENTS

Part 1. GENERAL

1.1 REFERENCES

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

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)

ASSE/SAFE A10.32 (2004) Fall Protection

ASSE/SAFE A10.34 (2001; R 2005) Protection of the Public on or Adjacent to Construction Sites

ASSE/SAFE Z359.1 (2007) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components

ASME INTERNATIONAL (ASME)

ASME B30.22 (2010) Articulating Boom Cranes

ASME B30.3 (2009) Tower Cranes

ASME B30.5 (2007) Mobile and Locomotive Cranes

ASME B30.8 (2010) Floating Cranes and Floating Derricks

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

NASA NPG 8621.1 (2004a) NASA Mishap Reporting, Investigating and Record Keeping Policy

NASA NPG 8715.3 (2004) NASA Safety Manual

NASA-STD 8719.12 (2010) Safety Standard for Explosives, Propellants, and Pyrotechnics

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10 (2010) Standard for Portable Fire Extinguishers

NFPA 241

(2009) Standard for Safeguarding Construction, Alteration, and Demolition Operations

NFPA 306 (2009) Standard for Control of Gas Hazards on Vessels

NFPA 51B (2009; TIA 09-1) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work

NFPA 70 (2011; TIA 11-1; Errata 2011; TIA 11-2; TIA 11-3; TIA 11-4) National Electrical Code

NFPA 70E (2012) Standard for Electrical Safety in the Workplace

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2008; Errata 1-2010; Changes 1-3 2010; Changes 4-6 2011) Safety and Health Requirements Manual

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

10 CFR 20 Standards for Protection Against Radiation

29 CFR 1910 Occupational Safety and Health Standards

29 CFR 1910.146 Permit-required Confined Spaces

29 CFR 1915 Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment

29 CFR 1919 Gear Certification

29 CFR 1926 Safety and Health Regulations for Construction

29 CFR 1926.1400 Cranes & Derricks in Construction

29 CFR 1926.16 Rules of Construction

29 CFR 1926.450 Scaffolds

29 CFR 1926.500 Fall Protection

CPL 2.100 (1995) Application of the Permit-Required Confined Spaces (PRCS) Standards, 29 CFR 1910.146

U.S. NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC)

NAVFAC P-307 (2009; Change 1 Mar 2011; Change 2 Aug 2011)Management of Weight Handling Equipment

1.2 DEFINITIONS

1.2.1 Competent Person for Fall Protection. A person who is capable of identifying hazardous or dangerous conditions in the personal fall arrest system or any component thereof, as well as their application and use with related equipment, and has the authority to take prompt corrective measures to eliminate the hazards of falling.

1.2.2 High Visibility Accident. Any mishap which may generate publicity or high visibility.

1.2.3 Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.

1.2.4 Operating Envelope. The area surrounding any crane. Inside this "envelope" is the crane, the operator, riggers and crane walkers, rigging gear between the hook and the load, the load and the crane's supporting structure (ground, rail, etc.).

1.2.5 Recordable Injuries or Illnesses. Any work-related injury or illness that results in:

1.2.5.1 Death, regardless of the time between the injury and death, or the length of the illness;

1.2.5.2 Days away from work (any time lost after day of injury/illness onset);

1.2.5.3 Restricted work;

1.2.5.4 Transfer to another job;

1.2.5.5 Medical treatment beyond first aid;

1.2.5.6 Loss of consciousness; or

1.2.5.7 A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.

1.3 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Accident Prevention Plan (APP)

Activity Hazard Analysis (AHA)

Crane Critical Lift Plan

Proof of qualification for Crane Operators

SD-06 Test Reports

Notifications and Reports

Submit reports as their incidence occurs, in accordance with the requirements of the paragraph, "Notifications and Reports."

Accident Reports

Crane Reports

SD-07 Certificates

License Certificates

Submit one copy of each permit/certificate attached to each

Daily Quality Control Report.

1.4 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, comply with the most recent edition of USACE EM 385-1-1, and the following federal, state, and local laws, ordinances, criteria, rules and regulations. Submit matters of interpretation of standards to the Engineer for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern.

1.5 SITE QUALIFICATIONS, DUTIES AND MEETINGS

1.5.1 Site Safety and Health Officer (SSHO)

The SSHO must meet the requirements of EM 385-1-1 section 1 and ensure that the requirements of 29 CFR 1926.16 are met for the project. Provide a Safety oversight team that includes a minimum of one (1) person at each project site to function as the Site Safety and Health Officer (SSHO). The SSHO or an equally-qualified Designated Representative/alternate shall be at the work site to implement and administer the Contractor's safety program and Engineer-accepted Accident Prevention Plan. The SSHO's training, experience, and qualifications shall be as required by EM 385-1-1 paragraph 01.A.17, entitled SITE SAFETY AND HEALTH OFFICER (SSHO), and all associated sub-paragraphs.

A Competent Person shall be provided for all of the hazards identified in the Contractor's

Safety and Health Program in accordance with the accepted Accident Prevention Plan, and shall be on-site at all times when the work that presents the hazards associated with their professional expertise is being performed. Provide the credentials of the Competent Persons(s) to the Engineer for acceptance in consultation with the Safety Office.

1.5.1.1 Contractor Quality Control (QC) Person:

The Contractor Quality Control Person can be the SSHO on this project.

1.5.1.2 The Contractor Quality Control (QC) Personnel

The QC has safety inspection responsibilities as part of the QC duties. The Project Superintendent or other Contractor personnel may act on behalf of the SSHO for a period of no more than thirty (30) days annually, provided that the individual meets the same competency level of the SSHOs, demonstrates the proficiency required, and is approved by the Engineer.

1.5.1.3 Crane Operators

Meet the crane operators requirements in USACE EM 385-1-1, Section 16 and Appendix I. In addition, for mobile cranes with Original Equipment Manufacturer (OEM) rated capacitates of 50,000 pounds or greater, designate crane operators as qualified by a source that qualifies crane operators (i.e., union, a government agency, or an organization that tests and qualifies crane operators). Provide proof of current qualification.

1.5.2 Personnel Duties

1.5.2.1 Site Safety and Health Officer (SSHO)

The SSHO shall:

a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Attach safety inspection logs to the Contractors' daily production report.

b. Conduct mishap investigations and complete required reports. Maintain the OSHA Form 300 and Daily Production reports for prime and sub-contractors.

c. Maintain applicable safety reference material on the job site.

d. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.

e. Implement and enforce accepted APPS and AHAs.

f. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. Post a list of unresolved safety and health deficiencies on the safety bulletin board.

g. Ensure sub-contractor compliance with safety and health requirements.

h. Maintain a list of hazardous chemicals on site and their material safety data sheets.

1.5.3 Meetings

1.5.3.1 Preconstruction Conference

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

b. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Owner's representative as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, review, and acceptance of AHAs to preclude project delays.

c. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance.

1.6 ACCIDENT PREVENTION PLAN (APP)

Prepare the APP in accordance with the format and requirements of USACE EM 385-1-1 and as supplemented herein. Cover all paragraph and subparagraph elements in USACE EM 385-1-1, Appendix A, "Minimum Basic Outline for Accident Prevention Plan". Specific requirements for some of the APP elements are described below. The APP shall be job-specific and address any unusual or unique aspects of the project or activity for which it is written. The APP shall interface with the Contractor's overall safety and health program. Include any portions of the Contractor's overall safety and health program referenced in the APP in the applicable APP element and made site-specific. The Engineer considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the on-site superintendent, the designated site safety and health officer, the Contractor Quality Control Manager, and any designated CSP or CIH.

Submit the APP to the Engineer 15 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP.

Once accepted by the ENGINEER, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the ENGINEER, until the matter has been rectified.

Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the ENGINEER, project superintendent, SSHO and quality control manager. Should any severe hazard exposure, i.e. imminent danger, become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the ENGINEER within 24 hours of discovery. Eliminate/remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ASSE/SAFE A10.34,) and the environment.

Copies of the accepted plan will be maintained at the job site. Continuously reviewed and amended the APP, as necessary, throughout the life of the contract. Incorporate unusual or high-hazard activities not identified in the original APP as they are discovered.

1.6.1 EM 385-1-1 Contents

In addition to the requirements outlined in Appendix A of USACE EM 385-1-1, the following is required:

1.6.1.1 Names and qualifications (resumes including education, training, experience and certifications) of all site safety and health personnel designated to perform work on this project to include the designated site safety and health officer and other competent and qualified personnel to be used such as CSPs, CIHs, STSs, CHSTs. Specify the duties of each position.

1.6.1.2 Qualifications of competent and of qualified persons. As a minimum, designate and submit qualifications of competent persons for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; personal protective equipment and clothing to include selection, use and maintenance.

1.6.1.3 Confined Space Entry Plan. Develop a confined and/or enclosed space entry plan in accordance with USACE EM 385-1-1, applicable OSHA standards 29 CFR 1910, 29 CFR 1915, and 29 CFR 1926, OSHA Directive CPL 2.100, and any other federal, state and local regulatory requirements identified in this contract. Identify the qualified person's name and qualifications, training, and experience. Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by contractor personnel and the coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)

1.6.1.4 Crane Critical Lift Plan. Prepare and sign weight handling critical lift plans for lifts over 75 percent of the capacity of the crane or hoist (or lifts over 50 percent of the capacity of a barge mounted mobile crane's hoists) at any radius of lift; lifts involving more than one crane or hoist; lifts of personnel; and lifts involving non-routine rigging or operation, sensitive equipment, or unusual safety risks. Submit 15 calendar days prior to on-site work and include the requirements of USACE EM 385-1-1, paragraph 16.H. and the following:

(1) For lifts of personnel, demonstrate compliance with the requirements of 29 CFR 1926.1400.

(2) For barge mounted mobile cranes, barge stability calculations identifying barge list and trim based on anticipated loading; and load charts based on calculated list and trim. The amount of list and trim shall be within the crane manufacturer's requirements.

1.6.1.5 Fall Protection and Prevention (FP&P) Program Documentation. The program documentation shall be site specific and address all fall hazards in the work place and during different phases of construction. Address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 6 feet. A qualified person for fall protection shall prepare and sign the program documentation. Include fall protection and prevention systems, equipment and methods employed for every phase of work, responsibilities, assisted rescue, self-rescue and evacuation procedures, training requirements, and monitoring methods. Revise the Fall Protection and Prevention Program documentation [every six months] for lengthy projects, reflecting any changes during the course of construction due to changes in personnel, equipment, systems or work habits. Keep and maintain the accepted Fall Protection and Prevention Program documentation at the job site for the duration of the project. Include the

Fall Protection and Prevention Program documentation in the Accident Prevention Plan (APP).

The FP&P Plan shall include a Rescue and Evacuation Plan in accordance with USACE EM 385-1-1, Section 21.M. The plan shall include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. Include the Rescue and Evacuation Plan in the Fall Protection and Prevention (FP&P) Plan, and as part of the Accident Prevention Plan (APP).

1.6.1.6 Excavation Plan. The safety and health aspects prepared in accordance with Section 31 00 00 EARTHWORK.

1.7 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

1.8 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Owner has no responsibility to provide emergency medical treatment.

1.9 NOTIFICATIONS and REPORTS

1.9.1 Accident Notification

Notify the ENGINEER as soon as practical, but no more than four hours after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than $2,000, or any weight handling equipment accident. Within notification include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.).

1.9.2 Accident Reports

Conduct an accident investigation for recordable injuries and illnesses, for Medical Treatment defined in paragraph DEFINITIONS, property damage accidents resulting in at least $20,000 in damages, and near misses as defined in EM 385-1-1, to establish the root cause(s) of the accident. Complete the applicable

1.9.3 Crane Reports

Submit crane inspection reports required in accordance with USACE EM 385-1-1, Appendix I and as specified herein with Daily Reports of Inspections.

1.10 SEVERE STORM PLAN

1.10.1 In the event of a severe storm warning, the Contractor must:

1.10.2 Secure outside equipment and materials and place materials that could be damaged in protected areas.

1.10.3 Check surrounding area, including tops of buildings and equpment, for loose material, equipment, debris, and other objects that could be blown away or against existing facilities.

1.10.4 Ensure that temporary erosion controls are adequate.

Part 2. PRODUCTS

Not Used

Part 3. EXECUTION

3.1 CONSTRUCTION AND OTHER WORK

PPE is governed in all areas by the nature of the work the employee is performing. Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks. Safety glasses must be carried/available on each person. Mandatory PPE includes:

- Hard Hat
- Appropriate Safety Shoes
- Reflective Vests

3.1.1 Hazardous Material Use

3.1.2 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with USACE EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocynates, lead-based paint are prohibited. The Engineer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials. Low mercury lamps used within fluorescent lighting fixtures are allowed as an exception without further approval. Notify the Radiation Safety Officer (RSO) prior to excepted items of radioactive material and devices being brought on base.

3.2 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

Ensure that each employee is familiar with and complies with these procedures and USACE EM 385-1-1, Section 12, Control of Hazardous Energy.

3.3 FALL HAZARD PROTECTION AND PREVENTION PROGRAM

Establish a fall protection and prevention program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures.

3.3.1 Fall Protection Equipment and Systems

Enforce use of the fall protection equipment and systems designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards as specified in EM 385-1-1, Section 21. In addition to the required fall protection systems, safety skiff, personal floatation devices, life rings etc., are required when working above or next to water in accordance with USACE EM 385-1-1, Paragraphs 21.N through 21.N.04. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems are required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. The need for tying-off in such equipment is to prevent ejection of the employee

from the equipment during raising, lowering, or travel. Fall protection must comply with 29 CFR 1926.500, Subpart M, USACE EM 385-1-1 and ASSE/SAFE A10.32.

3.3.1.1 Personal Fall Arrest Equipment

Personal fall arrest equipment, systems, subsystems, and components shall meet ASSE/SAFE Z359.1. Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Only locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed 6 feet. The total fall distance and any swinging of the worker (pendulum-like motion) that can occur during a fall shall always be taken into consideration when attaching a person to a fall arrest system.

3.3.2 Horizontal Lifelines

Design, install, certify and use under the supervision of a qualified person horizontal lifelines for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500).

3.3.3 Rescue and Evacuation Procedures

When personal fall arrest systems are used, ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. Prepare a Rescue and Evacuation Plan and include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. Include the Rescue and Evacuation Plan within the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP).

3.4 SCAFFOLDING

Provide employees with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Access scaffold platforms greater than 20 feet maximum in height by use of a scaffold stair system. Do not use vertical ladders commonly provided by scaffold system manufacturers for accessing scaffold platforms greater than 20 feet maximum in height. The use of an adequate gate is required. Ensure that employees are qualified to perform scaffold erection and dismantling. Do not use scaffold without the capability of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward. Give special care to ensure scaffold systems are not overloaded. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material is prohibited. The first tie-in shall be at the height equal to 4 times the width of the smallest dimension of the scaffold base. Place work platforms on mud sills. Scaffold or work platform erectors shall have fall protection during the erection and dismantling of scaffolding or work platforms that are more than six feet. Delineate fall protection requirements when working above six feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of

work.

3.5 EQUIPMENT

3.5.1 Material Handling Equipment

3.5.1.1 Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.

3.5.1.2 The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions.

3.5.1.3 Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

3.5.2 Weight Handling Equipment

3.5.2.1 Equip cranes and derricks as specified in EM 385-1-1, section 16.

3.5.2.2 Comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Perform erection under the supervision of a designated person (as defined in ASME B30.5). Perform all testing in accordance with the manufacturer's recommended procedures.

3.5.2.3 Comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, and ASME B30.8 for floating cranes and floating derricks.

3.5.2.4 Under no circumstance shall a Contractor make a lift at or above 90 percent of the cranes rated capacity in any configuration.

3.5.2.5 When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and follow the requirements of USACE EM 385-1-1 Section 11, NAVFAC P-307 Figure 10-3 and ASME B30.5 or ASME B30.22 as applicable.

3.5.2.6 Do not crane suspended personnel work platforms (baskets) unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Do not lift personnel with a line hoist or friction crane.

3.5.2.7 Inspect, maintain, and recharge portable fire extinguishers as specified in NFPA 10, Standard for Portable Fire Extinguishers.

3.5.2.8 All employees must keep clear of loads about to be lifted and of suspended loads.

3.5.2.9 Use cribbing when performing lifts on outriggers.

3.5.2.10 The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

3.5.2.11 A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.

3.5.2.12 Certification records which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by Engineering personnel.

3.5.2.13 Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by Engineering

personnel.

3.5.2.14 Certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

3.5.3 Equipment and Mechanized Equipment

3.5.3.1 Proof of qualifications for operator shall be kept on the project site for review.

3.5.3.2 Manufacture specifications or owner's manual for the equipment shall be on-site and reviewed for additional safety precautions or requirements that are sometimes not identified by OSHA or USACE EM 385-1-1. Incorporate such additional safety precautions or requirements into the AHAs.

3.6 EXCAVATIONS

Soil classification must be performed by a competent person in accordance with 29 CFR 1926 and EM 385-1-1.

3.6.1 Utility Locations

All underground utilities in the work area must be positively identified by a third party, independent, private utility locating company in addition to any station locating service and coordinated with the station utility department.

3.6.2 Utility Location Verification

Physically verify underground utility locations, including utility depth, by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system.

3.6.3 Utilities Within and Under Concrete, Bituminous Asphalt, and Other Impervious Surfaces

Utilities located within and under concrete slabs or pier structures, bridges, parking areas, and the like, are extremely difficult to identify. Whenever contract work involves chipping, saw cutting, or core drilling through concrete, bituminous asphalt or other impervious surfaces, the existing utility location must be coordinated with station utility departments in addition to location and depth verification by a third party, independent, private locating company.

3.7 ELECTRICAL

3.7.1 Portable Extension Cords

Size portable extension cords in accordance with manufacturer ratings for the tool to be powered and protected from damage. Immediately removed from service all damaged extension cords. Portable extension cords shall meet the requirements of EM 385-1-1, NFPA 70E, and OSHA electrical standards.

END OF SECTION 01 35 26

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 35 40
ENVIRONMENTAL MANAGEMENT

PART 1. GENERAL

This section addresses the prevention of pollution and other environmental damage as the result of construction operations under this contract and for those measures set forth in the Contract Documents. For the purpose of this specification, pollution and other environmental damage are defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural, and/or historical purposes. The control of pollution and damage requires consideration of air, water, land and the marine environment and includes management of construction activities, visual aesthetics, noise, solid waste, radiant energy, and radioactive materials, as well as other pollutants. The Contractor shall fulfill these specifications at the Contractor's expense.

1.1 SCOPE

This section covers all work necessary to comply with the requirements of the Owner and Contractor furnished permits and all applicable Federal, State, and local laws governing this Work and for implementing, installing, and maintaining all required Best Management Practices (BMPs).

1.2 DESCRIPTION OF WORK

In order to comply with the requirements of this Section and the Owner and Contractor furnished construction permits, the Contractor shall:

- Develop and submit a Contractors Erosion and Sedimentation Control Plan (CESCP). The CESCP shall, at a minimum include and address the following:
    - Installation, Maintenance, and Inspection Procedures for SW3P requirements
    - BMP Removal prior to project closeout.

The Contractor shall develop and submit a copy of the CESCP to the Engineer for review WITHIN 10 DAYS prior to the start of any onsite construction activities. The CESCP shall be submitted in accordance with Section 01 33 00 – SUBMITTAL PROCEDURES.

1.3 REFERENCES

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

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z400.1/Z129.1 (2004) Hazardous Industrial Chemicals - Material Safety Data Sheets - Preparation

ASTM INTERNATIONAL (ASTM)

ASTM D4840 (1999; R 2010) Sampling Chain-Of-Custody Procedures

ASTM D5663 (1997; R 2003) Validating Recycled Content in Packaging Paper and Paperboard

ASTM E1991 (2005) Environmental Life Cycle Assessment of Building Materials/Products

ASTM E2114 (2008) Standard Terminology for Sustainability Relative to the Performance of Buildings

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

ISO 14040 (2006) Environmental Management – Life Cycle Assessment - Principles and Framework

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

NIST BEES 4.0 (2007) Building for Environmental and Economic Sustainability

U.S. DEPARTMENT OF AGRICULTURE (USDA)

Biomass R&D Act (2000) Biomass Research and Development Act

U.S. Farm Bill (2002) U.S. Farm Bill of May 2002

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

NPDES (1972; R 2005) National Pollutant Discharge Elimination System

U.S. GREEN BUILDING COUNCIL (USGBC)

LEED (2002; R 2005) Leadership in Energy and Environmental Design(tm) Green Building Rating System for New Construction (LEED-NC)

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

40 CFR Protection of Environment

40 CFR 261 Identification and Listing of Hazardous Waste

1.4 DEFINITIONS

Definitions pertaining to sustainable development are as defined in ASTM E2114 and as specified.

1.4.1 "Biobased content" is calculated as the weight of the biobased material divided by the total weight of the product, and is expressed as a percentage by weight.

1.4.2 "Biobased materials" include fuels, chemicals, building materials, or electric power or heat produced from biomass as defined by the Biomass R&D Act. Minimum biobased content shall be as defined in the U.S. Farm Bill.

1.4.3 "Chain-of-custody" is a process whereby a product or material is maintained under the physical possession or control during its entire life cycle.

1.4.4 "Pollution and environmental damage" is caused by the presence of chemical, physical, or biological elements or agents. Human health or welfare is adversely affected; ecological balances are unfavorably altered; the utility of the environment for aesthetic, cultural, or historical purposes degrades.

1.5 PRECONSTRUCTION MEETING

After award of Contract and prior to commencement of the work, the Contractor shall schedule and conduct a meeting with the Engineer to discuss the proposed Environmental Protection Plan and to develop a mutual understanding relative to the details of environmental protection.

1.6 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Environmental Protection Plan

Contractors Erosion and Sedimentation Control Plan (CESCP)

SD-03 Product Data

Submit documentation indicating percentage of post-industrial and post-consumer recycled content per unit of product. Indicate relative dollar value of recycled content products to total dollar value of products included in project.

SD-06 Test Reports

Field Quality Control Reports

SD-07 Certificates

Environmental Regulatory Requirements

SD-08 Manufacturer's Instructions

Material Safety Data Sheets

SD-11 Closeout Submittals

1.7 ENVIRONMENTAL REGULATORY REQUIREMENTS

1.7.1 Storm water permits

Refer to The Office of Wastewater Management, NPDES Storm Water Program: http://www.epa.gov/npdes/stormwater

1.7.2 Dredge and fill (Section 404) permits

Refer to U.S. EPA Office of Wetlands, Oceans, and Watersheds (OWOW): http://www.epa.gov/owow/

1.7.3 RCRA hazardous and non-hazardous solid waste requirements

Refer to EPA's Office of Solid Waste and Emergency Response: http://www.epa.gov/epaoswer/osw/laws-reg.htm

1.7.4 Oil spill requirements for construction activities

Refer to EPA Oil Program web site: http://www.epa.gov/oilspill/

1.7.5 Polychlorinated Biphenyl (PCB) waste requirements

Refer to EPA's Polychlorinated Biphenyl (PCB) Homepage: http://www.epa.gov/pcb/

1.7.6 Air quality requirements for construction activities

Refer to EPA'S Air Program Mobile Sources Page:
http://www.epa.gov/ebtpages/airmobilesources.html

1.7.7 Asbestos requirements for construction activities

Refer to EPA's Asbestos Management and Regulatory Requirements Website: http://www.epa.gov/fedsite/cd/asbestos.html

1.7.8 National Environmental Policy Act (NEPA) requirements for construction activities

1.7.9 Endangered Species Act

Refer to The US Fish and Wildlife Service Endangered Species Program: http://endangered.fws.gov/

1.7.10 National Historic Preservation Act

1.7.11 State Office/Department of Environmental Quality

1.7.12 Local Office/Department of Environmental Quality

1.7.13 The Construction Industry Compliance Assistance Center:

An EPA-sponsored tool providing information on state and federal requirements; http://www.cicacenter.org/index.cfm

1.7.14 The National Environmental Compliance Assistance Clearinghouse:

http://cfpub.epa.gov/clearinghouse/

1.7.15 The Associated General Contractors of America (AGC):

Provides tools to assist with compliance; http://www.agc.org/

The Contractor shall be responsible for knowing federal, state, and local regulatory requirements pertaining to legal disposal of all construction and demolition waste materials. Comply with all applicable regulations and maintain records of permits, licenses, certificates, and other environmental regulatory requirement correspondences.

1.8 ENVIRONMENTAL PROTECTION PLAN

Prepare and submit an Environmental Protection Plan not less than 10 days before the preconstruction meeting. At a minimum, address the following elements in accordance with this section:

1.8.1 Identification and contact information for Environmental Manager.

1.8.2 General site information, including preconstruction description and photographs.

1.8.3 Procedures to address water resources.

1.8.4 Procedures to address land resources.

1.8.5 Procedures to address air resources.

1.8.6 Procedures to address fish and wildlife resources.

1.8.7 Monitoring and quality control procedures.

Revise and resubmit Plan as required by the ENGINEER. Approval of Contractor's Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations.

PART 2. PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

Consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, and disposal of products, and provide products and materials with the least effect on the environment, determined by LCA analysis, released toxins, and other methods.

2.1.1 Prohibited Materials

The use of the following materials is prohibited:

2.1.1.1 Products containing asbestos.

2.1.1.2 Products containing urea formaldehyde.

2.1.1.3 Products containing polychlorinated biphenyls.

2.1.1.4 Products containing chlorinated fluorocarbons.

2.1.1.5 Solder or flux containing more than 0.2 percent lead and domestic water pipe or pipe fittings containing more than 8 percent lead.

2.1.1.6 Paint containing more than 0.06 percent lead.

2.1.2 Packaging

Where Contractor has the option to provide one of the listed products or equal, preference shall be given to products with minimal packaging and easily recyclable packaging, and to manufacturers with policies that take back product packaging.

2.1.3 Substitutions

Notify the ENGINEER when Contractor is aware of materials, equipment, or products that meet the aesthetic and programmatic intent of Contract Documents, but which are more environmentally responsible than materials, equipment, or products specified or indicated in the Contract Documents. Submit the following for initial review by the Engineer:

2.1.3.1 Product data including manufacturer's name, address, and phone number.

2.1.3.2 Description of environmental advantages of proposed substitution over specified product.

PART 3. EXECUTION

3.1 PROTECTION OF NATURAL RESOURCES

The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. The Contractor shall confine all activities to areas defined by the drawings and specifications. Environmental protection shall be as stated in the following subparagraphs.

Comply with applicable regulations and these specifications. Preserve the natural resources within the project boundaries and outside the limits of permanent work performed under this Contract in their existing condition or restore to an equivalent or improved condition as approved by the ENGINEER.

3.1.1 General Disturbance

All debris or deleterious material resulting from construction shall be removed from the work area and prevented from entering waters of the State.

All work operations shall be conducted in a manner that causes little or no adverse environmental impact to adjacent areas. If at any time, as a result of project activities, water quality problems develop (including equipment leaks or spills), operations shall cease and the Owner shall be contacted immediately.

Confine construction activities to work area limits indicated on the Drawings. Remove debris, rubbish, and other waste materials resulting from demolition and construction operations from site. Transport materials with appropriate vehicles and dispose of them off

site to areas that are approved for disposal by governing authorities having jurisdiction. Avoid spillage by covering and securing loads when hauling on or adjacent to public streets or highways. Remove spillage and sweep, wash, or otherwise clean project site, streets, or highways. Burning is prohibited.

3.1.2 Water Resources

The Contractor shall keep construction activities under surveillance, management and control to avoid pollution of surface and ground waters. Special management techniques as set out below shall be implemented to control water pollution by the listed construction activities, which are included in this contract. As soon as possible the contractor shall clear all waterways of temporary embankments, temporary bridges, matting, false work, debris, or other obstructions placed during construction operations that are not part of the finished work. The Contractor is responsible for maintaining area drainage during construction. Water shall not be allowed to pond on any roadway surface, and Project Work shall not impede runoff from adjacent properties. Comply with all applicable Federal, State, and local Permits.

Comply with requirements of the NPDES and the applicable State Pollutant Discharge Elimination System (SPDES). Prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water. Store and service construction equipment at areas designated for collection of oil wastes. Prevent ponding of stagnant water conducive to mosquito breeding habitat. Prevent run-off from site during demolition and construction operations.

3.1.3 Land Resources

Prior to the beginning of any construction, the Engineer shall identify all land resources to be preserved within the Contractor's work area The Contractor shall not remove, cut, deface, injure, or destroy land resources including vegetation, trees, shrubs, vines, grasses, top soil, and land forms without direct written permission from Engineer. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Where such special emergency use is allowed, the Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following paragraphs.

3.1.3.1 Work Area Limits

Isolated areas (if any) within the work area which are to be saved and protected shall also be identified by the Engineer and marked or fenced by the Contractor. All monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the marks shall be visible. The Contractor shall convey to all subcontractors and personnel the purpose of marking and/or protection for all necessary objects.

Trees, shrubs, vines, grasses, land forms, and other landscape features within the work area to be preserved shall be identified by the Engineer, and clearly delineated by the Contractor, by marking, fencing, or wrapping with boards, or any other techniques approved by the Engineer. Unless otherwise approved by the Engineer, no trees, shrubs, vines, grasses or other vegetation will be harmed or destroyed by the Contractor for any purpose.

3.1.3.2 Retardation and Control of Runoff

Runoff from the construction site shall be controlled by construction of diversion ditches, benches and berms to retard and divert runoff to protected drainage courses, and any measures required by area wide plans approved under paragraph 208 of the Clean Water Act. Dikes will be constructed using material available in the dredge material placement site, as shown on the Contract Drawings, and maintained in continuous repair.

3.1.3.3 Temporary Excavations

Embankments for the work area shall be controlled to protect adjacent areas from despoilment.

3.1.3.4 Disposal of Chemical Waste

Chemical waste shall be stored in corrosion resistant containers, removed from the work area and disposed of in accordance with Federal, State, and Local regulations. The Contractor shall perform all maintenance of equipment, including but not limited to refueling, filter changes, and replacement of hydraulic lines in a manner so as not to contaminate soils, ground or surface waters, or any other natural resources.

3.1.3.5 Disposal of Discarded Materials

Discarded materials other than those which can be included in the solid waste category will be handled by the Contractor as directed by the Engineer or Owner.

3.1.3.6 Erodible Soils

Plan and conduct earthwork to minimize the duration of exposure of unprotected soils, except where the constructed feature obscures borrow areas, quarries, and waste material areas. Clear areas in reasonably sized increments only as needed to use the areas developed. Form earthwork to final grade as shown. Immediately protect side slopes and back slopes upon completion of rough grading.

3.1.3.7 Erosion and Sedimentation Control Devices

Construct or install temporary and permanent erosion and sedimentation control features as required.

3.1.3.8 Tree and Plant Protection

Prior to start of construction, tag each tree and plant scheduled to remain. In the event of damage to tree or plant, the Engineer may, at the Engineer's discretion, deduct the indicated value of the damaged tree or plant from the Contract Sum.

3.1.4 Air Resources

The Contractor shall keep construction activities under surveillance, management, and control to minimize pollution of air resources. All activities, equipment, processes, and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with the applicable air pollution standards of the State of Texas and all Federal emission and performance laws and standards.

Comply with Air Quality (IAQ) Management Plan and as follows:

3.1.4.1 Prevent creation of dust, air pollution, and odors.

3.1.4.2 Sequence construction to avoid unnecessary disturbance to site.

3.1.4.3 Use mulch, water sprinkling, temporary enclosures, and other appropriate methods as needed to limit dust and dirt rising and scattering in air. Do not use

water when it may create hazardous or other adverse conditions such as flooding and pollution.

3.1.4.4 Store volatile liquids, including fuels and solvents, in closed containers. Do not store with materials that have a high capacity to adsorb VOC emissions or in occupied spaces.

3.1.4.5 Properly maintain equipment to reduce gaseous pollutant emissions.

3.1.5 Fish and Wildlife Resources

The Contractor shall keep construction activities under surveillance, management, and control to minimize interference with, disturbance to and damage of fish and wildlife. Species that require specific attention along with measures for their protection will be listed by the Contractor prior to beginning of construction operations.

Manage and control construction activities to minimize interference with and damage to fish and wildlife. Do not disturb fish and wildlife. Do not alter water flows or otherwise significantly disturb the native habitat related to the project and critical to the survival of fish and wildlife, except as indicated or specified.

3.2 FIELD QUALITY CONTROL

Comply with requirements of agencies having jurisdiction and as specified herein. Provide field practices, shipping, and handling of samples in accordance with ASTM D4840. Provide Field Quality Control Reports in accordance with approved Environmental Protection Plan.

3.3 PROTECTION OF SOUND INTRUSIONS

The Contractor shall keep construction activities under surveillance, and control to minimize damage to the environment by noise. If booster pumps are used on the project, the Contractor shall provide adequate muffler systems and erect a sound barrier to deflect noise in the waterward direction and away from buildings.

3.4 DISPENSING OF FUEL

Secondary containment, which is capable of holding 110% of the tank contents, must be provided by the Contractor for each fuel storage tank. Fuel dispensers shall have a 4-foot square, 16-gauge metal pan with borders banded up and welded at corners right below the bibb. Edges of the pans shall be 8-inch minimum in depth to ascertain that no contamination of the ground takes place. Pans shall be cleaned by an approved method immediately after every dispensing of fuel and wastes disposed of offsite in an approved area. Should any spilling of fuel occur, the Contractor shall immediately contain the spill and contact the appropriate local authorities. The Contractor will be solely responsible for any fines, penalties or other legal activities related to fuel spills.

3.5 TEMPORARY SANITARY FACILITY

The Contractor shall supply and maintain, at minimum, one (1) temporary sanitary facility for the use of land based employees and subcontractors. The facility shall be conveniently located in the vicinity of the operations, but away from residential buildings along the coastline. The facility shall be removed at the end of the project.

3.6 STORAGE OF LUBRICANTS

All lubricants and other potential liquid pollutants shall be stored in sealed, non-corrosive containers. Individual containers shall be stored in metal pans with borders banded up and welded at the corners right below the bibb. Pans shall be deep enough to prevent contamination of the ground. Pans shall be kept clean of all spillage or leakage.

3.7 CONSTRUCTION DEBRIS

The Contractor shall collect and properly dispose of all trash and construction debris in accordance with all local and state solid waste management regulations and practices. No construction waste material shall be buried on the Project Site. The Contractor shall store all waste materials in approved metal dumpsters, or other containers approved by the Engineer. Solid wastes (including clearing debris) shall be placed in containers which are emptied on a regular schedule. The Contractor will empty containers when three-quarters full or as required by local and state regulation, and the contents hauled away for proper disposal. No construction waste material shall be buried within the Project limits. All handling and disposal shall be conducted to prevent contamination. No steel, cables, wire, pipe, drums OR ANY OTHER DEBRIS shall be permitted to be disposed overboard into the waters controlled by Owner or the Sabine-Neches Waterway. If such debris is found, the debris shall be removed by the Contractor at his own cost, or the cost of removal deducted from the Contractor's final payment.

3.8 EQUIPMENT MAINTENANCE

The Contractor’s equipment used in excavation and filling operations shall be inspected, cleaned, and maintained to prevent loss of petroleum products.

3.9 EROSION AND SEDIMENT CONTROL

3.9.1 Burn-off:

Burn-off of ground cover is not permitted.

3.9.2 Erosion Protection:

Earthwork brought to final grade shall be immediately finished. Protect side and back slopes upon completion of rough grading. Plan and conduct earthwork to minimize the duration of exposure of unprotected soils. All areas disturbed that are to remain dormant for LONGER THAN 21 CALENDAR DAYS shall be temporarily stabilized with fast germinating temporary seed or shall be protected by mulch. Temporary stabilization shall be in place WITHIN 14 DAYS of last disturbance. Adequate seeding and vegetative cover shall be maintained. A ground cover density of 70% or greater must be maintained. The contractor shall re-seed, water, and fertilize as necessary to maintain ground cover. Use the following methods to prevent erosion, control sedimentation, and prevent waterborne soil from entering surface waters and ditches for all areas of excavation, clearing and grubbing, and earth fill.

3.9.3 Mechanical Control:

Divert runoff by constructing ditches or berms, and then filter runoff using filter fabric dams, sandbag berms, or other methods approved by the Engineer.

3.10 SEDIMENT CONTROL

Prior to project initiation, the upland project construction areas must be isolated from water bodies by the use of BMPs to confine sediment. BMPs used for sedimentation control shall include at least one of the following:

3.10.1 Silt Fencing

Provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Properly install silt fences to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, excavation, embankment, and grading). Install silt

fences in the locations indicated on the drawings. Obtain approval from the Engineer/Owner prior to final removal of silt fence barriers.

3.10.2 Straw Bale Dikes

Provide bales of straw as a temporary structural practice to minimize erosion and sediment runoff. If bales are used, properly place the bales to effectively retain sediment immediately after completing each phase of work (e.g., clearing and grubbing, excavation, embankment, and grading) in each independent runoff area (e.g., after clearing and grubbing in a area between a ridge and drain, place the bales as work progresses, remove/replace/relocate the bales as needed for work to progress in the drainage area). Show on the drawings areas where straw bales are to be used. The ENGINEER will approve the final removal of straw bale barriers. Provide rows of bales of straw as follows:

3.10.2.1 Along the downhill perimeter edge of all areas disturbed.

3.10.2.2 Along the top of the slope or top bank of drainage ditches, channels, swales, etc. that traverse disturbed areas.

3.10.2.3 Along the toe of all cut slopes and fill slopes of the construction areas.

3.10.2.4 Perpendicular to the flow in the bottom of existing drainage ditches, channels, swales, etc. that traverse disturbed areas or carry runoff from disturbed areas.

3.10.2.5 Perpendicular to the flow in the bottom of new drainage ditches, channels, and swales.

3.10.2.6 At the entrance to culverts that receive runoff from disturbed areas.

3.11 EROSION CONTROL

Disturbed areas must be stabilized to prevent the introduction of sediment to adjacent wetlands or water bodies during wet weather conditions (erosion). At least one of the following BMPs must be maintained and in-place until the excavation, cleared and grubbed, and earthfill areas have been stabilized:

- Silt Fence
- Mulch
- Temporary Vegetation

END OF SECTION 01 35 40

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 40 00
QUALITY CONTROL

PART 1. GENERAL

1.1 QUALITY CONTROL

The Contractor will establish and maintain quality control for all work performed and all Products supplied to assure compliance with the Specifications.

The Contractor will maintain written records of his quality control tests, inspections, surveys or other measures. The Contractor will maintain written records of corrective action required and taken to assure these Specifications are followed.

The Contractor shall perform surveys during construction as the work progresses to verify the lines, grades, and thicknesses of the installed materials. The results of the surveys shall be submitted to the Engineer for review.

All work performed shall be in conformity with the lines, grades, slopes, cross sections, and dimensions shown in the Plans. If the Plans, Special Provisions, or these Specifications state specific tolerances, the work shall be performed within those limits. The Contractor shall not deviate from the approved Plans and Working Drawings unless the Engineer approves in writing.

At the Owner's request the Contractor will provide copies of any quality control records requested.

1.2 CONSTRUCTION SURVEYS

Surveys performed during construction shall be done at no additional expense to the Owner.

The Contractor shall perform all construction surveys, using electronic surveying equipment, required to layout and set any construction stakes and marks which are needed to establish the lines, grade, slopes, and cross sections. A baseline offset from the work area shall be established, utilizing benchmarks and monuments provided on the drawings, at a location that shall not be disturbed by construction activities and located close to the work so that it provides alignment and location reference. In addition, the Contractor shall perform surveys during construction to ensure that construction activities are within the tolerance specified. The Engineer shall be allowed to review the surveys prior to the start of materials placement.

The electronic surveying method must be approved, in writing, by the Engineer, prior to beginning placement of Products on the Project.

Surveys will be of sufficient frequency and accuracy during construction so that the Engineer can determine that existing materials are being removed and any new products are being placed within the tolerances of the Specifications.

The results of all construction surveys shall be submitted to the Engineer in a timely manner for review. The data shall be submitted to the Engineer on an electronic media (IBM compatible, ASCII format) in delimited files of easting, northing, and elevation (x,y,z), where elevation is indicated as negative for depths recorded below NAVD88 Datum 0.0 elevation. In addition, the data file shall list the project name, surveyor's name, area surveyed, date of survey, and the vertical (NAVD88) and horizontal (NAD83 Texas State Plane South Central – Feet) datums.

The location of each cross section profile surveyed shall be referenced to the stationing shown on the project site plan. The Contractor shall plot the cross sections and profiles on a scale agreeable to both the Contractor and the Engineer, and submit hard copies to the Engineer for review.

ALL CONSTRUCTION SURVEY DATA SUBMITTED TO THE ENGINEER SHALL BE REFERENCED TO THE NAVD88 VERTICAL DATUM - FEET AND NAD83 TEXAS STATE PLANE SOUTH CENTRAL – FEET HORIZONTAL DATUM.

All topographic construction surveys shall be performed to the nearest 0.10 foot at the survey points and at all lines and breaks. The survey equipment specifications and the surveyor's statement of qualifications shall be submitted to the Engineer for approval.

PART 2. PRODUCTS

Not applicable.

PART 3. EXECUTION

Not applicable.

END OF SECTION 04 40 00

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 42 16
DEFINITIONS AND STANDARDS

PART 1. GENERAL

1.1 SUMMARY

This section specifies requirements for compliance with governing regulations, codes, and standards.

Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with regulations, codes, and standards.

1.2 DEFINITIONS

Definitions contained in this section are not necessarily complete but are general to the extent that they are not defined more explicitly elsewhere in the contract documents.

"Indicated" refers to graphic representations, notes or schedules on the drawings, or other paragraphs or schedules in specifications, and similar requirements in Contract Documents.

Terms such as "shown", "noted", and "specified" are used, it is to help locate the reference; no limitation on location is intended except as specifically noted.

Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the Engineer", "requested by the Engineer", and similar phrases. However, no implied meaning shall be interpreted to extend the Engineer's responsibility into the Contractor's area of construction supervision.

The term "approved", where used in conjunction with the Engineer's action on the Contractor's submittals, applications, and requests, is limited to the responsibilities and duties of the Engineer. Such approval shall not release the Contractor from responsibility to fulfill contract document requirements unless otherwise provided in the contract documents.

“Engineer” refers to LJA Engineering, Inc.

“Owner” refers to Jefferson County

The term "Regulations" includes laws, statutes, ordinances, and lawful orders issued by authorities having jurisdiction, as well as rules.

The term “Conventions” are agreements within the construction industry that control performance of the Work, whether they are lawfully imposed by authorities having jurisdiction or not.

The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations".

The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations".

The term "provide" means "to furnish and install, complete and ready for the intended use".

An "installer" is an entity engaged by the Contractor, either as an employee, subcontractor, or sub-subcontractor, for performance of a particular construction activity, including installation,

erection, application and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

A “Project site” is the space available to the Contractor for performance of the work, either exclusively or in conjunction with others performing other construction as part of the project. The extent of the project site is shown on the drawings.

A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the project site or elsewhere, and to report on and, if required, interpret results of those inspections or tests.

1.3 INDUSTRY STANDARDS

1.3.1 Applicability of Standards:

Except where contract documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into contract documents. Such standards are made a part of the contract documents by reference. Individual sections indicate which codes and standards apply to that section.

Referenced standards take precedence over standards that are not referenced but recognized in the construction industry as standard practice.

1.3.2 Publication Dates:

Where compliance with an industry standard is required, comply with standard in effect as of date of contract documents.

1.3.3 Conflicting Requirements:

Where compliance with two or more standards is specified, and they establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced unless the Contract Documents indicate otherwise. Refer requirements that are different but apparently equal and uncertainties as to which quality level is more stringent to the Engineer for a decision before proceeding.

In every instance the quantity or quality level shown or specified shall be the minimum to be provided or performed. The actual installation may comply exactly, within specified tolerances, with the minimum quantity or quality specified, or it may exceed that minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum values as noted or appropriate for the context of the requirements. Refer instances of uncertainty to the Engineer for decision before proceeding.

1.3.4 Copies of Standards:

Each entity engaged in construction on the project is required to be familiar with industry standards applicable to that entity's construction activity.

1.3.5 Abbreviations and Names:

Trade association names and titles of general standards are frequently abbreviated. Where acronyms or abbreviations are used in the specifications or other Contract Documents they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction or other entity applicable to the context of the text provision.

1.3.6 Industry Standards:

In addition to Federal, state and local ordinances, the latest edition of industry standards shall apply as referred to in the drawings and Specifications SECTION 01 42 19.

PART 2. PRODUCTS

Not applicable.

PART 3. EXECUTION

Not applicable.

END OF SECTION 01 42 16

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 42 19
CODES, STANDARDS, AND SPECIFICATIONS

PART 1. GENERAL

The standards under which the work is to be performed or tested are specified throughout the contract documents. Where such standards are specified, it shall be understood that the latest revision or edition at time of award shall apply.

In referring to standards the following abbreviations have been used:

Name	**Abbreviation**
American Association of State Highway & Transportation Officials 444 North Capitol Washington, DC 20001	AASHTO
American Concrete Institute Box 19150, Redford Station Detroit, MI 48219	ACI
American Institute of Steel Construction 1221 Avenue of the Americas New York, NY 10020	AISC
American Institute of Timber Construction 333 W Hampden Avenue Englewood, CO 80110	AITC
American Iron and Steel Institute 1000 - 16th Street NW Washington, D.C. 20036	AISI
American National Standards Institute 1430 Broadway New York, NY 10018	ANSI
American Petroleum Institute 2100 "L" Street NW Washington, D.C. 20037	API
American Plywood Association P.O. Box 11700 Tacoma, WA 98411	APA
American Public Works Association	APWA
American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103	ASTM
American Society of Civil Engineers 345 East 47th Street New York, NY 10017	ASCE
American Society of Heating, Refrigerating, and	ASHRAE

Name	Abbreviation
Air Conditioning Engineers	
American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017	ASME
American Water Works Association 6666 West Quincy Avenue Denver, CO 80235	AWWA
Architectural Woodwork Institute	AWI
American Welding Society 2501 NW 7th Street Miami, FL 33125	AWS
American Wood Preservers Association	AWPA
Associated General Contractors of America 1957 East Street NW Washington, D.C. 20006	AGC
Concrete Plant Manufacturers Bureau 900 Spring Street Silver Springs, MD	CPMB
Concrete Reinforcing Steel Institute 933 Plum Grove Road Schaumburg, IL 60195	CRSI
Federal Specification Board c/o Superintendent of Documents U.S. Government Printing Office Washington, D.C. 20402	U.S. Fed. Spec. Mil. Spec.
Institute of Electrical and Electronics Engineers, Inc. 445 Hoes Lane, P.O. Box 1331 Piscataway, NJ 08855-1331	IEEE
Insulated Power Cable Engineers' Association 192 Washington Street Bellmount, MA 02178	ICEA
International Electro Technical Commission 1, Rue De Varembé Genève, Switzerland	IEC
Joint Industrial Council	JIC
Manufacturer's Standards Society	MSS
National Bureau of Standards c/o Superintendent of Documents U.S. Government Printing Office Washington, D.C. 20402	NBS
National Association of Corrosion Engineers P.O. Box 1499 Houston, TX 77001	NACE

Name	Abbreviation
National Electrical Manufacturers Association 2101 L Street NW Washington, D.C. 20037	NEMA
National Fire Code	NFC
National Fire Protection Association Batterymarch Park Quincy, MA 02269	NFPA
National Forest Products Association 1619 Massachusetts Avenue NW Washington, D.C. 20036	NFPA
Occupational Safety and Health Administration US Department of Labor Governmental Printing Office Washington, D.C. 20402	OSHA
Society of Automotive Engineers 485 Lexington Avenue New York, NY 10017	SAE
Steel Structures Painting Council 4400 Fifth Avenue Pittsburgh, PA 15213	SSPC
Texas Department of Transportation 7901 North IH-35 Austin, Texas 78761-5426	TXDOT
Underwriters Laboratories 333 Pfingsten Road Northbrook, IL 60062	UL
Uniform Building Code	UBC
Uniform Mechanical Code	UMC
Uniform Plumbing Code	UPC
Western Wood Products Association 1500 Yeon Bldg. Portland, OR 97204	WWPA

Additional abbreviations will be defined as they appear in the specifications.

PART 2. PRODUCTS

Not applicable.

PART 3. EXECUTION

Not applicable.

END OF SECTION 01 42 19

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 50 00
CONSTRUCTION FACILITIES

PART 1. GENERAL

1.1 DESCRIPTION

This section covers the following:

- Construction Facilities
- Construction Aids and Safety Precautions
- Special Controls
- Sanitary Facilities and Domestic Water Supply
- Traffic Control at Project Site
- Telephone Services and Communications Systems
- Signal Lights
- Parking and Office Areas
- Temporary Power
- Temporary Buildings
- Use of Project Site
- Protection of Property

PART 2. PRODUCTS

Not applicable.

PART 3. EXECUTION

3.1 CONSTRUCTION FACILITIES

Temporary Facilities Supplied by Contractor: Contractor shall supply temporary services and facilities required for the execution of the Work, such as electrical power distribution as may be required, compressed air, fuel, temporary lighting, sanitary facilities, field office, and other facilities required.

The Contractor shall coordinate location of office, laydown areas, etc. with Owner and the Engineer.

3.2 CONSTRUCTION AIDS AND SAFETY PRECAUTIONS

The Contractor shall comply with applicable laws, ordinances, rules, regulations, and orders pertaining to personnel, construction machinery and equipment, hoists, cranes, staging, materials handling facilities, tools, appliances, and other construction aids. The Contractor shall provide first aid facilities where required.

The Contractor shall provide barriers and shall post “NO TRESPASSING” and other construction safety signs as necessary to protect the public. Appropriate barriers should be erected around all open excavations.

3.3 SPECIAL CONTROLS

Water Control:

The Contractor shall perform grading and other operations to maintain site drainage. Surface water shall not be allowed to accumulate in excavations. The Contractor shall dispose of surface and subsurface water in accordance with local regulations and SECTION 01 35 40 – ENVIRONMENTAL MANAGEMENT.

Archeological and Historic Preservation Control:

If during the course of construction, the Contractor discovers any archaeological or historic properties, all land-disturbing activities in the vicinity of the properties shall be halted and the Contractor shall notify the Owner immediately. The Owner will consult with the proper authorities and will obtain permission to proceed. The Contractor will be entitled to time extensions equal to the time the Work is suspended, but will not be entitled to additional compensation.

3.4 SANITARY FACILITIES AND DOMESTIC WATER SUPPLY

The Contractor shall provide sanitary and drinking water facilities to accommodate his employees, the Owner and Engineer to comply with the applicable requirements and regulations.

3.5 TRAFFIC CONTROL AT THE SITE

The Contractor shall provide all required and necessary traffic control throughout the work area including all signs, barricades, signals, and flaggers.

3.6 TELEPHONE SERVICES AND COMMUNICATION SYSTEMS

Telephone service is not currently available at the site. The Contractor will be responsible for making own arrangements for telephone service.

3.7 PARKING AND OFFICE AREAS

The Contractor shall confine parking, etc. to areas acceptable to the Owner.

3.8 TEMPORARY POWER

The Contractor will be responsible for providing their own temporary power. Upon completion of the Work, temporary power shall be removed from the site.

3.9 TEMPORARY BUILDINGS

General:

The Contractor may construct or provide necessary temporary buildings or trailers at acceptable locations within the project area.

Camp:

Camp for employees at the project WILL NOT BE ALLOWED except for facilities for night and weekend security personnel. The Contractor and its employees shall make their own arrangements for lodging.

3.10 USE OF PROJECT SITE

Contractor will not have exclusive or unrestricted use of the Project Site for storage and its operations. Contractor shall recognize and take into account their planning and execution of the Work that the Owner or the Engineer may require access to and use of certain areas or spaces during certain periods. The actual location shall be coordinated with and approved by the Owner and the Engineer prior to the start of mobilization and construction activities. The use area shall be restricted to the temporary storage of construction equipment, materials, and trailer/office. Access to the Work from existing roads and navigation channels shall be provided by the Contractor at his own expense.

The Owner assumes no responsibility for the condition or maintenance of any road, structure, or navigation channel thereon that may be used by the Contractor in performing the work under these specifications or in traveling to and from the site of the work. The Contractor is responsible for constructing, maintaining, and removing any additional access that they deem necessary to the site of the work.

The Contractor shall be responsible for restoring the Contractor use areas, access site, project area, roadway, and other impacted areas to their original condition. No payment will be made to the Contractor by the Owner for any work done in improving, repairing, or maintaining any road or structure thereon for use in the performance of the work under these specifications.

Any damage to the existing roadways that are used for access purposes shall be repaired by the Contractor, and the surface shall be restored to its original condition.

The Contractor shall be responsible for restoring the Contractor use areas, access site, Project area, and other impacted areas to their original condition.

3.11 PROTECTION OF PROPERTY

The Contractor shall not enter upon private property for any purpose without first obtaining permission from the Owner or his duly authorized representative.

The Contractor shall be responsible for the preservation of all public and private property along and adjacent to work contemplated under the contract, and shall use every precaution necessary to prevent damage or injury thereto.

The Contractor shall exercise due care in preventing, and shall be responsible for, damages to structures of all kinds, whether owned by the County or privately, and shall protect from disturbance or damage all land monuments until they have been properly referenced by the Owner.

3.12 ENGINEERING REVIEW OF WORK MATERIALS:

The Contractor shall provide the Engineer and Owner, or their authorized agent, access to construction schedules, material testing results, traffic control and safety plans, and any applicable permits required during construction. Documents shall be available for review during working normal hours while construction is in progress.

END OF SECTION 01 55 00

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 71 11
GRADES, LINES, AND LEVELS

PART 1. GENERAL

1.1 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

1.1.1 Preconstruction Submittals:

Surveying procedures, methods and equipment

1.2 CONSTRUCTION SURVEY

1.2.1 General:

Survey control points have been established at the site as shown in the Drawings. Any monuments that are disturbed by construction operations shall be reset by the Contractor in accordance with recognized engineering and surveying practices.

Any monuments not referenced by the Drawings that are disturbed by construction operations shall be reset by the Contractor in accordance with recognized engineering and surveying practice. Property corners, fences or any other indications of property lines shall be referenced by the Contractor prior to construction and reset after completion of construction in accordance with recognized engineering and surveying practice.

1.2.2 Checking:

All working control established by the Contractor may be checked by the Engineer or Owner. Prior to establishing the working control, the Contractor shall provide, at the Engineer's request, sufficient copies of an illustration of the working control relative to pertinent construction. When the Contractor has established the working control, the Engineer shall be notified for a SURVEY CHECK 24 HOURS BEFORE any construction Work is started. All checking by the Engineer will be independent. The responsibility for correctness and adequacy of control shall be borne solely by the Contractor. All original field notes, computations and other records taken by the Contractor for the purpose of quantity and conformance survey shall be furnished promptly to the Engineer. Quantity surveys, unless waived in each specific case, shall be made with the Engineer present.

PART 2. PRODUCTS

Not applicable.

PART 3. EXECUTION

All work shall conform to grades, lines, and levels indicated in the Contract Drawings.

3.1 DATA REFERENCE:

All horizontal data shall be referenced to Texas State Plane, South Central, NAD83, feet. All vertical elevations shall be referenced to NAVD88, feet.

3.2 INTERVALS:

Elevations along the project length shall be taken at a maximum of 25-ft intervals with additional elevations taken as necessary to describe all slope breaks and topographic features.

3.3 TOLERANCES:

The project lines shall be surveyed utilizing surveying procedures and methodology that shall meet accuracy tolerances of +/- 0.10 feet in the vertical and +/- 0.50 feet in the horizontal. The Contractor shall be responsible for obtaining necessary horizontal and vertical control during the survey periods to assure that accurate adjustments are made to the observed elevations.

All surveying procedures, methods and equipment shall be reviewed and approved by Engineer prior to construction.

3.4 STAKING:

The Contractor shall stake the baseline and cross-sections at the project site for use by the Contractor's and Owner's personnel. The staking shall clearly indicate the slope breaks, design grade, and tolerance elevations. The Contractor shall be responsible for removing the staking once placement is complete and design grades have been reviewed. Contractor shall be responsible for protection of the public as a result of staking.

3.5 TIDE STAFF:

The Contractor shall establish a tide staff referenced to NAVD88, for the purpose of monitoring water levels during construction operations. The tide staff shall be marked in feet and tenths.

END OF SECTION 01 71 11

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 01 71 13
MOBILIZATION AND DEMOBILIZATION

PART 1. GENERAL

1.1 MOBILIZATION

This section covers the mobilization of personnel, equipment, temporary security fencing, lay down mats, materials and supplies, and their transport to the job site. Also included is setting up the Contractor's complete construction plant, field office, temporary utilities, sanitary facilities, and other construction facilities, as required for the Contractor's operation, all in adequate time for satisfactory performance of all Work under the Contract.

1.2 DEMOBILIZATION

Demobilization shall include the removal of all construction plant, equipment and accessories, materials, supplies, appurtenances, construction debris and the like from the job site upon completion of the Work.

1.3 PERMITS

The Contractor shall obtain, and pay for, all required building and other County construction permits and comply with applicable laws and regulations regarding mobilization, transport of equipment and materials, personnel and supplies, and the construction and maintenance of temporary facilities including but not limited to: structures, storage sites, laydown areas, and construction utilities.

PART 2. PRODUCTS

Not applicable.

PART 3. EXECUTION

Not applicable.

END OF SECTION 01 71 13

PLEASURE ISLAND SHORE PROTECTION
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SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT

PART 1. GENERAL

1.1 WASTE MANAGEMENT POLICY

Waste management policy is to apply sound environmental principles in the design, construction and use of facilities. As part of the implementation of that policy: (1) practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction and demolition waste from landfills and incinerators and to facilitate their recycling or reuse

1.2 DESCRIPTION

This section includes administrative and procedural requirements for the following:

1.2.1 Salvaging nonhazardous demolition and construction waste.

1.2.2 Recycling nonhazardous demolition and construction waste.

1.2.3 Disposing of nonhazardous demolition and construction waste.

1.3 DEFINITIONS

1.3.1 Construction Waste:

Building and/or site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

1.3.2 Demolition Waste:

Building and/or site improvement materials resulting from demolition or selective demolition operations.

1.3.3 Disposal:

Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

1.4 MANAGEMENT

Develop and implement a waste management program. Take a pro-active, responsible role in the management of construction and demolition waste and require all subcontractors, vendors, and suppliers to participate in the effort. Construction and demolition waste includes products of demolition or removal, excess or unusable construction materials, packaging materials for construction products, and other materials generated during the construction process but not incorporated into the work. In the management of waste consideration shall be given to the availability of viable markets, the condition of the material, the ability to provide the material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates. The Contractor is responsible for implementation of any special programs involving rebates or similar incentives related to recycling of waste. Revenues

or other savings obtained for salvage, or recycling accrue to the Contractor. Appropriately permit firms and facilities used for recycling, reuse, and disposal for the intended use to the extent required by federal, state, and local regulations. Also, provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

1.5 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

1.5.1 SD-01 Preconstruction Submittals

Waste Management Plan

1.5.2 SD-11 Closeout Submittals

Records

Landfill and Incinerator Disposal Records:

Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.6 MEETINGS

Address Construction Waste Management at all project meetings. At a minimum, environmental and waste management goals and issues shall be discussed at the following meetings:

1.6.1 Pre-bid meeting.

1.6.2 Preconstruction meeting.

1.6.3 Regular site meetings.

1.7 WASTE MANAGEMENT PLAN

A waste management plan shall be submitted not less than 10 days before the preconstruction meeting. The plan shall include the following:

1.7.1 General

Develop plan consisting of waste identification and waste reduction work plan. Include separate sections in plan for demolition and construction waste.

1.7.2 Waste Identification

Indicate anticipated types and quantities of demolition, site-clearing, and construction waste generated by the Work.

1.7.3 Waste Reduction Work Plan

List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include each type of waste, and handling and transportation procedures.

1.8 RECORDS

Records shall be maintained to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. Quantities may be measured by weight or by volume, but must be consistent throughout. List each type of waste separately noting the disposal or diversion date. Identify the landfill, recycling center, waste processor, or other organizations used to process or receive the solid waste. The records shall be made available to the ENGINEER during construction, and a copy of the records shall be delivered to the ENGINEER upon completion of the construction.

1.9 COLLECTION

Separate, store, protect, and handle at the site identified recyclable and salvageable waste products in a manner that maximizes recyclability and salvagability of identified materials. Provide the necessary containers, bins and storage areas to facilitate effective waste management and clearly and appropriately identify them. Provide materials for barriers and enclosures around recyclable material storage areas which are nonhazardous and recyclable or reusable. Locate out of the way of construction traffic. Provide adequate space for pick-up and delivery and convenience to subcontractors. Recycling and waste bin areas are to be kept neat and clean, and recyclable materials shall be handled to prevent contamination of materials from incompatible products and materials. Clean contaminated materials prior to placing in collection containers. Use cleaning materials that are nonhazardous and biodegradable. Handle hazardous waste and hazardous materials in accordance with applicable regulations and coordinate with Section 01 35 40 ENVIRONMENTAL MANAGEMENT. Separate materials by one of the following methods:

1.9.1 Source Separated Method

Waste products and materials that are recyclable shall be separated from trash and sorted as described below into appropriately marked separate containers and then transported to the respective recycling facility for further processing. Deliver materials in accordance with recycling or reuse facility requirements (e.g., free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process). Separate materials into the following category types as appropriate to the project waste and to the available recycling and reuse programs in the project area:

1.9.1.1 Land clearing debris.

1.9.1.2 Asphalt.

1.9.1.3 Concrete and masonry.

1.9.1.4 Metal (e.g. banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, lead brass, bronze).

- Ferrous.
- Non-ferrous.

1.9.1.5 Wood (nails and staples allowed).

1.9.1.6 Debris.

1.9.1.7 Glass (colored glass allowed).

1.9.1.8 Paper.

1.9.1.9 Bond.

1.9.1.10 Newsprint.

1.9.1.11 Cardboard and paper packaging materials.

1.9.1.12 Plastic.

- Type 1: Polyethylene Terephthalate (PET, PETE).
- Type 2: High Density Polyethylene (HDPE). (3) Type 3: Vinyl (Polyvinyl Chloride or PVC).
- Type 4: Low Density Polyethylene (LDPE).
- Type 5: Polypropylene (PP). (6) Type 6: Polystyrene (PS). (7) Type 7: Other. Use of this code indicates that the package in question is made with a resin other than the six listed above, or is made of more than one resin listed above, and used in a multi-layer combination.

1.9.1.13 Gypsum.

1.9.1.14 Non-hazardous paint and paint cans.

1.9.1.15 Carpet.

1.9.1.16 Ceiling tiles.

1.9.1.17 Insulation.

1.9.1.18 Beverage containers.

1.9.2 Co-Mingled Method

Waste products and recyclable materials shall be placed into a single container and then transported to a recycling facility where the recyclable materials are sorted and processed

1.9.3 Other Methods

Other methods proposed by the Contractor may be used when approved by the Engineer.

1.10 DISPOSAL

Control accumulation of waste materials and trash. Recycle or dispose of collected materials off-site and in compliance with waste management procedures. Except as otherwise specified in other sections of the specifications, disposal shall be in accordance with the following:

1.10.1 Reuse

First consideration shall be given to salvage for reuse since little or no re-processing is necessary for this method, and less pollution is created when items are reused in their original form. Coordinate reuse with the ENGINEER. Sale or donation of waste suitable for reuse shall be considered.

1.10.2 Recycle

Waste materials not suitable for reuse, but having value as being recyclable, shall be made available for recycling. All fluorescent lamps, HID lamps, and mercury-containing

thermostats removed from the site shall be recycled. Arrange for timely pickups from the site or deliveries to recycling facilities in order to prevent contamination of recyclable materials.

1.10.3 Compost

Consider composting on site if a reasonable amount of compostable material will be available. Compostable materials include plant material, sawdust, and certain food scraps.

1.10.4 Waste

Materials with no practical use or economic benefit shall be disposed at a landfill or incinerator.

1.10.5 Return

Set aside and protect misdelivered and substandard products and materials and return to supplier for credit.

PART 2. PRODUCTS

Not used.

PART 3. EXECUTION

3.1 PLAN IMPLEMENTATION

3.1.1 General:

Implement waste management plan as approved by the Engineer and the Owner. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

3.1.2 Site Access and Temporary Controls:

Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

3.2 DISPOSAL OF WASTE

3.2.1 General:

Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on-site

Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

3.2.2 Burning:

Do not burn waste materials.

3.2.3 Disposal:

Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 01 74 19

PLEASURE ISLAND SHORE PROTECTION
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SECTION 01 78 00
CLOSEOUT SUBMITTALS

Part 1. GENERAL

1.1 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

As-Built Record of Equipment and Materials

Warranty Management Plan

Warranty Tags

Final Cleaning

Spare Parts Data

SD-08 Manufacturer's Instructions

Preventative Maintenance

Condition Monitoring (Predictive Testing)

Inspection

Posted Instructions

SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals

SD-11 Closeout Submittals

Record Drawings

1.2 PROJECT RECORD DOCUMENTS

1.2.1 Record Drawings

1.2.1.1 Method of Preparation for Project(s). The construction Contractor will prepare the final Record drawings in CADD format, unless otherwise approved by ENGINEER.

1.2.1.2 Drawings showing final as-built conditions of the project. This paragraph covers record drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working record drawings" and "final record drawings" refer to contract drawings which are revised to be used for final record drawings showing as-built conditions. The final CAD record drawings must consist of one set of electronic CAD drawing files in the specified format, 2 sets of prints, and one set of the approved working Record drawings. The manually prepared drawings must consist of 1 set of completed final as-built original transparency drawings, 2 sets of blue-line prints of the transparencies, and the approved marked working as-built prints.

1.2.1.3 Working Record and Final Record Drawings

Revise two [2] sets of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. Keep these working as-built marked drawings current on a weekly basis and at least one set available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction must be accurately and neatly recorded as they occur by means of details and notes. Prepare final record (as-built) drawings after the completion of each definable feature of work. The working as-built marked prints and final record (as-built) drawings will be jointly reviewed for accuracy and completeness by the ENGINEER and the Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the working and final record drawings as specified herein, the ENGINEER will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the record drawings. This monthly deduction will continue until an agreement can be reached between the ENGINEER and the Contractor regarding the accuracy and completeness of updated drawings. Show on the working and final record drawings , but not limited to, the following information:

a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, show by offset dimensions to two permanently fixed surface features the end of each run including each change in direction on the record drawings. Locate valves, splice boxes and similar appurtenances by dimensioning along the utility run from a reference point. Also record the average depth below the surface of each run.

b. The location and dimensions of any changes within the project Plan Set.

c. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

d. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

e. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

f. Changes or modifications which result from the final inspection.

g. Where contract drawings or specifications present options, show only the option selected for construction on the final as-built prints.

h. Furnish a contour map of the final borrow pit/spoil area elevations.

1.2.1.4 Drawing Preparation

Modify the record drawings as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working as-built prints, and adding such additional drawings as may be necessary. These working as-built marked prints must be neat, legible and accurate. These drawings are part of the permanent records of this project and must be returned to the ENGINEER. Any drawings damaged or lost by the Contractor must be

satisfactorily replaced by the Contractor at no expense to the Owner.

1.2.1.5 Computer Aided Design and Drafting (CADD) Drawings

Only employ personnel proficient in the preparation of CADD drawings to modify the contract drawings or prepare additional new drawings. Additions and corrections to the contract drawings must be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols must be the same as the original line colors, line weights, lettering, layering conventions, and symbols. If additional drawings are required, prepare them using the specified electronic file format applying the same graphic standards specified for original drawings. The title block and drawing border to be used for any new final record drawings must be identical to that used on the contract drawings. Accomplish additions and corrections to the contract drawings using CADD files. The Contractor will be furnished "as-designed" drawings

The electronic files will be supplied to Engineer.

Provide all program files and hardware necessary to prepare final record drawings. The ENGINEER will review final record drawings for accuracy and return them to the Contractor for required corrections, changes, additions, and deletions.

a. When final revisions have been completed, show the wording "RECORD DRAWINGS / AS-BUILT CONDITIONS" followed by the name of the Contractor in letters at least 5 mm 3/16 inch high on the cover sheet drawing. Mark all other contract drawings either "Record" drawing denoting no revisions on the sheet or "Revised Record" denoting one or more revisions. Date original contract drawings in the revision block.

b. They must be complete in all details and identical in form and function to the contract drawing files supplied by the ENGINEER. Any transactions or adjustments necessary to accomplish this is the responsibility of the Contractor. The ENGINEER reserves the right to reject any drawing files it deems incompatible with the existing CADD systems. Paper prints, drawing files and storage media submitted will become the property of the ENGINEER upon final approval. Failure to submit final record drawing files and marked prints as specified will be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final record drawings must be accomplished before final payment is made to the Contractor.

1.2.2 Performance Bond

The Contractor's Performance Bond must remain effective throughout the construction period.

a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the ENGINEER will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the OWNER while performing the work, including, but not limited to administrative expenses.

b. In the event sufficient funds are not available to cover the construction warranty work performed by the OWNER at the Contractor's expense, the

OWNER will have the right to recoup expenses from the bonding company.

c. Following oral or written notification of required construction warranty repair work, respond in a timely manner. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the OWNER to proceed against the Contractor.

Part 2. PRODUCTS

Not Used

Part 3. EXECUTION

Not Used

END OF SECTION 01 78 00

PLEASURE ISLAND SHORE PROTECTION
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SECTION 31 11 00
CLEARING AND GRUBBING

PART 1. GENERAL

1.1 DESCRIPTION

This section refers to the required work necessary to clear and grub the Work site. All deleterious material encountered during construction shall be removed and disposed of appropriately, as specified herein.

1.1.1 Clearing and Grubbing:

Clearing includes, but is not limited to, removing and disposing of all trees, stumps, brush, rubbish, driftwood, organic topsoil, buried items, concrete, and other debris of every description in the work areas, except those objects shown on the Drawings or designated by the Owner to remain.

1.1.2 Related Work Specified Elsewhere:

- Environmental Management – SECTION 01 35 40
- Excavation and Fill – SECTION 31 23 00

PART 2. PRODUCTS

Not applicable.

PART 3. EXECUTION

3.1 GENERAL CLEARING

The site shall be cleared to the excavation and fill limits as shown on the Drawings. All areas which are to be excavated, or on which fill is to be placed shall be cleared by removing and disposing the items listed previously in this paragraph. All trees, piles, brush, stumps, snags, and other debris firmly embedded in the ground shall be cut off at the natural ground surface. Clearing outside the limits designated on the Drawings is not permitted.

3.2 ADDITIONAL CLEARING

The Contractor will be permitted, at their expense, to clear the minimum additional areas within a distance of which are required to permit efficient operation of the equipment. Any additional clearing shall be performed only after receipt of written approval to do so.

3.3 GRUBBING

Grubbing shall be performed across the full width of the proposed construction location. The footprint of the proposed structure shall also be grubbed prior to the start of installation of materials. All roots and projections over 1 ½ inches in diameter, and all steel rebar or other steel projections shall be removed to a depth of two feet below the bottom of the designated grade so not to puncture the geotextile filter fabric.

3.4 DISPOSAL OF MATERIALS

Waste materials from the clearing and grubbing operations shall be disposed of in a legal manner. Materials shall be disposed of as soon as practicable after clearing and grubbing. Disposal of material by floating downstream will not be permitted and no buoyant spoil from clearing operations shall be left within the floodplain. Burning of material may be permitted only with the approval of the governing authorities.

END OF SECTION 31 11 00

PLEASURE ISLAND SHORE PROTECTION
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SECTION 31 23 00
EXCAVATION AND FILL

Part 1. GENERAL

The Contractor should be aware that it is possible for material of differing characteristics to be present in the project area. All excavation shall be performed within the horizontal and vertical limits of the Drawings.

1.1 DESCRIPTION

Scope:

This section covers excavation and grading of the project drainage area. The work includes excavating, moving, placement, and compaction of excavated materials in the designated areas.

Related Work Specified Elsewhere:

- Quality Control – SECTION 01 40 00
- Environment Management– SECTION 01 35 40

1.2 REFERENCES

The publications list below form a part of this specification to the extent referenced: the publications are referred to in the text by the basic designation only.

American Society for Testing and Materials

ASTM D1557-07, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort

D 2922-05

Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

D 3017-05

Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

U.S. Army Corps of Engineers Manual (EM).

385-1-1 Safety and Health Requirements Manual, 15 September 2008 Edition

1.3 DEFINITIONS.

Degree of Compaction shall be expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 698.

1.4 SUBMITTALS.

The following shall be submitted in accordance with the SECTION 01 33 00 SUBMITTAL PROCEDURES.

SD-06 Test Reports.

Field Density Tests: FIO. Testing of Backfill Materials. Copies of the laboratory and field test reports shall be submitted to the Engineer within 24 hours of the completion of the test.

Part 2. PRODUCTS

Not applicable.

Part 3. EXECUTION

3.1 GENERAL

The Contractor shall make themselves aware of all existing conditions at the Project Site and familiarize themselves with the requirements for excavation and fill as shown in the Drawings. The Contractor may use any control deemed necessary for the layout of work.

No excavation or fill activities shall occur outside of the designated placement area boundaries.

3.2 EXCAVATION AND GRADING

Any areas to be excavated shall have all deleterious material removed prior to the start of excavation activities. The deleterious material shall be disposed of off-site in a legal manner by the

The Contractor shall locate, identify, and protect existing utilities from damage during construction activities. The Contractor shall pre-mark all areas where excavation and grading operations are to occur and shall call “Dial Dig” (1-800-424-5555) and the Engineer 48 HOURS PRIOR to the start of construction activities.

The Contractor is responsible for the design and adequacy of all temporary excavation slopes. The Contractor shall comply with all applicable regulations governing temporary excavation slopes, including Occupational Safety and Health Administration (OSHA).

3.3 GENERAL FILL PLACEMENT

Ensure that areas to be filled are free from debris and water. Fill material shall be constructed to the lines and grades, contours, levels and tolerances described in the Contract Documents.

Do not fill over ponded surface water or existing subgrade surfaces which are yielding, disturbed, or softened.

Placement of fill shall be suspended when:

- Weather or tidal conditions will not allow the proper placement of fill material.
- Climatic conditions will not allow proper placement and compaction of fill.

THESE “STOPPAGE” CONDITIONS WILL BE AGREED UPON BY CONTRACTOR, ENGINEER, AND CONTRACTOR, PRIOR TO COMMENCEMENT OF CONSTRUCTION.

3.4 CONTRACTOR QUALITY CONTROL

Quality control procedures specified herein for earthwork shall be a part of Contractor's overall quality control plan.

3.4.1 Quality Control Inspections

The Contractor shall conduct daily Quality Control inspections of the construction activities for compliance with these contract requirements and record the information as specified herein. A copy of the records of Quality Control inspections, as well as corrective action taken, shall be filed daily and submitted as directed. The Quality Control Reports shall be

submitted on an approved Quality Control Report form. Required survey information and plots of the surveys shall be attached to the Quality Control Reports, as specified.

3.4.2 Quality Control Report

A copy of the records of Quality Control inspections and tests, as well as the records of corrective action shall be submitted as directed. A Quality Control Daily Report Form, containing blanks for required information shall be developed by the Contractor for use during this contract.

3.5 STOCKPILES

Stockpiles of satisfactory and unsatisfactory material shall be placed and graded as specified by the Engineer. Stockpiles shall be kept in a neat and well drained condition, giving due consideration to drainage at all times. The ground surface at stockpile locations shall be cleared, grubbed, and sealed by rubber-tired equipment, excavated satisfactory and unsatisfactory materials shall be separately stockpiled. Stockpiles of satisfactory materials shall be protected from contamination which may destroy the quality and fitness of the stockpiled material. If the Contractor fails to protect the stockpiles, and any material becomes unsatisfactory, such material shall be removed and replaced with satisfactory material from approved sources at no additional cost to the OWNER. Locations of stockpiled materials shall be subject to prior approval of the ENGINEER.

3.6 STAKING

The Contractor shall furnish, at his own expense, such stakes, templates, platforms, equipment, tools and material, and all labor as may be required in laying out any part of the work from the survey monuments, control data and elevations provided by the Engineer. It shall be the responsibility of the Contractor to maintain and preserve all monuments, stakes and other marks unless and until authorized to remove them, and if such marks are destroyed by the Contractor or through Contractor negligence, prior to their authorized removal, they may be replaced by the Engineer at his discretion, and the expense of replacement will be deducted from any amounts due or to become due the Contractor. All marking stakes (including grade stakes) placed by the Contractor must be completely removed upon completion of the project unless otherwise specifically accepted in writing by the Engineer.

3.7 EMBANKMENT CONSTRUCTION.

3.7.1 General.

Berms shall be raised to the elevations lines, grades, and locations shown, using sufficient amounts of satisfactory material. Berms shall be repaired or incrementally raised according to the construction plans.

3.7.2 Semi-compacted Fill.

The semi-compacted fill berm embankments shall be constructed to the required templates shown using sufficient amounts of satisfactory materials obtained from the side-ditch borrow. Fill material shall be carried, pushed, relayed or otherwise transported by acceptable methods. Fill material shall be placed and spread in maximum 12-inch thick layers prior to compaction, using draglines, hydraulic excavators, tractor-scrapers and crawler-type dozers or other suitable equipment meeting the requirements specified herein. Prior to compaction of each layer, the moisture content of each layer of material shall be suitable to obtain the maximum compaction with the equipment used. If the material is too wet and tends to rut or stick to the tracks, it shall be disked and aerated until dry prior to proceeding with compaction. If the

material is too dry and cannot be compacted satisfactorily, it shall be moistened and disked to distribute moisture unit tread pressure of not less than 7 pounds per square inch. Restoration of existing berm or reconstruction of damaged structures or improvements will be subject to approval.

3.7.3 Existing Drainage.

Areas disturbed by the Contractor's activity that affect drainage shall be restored, sloped, and shaped to provide positive flow of surface water where these areas can potentially impound water.

3.8 GRADE TOLERANCES AND SHRINKAGE ALLOWANCES FOR EMBANKMENTS.

Except as otherwise specified herein, berms shall be constructed to the net grades and cross sections shown, without the addition of allowance for shrinkage of the fill. At all points an allowance of 5/10 of 1-foot above the prescribed grade will be permitted in the final dressing, provided that there are no abrupt humps or depressions in the sloped surfaces or bulges in the width of the crown.

3.9 EROSION AND SLIDES.

If the berm develops erosion or sliding during construction, or after completion but prior to acceptance, the Contractor shall, upon written direction, rebuild that portion of the berm. If the slide is caused through fault of the Contractor, the foregoing operations shall be performed without cost to the OWNER.

3.10 CONTRACTOR QUALITY CONTROL.

3.10.1 Compliance Inspection.

The Contractor shall inspect for compliance with the contract requirements and record the inspection of operations including, but not limited to, the following:

3.10.1.1 Materials - Satisfactory materials

3.10.1.2 Foundation Preparation - Disking; continuous drainage and drying; stripping

3.10.1.3 Perimeter Berm Construction - Layer thickness, moisture content, lines and grades, proper compaction.

3.10.2 Records.

A copy of the records of inspections, tests, and corrective action taken shall be submitted as directed.

END OF SECTION 31 23 00

PLEASURE ISLAND SHORE PROTECTION
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SECTION 31 35 00
GEOTEXTILE FABRIC

Part 1. GENERAL

1.1 SUMMARY

Section Includes: Polymeric Maccaferri® Grid Composite System with integral formed stress resistant polypropylene geogrid, sewn to a non-woven needle punched polypropylene geotextile.

1.1.1 Grid Composite System shall possess:

1.1.1.1 Positive mechanical interlock with bedding stone or similar; contiguous sections of itself when overlapped and embedded in bedding stone or similar; and mechanical connectors (Stainless Steel Rings).

1.1.1.2 Sufficient cross-sectional profile to present a substantial abutment interface to particulate construction fill materials such as bedding stone and to resist movement relative to such materials.

1.1.1.3 Sufficient flexural rigidity to help maintain intimate contact of the geotextile with the underlying material when bedding stone, riprap or armor stone is placed on top.

1.1.1.4 Sufficient true initial modulus to cause applied force to be transferred to the geogrid at low strain levels without material deformation of the reinforced structure.

1.1.1.5 Complete continuity of all properties throughout its structure and shall be suitable for use with bedding stone, riprap and armor stone materials in coastal and waterway environments to improve the long-term stability of the coastal structure such as rubble mound breakwaters, jetties and groins.

1.1.2 Furnishing the Grid Composite System as shown on the Contract Drawings, on the Shop Drawings and as directed by the Engineer. Work consists of:

1.1.2.1 Providing system supplier representative for pre-construction conference with the Contractor and the Engineer.

1.1.2.2 Fabricating, storing, cutting and placement of the grid composite as specified herein and as shown on the construction drawings.

1.1.3 Alternates:

1.1.3.1 Woven, flexible geogrid will not be considered as an alternate to the integral formed stress resistant polypropylene geogrid component of the Polymeric Grid Composite system.

1.1.3.2 Alternate grid composite materials shall not be used unless submitted to the Engineer and approved in writing by the Engineer. The Engineer shall have absolute authority to reject or accept alternate materials based on the requirements of this Section and the Engineer's judgment. Certain material properties of the grid composite are critical to the fabrication and serviceability of this application. The grid composite must satisfy the requirements of this Section, regardless of any previous approval by the Owner or Engineer for

other types of applications. Coated grid composite shall not be allowed for constructing Polymeric Grid Composite System. In order to be considered, submittal packages for alternate grid composite materials must include:

- A list of comparable projects, in terms of size and applications, in the United States, where the results of using the specific alternate geogrid material can be verified.
- A sample of the alternate grid material and certified specification sheets.
- Recommended fabrication and installation instructions.
- Additional information as required at the discretion of the Engineer.

1.2 REFERENCES

1.2.1 American Association of State Highway and Transportation Officials (AASHTO)

- Standard Specification for Highway Bridges (2002).

1.2.2 American Society for Testing and Materials (ASTM):

- D 6637 Determining Tensile Properties of Geogrids by Single or Multi-Rib Tensile Method
- D 1388 Flexural Rigidity (Option A).
- D 4759 Standard Practice for Determining the Specification Conformance of Geosynthetics.
- D 7737 Individual Geogrid Junction Strength
- D 5818 Practice for Obtaining Samples of Geosynthetics from a Test Section for Assessment of Installation Damage.

1.2.3 U.S. Army Corps of Engineers

U.S. Army Corps of Engineers of Torsional Rigidity.

1.3 DEFINITIONS

1.3.1 Grid Composite – An integral formed geogrid structure manufactured of a stress resistant polypropylene (PP) material, bonded or sewn to a monofilament polypropylene woven geotextile.

1.3.2 Minimum Average Roll Value – Value based on testing and determined in accordance with ASTM D 4759.

1.3.3 True Tensile Modulus in Use – The ratio of tensile strength to corresponding strain (e.g. 1%). The tensile strength is measured via ASTM D 6637 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties. Values shown are minimum average roll values.

1.3.4 Junction Strength – Breaking tensile strength of junctions when tested in accordance with ASTM D7737 tested at a strain rate of 10 percent per minute based on this gauge length. Values shown are minimum average roll values.

1.3.5 Flexural Stiffness (also known as Flexural Rigidity) - Resistance to bending force measured via ASTM D 1388 (Option A) using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Rigidity is calculated as the square root of the product of machine- and cross-machine-direction Flexural Rigidity values. Values shown are minimum average roll values.

1.3.6 Torsional Stiffness – Resistance to in-plane rotational movement measured by applying a 20kg-cm movement to the central junction of a 9-inch x 9-inch specimen restrained at its perimeter in accordance to US Army Corps of Engineers Methodology.

1.3.7 Resistance to Installation Damage – Resistance to loss of load capacity or structural integrity when subjected to mechanical stress in installation measured via ASTM D 5818 in a crushed stone classified as a poorly graded gravel with a maximum 2 inch particle size (GP). Values shown are typical values.

1.4 SUBMITTALS

1.4.1 Submit product samples of:

1.4.1.1 Grid Composite.

1.4.1.2 Mechanical connection elements – Stainless Steel Rings

1.4.1.3 Shop Drawings – Submit details of the typical sections and connections.

1.4.1.4 Submit grid composite product data sheet and certification from the manufacturer that the product supplied meets the requirements of sub-part 2.02 of this Section.

1.4.1.5 Submit manufacturer's general recommendations and instructions for fabrication, storing, cutting, installation and repair.

1.5 QUALITY ASSURANCE

1.5.1 Pre-Construction Conference

Prior to the installation of the grid composite, the Contractor shall arrange a meeting at the site with the system supplier and, where applicable, the system installer. The Owner and the Engineer shall be notified at least 3 days in advance of the time of the meeting.

1.6 DELIVERY, STORAGE, AND HANDLING

1.6.1 Storage and Protection:

1.6.1.1 Prevent excessive mud, wet concrete, epoxy, or other deleterious materials from coming in contact with and affixing to geogrid composite materials.

1.6.1.2 Store at temperatures above –20 degrees F (-29 degrees C).

1.6.1.3 Rolled materials may be laid flat or stood on end.

Part 2. PRODUCTS

2.1 MANUFACTURERS

2.1.1 An approved source of geogrid is Maccaferri Corporation; Williamsport, MD or their designated representative.

2.1.2 Acceptable product is Maccaferri Geogrid Composite System (GC16) or equivalent.

2.2 MATERIALS

2.2.1 Grid Composite:

2.2.1.1 The grid composite shall be delivered to the project site in roll form with each roll individually identified and nominally measuring 50 feet in width and 164 feet in length. On special request, the grid composite may also be custom cut to specific length or widths to suit site specific engineering design.

2.2.1.2 Unless otherwise called out on the Construction Drawings or Shop Drawings or directed by the Engineer, the grid composite type shall have the following characteristics:

PROPERTY (Geogrid)	**UNITS**	**MD Values[1]**	**XMD Values[1]**
Aperture Size[2]	mm (in)	43.2 (1.7)	48.3 (1.9)
Minimum Rib Thickness[2]	mm (in)	1.58 (0.06)	1.58 (0.06)
Tensile Strength @ 2% Strain[3]	kN/m (lb/ft)	6.5 (450)	6.5 (450)
Tensile Strength @ 5% Strain[3]	kN/m (lb/ft)	12.0 (820)	12.0 (820)
True Initial Modulus in Use[3]	kN/m (lb/ft)	23 (1,575)	23 (1,575)
Junction Efficiency[4]	%	98	
Flexural Stiffness[5]	mg-cm	750,000	
Aperture Stability[6]	m-N/deg	6	
Resistance to Installation Damage[7]	%SC/%SW/%GP	91/83/71	
Resistance to Long Term Degradation[8]	%	100	
Ultraviolet Stability (Retained Strength @ 500 hours)	%	100	

Notes:

1) Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D 4759-02. Brief descriptions of test procedures are given in the following notes.
2) Nominal Dimensions
3) Determined in accordance with ASTM D 6637-10 Method A.
4) Load transfer capability determined in accordance with ASTM D 7737-11, using 10% per minute strain rate.
5) Resistance to bending force determined in accordance with ASTM D 7748-12, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs, and of length sufficiently long to enable measurement of the overhang dimension.

6) Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with GRI GG9.
7) Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D 5818-06 and load capacity shall be determined in accordance with ASTM D 7737-01.
8) Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
9) Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D 4355-05.

PROPERTY (Geotextile)3	**Test Procedure**	**UNITS**	**Minimum Average Roll Values (MARV)[1]**
Grab Tensile Strength	ASTM D 4632	kN (lb)	1.736 (390)
Grab Elongation	ASTM D 4632	%	50
Trapezoidal Tear	ASTM D 4533	kN (lb)	0.667 (150
CBR Puncture	ASTM D 6241	kN (lb)	5.004 (1125)
UV Resistance	ASTM D 4355	% Retained @ 500 hrs.	70
Apparent Opening Size (AOS)2	ASTM D 4751	mm (US Sieve)	0.150 (100)
Permittivity	ASTM D 4491	sec-1	0.57
Flow Rate	ASTM D 4491	lpm/m2 (gpm/ft2)	1630 (40)

Notes:

1) Values shown are weaker principal direction. 'Minimum Average Roll Values' (MARV) are calculated as the typical minus two 92) standard deviations. Statistically, it yields a 97.7 5 degree of condidence that any sample taken from quality assurance testing will exceed the value reported.
2) AOS (ASTM D 4751) is a 'maximum Opening Diameter Value'
3) Mullen Burst (ASTM D 3786) and Puncture (ASTM D 4833) have been removed. Neither test method is recognized by AASHTO M288. CBR Puncture (ASTM D 6241) has replaced d 4833, under AASHTO M288. Mullen Burst is not recognized by ASTM D 35 committee on Geosynthetics.

PROPERTY (Stainless Steel Rings)[1]	**UNITS**	**Value**
Open Dimension	mm (in)	44 (1.75)
Closed Dimension2	mm (in)	19 (0.75)
Wire Measure	Gauge	11
Tensile Strength (min.)3	kN (lb)	2.45 (550)
Connection Train	Ring Placement at Everyother Transverse/Longitudinal Bar	

Notes:

1) ASTM A 975 – Section 13.1.2.1 Fastener Test
2) Nominal overlap of 1 inch (25 mm) after closure

PROPERTY (Sewing Thread)[1]	Value
Polymer	High Tenacity Polyester (PET)
Denier	6000
Wire Measure	11
Stitch Type	401 Government Stitch/Double Needle – 3 Stitch/Inch

Part 3. EXECUTION

3.1 EXAMINATION

The Contractor shall check the geogrid, braid and mechanical connection elements upon delivery to verify that the proper material has been received. These materials shall be inspected by the Contractor to be free of flaws or damage occurring during manufacturing, shipping, or handling.

3.2 PREPARATION

3.2.1 Subgrade

The subgrade soil shall be prepared as indicated on the Construction Drawings or as directed by the Engineer. Where required, subgrade shall be excavated to the lines and grades as shown on the drawings or as directed by the Director's Representative. Any over-excavated areas shall be filled with compacted select backfill material.

3.3 INSTALLATION

3.3.1 Position

The grid composite shall be placed at the proper elevation, alignment and orientation as shown on the Construction Drawings or as directed by the Engineer. Correct orientation (roll direction) of the grid composite shall be verified by the Contractor. Grid composite may be temporarily secured in place with staples, pins, sand bags, or backfill as required by fill properties, fill placement procedures, or weather conditions, or as directed by the Engineer.

3.3.2 Grid Composite

Composite shall be connected/spliced when required to provide continuity of tensile resistance. The grid composite shall be connected with a mechanical polymer bar.

3.3.3 Overlap

Overlap connections may be used if the Contractor provides the Engineer independent test documentation which demonstrates that the load/deformation characteristics of the overlap of geogrid materials is equal to or exceeds those of

the geogrid. The minimum overlap shall be as indicated in the project plans and specifications.

3.4 FILL PLACEMENT

3.4.1 Backfill material shall be placed in lifts and compacted as per project specifications or as directed by the Engineer. Backfill shall be placed, spread, and compacted in such a manner that minimizes the development of wrinkles in and/or movement of the grid composite.

3.4.2 Tracked construction equipment shall not be operated directly on the grid composite. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the grid composite. Turning of tracked vehicles should be kept to a minimum to prevent tracks from displacing the fill and damaging the grid composite. Rubber-tired equipment may pass over the grid composite at slow speeds, less than 10 mph. Sudden braking and sharp turning shall be avoided. A minimum fill thickness of 6 inches is required prior to operation of rubber-tired equipment over polyester geogrid reinforcement.

3.5 REPAIR

3.5.1 Any grid composite damaged during installation shall be repaired in a manner approved by the Engineer or shall be replaced by the Contractor. Any such measures required shall be at no additional cost to the Owner.

END OF SECTION 35 20 23

PLEASURE ISLAND REVISED BREAKWATER

SECTION 32 70 00
WETLANDS CONSTRUCTION

PART 1. GENERAL

1.1 REFERENCES

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

American Society for Testing and Materials (ASTM)

ASTM D 5034 1995, Breaking Strength and Elongation of Textile Fabrics (Grab Test)

ASTM D 5035 1995, Breaking Strength and Elongation of Textile Fabrics (Strip Method)

1.2 SYSTEM DESCRIPTION

The work covered by this section includes:

1.2.1 Provision of all plant, labor, equipment, and materials; and

1.2.2 Performance of all operations in connection with the planting of salt marsh vegetation in the area shown in the Contract Drawings and as directed by the Engineer or his authorized representative.

1.3 SUBMITTALS

Engineer approval is required for submittals with a "GA" designation. Submittals designated "FIO" are for information only. The following shall be submitted in accordance with SECTION 01 33 00 Submittals.

SD-01 Data

Equipment; FIO:

A list and/or description of equipment used for the planting operation.

SD-08 Statements:

Delivery; FIO

Delivery Schedule for equipment, plants, and soil amendments.

SD-13 Certificates:

Marsh plants; GA Fiber mats; GA Soil Amendments; FIO Fertilizers

Prior to the delivery of material, certificates of compliance shall be submitted certifying that materials meet the specified requirements. Where such certification requires a laboratory test, the test shall be certified and reported as part of the certificate of compliance. Testing shall be performed by an approved independent laboratory within 30 days of submittal of reports. Certified copies of the reports shall be provided for the following:

a) Marsh plants. Cultivar name, genetic purity, and location of collection for transplanted stock.

b) Fertilizers. Manufacturer's chemical analysis and application instructions.

c) Sandy soil. Particle size/gradation, chemical and mechanical analyses.

SD-14 Samples

Natural fiber mats for planting; GA Wooden stakes for anchoring fiber mats; GA Natural fiber twine for mat tie-downs.

SD-18 Records

Maintenance; FIO Maintenance work performed, area repaired or reinstalled, diagnosis for unsatisfactory stand of plants.

1.4 SOURCE INSPECTION

The sources of marsh vegetation and delivered sandy soil shall be subject to inspection.

1.5 DELIVERY, INSPECTION, STORAGE, AND HANDLING

1.5.1 Soil amendments

Soil amendments shall be delivered to the site in the original, unopened containers bearing the manufacturer's name and guaranteed chemical analysis of the container contents. If amendments are furnished in bulk, a certificate from the manufacturer indicating the above information shall accompany each delivery.

1.6 MARSH PLANTS

Plants shall be protected from exposure to wind and direct sunlight during delivery to prevent desiccation, internal heat buildup, or contamination (see "Storage" paragraph below).

1.7 INSPECTION

Plants shall be inspected by the Engineer or his authorized representative upon arrival at the job site for conformity to cultivar, genetic purity, and quality requirements. Unacceptable materials (e.g., desiccated, diseased, insect-infested, lack of root biomass) shall be removed from the job site at no additional cost to the Owner.

1.8 STORAGE

Plants shall be stored in designated areas and covered with moist burlap, straw, or other covering. Covering shall allow air to circulate preventing internal heat from building up. Plants shall be protected from exposure to wind and direct sunlight until installed.

1.9 HANDLING

Plants shall not be damaged during handling. Except for bulk deliveries, material shall not be dropped or dumped from vehicles.

1.10 TIME LIMITATIONS

Plants shall be installed WITHIN 24 HR of delivery if possible, or if not installed on the day of delivery, all stock shall be covered in straw, moist burlap, or other material,

as approved by the Engineer, until the time of installation, which shall be no longer than 3 days under any circumstances.

PART 2. PRODUCTS

2.1 MARSH VEGETATION

2.1.1 Species:

126,000 sprigs of *Spartina alterniflora*, Low Marsh

252,000 sprigs of *Juncus roemerianus*, High Marsh

252,000 sprigs of *Spartina patens* High Marsh

2.1.2 Quality:

All plants shall be living and healthy with vigorous root systems suitable to ensure establishment of the plant. Marsh plants shall be nursery grown under climatic conditions similar to those in the locality of the project. Plants may be 2-in. or larger plugs, bare root or 2-in. pots. Bare-root plants shall have stem and root development similar to 2-in. plugs. All plants shall be free from material detrimental to a healthy stand of plants. Any plants exposed to excessive heat or drying shall be rejected.

2.2 FIBER MATS, STAKES, TWINE

Fiber mats for marsh planting shall be wetland geotextile mats specifically manufactured for soil stabilization/erosion control purposes. They shall be made of 100-percent biodegradable fiber that maintains tensile strength in alternating dry, wet, and frozen conditions, and even when submerged. The Contractor shall submit a minimum 1 ft sample in accordance with the “SUBMITTALS” paragraph.

Preplanted fiber mats for marsh planting shall be wetland geotextile mats specifically manufactured for this purpose. They shall be made of 100-percent biodegradable fiber with a thickness adequate to withstand wave impacts and fluctuating tide levels found at the site. The Contractor shall submit a minimum 1 ft sample in accordance with the “SUBMITTALS” paragraph.

Anchor stakes shall be pressure- treated soft wood such as pine or spruce, about 1-1/2 in. by 1-1/2 in. by 24 in. (3.8 cm by 3.8 cm by 61 cm). Stakes shall be notched about 6 in. (15 cm) from the top to accept heavy twine tie-downs. The Contractor shall submit a sample stake in accordance with the “SUBMITTALS” paragraph.

Twine for fiber mat tie-downs shall be natural fiber such as standard bailing twine. The Contractor shall submit a sample in accordance with the “SUBMITTALS” paragraph.

2.3 SUBSTITUTIONS

Substitutions will not be allowed without written request and approval from the Contracting Officer.

2.4 WETLANDS CONSTRUCTION FILL

Wetlands backfill shall consist of crushed, partially crushed, or naturally occurring material, similar to the existing material in-situ, from an existing permitted commercial source.

Wetlands backfill shall consist of material, essentially free from various types of wood waste or other extraneous or objectionable materials. All material should be tested for consistency with existing, in-place material and presented to Engineer for approval.

PART 3. EXECUTION

3.1 INSTALLATION

3.1.1 Planting Time

Preferable dates for the establishment of marsh plants are between 1 March and 1 September. However, fall or winter planting is acceptable if the ground is in a satisfactory condition for planting.

3.1.2 Installation Methods

The Contractor shall define areas for planting of each species using stakes and string lines. Staked areas shall be approved by the Engineer or his representative prior to planting.

Marsh plants shall be placed in the soil at previous growing depth, with one sprig per hole. Potted plants shall be planted to top surface of potting medium.

The Contractor shall smooth out any high or low areas prior to planting so that the area to be planted matches the lines and grades of the Drawings.

The Contractor may use any one of the following planting methods:

METHOD No. 1:

Fiber mats shall be placed over the area to be planted and anchored with wooden stakes at 3-ft spacing along the edge of the mats and in a staggered pattern throughout the remainder of the mat at the same spacing. The mats shall be further held in place by heavy twine tied between stakes at mat level. Edges of the mat should be keyed into the substrate to prevent scour from waves beneath the mat. Plugs shall be placed into the sand through 8-in. slits cut into the mats 18 in. apart in a staggered pattern.

METHOD No. 2:

Similar to METHOD No. 1, except plants are pre-planted into a thicker fiber mat by the mat supplier prior to installation.

METHOD No. 3:

Plant rolls are constructed by laying a 10-ft length of 3-ft-wide burlap on the ground and filling with sandy soil previously placed at the site. Plants are placed in this soil at 18-in. spacing and the burlap edges are brought together and fastened with metal rings at 8-in. spacing to form a roll about 9 ft long and 8 to 10 in. round. Rolls are placed end to end into trenches made in the sandy soil so that the top of the roll is approximately level with the top of the trench. Plant roll runs shall be spaced at 18-in. intervals, placed parallel to the shoreline, and proximate to wave action.

3.1.3 Fertilization

Simultaneous with the planting, each plant shall be fertilized as follows:

3.1.4 Spring and Summer Planting

Fertilize each plant with 30 grams of 3- to 4-month slow-release fertilizer (18N-6P-12K).

3.1.5 Fall and Winter Planting

Fertilize each plant with 30 grams of 8- to 9-month slow-release fertilizer (18N-6P-12K).

3.2 MAINTENANCE

Planting maintenance shall continue for 1 year after completion of the work. During this period, any dead plants shall be replaced. Any washouts or eroded areas shall be repaired and replanted. All trash and debris washed or blown into the planted area shall be immediately removed and the area shall be protected from foot and vehicle traffic.

A record of each site visit shall be furnished describing the maintenance work performed, areas repaired or reinstalled, and diagnosis of reasons for unsatisfactory stand of marsh vegetation.

3.3 PLANT ESTABLISHMENT PERIOD

The establishment period will be in effect for 12 months at no additional cost to the Owner. All plants that die during the establishment period shall be replaced. No additional plant establishment period will be required for replacement plants.

3.4 WETLANDS CONSTRUCTION FILL

Material used for Wetlands construction shall be placed landward of the design breakwater to be used as initial material for wetlands construction. The disposed material shall be graded to result in a uniform slope within the lines and grades shown on the Drawings and specified in the Technical Specifications.

END OF SECTION 32 70 00

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 35 20 23
DREDGING

PART 1. GENERAL

1.1 DESCRIPTION

Scope:

This section covers Dredging & Placement of dredged materials to all lines and grades indicated in the Contract Drawings. The work includes dredging, placing dredged materials, and disposal of dredged material.

Over Depth Dredging:

No over depth dredging beyond the elevations shown in Contract Drawings shall occur.

PART 2. PRODUCTS

Not applicable

PART 3. EXECUTION

3.1 DREDGING/SUBAQUEOUS EXCAVATION

Construction of the breakwater will require dredging/excavation for proper placement of the structure toe below the existing surface. It is the Contractor's responsibility to familiarize himself with the project site conditions, prior to bidding, in order to determine ability perform the required placement of stonework specified in SECTION 35 30 00 - Stone.

The Contractor may encounter obstructions during excavation, such as submerged stone, stumps, timber piles and debris. All debris resulting from the dredging the toe-trench shall be separated from the earthen materials and removed from the site of work and disposed of in accordance with SECTION 31 11 00 – Clearing and Grubbing. The Contractor may propose a method for placement of construction debris within the project work area, with subsequent approval by Engineer required.

Methods of dredging and excavation shall be utilized that minimize turbidity levels, such as reducing the speed at which the crane or excavator lowers and raises the bucket through the water column and reducing the speed at which the materials are removed and disposed of with the bucket.

Dredging and excavation activities shall comply with requirements of the Corps of Engineers Permit and the Provisions of SECTION 01 35 43, Protection of the Environment.

The Contractor is responsible for reviewing the Drawings and site conditions to determine the need for performing dredging for their individual proposed construction equipment and procedures.

3.1. RESTRICTION OF PUBLIC ACCESS

The Contractor shall be required to erect, maintain, and move as necessary, a restrictive barrier around the discharge of his hydraulic pipeline (or other mechanical off loader). The barrier shall be constructed so as to prevent the public from approaching the discharge from any direction closer than 100 feet. The Contractor shall post signs in a conspicuous manner stating, "DANGER - HIGH PRESSURE DISCHARGE FROM DREDGE." The Contractor shall be required to prevent any public access to the end of the dredge discharge. If the public does not heed warning signs and/or restrictive barriers, the Contractor shall contact the Engineer or Owner for assistance in maintaining the public at a safe distance from construction activities.

3.2. PUMPING OF BILGES.

Contractors are cautioned that pumping oil or bilge water containing oil into navigable water or into areas which would permit the oil to flow into such waters, is prohibited by Section 13 of the Rivers and Harbors Act of 1899 approved March 3, 1899 (30 Stat. 1152; 33 U.S.C. 407). Violation of this prohibition is subject to penalties provided for under the referenced acts.

3.3. RISK OF LOSS.

The Work and everything pertaining thereto shall be performed at the sole risk and cost of the Contractor from commencement until final payment by the Owner. Any specific references contained in the Contract Documents, including the Specifications, that the Contractor shall be responsible at its sole risk and cost for the Work or any part thereof are not intended to be, nor shall they be construed to be, an exclusive listing of the circumstances in which the Contractor bears the risk of loss, but rather they are intended only to be exemplary.

All loss or damage arising out of the nature of the Work, or from the action of the elements, or from hurricanes, tropical storms, or from any unusual obstruction or difficulty, or any other natural or existing circumstances either known or unforeseen, that may be encountered in the prosecution of the Work, shall be sustained and borne by the Contractor at its own cost and expense.

The Contractor shall have no claim against the Owner or Engineer because of any damage or loss to the Work or Contractor's materials, equipment or supplies, including no claim for loss or damage due to simultaneous work by others, and the Contractor shall be responsible for the complete restoration of damaged Work to its original condition complying with the Contract Documents. Notwithstanding any other provision of this Contract, this obligation shall exist without regard to the availability of any insurance, either of the Owner, Engineer or the Contractor, to indemnify, hold harmless or reimburse the Contractor for the cost incurred in making such restoration.

3.4. FINAL CLEAN-UP

The Contractor is required to restore any disturbed areas outside of the project boundaries. Final clean-up shall include the removal of the Contractor's plant and all equipment or materials either for disposal or reuse. Plant and/or equipment or materials to be disposed of shall only be disposed of in a manner and at locations approved by the Engineer or Owner.

Unless otherwise approved in writing by the Engineer, the Contractor will not be permitted to abandon pipelines, pipeline supports, pontoons, or other equipment in the disposal area, pipeline access areas, water areas, or other areas adjacent to the work site. Any stakes or other markers placed by the Contractor must be removed as a part of the final clean-up. Grade stakes placed during the placement operation shall be completely removed and shall not be left buried at the placement site.

3.5. OIL AND HAZARDOUS MATERIAL SPILLS AND CONTAINMENT

The Contractor shall ensure that all hazardous material spills are immediately reported to the Engineer. All hazardous material spills shall be immediately cleaned up in accordance with the U.S. Army Corps of Engineers' Safety and Health Requirements Manual, EM 385-1-1. In accordance with EM 381-1-1, the Contractor shall use suitable methods such as dikes or curbs to prevent the spread of hazardous materials from above ground storage tanks and piping in case of leakage.

3.6. HURRICANE AND SEVERE STORM PLAN

The Contractor shall submit a Hurricane and Severe Storm Plan within twenty (20) calendar days after the Notice of Award and prior to the pre-construction conference. This plan shall include but not be limited to the following:

- Types of storms possible (winter storm, tropical storm or hurricane).

- Time intervals before storms strike the project area when action will be taken and details of the actions to be taken. The plan should be specific as to what weather/wave conditions will require work shutdown, removal of dredge, etc.
- List of the equipment to be used on the job and its ability to handle adverse weather and wave conditions.
- List of safe harbors or ports and the distance from the work area to these harbors and the time required to move the equipment to these harbors or ports. Copies of letters of approval for the use of these safe harbors or ports (local authorities, U.S. Coast Guard, etc.) where applicable.
- Method of securing equipment in these safe harbors or ports.
- List of equipment to be utilized to make this move to safe harbors or ports (tug boats, work boats, etc.), to include the name and horsepower of this equipment. The plan will include only equipment capable of making the move to safe harbors or ports in adverse weather or sea conditions.
- Methods of securing equipment not moved; i.e., pipelines (floating or submerged), pumpout stations, etc.
- Plan of evacuation to include interim measures; i.e., immediate reaction plans to be taken for all storm occurrences, particularly sudden/flash storms.
- Operating procedures to be undertaken when critical dredge equipment fails during sudden and severe adverse weather conditions, to include breaking of spuds, swing wires, anchor wires, or other mooring equipment or facilities.

The Contractor shall continually monitor the NOAA marine weather broadcasts, and avail themselves of such other local or regional commercial weather forecasting services as may be available.

END OF SECTION 35 20 23

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

SECTION 35 30 00
STONE

Part 1. GENERAL

1.1 DESCRIPTION

1.1.1 Scope:

This section covers stone work required to construct the stone structure. Stone will be supplied to the site and installed per the Drawings and as specified.

1.1.2 General:

All arrangements must be made prior to bid opening for rights-of-way, for adequate investigation and exploration, and for selection, development, and operation of the quarry to supply stones for this contract of the weights, sizes, and quality specified herein. Inspection for acceptance of individual stone will be at the construction site.

1.1.3 Related Work Specified Elsewhere:

- Quality Control – SECTION 01 40 00
- Excavation and Fill – SECTION 31 23 00

1.2 DEFINITIONS

1.2.1 Rubble-mound Breakwater:

Free-standing stone structure generally constructed along and near an existing shoreline. Construction requires excavation, grading, and fill.

1.2.2 Armor Stone:

Layer of large stones used as armor layer of structure as shown on the Drawings.

1.2.3 Bedding Stone:

Layer of small stones used for bedding layer below the armor stone layer as shown on Drawings.

1.2.4 Core Stone:

Material intended to occupy interior volume of structure, such as 3/8” gravel (Rainbow Rock) as shown on Drawings. Bedding Stone may be used where Core Stone is shown on Drawings.

1.3 REFERENCES

The publications list below form a part of this specification to the extent referenced: the publications are referred to in the text by the basic designation only.

1.3.1 American Society for Testing and Materials

ASTM C88-05, Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

ASTM C127-07, Standard Test Method for Density, Relative Density (Specific Gravity) and Absorption of Coarse Aggregate

ASTM C131-06, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

ASTM C535-03e1, Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

ASTM D7012-07, Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

ASTM D4992-07, Standard Practice for Evaluation of Rock to be Used for Erosion Control

1.3.2 U.S. Army Corps of Engineers Handbook for Concrete and Cement (CRD-C)

CRD-C 144-92, Standard Test Method for Resistance of Rock to Freezing and Thawing

CRD-C 148-69, Method of Testing Stone for Expansive Breakdown on Soaking in Ethylene Glycol

1.4 SUBMITTALS

Immediately after award of this contract and within five days of receipt of Notice to Proceed, all pertinent test records from the stone source shall be submitted to the Engineer for review. Such test records will be evaluated to help determine if stones from that source can meet quality standards as hereinafter specified.

SD-01 Preconstruction Submittals

SD-03 Product Data

SD-06 Test Reports

1.5 SAMPLING, TESTING, AND ACCEPTANCE OF STONES

1.5.1 General:

The acceptability of armor stone will be determined by existing laboratory tests, geologic examination, and for sampling and laboratory testing, and drip tests. The Contractor shall submit quarry test results from a laboratory that has been validated by the Owner, in accordance with the tests specified herein and which are representative of the stone to be used on the project. The Contractor shall submit existing laboratory test documentation to the Engineer immediately afterward and within 5 days of receipt of Notice to Proceed such tests. When satisfactory test records are not available, the proposed armor stone shall be subjected to all such tests as are necessary to determine that the stones are durable and suitable for use in the work. Tests to which the stones may be subjected include specific gravity, absorption, abrasion, accelerated expansion, and such other supplemental tests as may be necessary.

1.5.2 Sampling:

Should the Contractor’s documentation not include previous satisfactory laboratory test results or fail to satisfy the Engineer, samples of all types of stone proposed for use in construction shall be selected in the presence of the Engineer and delivered to the testing lab for testing. These samples shall be delivered to the testing lab within five days after receipt of notification of insufficient or unsatisfactory lab tests. Samples of stone shall consist of 5 to 10 pieces with a total weight of not less than 200 pounds with an average weight of 25 pounds per piece for each rock type proposed for use as armor stone. No single piece shall weigh more than 100 pounds. The presence of the Engineer during selection of samples of stones will not relieve the Contractor of the responsibility to secure representative samples form the quarry for testing.

1.5.3 Testing:

The initial sample will be tested at the Contractor's expense. Separate tests will be made for each different rock type. All tests will be conducted by an independent laboratory acceptable to the Engineer. In the event any rock type in the sample fails to pass the required tests, subsequent tests for that rock type will also be conducted at the Contractor's expense. The Engineer will be notified of the results of laboratory tests. Satisfactory Contractor documentation of laboratory test results on stone sample will not constitute approval of all rock in the quarry and will not in any way change the Contractor's responsibility for obtaining, developing, and maintaining a satisfactory source of stones. Throughout the duration of this contract, the Owner or Engineer may sample and test stones delivered to the construction site and proposed for use in the construction. No contract extension will be granted for specified submittal and testing time or because materials fail to meet the specification requirements.

1.5.4 Failure of Stones:

Stones failing to meet the specified requirements or as determined by the Engineer shall be removed from the site. No materials or stones shall be placed until those materials or stones have been approved for use. Individual stones failing to meet specified requirements, or loads containing more than 10 percent by weight of stones failing to meet specified requirements, will be rejected prior to placement, or shall be removed from the site if placed on the prepared site.

Part 2. PRODUCTS

2.1 STONE

2.1.1 Stone Sources:

The name and location of the stone source the Contractor proposes for supplier of the Products will be submitted to the Owner at time of bid. The Engineer will evaluate these sources at Contractor's expense as potential suppliers and determine if they are qualified for consideration under these Specifications. If the primary source is determined to be unqualified, subsequent sources will also be evaluated at the Contractor's expense. Contractor shall select materials from an existing commercial source for which all operating permits have been obtained prior to bid opening. Contractor shall assure himself of availability of an adequate and acceptable material source based on quantity, quality, production rate, and gradation standpoints prior to submitting his bid.

2.1.2 Stone Quality:

All rock used for any Product described hereinafter will meet the following requirements:

The Product will be clean, dense, hard, sound, rough, angular, close grained durable naturally occurring rock, free from overburden material that will not slake or deteriorate on exposure to the action of water or atmosphere. The faces of individual stone shall be roughly angular, not rounded in shape.

Rock will be free of cracks, joints, faults, flaws, seams or mineral in-fillings, or other defects that would tend to increase its deterioration from the weathering process or result in breakage during normal handling, placing, or service on the structure.

Each stone shall have sufficiently uniform physical properties throughout so that all portions of the stone will meet the specified test requirements. All quarried Products will be cured in the quarry and stockpiled for a minimum of 48 hours after blasting during which time the atmospheric temperature does not drop below 40 degrees F prior to shipment to the site of the structure construction.

Products will be produced only from quarries in areas free of marine basalt flows, reefs, shale, or chert.

Each stone shall not have a longest dimension greater than three times its shortest dimension.

Any stone containing an inferior rock material portion that does not meet the specified test requirements will be rejected as unsatisfactory.

Weak or inferior appearing portions of any non-uniform type stone such as igneous flow breccias, volcanic breccias, scoria cataclastic metamorphics, or irregularly cemented sedimentaries will be subjected to all testing to determine that the stone will not be susceptible to splitting or differential weathering.

2.2 TESTING

Testing will be performed as stated previously in this Section. The test results reported by the laboratory will be considered as exact results for unit weight, absorption, abrasion, accelerated expansion, or other necessary supplemental tests, regardless of any permissible variance that may be established by test procedures in determining the acceptability of stone furnished under this contract. Test procedures to be utilized will be as follows:

Armor Stone Requirements

Test	Required Value	Test Method
Specific Gravity	>2.6	ASTM C127
Water Adsorption	<2.0%	ASTM C127
Sodium Sulfate Soundness	<10% loss (after 5 cycles)	ASTM C88
L.A. Abrasion	<30% loss (after 1,000 revolutions) or <20% loss (after 500 revolutions)	ASTM C535
Freeze and Thaw	<5% (after 20 cycles)	CRD C144
Expansive Breakdown in Ethylene Glycol*	<6% loss in 15 days	CRD C148*
Unconfined Compressive Strength*	>10,000 psi	ASTM D7012

*Testing for this requirement to be determined by the Engineer upon review of the other test results. If other test results indicate the need, these tests will be performed.

Bedding Stone Requirements

Test	Required Value	Test Method
Specific Gravity	>2.4	ASTM C127
Sodium Sulfate Soundness	<12% loss (after 5 cycles)	ASTM C88
Magnesium Sulfate	<18%	ASTM C535
Unconfined Compressive Strength*	>7,500 psi	ASTM D7012

*Testing for this requirement to be determined by the Engineer upon review of the other test results. If other test results indicate the need, these tests will be performed.

Throughout the duration of the Contract, the Owner may, at their own expense, sample, and test stone delivered to the construction site and proposed for use in the construction, these tests will follow the same procedures outlined in this section.

The Contractor will be notified of the results of the laboratory tests. Satisfactory Contractor documentation of laboratory tests results on stone samples will not constitute approval of all rock in the quarry and will not in any way change the Contractors responsibility for obtaining, developing, and maintaining a satisfactory source and supply of stone.

Stones failing to meet the specified requirements or as determined by the Engineer to be in non-conformance shall be removed from the project site.

No materials or stones shall be placed until those materials or stones have been reviewed for use in construction at the delivery or stockpile site by the Engineer.

2.3 GRADATION:

The stone shall conform to the following size gradation:

Armor Stone:

Stone Weight (lbs.)	Percent Smaller by Weight
2200 - 900	100
900 - 440	50
440 – 130	15
130 - 75	5

Bedding Stone:

Gradation Sieve Size (in)	Percent Passing
9”-7”	100
7”-6”	95+
6”-4”	75-85
4”-3”	50-70
3”-2”	35-45
2”-1”	10-20
<1”	5-10

Gradation tests of the stone shall be accomplished at the quarry. Tests by weight shall be made by the Contractor in the presence of the Engineer. The Contractor shall notify the Engineer NOT LESS THAN THREE (3)WORKING DAYS in advance of each test. A minimum of one test shall be performed for each 5,000 tons of stone.

Part 3. Execution

3.1 GENERAL CLEARING

All deteriorated structures, debris, and abandoned piling which lie within the template of the structure or interfere with construction shall be removed and disposed of in accordance with CONTRACT DOCUMENTS. Immediately prior to placing stone, the area to receive the stone will be inspected by the Engineer and no material shall be placed thereon until that area has been approved for additional clearing.

3.2 GENERAL STONE PLACEMENT

Stone shall be mechanically placed in such manner which will produce a well keyed mass of stone, and shall be constructed to the lines, grades, and thickness shown. Stone shall be placed to its full course thickness in one operation and in such manner as to avoid displacing the underlying material. Placing stone through chutes, dropping more than two feet (above or below water

surface), and other methods which may segregate the various sizes or damage the armor stone or underlying material will not be permitted. The large stones shall be well distributed in the mass of stones.

Rearranging of individual stones may be required to the extent necessary to secure the results specified. Any area in the completed maintenance construction which contains objectionable segregation of stone sizes shall be excavated, removed from the site of the work, and replaced with material conforming to these specifications.

Placing of stone shall be suspended when adverse wave, weather, and tidal conditions will not allow proper placement.

Stone shall be placed within the limits shown on the Contract Drawings and specified herein. All stone shall be placed by clamshell bucket, stone grab, or by some other method approved by the Owner that will not drop or cast the stone, but will release the stone in such a manner that they will be properly interlocked with the underlying or adjacent stones to resist displacement by wave action and provide a uniform and compact section. Stones shall be firmly set and well supported by underlying or adjacent stones to resist displacement by wave action and provide a uniform and compact section.

The Contractor shall place the stone on the structure using methods, techniques, and equipment that will produce a tight fitting mass of stone.

Stone shall be constructed, within the specified tolerance, to the lines and grades shown on the Contract Drawings. The Contractor will not be paid for stone placed outside the allowable tolerance. The Contractor shall relocate the unsatisfactorily placed stone within the specified limits for payment or the weight of the stone so misplaced will be estimated by the Owner's Representative and the payment deductions shall be determined from this estimate and the bid unit price of the stone.

The largest stones shall be well distributed and the entire mass of stones in their final position shall be graded to conform to the gradation specified in previous paragraphs above. The finished stone shall be free from objectionable pockets of small stones and clusters of larger stones.

Placing stone by dumping it at the top of the slope and pushing it down the slope will not be permitted. The desired distribution of the various sizes of stones throughout the mass shall be obtained by selective loading of the material at the quarry or other source; by controlled dumping of successive loads during final placing; or by other methods of placement which will produce the specified results.

Rearranging of individual stones by mechanical equipment will be required to the extent necessary to obtain a reasonably well-graded distribution of stone sizes as specified above.

The Contractor shall maintain the stone until accepted and any material displaced prior to acceptance and due to the Contractor's negligence shall be replaced at his own expense and to the lines and grades shown on the Contract Drawings.

Smaller stone shall be utilized to "chink" the voids of the structure.

Placement of stone shall start at the toe of the structure and progress up the slope, diagonally across the face of the structure. Placing of stone by methods that will likely cause segregation of various sizes will not be permitted.

Placing of stone shall insure that the stones are firmly set and supported by underlying materials and adjacent stones. Stones shall be placed such that at least three sides of the placed stone are in contact with the adjacent in-place stones. Loose and unstable stones shall be reset by picking the stone up off the slope and twisting and rolling it back into its required position or be replaced with a different stone to ensure sufficient stability.

3.3 TOLERANCES

3.3.1 Vertical:

A tolerance of plus six (6) inches or minus zero (0) inches from the surface plane of the armor layer shown will be allowed for armor stone. A tolerance of plus two (2) inches or minus two (2) inches from the surface plane of the bedding layer shown will be allowed for bedding stone. Either extreme of such tolerance shall not be continuous over an area GREATER THAN 200 SQUARE FEET. The tolerance limit will be determined on the basis of the average surface elevation WITHIN 10 SQUARE FEET.

3.3.2 Horizontal:

The horizontal location tolerance of the structure, as measured along the centerline will be one foot laterally in a 300 foot long section of structure.

3.4 PROTECTION OF EXCAVATION AND BLUFF

Alteration or disturbance of the bank shall be limited to that necessary to construct the project to the lines and grade shown on the Drawings. Excavated slopes shall be protected from erosion during construction. The stone protection shall be maintained until accepted, and any material displaced shall be replaced to the lines and grades shown

3.5 OFFLOADING AND TRANSPORTATION

Material transporting and offloading vehicles that traverse the T.B. Ellison Parkway shall not have ground pressures that exceed ASHTO Standard HS25 for Street Trucks. Contractor induced damages to the roadway and existing vegetation shall be repaired at a minimum to pre-existing conditions, as shown on the video survey, at the Contractors expense.

Two (2) laydown areas shall be designated for land-side access to the Work site, as shown on the Plans. Only these areas shall be used for storage of equipment, material, or collection of debris. To prevent any adverse impact to the existing bluff, a minimum 50 ft easement shall be established and maintained along the Sabine-Neches channel. No equipment, vehicles, debris or construction material may encroach into this bluff protection easement, except at designated entrance ramps, as directed by the Engineer. Should the Contractor require additional access, written notice should be provided to the Engineer for approval.

3.6 INSPECTION

Slope lines, grades, and placement of stone shall be inspected and/or tested for gradation. The Owner may perform inspection of the stone prior to placement on the breakwater. However, this inspection does not relieve the Contractor from performing the in-place inspection. The Owner will also review the results of the quality control surveys specified in SECTION 01 40 00 – Quality Control.

3.7 RUBBLE MOUND BREAKWATER

The structure shall be constructed with stone, as specified herein, and shall be constructed at the locations and geometrical configuration as shown on the Drawings.

Breakwater structure is shown to be A MINIMUM OF TWO (2) MEDIAN STONE DIAMETER THICKNESS for both the armor layer and bedding layer stone. Stones shall be placed in such a manner as to provide the MINIMUM TWO (2) LAYER THICKNESS.

END OF SECTION 35 30 00

PLEASURE ISLAND SHORE PROTECTION
REVISED BREAKWATER-MARSH RESTORATION PROJECT

CONTRACT DRAWINGS