


INVITATION TO BID ADDENDUM				BIDS WILL BE PUBLICLY OPENED: <div style="font-size: 1.2em; font-weight: bold;">FEB 02, 2012 10:00 AM</div>	
STATE OF LOUISIANA DIVISION OF ADMINISTRATION OFFICE OF STATE PURCHASING		PURCHASING AGENCY NO. : 107001			
=====> VENDOR NO. : SOLICITATION : 2247169 FILE NO. : S28203DL OPENING DATE : 02/02/12 <div style="border: 1px solid black; height: 80px; width: 100%; margin-top: 10px;"> <div style="position: absolute; top: 5px; left: 5px;"> =====> VENDOR NAME AND ADDRESS </div> </div>		RETURN BID TO <div style="display: flex; justify-content: space-between;"> 2247169 02/02/12 10:00 AM S28203DL </div> <p>OFFICE OF STATE PURCHASING OFFICE OF STATE PURCHASING POST OFFICE BOX 94095 BATON ROUGE, LA 70804-9095</p> <p>BUYER : HILARY STEPHENSON BUYER PHONE : (225) 342-8022 DATE ISSUED : 11/16/11 REQ. AGENCY : 109002 OFFICE OF COASTAL PROTECTION AND RE AGENCY REQ. NO. : CED120006 ISIS REQ. NO. : 1342127 VENDOR PHONE : FISCAL YEAR : 12 CLASS/SUBCLASS : 96273 SCHEDULED BEGIN DATE : 00/00/00 SCHEDULED END DATE : 00/00/00 T-NUMBER :</p>			
<-FOLD <div style="font-weight: bold; font-size: 1.1em;">FILL IN VENDOR NUMBER (FEIN), NAME AND ADDRESS ABOVE, BEFORE SUBMITTING BID.</div>					
RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION (BA-40), PLAQUEMINES PARISH					
SPECIFICATION CHANGES AND STATE'S RESPONSES TO VENDOR'S QUESTIONS <div style="text-align: center;"> ADDENDUM # 07 JANUARY 13, 2012 </div> <p>THE ATTACHED FIFTY-NINE (59) PAGES, PAGES 3 - 61 OF THIS ADDENDUM, HAVE BEEN ADDED TO THE SPECIFICATIONS FOR THE ABOVE REFERENCED SOLICITATION.</p> <p>TO OBTAIN FULL SIZED 11 X 17 PLANS, CONTACT: HILARY STEPHENSON, OFFICE OF STATE PURCHASING E-MAIL: HILARY.STEPHENSON@LA.GOV FAX: 225-342-8688</p> <p>ALL REQUESTS SHOULD INCLUDE: FEDERAL TAX ID, PHONE NUMBER, FAX NUMBER, SOLICITATION & FILE NUMBER AND BID OPENING DATE.</p> <p>THIS ADDENDUM IS HEREBY OFFICIALLY MADE A PART OF THE REFERENCED SOLICITATION.</p> <p>ACKNOWLEDGEMENT: IF YOU HAVE ALREADY SUBMITTED YOUR BID AND THIS ADDENDUM DOES NOT CAUSE YOU TO REVISE YOUR BID, YOU SHOULD ACKNOWLEDGE RECEIPT OF THIS ADDENDUM BY IDENTIFYING YOUR BUSINESS NAME AND BY SIGNING WHERE INDICATED. YOU MAY RETURN THIS ACKNOWLEDGEMENT BY MAIL TO: OFFICE OF STATE PURCHASING, POST OFFICE BOX 94095 BATON ROUGE, LA 70804-9095 BY HAND DELIVERY TO: 1201 N. THIRD STREET, SUITE 2-160 BATON ROUGE, LA 70802 OR BY FAX TO: (225) 342-8688. THE STATE RESERVES THE RIGHT TO REQUEST A COMPLETED ACKNOWLEDGEMENT AT ANY TIME. FAILURE TO EXECUTE AN ACKNOWLEDGEMENT SHALL NOT RELIEVE THE BIDDER FROM COMPLYING WITH THE TERMS OF THE BID.</p>					
VENDOR PHONE NUMBER: FAX NUMBER:		TITLE		DATE	
SIGNATURE OF BIDDER (MUST BE SIGNED)					

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SOLICITATION AMENDMENT TEXT		INVITATION TO BID	
NUMBER: 2247169	TIME: 10:00 AM	BIDDER:	PAGE 2
OPEN DATE: 02/02/12			
T-NUMBER:			

ADDENDUM ACKNOWLEDGED / NO CHANGES:

FOR: _____ BY: _____

REVISION: IF YOU HAVE ALREADY SUBMITTED YOUR BID AND THIS ADDENDUM REQUIRES YOU TO REVISE YOUR BID, YOU MUST INDICATE ANY CHANGE(S) BELOW, IDENTIFY YOUR BUSINESS NAME AND SIGN WHERE SHOWN. REVISIONS SHALL BE DELIVERED PRIOR TO BID OPENING IN A SEALED ENVELOPE MARKED WITH THE FILE NUMBER AND THE BID OPENING DATE AND TIME, EITHER BY MAIL TO: OFFICE OF STATE PURCHASING, POST OFFICE BOX 94095, BATON ROUGE, LA 70804-9095, OR BY HAND DELIVERY TO: 1201 NORTH THIRD STREET, SUITE 2-160, BATON ROUGE, LA 70802, OR BY FAX TO: 225-342-8688. ELECTRONIC TRANSMISSIONS OTHER THAN BY FAX ARE NOT BEING ACCEPTED AT THIS TIME.

REVISIONS RECEIVED AFTER BID OPENING SHALL NOT BE CONSIDERED AND YOU SHALL BE HELD TO YOUR ORIGINAL BID.

REVISION: _____

FOR: _____ BY: _____

**ADDENDUM 07 TO PLANS AND
CONTRACT DOCUMENTS**

FOR

**RIVERINE SAND MINING / SCOFIELD
ISLAND RESTORATION PROJECT (BA-40)**

PLAQUEMINES PARISH, LOUISIANA



Louisiana Coastal Protection
and Restoration Authority



**LOUISIANA COASTAL PROTECTION
AND RESTORATION AUTHORITY**

JANUARY 2012

ADDENDUM 07 TO BID DOCUMENTS
RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION PROJECT (BA-40)
FILE NUMBER: S28203DL

The clarifications and revisions in this addendum supersede the requirements in the Bid Documents dated October 2011. The Successful bidder will be issued a revised set of plans and specifications.

1. QUESTIONS FROM THE MANDATORY PRE-BID CONFERENCE AND SITE VISIT

- 1.1 Question: Please clarify the maximum elevation of marsh fill at which point the excess sediment shall be required to be removed by the Contractor in TS-14 MARSH FILL, 14.5.2 Acceptance of Marsh Fill.

Answer: Refer to revised Specification TS-14 MARSH FILL, 14.5.2 Acceptance of Marsh Fill in Section 3 of this Addendum.

- 1.2 Question: What are the specifications for the U.S. Army Corps of Engineers revetment armor mat along the banks of the Mississippi River near the Temporary Mooring Area?

Answer: Each 'square' of mat measures 4' in width by 25' in length and 3" thick and are constructed of 3000 psi un-reinforced concrete. The individual mats are woven together with stainless steel wire into flexible 140-foot wide sections. Each square of woven mats contains almost 1 cubic yard of concrete. Information obtained from USACE website (<http://www.mvn.usace.army.mil/eng/ci/GPSREVPTS.pdf>) and confirmed through personnel communications with Mr. Donald Rawson of the USACE Engineering Section on 01/04/2012.

- 1.3 Question: Flotation maximum depth is -8 feet (ft) NAVD88 in the specifications and -9 ft NAVD88 on Sheet 25 of the Plans. Please Clarify.

Answer: Refer to revised Specification TS-16 FLOTATION CHANNELS, 16.5 Flotation Channel Tolerances in Section 3 of this Addendum.

- 1.4 Question: Must the Flotation Channel from Station 190+00 to Station 200+68 be constructed?

Answer: Refer to revised Specification TS-16 FLOTATION CHANNELS, 16.1 General Description in Section 3 of this Addendum.

- 1.5 Question: If no dredging or sidecasting is necessary at the flotation channel or booster sites will the signage still be required?

Answer: Refer to revised Specification TS-20 SHOAL AND NAVIGATIONAL SIGNS, 20.1 General Description in Section 3 of this Addendum.

1.6 Question: Is there a restoration requirement on Plaquemines Parish Government property?

Answer: Refer to revised Specification TS-10 CONVEYANCE CORRIDOR, 10.1 Conveyance Corridor Construction Limits in Section 3 of this Addendum.

2. QUESTIONS SUBMITTED BY THE CONTRACTORS

2.1 Question: What is the amount of cover over the pipelines within the limits of the flotation canal?

Answer: Scofield Pass Survey Data – Included with this Addendum is the following XYZ survey data collected by the design Professional during the design and permitting of the project. The survey data does not reflect current conditions. The Bidders are directed to the Contract Documents including but not limited to GP-2 BID REQUIREMENTS and SP-4 SITE EXAMINATION for the requirements prior to submitting bid.

Data File: ScofieldPass-2008-CEC-Survey-NAD83ft-LASouth-NAVD88ft.xyz

Data Source: Coastal Engineering Consultants, Inc., 2008. Riverine Sand Mining / Scofield Island Restoration, Preliminary Design Surveys of Scofield Island.

Data File: W-10_DATA TO DATE_7-29-10_COMPLETE_CORRECTED.CSV

Data Source: Shaw Environmental & Infrastructure Group, 2010. W10 pre-construction survey. Data provided to State of Louisiana, Office of Coastal Restoration and Protection Authority.

Data files can be obtained from the Coastal Protection and Restoration Authority FTP site at:

[ftp://ftp.dnr.state.la.us/pub/Scofield%20Island%20\(BA-40\)%20Bid%20Addendum-%20Survey%20Information/](ftp://ftp.dnr.state.la.us/pub/Scofield%20Island%20(BA-40)%20Bid%20Addendum-%20Survey%20Information/)

Further information may be forthcoming.

2.2 Question: Due to the front end surveys, front end administrative requirements, and the extensive amount of equipment needed to mobilize this project, we believe that the 380 contract days provided in the specs is not sufficient to complete the project. We recommend that you add an additional 180 days to the contract time.

Answer: Refer to revised Special Provision SP-11 COMMENCEMENT, EXECUTION, AND COMPLETION in Section 3 of this Addendum.

- 2.3 Question: On the bid form page BID II the space for the Total Amount of Base Bid does not provide enough space to write the total bid amount in words without writing over the type. Please make this space bigger so we can write a more legible Total Amount of Base Bid.

Answer: Refer to Attachment A of this Addendum.

- 2.4 Question: Can you discharge effluent into the adjacent passes of Scofield Island?

Answer: No. Due to productive oyster leases in the Project Area, no dewatering will be allowed in the adjacent passes of Scofield Island.

- 2.5 Question: Please provide an estimated volume of material in cubic yards that is within the borrow areas.

Answer: Borrow Area Survey Data – Included with this Addendum are the following XYZ survey data collected by the Design Professional during the design and permitting of the project. The surveys do not reflect current conditions. Volume estimates for the Borrow Areas in the Mississippi River can be found in Appendix M of the Bid Documents on the Permit Drawings. These volume estimates are the Design Professional's estimates only for purposes of developing the Opinion of Probable Cost, and has nothing to do with future measurement and pay. The Bidders are directed to the Contract Documents including but not limited to GP-2 BID REQUIREMENTS and SP-4 SITE EXAMINATION for the requirements prior to submitting a bid.

Data Files:

MR-B-09: MR-B-2004-USACE-Survey-NAD83ft-LASouth-NAVD88ft.xyz

Data Source: US Army Corps of Engineers, New Orleans District. 2007. The 2007 Mississippi River Hydrographic Survey Book (of 2004 Data).

URL:

http://www.mvn.usace.army.mil/eng/2007MissRiverBooks/04_hydro_book.asp

MR-B-09: MR-B-2008-11-Alpine-Survey-NAD83ft-LASouth-NAVD88ft.xyz

Data Source: Alpine Ocean Seismic Survey, Inc. 2009. Geophysical Survey, MR-B and MR-E Riverine Sand Mining Areas. Final Report Prepared for SJB Group, LLC, Baton Rouge, Louisiana.

MR-E-09: MR-E-2008-11-Alpine-Survey-NAD83ft-LASouth-NAVD88ft.xyz

Data Source: Alpine Ocean Seismic Survey, Inc. 2009. Geophysical Survey, MR-B and MR-E Riverine Sand Mining Areas. Final Report Prepared for SJB Group, LLC, Baton Rouge, Louisiana.

Data files can be obtained from the Coastal Protection and Restoration Authority FTP site at:

[ftp://ftp.dnr.state.la.us/pub/Scofield%20Island%20\(BA-40\)%20Bid%20Addendum-%20Survey%20Information/](ftp://ftp.dnr.state.la.us/pub/Scofield%20Island%20(BA-40)%20Bid%20Addendum-%20Survey%20Information/)

2.6 Question: Please provide a survey of the existing Empire Waterway.

Answer: Empire Waterway Survey Data – Included with this Addendum is the following XYZ survey data collected by the Design Professional during the design and permitting of the project. The survey does not reflect current conditions. The Bidders are directed to the Contract Documents including but not limited to GP-2 BID REQUIREMENTS and SP-4 SITE EXAMINATION for the requirements prior to submitting a bid.

Data File: EmpireWaterway-2008-CHF-Survey-NAD83ft-LASouth-NAVD88ft.xyz

Data Source: C.H. Fenstermaker and Associates, Inc. 2008. “Riverine Sand Mining, Scofield Island Restoration, Design Level Survey Plan for Designated Access Route – Empire Waterway Bathymetric, Magnetometer, and Magnetic Anomaly Field Verification Survey Report (BA-40) – Fenstermaker Component, Empire Waterway to Scofield Island”.

Data files can be obtained from the Coastal Protection and Restoration Authority FTP site at:

[ftp://ftp.dnr.state.la.us/pub/Scofield%20Island%20\(BA-40\)%20Bid%20Addendum-%20Survey%20Information/](ftp://ftp.dnr.state.la.us/pub/Scofield%20Island%20(BA-40)%20Bid%20Addendum-%20Survey%20Information/)

2.7 Question: Please clarify the desired location of the dredge effluent outfall structures within the marsh fill footprint.

Answer: TS-8 DREDGING, 8.3 Placement of Dredged Sediment states "*Effluent control shall be maintained by the use of spillboxes/dewatering structures placed at the Contractor's discretion*".

2.8 Question: The following quantities on the plans (“Summary of Estimated Quantities”, Sheet 3) & specs (“Schedule of Bid Items”, pages BID-I & Bid-II) items 8 and 14 do not match. Sheet 3 of the plans in the Summary of Estimated Quantities “Base Bid”, Item 8, Containment Dikes quantity is listed as 15,580 LF; in the Specs Bid Schedule, page BID-I, Item 8 the containment dike quantity is 15,370 LF. Also, Bid Item 14, Sand Fencing in the plans page 3 is listed as 13,970 LF and in the specs on page BID-II, Item 14, sand fence is listed as 10,600 LF.

Answer: Refer to Attachment A of this Addendum.

- 2.9 Question: In Appendix F: Mississippi River Borrow Area Geotechnical Survey and Sediment Analysis, pages F-2 and F-4 are missing from our specs. Please provide us with the missing pages.

Answer: Addressed in Addendum 5 dated December 22, 2011.

- 2.10 Question: TS, Page 79, 10.4.5.3, Empire Waterway, This paragraph warrants that there will be a minimum of (7) feet of water provided at MLW in the limits of the Empire Waterway conveyance corridor to meet the required (4) feet of freeboard above the sediment pipeline.

Answer: TS-10.4.5.3 Empire Waterway states “The sediment pipeline shall be placed within the limits of the conveyance corridor wherein a minimum of four (4) feet of water relative to MLW is maintained above the top of the sediment pipeline and any associated ballast structure. No excavation or trenching is permitted in the installation of the sediment pipeline along the Empire Waterway except where defined in the Permits, Plans, and/or Specifications for navigational crossings or booster pump locations. The sediment pipeline shall be marked in accordance with TS-9.4 at all times. *In the event the Contractor cannot install the sediment pipeline to provide the required four (4) feet of freeboard, the Contractor shall contact the Engineer immediately to coordinate an optional alignment or installation procedure.*”

- 2.11 Question: Within the permitted area of the Empire Marsh conveyance corridor, will Marsh Buggy track marks need to be restored?

Answer: Refer to revised Specification TS-10 CONVEYANCE CORRIDOR, 10.3 Restoration of Marsh Damages in Section 3 of this Addendum.

- 2.12 Question: Please confirm the Gulf Approach Flotation Channel is not required and only needs to be excavated to allow access for the contractor’s equipment.

Answer: Refer to revised Specification TS-16 FLOTATION CHANNELS, 16.1 General Description in Section 3 of this Addendum.

- 2.13 Question: Regarding the Sediment Pipeline Markers on Plan Sheets 36 & 37, please provide the minimum dimensions for these signs.

Answer: Refer to revised Specification TS-9 DREDGING AND SEDIMENT PIPELINE LIGHTED AIDS AND MARKING, 9.4.3 Sediment Pipeline Channel Crossing Markers, 9.4.4 Sediment Pipeline Navigational Crossing Markers, and revised Plan Sheet 37 in Section 3 and Section 4, respectively, of this Addendum.

- 2.14 Question: Will steel pipe be allowed for the temporary Sediment Pipeline Marker signs? If so, what is the minimum diameter and wall thickness?

Answer: Refer to revised Specification TS-9 DREDGING AND SEDIMENT PIPELINE LIGHTED AIDS AND MARKING, 9.4.5 Temporary Pipeline Markers.

- 2.15 Question: Are 1 EA or 2 EA signs required per Navigational Marker sign pile?

Answer: Two signs shall be required per pile for Navigational and Sediment Pipeline Navigational Crossing Markers. One sign per pile is required for Shoal Signs and one sign per pile set is required for Sediment Pipeline Channel Crossing Marker. Refer to revised Plan Sheet 37 in Section 4 of this Addendum.

- 2.16 Question: Regarding the Mississippi River and Hurricane Protection Levee Crossings, upon project completion, will the ramp materials be abandoned in place for future use, or will removal and offsite disposal be required?

Answer: TS-10 CONVEYANCE CORRIDOR, 10.4.4.1 Mississippi River and Hurricane Protection Levee Crossings states "*The levees shall be restored to pre-construction conditions prior to demobilization to the satisfaction of the Owner*". Special Condition 18 of the USACE MVN-2008-03033-ETT provided in Appendix M of the Bid Documents states "... all disturbed areas on the levee resulting from ramp construction shall be restored to the original condition and to the satisfaction of the West Bank Levee District". Thus, removal and offsite disposal by the Contractor is required.

- 2.17 Question: If removal of the levee ramps is required, will permanent seeding, mulching, and/or slope stabilization mats be required for the existing levees? If so, please provide a detail and specification.

Answer: Refer to revised Specification TS-10 CONVEYANCE CORRIDOR, 10.4.4.1 Mississippi River and Hurricane Protection Levee Crossing in Section 3 of this Addendum and the USACE referenced specifications in Attachment D of this Addendum.

- 2.18 Question: If approved by a pipeline owner, will excavation within the 50' pipeline buffer be allowed?

Answer: Yes. Written approval from the pipeline/utility owner defining any allowances and/or restrictions placed on the Contractor by the pipeline/utility owner must be submitted to the Owner and Engineer seventy-two (72) hours prior to any excavation within the 50 ft pipeline buffer. The proceeding language has been incorporated into SP-22 LANDOWNER, UTILITY OPERATOR, AND PIPELINE COMPANY REQUIREMENTS; TS-10 CONVEYANCE CORRIDOR, 10.2 equipment and Construction Access; TS-15 CONTAINMENT DIKES, 15.2 Optional Interior Borrow Channels; TS-15 CONTAINMENT DIKES, 15.3 Optional Interior Containment Dikes; TS-16 FLOTATION CHANNELS, 16.1 General Description. Refer to these revisions in Section 3 of this Addendum.

- 2.19 Question: Regarding Plans Sheet 25, please provide elevations and/or contact information for the two pipelines that run North/South through the Scofield Pass and cross the proposed access channel near station 32+50 and station 45+00.

Answer: See Response to Question 2.1

- 2.20 Question: Sheets 26 and 31's plan view call out "Earthen Fill with 7" Crushed Stone Top Side Slope = 1V:3H". Are the side slopes of the earthen ramps required to be covered with 7" of crushed stone or just the 10' wide temporary road surface?

Answer: Slopes of the earthen fill are not required to be covered with road surface material. Refer to response to Question 2.21 for further information on road bed construction materials. Refer to revised Specification TS-10 CONVEYANCE CORRIDOR, 10.4.4.1 Mississippi River and Hurricane Protection Levee Crossing regarding fertilization and seeding of earthen material and revised Plans Sheets 26, 31, and 32 of Sections 3 and 4, respectively, of this Addendum.

- 2.21 Question: Regarding the temporary gravel road shown on plan sheets 26 and 31, will recycled crushed concrete or recycled asphalt be allowed in lieu of crushed stone?

Answer: Yes. Refer to revised Specification TS-10 CONVEYANCE CORRIDOR, 10.4.4.1 Mississippi River and Hurricane Protection Levee Crossing in Section 3 of this Addendum.

- 2.22 Question: Does the 440' of 48" x 0.625", A139 Gr B, steel pipe need to be hydro tested?

Answer: No. Refer to revised Specification TS-12 PERMANENT JACKED CASING PIPE, 12.5 Casing Pipe Caps in Section 3 of this Addendum.

- 2.23 Question: Reference the Schedule of Bid Items. We request the requirement to provide Unit Prices using words be eliminated. Standard practice is for bids to be written in numeric form only; an adequate practice which minimizes the potential for mistakes on bid submission. We also request more space be provided in the bid form cells so that bid values can be written more clearly.

Answer: Requirements of the Schedule of Bid Items shall remain the same. Schedule format has been changed to provide for additional space. Refer to Attachment A of this Addendum.

- 2.24 Question: Reference General Provisions GP-46 and GP-52. These clauses address suspensions of work that may be ordered by the Engineer (Owner) due to no failure of the Contractor. The clauses provide for equitable extensions of Contract Time in the case of a suspension, but do not consider compensation of cost incurred by the Contractor due to such suspension. We strongly request you revise these clauses to provide reimbursement to Contractor for damages and cost incurred in the event of an ordered work suspension due to no fault of the Contractor.

Answer: GP-46 TEMPORARY SUSPENSION OF WORK and GP-52 LIABILITY FOR LOSSES BY ACTS OF THE GOVERNMENT shall remain unchanged. The Contractor should refer to GP-43 INCREASE IN CONTRACT PRICE of the Bid Documents.

- 2.25 Question: Reference Special Provisions SP-18. The clause requires the Contractor provide quarters and meals for a full-time Resident Project Representative. During various phases of the work, provision of meals and access to them may be logistically unfeasible or impractical. We request an alternative provision for a per diem or per meal allowance, or other alternative, be included for those occasions when meals may be unavailable.

Answer: Refer to revised Specification SP-18 BOARDING FACILITIES in Section 3 of this Addendum.

- 2.26 Question: Reference Special Provisions SP-22 and Technical Specifications TS-6.4.8 and TS-10.2 and TS-16.1 as well as Sheets 22 & 23 of 57 of the Drawings. The clauses prohibit excavation within 50' of any pipeline in the conveyance corridor, transport corridor, or beach, dune, and marsh creation areas. The drawings identify 6 pipelines (2 each Tennessee Gas Pipeline, 1 each Promix Pipeline, and 3 each with details undetermined) which cross the Flotation Channel alignment. No details are provided regarding the elevation of these pipelines or the extension ground elevations in their vicinity. Please provide the elevations for each of these pipelines in the Flotation Channel and thorough survey information of the existing ground bottom throughout the Flotation Channel limits to demonstrate access is attainable over these pipelines without excavating within 50' of them.

Answer: See Response to Question 2.1

- 2.27 Question: Reference Special Provisions SP-23. The web site reference provided in this paragraph reveals active oyster leases exist within the limits of work throughout the project. A comment made at the pre-bid meeting indicated the State of Louisiana had purchased the oyster leases which would be impacted by the work. Please provide detailed information and drawings regarding the limits of oyster leases that have not been purchased by the State and their proximity to the limits of work for the Empire Waterway R/W, the Flotation Channel alignment, Work Area alignment, and the marsh and beach/dune fill areas.

Answer: Maps of limits of oyster leases acquired for the Project are included in Attachment B of this addendum.

- 2.28 Question: Reference Technical Specifications TS-3.1. This clause requires adherence to the specified construction sequence requirement. The specified sequence may not be the most efficient sequence in which to conduct the work. We request the Contractor be provided the flexibility to establish his own work sequence as he determines necessary.

Answer: SP-9 WORK PLAN AND PROGRESS SCHEDULE SUPPLEMENTAL requires the Contractor to submit his/her proposed construction sequence. TS-3.0 ORDER OF WORK, 3.1 Construction Sequence has been revised. Refer to revised Specification TS-3.1 ORDER OF WORK, 3.1 Recommended Construction Parameters in Section 3 of this Addendum.

- 2.29 Question: Reference Technical Specifications TS-3.1.4 and TS-9.3.1. These clauses require installation of lighted aids to navigation prior to laying of sediment pipeline. The aids to navigation will severely hinder the pipeline installation progress, and are likely to be damaged as a result. Please clarify that aids to navigation may be installed after placement of the sediment pipeline.

Answer: TS-3 ORDER OF WORK, 3.14 requires warning signs to be placed prior to sidecasting of excavated material into the Temporary Sidecast Disposal Areas. The Temporary Sidecast Disposal Areas in the conveyance corridor are outboard of the potential sediment pipeline alignment and warning signs should not interfere with sediment pipeline installations as the excavation must be completed prior to sediment pipeline installation. If for some reason the Contractor is pulled off site prior to installing the signs, but after sidecasting has occurred, there is a potential safety hazard and as such would violate USCG regulations for hazard marking.

TS-9.0 DREDGING AND SEDIMENT PIPELINE LIGHTED AIDS AND MARKING, 9.3.1 Installation has been revised to reflect that the lighted aids to navigation shall be installed *as* the sediment pipeline is installed. Refer to revised Specification TS-9.0 DREDGING AND SEDIMENT PIPELINE LIGHTED AIDS AND MARKING, 9.3.1 Installation in Section 3 of this Addendum.

- 2.30 Question: Reference Technical Specifications TS-4.3 and TS-10.1. The clauses require Contractor to restore construction access areas to pre-construction conditions. Please clarify the requirement pertains only to impacts that may occur outside the work limits defined in the contract documents.

Answer: Refer to revised Specification TS-10 CONVEYANCE CORRIDOR, 10.1 Conveyance Corridor Construction Limits and TS-10 CONVEYANCE CORRIDOR, 10.3 Restoration of Marsh Damages in Section 3 of this Addendum.

- 2.31 Question: Reference Technical Specifications TS-8.1. The clause requires Contractor provide a USCG licensed Master of Steam or Motor Vessels upon Inland Waters to stand a radio watch during all mobilization, demobilization, and construction activities. We understand the desire to have a full-time person assigned to radio watch. However, to require this person to be a licensed Master is unreasonable and unnecessary. It is likely there are not enough licensed Masters available to fulfill this requirement, and most would likely be unwilling to accept employment as a radio watch-stander. We request the requirement for a licensed Master be removed entirely.

Answer: Refer to revised Specification TS-8 DREDGING, 8.1 General Description in Section 3 of this Addendum.

- 2.32 Question: Reference Technical Specifications TS-8.3. This clause permits Engineer to require the dredge relocate within the borrow areas, suspend work, or to operate at reduced capacity, without allowance for additional contract time or compensation to

the Contractor for such impacts. This is unreasonable. We request a provision be incorporated to enable Contractor to receive additional contract time and recovery of impact cost if the relocation, suspension, or production rate reduction directive is due to no fault or failure of the Contractor.

Answer: Refer to revised Specification TS-8 DREDGING, 8.3 Placement of Dredged Sediment in Section 3 of this Addendum.

- 2.33 Question: Reference Technical Specification TS-8.5. In addition to the stated subline monitoring methods, properly positioned single-beam sonar is also an accurate and effective method. Please clarify that a single-beam sonar survey is an approved method of monitoring submerged pipeline.

Answer: Refer to revised Specification TS-8 DREDGING, 8.5 Sediment Pipelines in Section 3 of this Addendum.

- 2.34 Question: Reference Technical Specifications 8.7. Please clarify that dredging work may proceed when the Mississippi River stage is above elevation +11.0' NGVD 1929 on the Carrollton Gage, as long as no work is performed within 1500' of the levee dredge pipeline crossing.

Answer: Refer to revised Specification TS-8 DREDGING, 8.7 Borrow Area Cut Sequence and USACE Restrictions in Section 3 of this Addendum.

- 2.35 Question: Reference Technical Specifications TS-10.4.4.2 and TS-12. We request your consideration to permit an open trench crossing of Parish Highway 11, and perhaps also Louisiana Highway 23, for installation of the casing pipe. The highways are not heavily traveled, traffic could easily be detoured and trenching and casing pipe installation construction would occur over a short period of time. This would seem to be a much less expensive approach and would alleviate some of the concerns about utilities at the highway crossings, depth of bore, and concerns about dewatering problems due to close proximity to the Mississippi River.

Answer: Open trench crossing of highways is not an option due to the presence of existing underground utilities. The Contractor shall be required to jack and bore the permanent casing pipe as per Specification TS-12.

Further information may be forthcoming.

- 2.36 Question: Reference Technical Specifications TS-10.4.4.2 and TS-12 and Sheets 27 and 30 of the Drawings. Please provide detailed information, including location and elevation, for all utilities that affect the boring operations for the casing pipe crossing.

Answer: Refer to response to Question 2.35.

- 2.37 Question: Reference Technical Specifications TS-12. The requirement to install the casing pipe at least 5 feet below the roadbed and 5 feet below the lowest point of any

utility deviated from the requirements on previous similar projects, which require only 2 feet of clearance. Please clarify that only 2 feet of clearance is required.

Answer: Refer to revised Specification TS-12 PERMANENT JACKED CASING PIPE, 12.3 Installation in Section 3 of this Addendum.

- 2.38 Question: Reference Technical Specifications TS-10.4.4.3. The follow-up to the discussions during the site visit, please specify the minimum depth and width required for navigation in the Empire Harbor Canal.

Answer: Refer to revised Specification TS-10 CONVEYANCE CORRIDOR, 10.4.4.3 Empire Harbor Canal Crossing and revised Plan Sheet 28 in Section 3 and 4, respectively, of this Addendum.

- 2.39 Question: Reference Technical Specifications TS-10.4.5.2. Please provide electronic bathymetry survey data and the Preliminary Design Report referenced in this clause.

Answer: Empire Waterway Survey Data – Included with this Addendum is the following XYZ survey data and survey report collected by the Design Professional during the design and permitting of the project. The survey does not reflect current conditions. The Bidders are directed to the Contract Documents including but not limited to GP-2 BID REQUIREMENTS and SP-4 SITE EXAMINATION for the requirements prior to submitting a bid.

Data File: EmpireWaterway-2008-CHF-Survey-NAD83ft-LASouth-NAVD88ft.xyz

Report File: BA-40_PDR_APP-G_CorridorSurveyOpenWater_01-21-10.pdf

BA-40_PDR_APP-G_AnexG1_Sheets1-10.pdf

BA-40_PDR_APP-G_AnexG1_Sheets11-20.pdf

BA-40_PDR_APP-G_AnexG1_Sheets21-32.pdf

Data Source: C.H. Fenstermaker and Associates, Inc. 2008. “Riverine Sand Mining, Scofield Island Restoration, Design Level Survey Plan for Designated Access Route – Empire Waterway Bathymetric, Magnetometer, and Magnetic Anomaly Field Verification Survey Report (BA-40) – Fenstermaker Component, Empire Waterway to Scofield Island”.

Report Source: SJB Group, LLC and Coastal Engineering Consultants, Inc., 2010. “Riverine Sand Mining / Scofield Island Restoration, Preliminary Design Report”, Appendix G, submitted to Louisiana Department of Natural Resources, Coastal Engineering Division, January 2010.

Data files can be obtained from the Coastal Protection and Restoration Authority FTP site at:

[ftp://ftp.dnr.state.la.us/pub/Scofield%20Island%20\(BA-40\)%20Bid%20Addendum-%20Survey%20Information/](ftp://ftp.dnr.state.la.us/pub/Scofield%20Island%20(BA-40)%20Bid%20Addendum-%20Survey%20Information/)

- 2.40 Question: Reference Technical Specifications TS-10.1 and TS-11.1. The clause requires equipment be positioned within the limits of the conveyance corridor. Please confirm Contractor may seek approval for an alternate corridor route and correspondingly alternate equipment locations outside of the specified conveyance corridor, as per TS-8.5

Answer: Refer to revised Specification TS-4 WORK AREA, 4.1 Limits of Construction and TS-8 DREDGING, 8.5 Sediment Pipelines in Section 3 of this Addendum.

- 2.41 Question: Reference Technical Specifications TS-19.2 and TS-19.3. The clause extensively describes elaborate grade stake material be used. These materials and installation requirements are excessive and overly cumbersome and are not conducive to an efficient dredge fill operation. Establishing target construction grade is an integral part of the Contractor's QC program and accordingly determination of grade stake materials and locations should be at his discretion and responsibility. Please clarify that more temporary grade stake materials such as cane poles or metal conduit can be used for Contractor's establishment and monitoring target grade elevations.

Answer: As referenced in TS-19 MARSH FILL GRADE STAKES, 19.2 Materials *"Alternate construction methods proposed by the Contractor shall be included in the Work Plan for approval by the Owner and Engineer prior to construction."*

- 2.42 Question: We also request your consideration to further postponement of the date set for bid opening by 2 weeks, This project is extremely complex, has a high degree of risk to the Contractor, and requires Contractor's dedication of unprecedented resources. More time is required to allow thorough evaluation and investigation of the work to be able to submit a responsible bid.

Answer: Addressed in Addendum 6 dated January 10, 2012.

3. REVISIONS TO THE GENERAL PROVISIONS, SPECIAL PROVISIONS, AND TECHNICAL SPECIFICATIONS

- 3.1 SP-11 COMMENCEMENT, EXECUTION, AND COMPLETION – The first sentence of the provision has been revised as follows:

The time of completion for this Project, also known as the Contract Time, shall be within four hundred and seventy (470) calendar days after the Notice to Proceed has been issued.

- 3.2 SP-16 TRANSPORTATION – The last paragraph of the provision has been revised as follows:

All mechanical malfunctions of the boat and all-terrain vehicle shall be repaired within 24 hours of the malfunction. In the event that the Contractor refuses, neglects, or delays compliance with the requirements of this provision, the Owner may obtain and use other necessary boat(s) and/or all-terrain vehicle(s) at the expense of the Contractor to be deducted for the Contractor's monthly pay application. The costs associated with providing the boat(s) and all-terrain vehicle(s) shall be included in the lump sum price for Bid Item No. 1, "Mobilization and Demobilization".

- 3.3 SP-17 OFFICES FOR OWNER REPRESENTATIVES – The provision has been revised as follows:

The Contractor shall provide two offices for the Engineer and Resident Project Representatives at the Work Area, one at the Mississippi River for dredging activities and one at Scofield Island for fill placement activities. The offices shall be for the sole use of the Engineer and Resident Project Representatives, suitably sized, and provided with lighting, heat, air conditioning, and reliable internet and telephone services. The office furnishings shall include a work table, drafting table, stool, and two chairs. The cost for providing and furnishing the offices shall be included in the contract lump sum price for Bid Item No. 1, "Mobilization and Demobilization". The offices may be combined with the boarding facilities stipulated in SP-18 subject to approval by the Engineer.

In the event that the Contractor refuses, neglects, or delays compliance with the requirements of this provision, the Owner may obtain and use offices at the expense of the Contractor to be deducted from the Contractor's monthly pay application.

- 3.4 SP-18 BOARDING FACILITIES – The provision has been revised as follows:

The Contractor shall provide boarding facilities for a full-time Resident Project Representatives at the Work Area from beginning of construction to end of fill activities, removal of all sediment pipelines, or completion of restoration activities, whichever is the latter. Quarters and meals shall be included. Quarters shall be of a suitable size and provided with sleeping arrangements, access to bathroom facilities, electrical outlets, lighting, heat, and air conditioning.

During beach and dune fill and marsh fill sediment placement activities the Contractor shall be required to position a quarters barge or approved equivalent at Scofield Island. The Contractor shall provide quarters and meals within the quarters barge for a full-time Resident Project Representative. Quarters shall be of a suitable size and provided with sleeping arrangements, access to bathroom facilities, electrical outlets, lighting, heat, and air conditioning.

The Contractor shall provide meals for the Owner, Engineer, and up to three (3) additional Project Representatives attending the Progress Meetings referenced in GP-13.

The cost for providing and furnishing boarding facilities for the Resident Project Representative and meals for the Owner, Engineer, and Owner Representatives shall be included in the Contract lump sum price for Bid Item No. 1 "Mobilization and Demobilization".

In the event that the Contractor refuses, neglects, or delays compliance with the requirements of this provision, the Owner may obtain and provide room and board for the Resident Project Representative and meals for the Owner, Engineer, and Owner Representatives at the Progress Meetings at the expense of the Contractor to be deducted from the Contractor's monthly pay application at the rates defined in the most current version of State of Louisiana, Louisiana Travel Guide, Policy and Procedures Memorandum 49 (PPM49). The document may be found at: www.doa.louisiana.gov/osp/travel.

3.5 SP-22 LANDOWNER, UTILITY OPERATOR, AND PIPELINE COMPANY REQUIREMENTS – The second paragraph of the provision has been revised as follows:

The Contractor shall notify all utility operators and pipeline companies at least seventy-two (72) hours in advance of any construction work. All pipelines located within one hundred fifty (150) ft of the dike alignments, beach, dune, and marsh fill areas, borrow areas, and conveyance corridor shall be probed and their locations marked prior to excavation and installation of the sediment pipeline, for the duration of construction activities. No excavation shall be permitted within fifty (50) feet of any pipeline in the conveyance corridor; transport corridor; or beach, dune, and marsh creation areas. Written approval from the pipeline/utility owner defining any allowances and/or restrictions placed on the Contractor by the pipeline/utility owner must be submitted to the Owner and Engineer seventy-two (72) hours prior to any excavation within the fifty (50) foot pipeline buffer. No hydraulic dredging shall be permitted within five hundred (500) feet of any existing pipeline in the Mississippi River or the Scofield Offshore Borrow Area. Refer to GP-25 and TS-10.5 for utility coordination and overhead lines compliance.

3.6 SP-27 COMMUNICATION PLAN – The following provision has been added to the Special Provisions:

The Contractor shall develop and maintain a written Communication Plan. The Contractor's proposed Communication Plan shall be included in the Work Plan. The Communication Plan shall include, but not be limited to, the following:

27.1 A pre-construction meeting to present the Work Plan with the following:

- *Owner and Engineer*
- *U.S. Army Corps of Engineers (USACE)*
- *U.S. Coast Guard (USCG)*
- *Maritime Navigation Safety Association (MNSA)*

27.2 The Contractor shall be required to submit a daily log of dredge plan providing anticipated dredging locations within the borrow areas and any anchor buoys, attendance plant, and floating pipeline locations. The daily log shall consist of plan view map(s) showing these locations and latitude/longitude coordinates of the above mentioned items. The daily log shall be submitted by the Contractor to the Engineer, USACE, USCG, and MNSA prior to 4:00pm on the day prior to the described activities.

3.7 TS-3 ORDER OF WORK, 3.1 Recommended Construction Parameters – The first and last paragraphs of the specification have been revised as follows:

First Paragraph: The following parameters shall be considered by the Contractor when developing the Progress Schedule for submittal in accordance with SP-9:

Last Paragraph: The Progress Schedule submitted in accordance with SP-9 shall reflect consideration of these parameters. The Owner and Engineer will review for acceptance the Contractor's proposed sequence within the confines of the Contract Time set forth in SP-11.

3.8 TS-4 WORK AREA, 4.1 Limits of Construction – The specification has been revised as follows:

The construction limits and dredge limits available to the Contractor for accomplishing the Work are documented herein and/or are shown on the Contract Plans. The Contractor may not store Plant or equipment, including sediment pipeline, in excess of what is needed for this Contract within the Work Area. It shall be the Contractors responsibility to coordinate and secure appropriate staging areas and facilities.

3.9 TS-8 DREDGING, 8.1 General Description – The third paragraph of the specification has been revised as follows:

For dredge vessels wherein the Code of Federal Regulations (CFR) does not require a USCG licensed U.S. Merchant Marine Officer for operations, qualified person(s) shall be

required to stand watch and monitor the required marine radio channels for vessel-to-vessel communications for passing as well as the operational safety of the dredge, Plant, and support vessels during mobilization, construction, and demobilization.

3.10 TS-8 DREDGING, 8.3 Placement of Dredged Sediment – The third and fourth paragraphs of the specification have been revised as follows:

The Owner or Engineer reserves the right to relocate the Contractor within the borrow areas to avoid of unsuitable materials. Relocations to avoid unsuitable materials identified and reported on the Daily Quality Control report shall be at no additional cost to the Owner and shall not be a basis of claim for additional costs or time.

The Contractor may be required by the Engineer to operate the dredge at a specified lower production rate and/or to temporarily suspend dredging operations to allow the material to settle and dewater thereby ensuring project elevation and layout is obtained. Effluent control shall be maintained by the use of spillboxes/dewatering structures placed at the Contractor's discretion. All costs associated with this discharge control should be contained within the Bid Item No. 8 "Containment Dikes". If the Contractor is required by the Engineer to stop dredging, an equitable adjustment of Contract Price or Contract Time or both may be considered in accordance with GP-43 and GP-44.

3.11 TS-8 DREDGING, 8.5 Sediment Pipelines – The third and fourth paragraphs of the specification have been revised as follows:

The Contractor shall perform bi-weekly underwater inspection of the submerged sediment pipeline to detect alignment, stability, and integrity issues with the sediment pipeline. At a minimum, the inspections shall take place where the sediment pipeline is installed within the Mississippi River; unburied segments in the vicinity of the Empire Harbor Canal; rock revetment crossing at the Empire Marsh; unburied segments in the vicinity of the navigational crossings and booster pump locations; and from the northern extent of the Empire jetties out into the Gulf of Mexico to the -12 ft NAVD88 contour. This may be accomplished in combination by multibeam sonar, sidescan sonar, single beam sonar, remote underwater video, diver, and/or other approved methods. The presence of any such issues or deviations shall be required to be documented, locations plotted, and reported immediately. The surveys shall be repeatable and compared to prior surveys for any alignment, stability, and integrity issues. Initial underwater inspection survey shall be conducted following sediment pipeline installation and prior to utilization of the sediment pipeline for the transport of dredged sediments. Plots depicting the comparisons of successive inspection surveys to the initial inspection survey shall be submitted to the Owner and Engineer within seven (7) of the most recent survey. The Contractor shall submit a survey plan for submerged sediment pipeline inspection in the Work Plan for approval by the Owner and Engineer.

Conveyance and transport corridors have been identified in the Plans. Deviations from or relocation of these corridors are subject to review and approval by the State and Federal regulatory agencies. Should the Contractor request a deviation or relocation of these corridors, it shall be the responsibility of the Contractor to apply for and obtain the

required Permit modifications from the Louisiana Department of Natural Resources, Office of Coastal Management and the US Army Corps of Engineers in addition to approvals from the applicable property owners, oyster lease holders, and/or utility operators. The Contractor shall provide the approved permit modifications and approvals to the Owner and Engineer prior to installing the sediment pipeline and/or booster pumps.

3.12 TS-8 DREDGING, 8.7 Borrow Area Cut Sequence and USACE Restrictions - The fourth paragraph of the specification has been revised as follows:

There shall be no excavation performed within the Mississippi River when the Mississippi River attains or exceeds +11.0' NGVD 1929 at the Carrollton Gage, at New Orleans, Louisiana, without prior documented approval to the contrary from the USACE, New Orleans District. Any damage to the levee, batture, and/or bank resulting from the Contractor's activities shall be repaired at the Contractor's expense. All disturbed areas on the levee crown and slopes shall be restored to pre-construction conditions and to the satisfaction of the Buras Levee District and Plaquemines Parish Government. The Contractor shall assure that work does not impede or interfere with navigation on the Mississippi River and shall maintain ongoing coordination with the River Pilots Association and the USCG.

3.13 TS-9 DREDGING AND SEDIMENT PIPELINE LIGHTED AIDS AND MARKING, 9.3.1 Installation - The specification has been revised as follows:

Lighted dredging aids to navigation shall be installed prior to any dredging equipment entering the borrow areas. Lighted dredging aids to navigation shall be installed at intervals required by USCG regulations referenced in TS-9.1 as the sediment pipeline(s) from the borrow areas to the fill areas including through the conveyance corridor and offshore transport corridor are installed. The aids to navigation shall be lighted for twenty-four (24) hour operation. The Contractor shall notify the USCG in accordance with SP-6.3.1. The notification shall contain maps and descriptions of lighted aids for inclusion in the Notice to Mariners. No requirements of this Specification shall supersede the USCG regulations referenced in TS-9.1.

3.14 TS-9 DREDGING AND SEDIMENT PIPELINE LIGHTED AIDS AND MARKING, 9.4.3 Sediment Pipeline Channel Crossing Markers - The specification has been revised as follows:

Wherever a submerged sediment pipeline crosses a navigable channel, canal, or launch/dock egress, temporary "NO ANCHORING OR DREDGING, PIPELINE CROSSING" signs shall be posted on each bank/shoreline or at the limits of the navigable channel, canal, or launch/dock egress, delimiting the sediment pipeline crossing area. Markers shall be constructed to the dimensions shown on the Plans. Timber piles shall conform the requirements of TS-20.2.2. Timber blocking installed horizontally between timber piles shall be pressure treated pine or fir with a minimum length equal to that of the marker width. All nuts, bolts and washers used in marker construction shall be hot dipped galvanized.

3.15 TS-9 DREDGING AND SEDIMENT PIPELINE LIGHTED AIDS AND MARKING, 9.4.4 Sediment Pipeline Navigational Crossing Markers - The specification has been revised as follows:

Wherever a sediment pipeline is buried to provide navigational access across the pipeline, temporary “BURIED SEDIMENT DELIVERY PIPELINE – CROSS AT YOUR OWN RISK” signs shall be posted on each side of the navigable crossing, delimiting the navigational crossing area. Markers shall be constructed to the dimensions shown on the Plans. Timber piles shall conform to the requirements of TS-20.2.2. Timber blocking installed horizontally between timber piles shall be pressure treated pine or fir with a minimum length equal to that of the marker width. All nuts, bolts and washers used in marker construction shall be hot dipped galvanized.

3.16 TS-9 DREDGING AND SEDIMENT PIPELINE LIGHTED AIDS AND MARKING, 9.4.5 Temporary Pipeline Markers - The specification has been revised as follows:

Temporary pipeline markers shall be placed and maintained during construction at the toe of each levee crossing, on each side of the gravel road crossing, and at the rock revetment crossing as shown on the Plans. The markers shall be in line with the sediment pipeline crossing indicating owner, size, number of lines, contents, and the address for contacting owner. The temporary pipeline markers shall be made in accordance with Louisiana Standard Specifications for Roads and Bridges, 2006 edition, Standard Specification 1015.04 (b) for sign panels and Standards Specification 1015.02 (a) (2) & (3) for posts, and as shown on the Plans. The Contractor shall submit a proposed design with materials and details in the Work Plan for approval.

3.17 TS-10 CONVEYANCE CORRIDOR, 10.1 Conveyance Corridor Construction Limits – The specification has been revised as follows:

All construction equipment must be located within the conveyance corridor construction limits shown on the Plans. The construction limits of the proposed conveyance corridor shall be no greater than one hundred (100) feet in width with the exceptions of the Mississippi River Levee and Hurricane Protection Levee crossings, and follow the alignment as defined in the Plans. All Work must take place within the construction limits. All equipment staging areas shall be described in the Work Plan and approved by the Engineer prior to construction and mobilization. Excess Plant and Materials shall not be stored within the conveyance corridor limits. It shall be the Contractors responsibility to coordinate and secure appropriate staging areas and facilities. All access corridors, conveyance corridor from conveyance corridor alignment Stations 00+00 to 44+00, conveyance corridor navigational crossings, conveyance corridor booster pump locations, and all temporary sidecast areas shall be restored to pre-construction conditions at the Contractor’s expense prior to demobilization to the satisfaction of the Owner and individual controlling agencies where applicable.

3.18 TS-10 CONVEYANCE CORRIDOR, 10.2 Equipment and Construction Access –
The fourth paragraph of the specification has been revised as follows:

There shall be no excavations by the Contractor allowed within fifty (50) feet of any oil or gas pipeline. Written approval from the pipeline/utility owner defining any allowances and/or restrictions placed on the Contractor by the pipeline/utility owner must be submitted to the Owner and Engineer seventy-two (72) hours prior to any excavation within the fifty (50) foot pipeline buffer.

3.19 TS-10 CONVEYANCE CORRIDOR, 10.3 Restoration of Marsh Damages – The
specification has been revised as follows:

The Contractor will be responsible for the restoration of any damages caused by unpermitted, unapproved, and/or careless operation during construction. Restoration may include the placement of dredged sediment and/or vegetation to pre-construction elevations and/or conditions within the areas of damage at the expense of the Contractor and will be performed at the discretion and direction of the Owner and Engineer. Restoration of impacts to the marsh from the Contractor installing and removing their sediment pipeline within the conveyance corridor limits, conveyance corridor alignment Stations 44+00 to 59+60, is not required provided the Contractor utilizes best management practices as determined by the Owner to minimize and negate impacts to the marsh. No storage of Plant, Equipment, and Materials is allowed within this segment of the conveyance corridor. The Contractor shall notify the Engineer and Resident Project Representative at least 72 hours in advance of Work within this segment to allow for inspection of the pipeline installation. The Contractor shall notify the Engineer and Resident Project Representative at least 72 hours prior to sediment pipeline removal within this segment to allow for inspection of the pipeline removal.

3.20 TS-10 CONVEYANCE CORRIDOR, 10.4.4.1 Mississippi River and Hurricane
Protection Levee Crossing – The last sentence of the specification has been revised as
follows:

*The Mississippi River and hurricane protection levees must be crossed by the sediment pipeline within the conveyance corridor. All Contractor equipment shall remain within the conveyance corridor limits shown in the Plans or staging areas approved by the Owner and Engineer. **No excavation for sediment pipeline installation shall be permitted within one hundred (100) feet from the toe of the Mississippi River and Hurricane Protection levees.** The sediment pipeline crossings of the Mississippi River and Hurricane Protection levees shall be constructed in a manner to protect and maintain the levees. The vehicular sediment pipeline crossings and levee access ramps shall be sufficient to accommodate vehicle traffic during construction including levee maintenance and inspection. Levee access ramps for vehicular traffic to and from the base and crown of the levees and vehicular sediment pipeline crossing shall be constructed by the Contractor to the grades and elevations as shown on the Plans. The levee access ramps and vehicular sediment pipeline crossing shall be constructed using earthen fill material as a base; either crushed aggregate, recycled crushed concrete, or*

recycled asphalt as the road surface; and all other materials necessary in accordance with the Plans. Road surface aggregate shall conform to the Louisiana Standard Specifications for Roads and Bridges, 2006 edition, Standard Specification 1003.04. There shall be no fill material placed on the crown of the levee. The Contractor shall provide proper drainage of any impounded areas created during the construction of the levee access ramps and vehicular sediment pipeline crossings for the duration of the Project. If drainage becomes a problem, the Contractor shall make modifications to improve the drainage such that water does not pond against the levees. Earthen material placed on the levees shall be fertilized and seeded by the Contractor to promote grass growth. Temporary pipeline markers shall be placed and maintained by the Contractor during construction at the toe of each levee in line with the sediment pipeline and at each approach ramp crossing the sediment pipeline indicating owner, size, number of pipelines, contents, and the address for contacting owner as shown in the Plans. The Contractor shall work cooperatively with the Engineer and USACE to minimize traffic disruption for vehicular traffic that would normally utilize the gravel access road at the hurricane protection levee base during the construction of the hurricane protection levee crossing. The Contractor's typical crossing plans shall be submitted in the Work Plan prior to mobilization. The levees shall be fertilized and seeded by the Contractor to promote grass growth in accordance with USACE specifications Section 02922 – Turf Establishment and Maintenance, Section 3.3 Application of Fertilizer and Soil Amendments and Section 3.4 Seeding, prior to demobilization to the satisfaction of the Owner and USACE. The levees shall be restored to pre-construction conditions to the satisfaction of the Owner, USACE and the West Bank Levee District.

3.21 TS-10 CONVEYANCE CORRIDOR, 10.4.4.3 Empire Harbor Canal Crossing – The specification has been revised as follows:

The sediment pipeline shall cross the Empire Harbor Canal within the conveyance corridor as shown on the Plans. It shall be the Contractor's responsibility to work cooperatively and coordinate construction activities with the users of the Empire Harbor Canal so as to not unnecessarily impede navigational traffic in the Empire Harbor Canal during the sediment pipeline or bank stabilization measures installation, maintenance, and removal. Installation of the sediment pipeline will require trenching and installation of the sediment pipeline and any associated ballast structure to a minimum of three (3) feet below existing grade for a minimum width of 120 feet centered on the lowest elevation of the Empire Harbor Canal. The excavated material shall be temporarily placed within the confines of the temporary sidecast disposal areas shown in the Plans. The Contractor has the option to trench excavate the banks of the Empire Harbor Canal to facilitate a shallower slope of the sediment pipeline as the pipeline egresses from the mandatory burial within the Empire Harbor Canal. Bank stabilization measures shall be required if the Contractor elects to trench excavate the banks of the Empire Harbor Canal for sediment pipeline installation.

After installation of the sediment pipeline with utilization of bank trench excavation, the bankline shall be backfilled and stabilized with articulating concrete mats. Mats shall be SubMar Ultraflex Type-M4540 or equivalent equal approved by the Engineer. Bank stabilization shall consist of three (3) mats measuring eight (8) feet wide by sixteen (16)

feet long laid in a shore parallel fashion, anchored, and interconnected to form a single unit after installation. The mats shall be installed over a geotextile fabric and shall conform to the Louisiana Standard Specifications for Roads and Bridges, 2006 edition, Standard Specification 1019.01 (b) (2). Individual mat segments shall be identified with the attachment of a 2 inch x 4 inch tag. Tags shall be attached to each individual 8 ft x 16 ft mat segment prior to installation. Tags shall be made of a non-corrosive material and attached in a manner as to prevent galvanic corrosion with the longitudinal cables of the mats. The tags shall be stamped or engraved with the following information.

*Owner: CPRA
Phone Number: 225-342-7308
ID Number*

ID number shall be unique and shall be designated by a location identifier of the letters “A” or “B” and a placement number of 1 through 3. Location “A” shall designate mats along the northeast bank of the Empire Harbor canal and Location B designating mats along the southwest bank of the Empire Harbor canal.

The Contractor shall submit a proposed canal crossing plan and bank stabilization detail in the Work Plan for approval by the Owner and Engineer.

Temporary pipeline markers shall be placed and maintained by the Contractor during construction in accordance with TS-9.4.3 and TS-9.4.4 and as shown on the Plans.

Material remaining in the temporary sidecast disposal areas shall be reworked into the trench excavation and the bank stabilization mats, if required, shall be reinstalled during demobilization. Elevations in the Empire Harbor canal resulting from backfilling operations shall also be no higher than + 0.5 feet of pre-construction elevations.

- 3.22 TS-10 CONVEYANCE CORRIDOR, 10.4.6 Gulf of Mexico from Empire Jetties to Scofield Island – The following requirement has been added to the end of the specification:

The Contractor shall coordinate and work cooperatively with the Owner and the contractor of the adjacent restoration project at Pelican Island for the safe installation and crossing of the sediment pipelines of both projects.

- 3.23 TS-12 PERMANENT JACKED CASING PIPE, 12.3 Installation – Paragraphs 1, 5 and 6 of the specification have been revised as follows:

Paragraph 1:

Jacked pipe installation shall conform to the Louisiana Standard Specifications for Roads and Bridges, 2006 edition, Standard Specification 728 and Occupation Safety & Health Administration, Standard 1926. The jacking pit locations shown on the Plans are based on the conveyance corridor alignment.

Paragraph 5:

Pits shall be excavated for jacking operations as shown on the Plans or as necessary for installation and shall be excavated no closer on each side of outside edge of pavement (measured right angles to) than the dimensions defined on the Plans. When cut, the area shall be securely sheeted and braced to maintain stability of the excavations. A steel sheetpile or bracing system shall be used for excavations of greater depth than four (4) feet. Pumps shall be used to dewater excavation pits and maintain a dry bottom. Additionally, a well point system may be required. The Contractor shall install and maintain safety netting around all open cut excavations during construction to ensure public safety.

Paragraph 6:

To direct the casing pipe in the proper line and grade, guides shall be used to support the jacked casing pipe. The crossing shall not be installed closer than fifty (50) feet to a building or structure. The casing pipe shall extend a minimum of five (5) feet beyond the pit excavation limits as shown on the Plans. The closest point of the casing pipe shall not be less than five (5) feet below the base of the roadbed and shall be installed at least five (5) feet below the lowest point of any existing gas pipeline and at least two (2) feet below the lowest point of any existing public or private utility.

3.24 TS-12 PERMANENT JACKED CASING PIPE, 12.5 Casing Pipe Caps – The specification has been revised as follows:

After the beach and dune fill has been accepted and the sediment pipeline has been removed from the casing pipe, each end of each casing pipe shall be capped. Caps shall be constructed in accordance with the Plans. Caps shall be welded to the casing pipe and shall be water tight. Once capped and filled with water, the water tight integrity of the cap welds shall be verified by the Resident Project Representative prior to backfilling the construction pits. The Contractor shall provide the Owner and Engineer notice of the completion of installation of the caps 72 hours prior to backfilling of the construction pits to provide for inspection. Steel casing pipe caps shall be included in Bid Item No. 1 “Mobilization and Demobilization” and shall include all materials, labor, tools, equipment, and incidentals required to install the casing pipe caps.

3.25 TS-14 MARSH FILL, 14.5.2 Acceptance of Marsh Fill – The specification has been revised as follows:

*Segments of marsh fill with elevations below the **minimum elevation of +2.5 ft NAVD88** will not be accepted. Additional marsh fill must be pumped into these areas after the twenty-eight (28) day waiting period and re-surveyed before acceptance will be considered. If the marsh fill does not meet the minimum elevation requirements the area will have to be re-pumped and undergo an additional twenty-eight (28) day waiting period without any additional placement of fill sediment before payment surveys will be*

*administered again. Once payment surveys are accepted they will be considered post-construction surveys for inclusion in the final survey drawings. Although the Contractor will be allowed to overfill marsh fill areas not to exceed the **maximum elevation of +3.5 ft NAVD88**, no payment will be made for sediment above the **target elevation of +3.0 ft NAVD88**. Any sediment placed above the maximum elevation of +3.5 ft NAVD88 may be subject to removal by the Contractor if required by the Owner or Engineer at no additional cost to the Owner.*

3.26 TS-15 CONTAINMENT DIKES, 15.2 Optional Interior Borrow Channels – The specification has been revised as follows:

*If necessary, the Contractor may use optional interior borrow channels in the construction of the containment dikes if sufficient quantities of material are not available in the dredging of the flotation channels. The limits of dredging for the optional interior borrow channels shall conform to the lines and grades and no deeper than the **minimum elevation of -6.0 ft NAVD88** or wider than the maximum width as shown on the Plans. Distance from top of cut of the optional interior borrow channel to toe of the containment dike shall be no less than 25 feet. Tolerances outside these requirements must be approved by the Owner and Engineer. No excavation shall be allowed within fifty (50) feet of pipelines or oil and gas infrastructure. Written approval from the pipeline/utility owner defining any allowances and/or restrictions placed on the Contractor by the pipeline/utility owner must be submitted to the Owner and Engineer seventy-two (72) hours prior to any excavation within the fifty (50) foot pipeline buffer. Containment dike material taken from the optional interior borrow channels must be re-filled during hydraulic dredge and fill operations. Dredged materials from the optional interior borrow channels used to construct and maintain containment dikes shall conform to the elevations, grades, and lines specified in the Plans. Excavated material deposited within the marsh template shall conform to elevation tolerances specified in TS-14. All associated costs with placing hydraulic fill to re-fill the optional interior borrow channels used for dike construction shall be at no direct pay.*

3.27 TS-15 CONTAINMENT DIKES, 15.3 Optional Interior Containment Dikes – The first paragraph of the specification has been revised as follows:

The Contractor may use optional Interior Containment Dikes (ICD) to achieve marsh fill elevations. The ICD's shall be constructed within the marsh fill area. Locations of ICDs are left to the discretion of the Contractor to facilitate the placement of marsh fill sediment. Proposed locations of any and all ICD must be specified in the Work Plan and subject to the approval of the Engineer. No excavation shall be allowed within fifty (50) feet of pipelines or oil and gas infrastructure. Written approval from the pipeline/utility owner defining any allowances and/or restrictions placed on the Contractor by the pipeline/utility owner must be submitted to the Owner and Engineer seventy-two (72) hours prior to any excavation within the fifty (50) foot pipeline buffer.

3.28 TS-16 FLOTATION CHANNELS, 16.1 General Description – The specification has been revised as follows:

Flotation channels shall be constructed to provide access for equipment and Materials and a source of borrow material for containment dikes. Any excavation for the construction of flotation channels shall consist of removing and satisfactorily placing all material required to construct the flotation channels. Construction of the Flotation Channel from Flotation Channel Station 00+00 to 48+66 is not mandatory. The Flotation Channel shall be constructed from Flotation Channel Station 48+66 to 66+51 and 190+00 to 200+68 shown on the Plans, or to the southernmost station between 190+00 to 200+68 until precluded by the existing pipelines and buffer requirement. No excavation shall be allowed within fifty (50) feet of pipelines or oil and gas infrastructure. Written approval from the pipeline/utility owner defining any allowances and/or restrictions placed on the Contractor by the pipeline/utility owner must be submitted to the Owner and Engineer seventy-two (72) hours prior to any excavation within the fifty (50) foot pipeline buffer. For these mandatory segments, the flotation channels shall be constructed within the lines, grades, and elevations specified in the Specifications and as shown on the Plans.

3.29 TS-16 FLOTATION CHANNELS, 16.5 Flotation Channel Tolerances – The specification has been revised as follows:

*The limits of dredge work for flotation channels shall conform to the lines and grades shown on the Plans. Tolerances outside these requirements must be approved by the Owner and Engineer. The flotation channels shall be maintained in a useable configuration dredged as deep and wide as needed for equipment access and containment dike construction but no deeper than the **maximum depth of -9.0 ft NAVD88 from Flotation Channel Stations 00+00 to 52+50 and -8.0 ft NAVD88 for Flotation Channel Stations 52+00 to 200+68.** Bottom of cut widths shall be no wider than the maximum width as shown on the Plans for the duration of the Project. If a flotation channel is dredged below the maximums depths or wider than the maximum widths specified, the Contractor may be required to backfill the channel at no direct pay and/or subject to deductions.*

3.30 TS-20 SHOAL AND NAVIGATIONAL SIGNS, 20.1 General Description – The specification has been revised as follows:

This Work consists of furnishing and assembling the Materials needed to construct and install shoal signs near all temporary sidecast disposal areas and red and green day markers near Scofield Pass as shown on the Plans and in accordance with the USCG standards. The warning signs, pilings, and assemblies shall also be removed prior to demobilization in accordance with these Specifications and the Plans or as directed by the Owner or Engineer. Navigational signage shall be required from the first location of excavation of material to create contractor access from the Gulf of Mexico until flotation channel Station 50+00 such that the alignment of the flotation channel is clearly defined and in such a manner as to conform to the Plans and Specifications. Shoal signs shall be required anywhere sidecast material is placed in the temporary sidecast disposal

areas along the conveyance corridor and/or flotation channel between Station 00+00 to 50+00.

4. REVISIONS TO THE PLANS

- 4.1 Sheet 26: Mississippi River Levee Crossing Plan View and Sections – Revised typical detail callouts.
- 4.2 Sheet 28: Empire Harbor Canal Crossing Detail – Revised typical detail and revised notes.
- 4.3 Sheet 29: Empire Harbor Canal Bank Stabilization Typical Details – Revised notes.
- 4.4 Sheet 31: Hurricane Protection Levee Crossing Plan View – Revised typical detail callouts.
- 4.5 Sheet 32: Hurricane Protection Levee Crossing Sections – Revised typical detail callouts.
- 4.6 Sheet 34: Empire Waterway Navigational Crossing Typical Detail – Revised signage placement.
- 4.7 Sheet 37 – Revised notes and added dimensions to sediment pipeline crossing markers.
- 4.8 Sheet 55 – Revised Flotation Channel Station numbering for FC-11 and FC-12 to reflect Station 190+00.00 and Station 200+68.00, respectively.

Refer to Attachment C for revised Construction Plan Sheets

ATTACHMENT A

Revised Schedule of Bid Items – Bid Package pages BID-I through BID-III

SCHEDULE OF BID ITEMS
RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION (BA-40)

Mail To:

Office of State Purchasing, Division of Administration, State of Louisiana

Attn: Hilary Stephenson

P.O. Box 94095, Baton Rouge, LA 70804-9095

ITEM No.	ITEM	UNIT	QTY ¹	UNIT PRICE ²	EXTENDED PRICE ³
					USING NUMBERS
1	Mobilization / Demobilization	Lump Sum	1	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____
2	Surveys	Lump Sum	1	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____
3	Jacked Casing Pipe	Linear Foot	440	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____
4	Empire Harbor Canal Crossing	Each	1	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____
5	Navigational Crossings	Each	6	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____

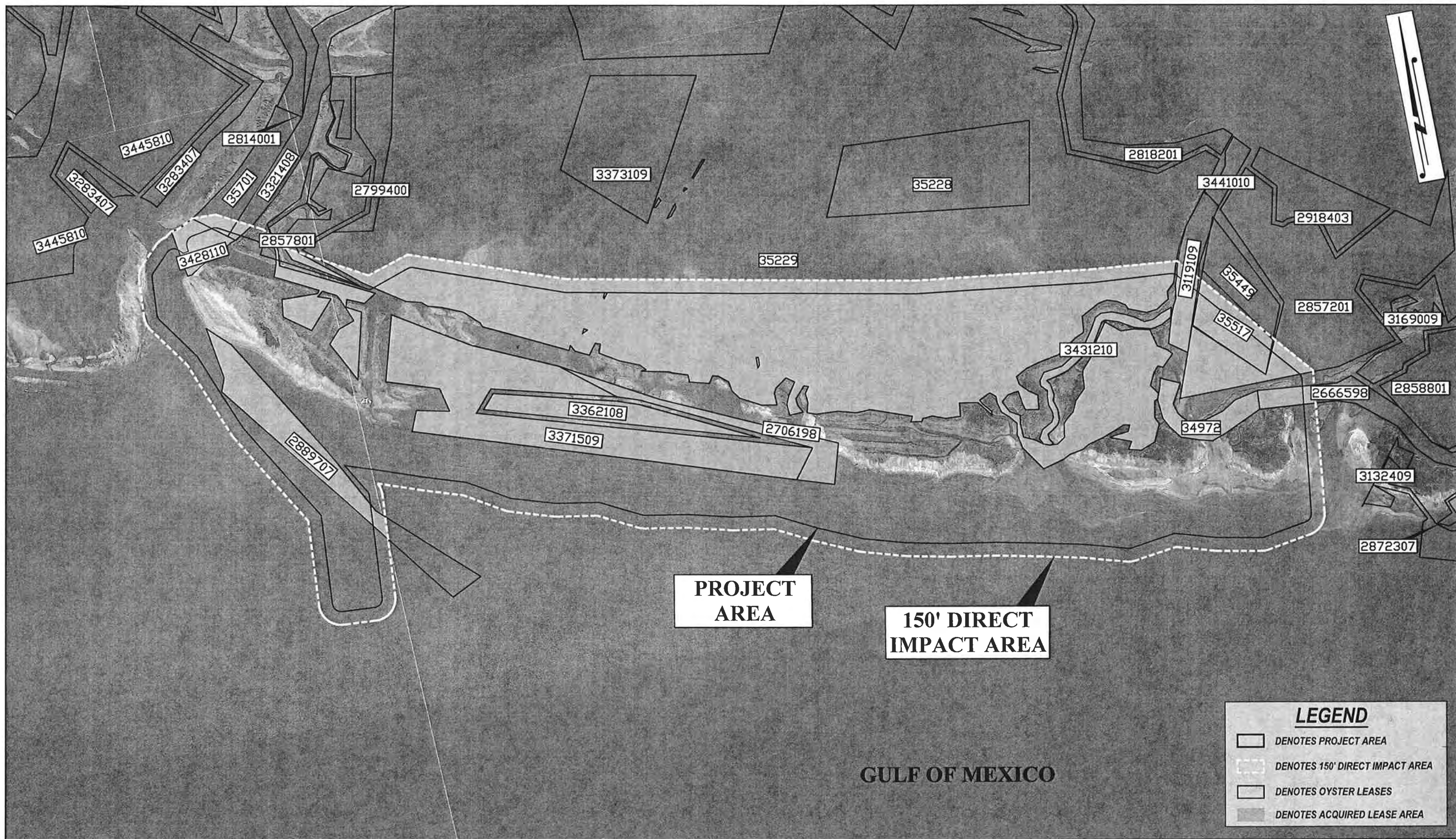
ITEM No.	ITEM	UNIT	QTY ¹	UNIT PRICE ²	EXTENDED PRICE ³
					USING NUMBERS
6	Booster Pump Locations	Lump Sum	1	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____
7	Flotation Channels	Lump Sum	1	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____
8	Containment Dikes	Linear Foot	15,370	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____
9	Beach and Dune Fill	Cubic Yard	1,632,000	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____
10	Marsh Fill	Cubic Yard	1,761,500	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____
11	Settlement Plates	Each	5	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____

ITEM No.	ITEM	UNIT	QTY ¹	UNIT PRICE ²	EXTENDED PRICE ³
					USING NUMBERS
12	Grade Stakes	Lump Sum	1	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____ ____
13	Shoal and Navigational Signs	Each	68	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____ ____
14	Sand Fencing	Linear Foot	13,970	Using Words: _____ _____ Dollars _____ Cents Using Numbers: \$ _____	\$ _____ ____
Total Amount of Base Bid: _____ _____ Dollars and _____ Cents \$ _____					

1. Where the quantity of Work with respect to any item is covered by a unit price, such quantities are estimated quantities to be used when comparing bids and the right is reserved by the Owner to increase/decrease such quantities as may be necessary to complete the Work and/or remain within the funding limits. In the event of material underruns/overruns, the unit costs will be used to determine payment to the Contractor.
2. Items must be completed by the bidder. The completed Schedule of Bid Items Sheets must be attached to the bid submitted to the Office of State Purchasing in order for the bid to be considered. The low Bidder will be determined on the basis of the Base Bid and any Alternates accepted.
3. Mobilization and Demobilization shall include all appropriate costs associated with constructing all features listed in the Specifications and/or shown in the Plans.

ATTACHMENT B

Area of Oyster Lease Acquisition Maps for Riverine Sand Mining / Scofield Island Restoration
(BA-40)

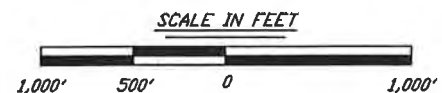


LEGEND

- DENOTES PROJECT AREA
- DENOTES 150' DIRECT IMPACT AREA
- DENOTES OYSTER LEASES
- DENOTES ACQUIRED LEASE AREA

NOTES: 2008 AERIAL PHOTOGRAPHY

DATE	REVISIONS	DRAWN BY	APPROVED BY
	REVISIONS		

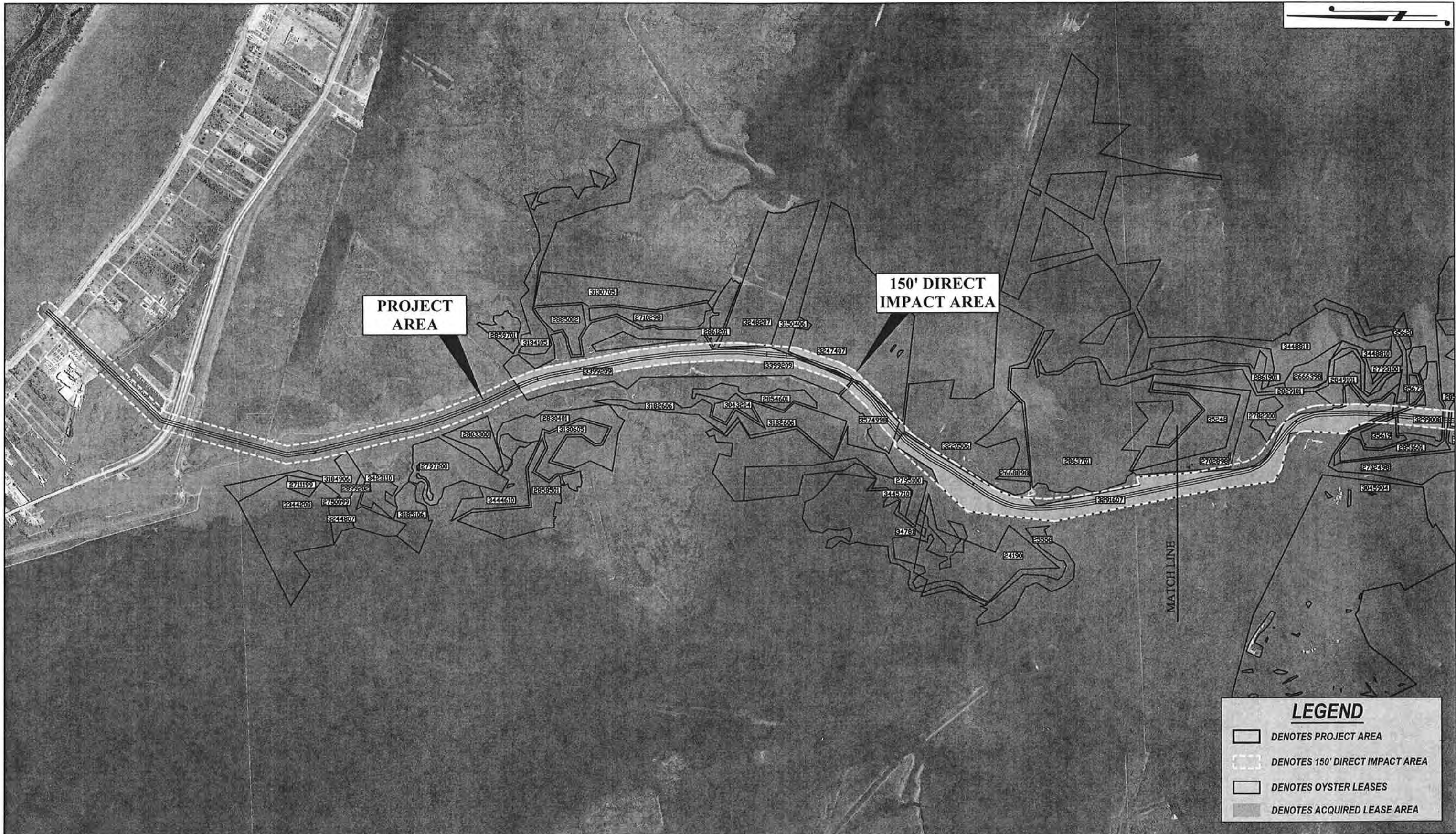


FILE NAME:	ACQUIRED
TBS NO:	2010.0696
DATE:	11/17/2011
PLOT SCALE:	1"=1,000'
DRAWN BY:	SPM
APPROVED:	KJK
MAP NO:	

COASTAL PROTECTION AND RESTORATION
AUTHORITY OF LOUISIANA

AREA OF ACQUISITION
BA-40 COASTAL RESTORATION PROJECT- SCOFIELD ISLAND
LOCATED IN PLAQUEMINES PARISH,
LOUISIANA

SHEET NO
1
OF
1



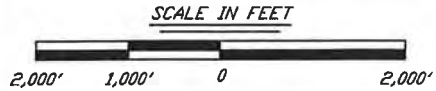
LEGEND

- DENOTES PROJECT AREA
- DENOTES 150' DIRECT IMPACT AREA
- DENOTES OYSTER LEASES
- DENOTES ACQUIRED LEASE AREA

NOTES: 2008 AERIAL PHOTOGRAPHY

DATE	REVISIONS	DRAWN BY	APPROVED BY
	REVISIONS		

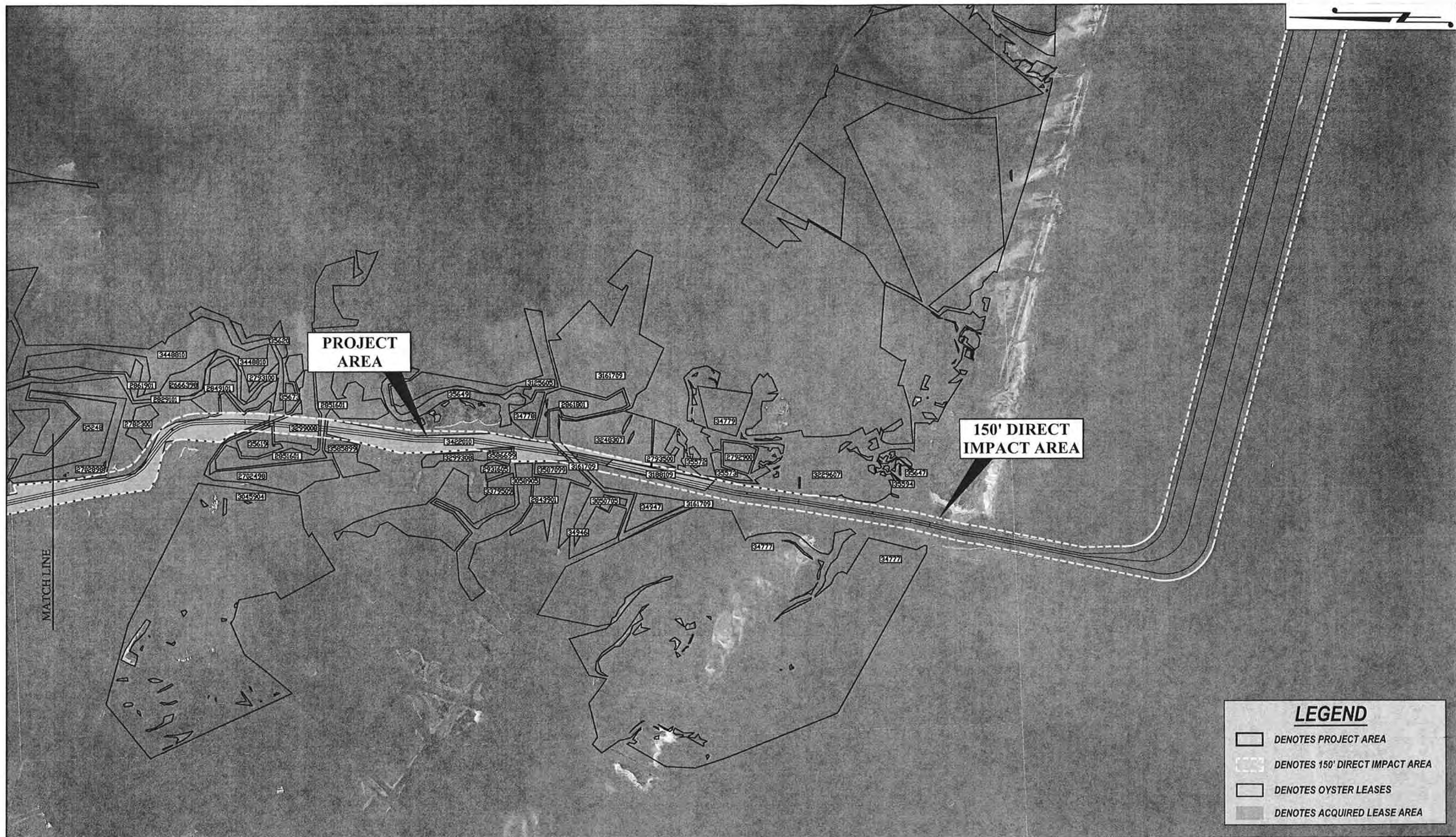
T. BAKER SMITH
PROFESSIONAL CONSULTANTS SINCE 1913
(866) 866-1050 www.tbsmith.com



FILE NAME	ACQUIRED
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DATE	11/17/2011
PLOT SCALE	1"= 2,000'
DRAWN BY	SPM
APPROVED	KJK
MAP NO.	

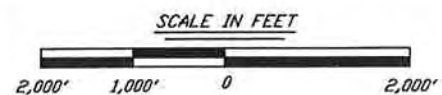
COASTAL PROTECTION AND RESTORATION
AUTHORITY OF LOUISIANA

AREA OF ACQUISITION
BA-40 COASTAL RESTORATION PROJECT- DREDGE PIPE ROUTE
LOCATED IN PLAQUEMINES PARISH,
LOUISIANA



NOTES: 2008 AERIAL PHOTOGRAPHY

DATE	REVISIONS	DRAWN BY	APPROVED BY
	REVISIONS		



FILE NAME	ACQUIRED
TBS NO	2010.0696
DATE	11/17/2011
PLOT SCALE	1"= 2,000'
DRAWN BY	SPM
APPROVED	KJK
MAP NO	

COASTAL PROTECTION AND RESTORATION
AUTHORITY OF LOUISIANA

AREA OF ACQUISITION
BA-40 COASTAL RESTORATION PROJECT- DREDGE PIPE ROUTE
LOCATED IN PLAQUEMINES PARISH,
LOUISIANA

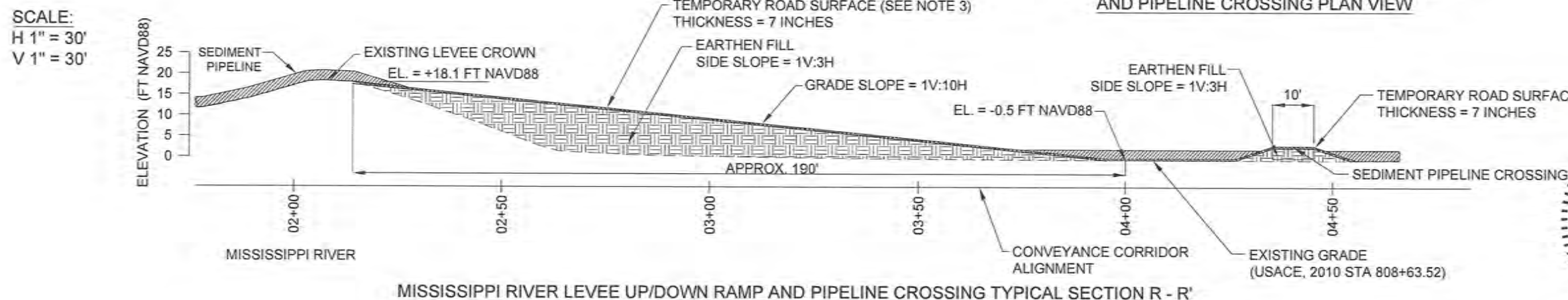
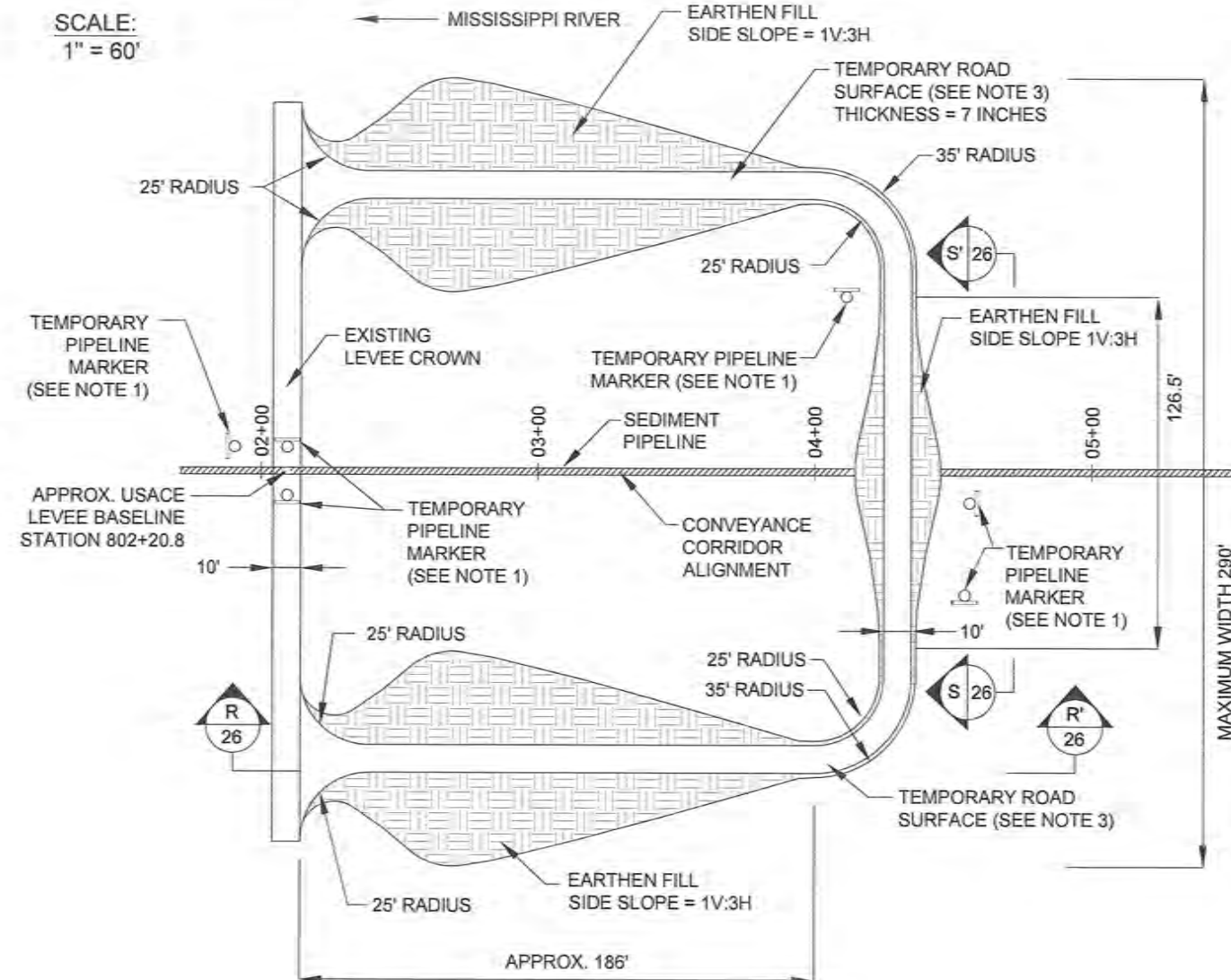
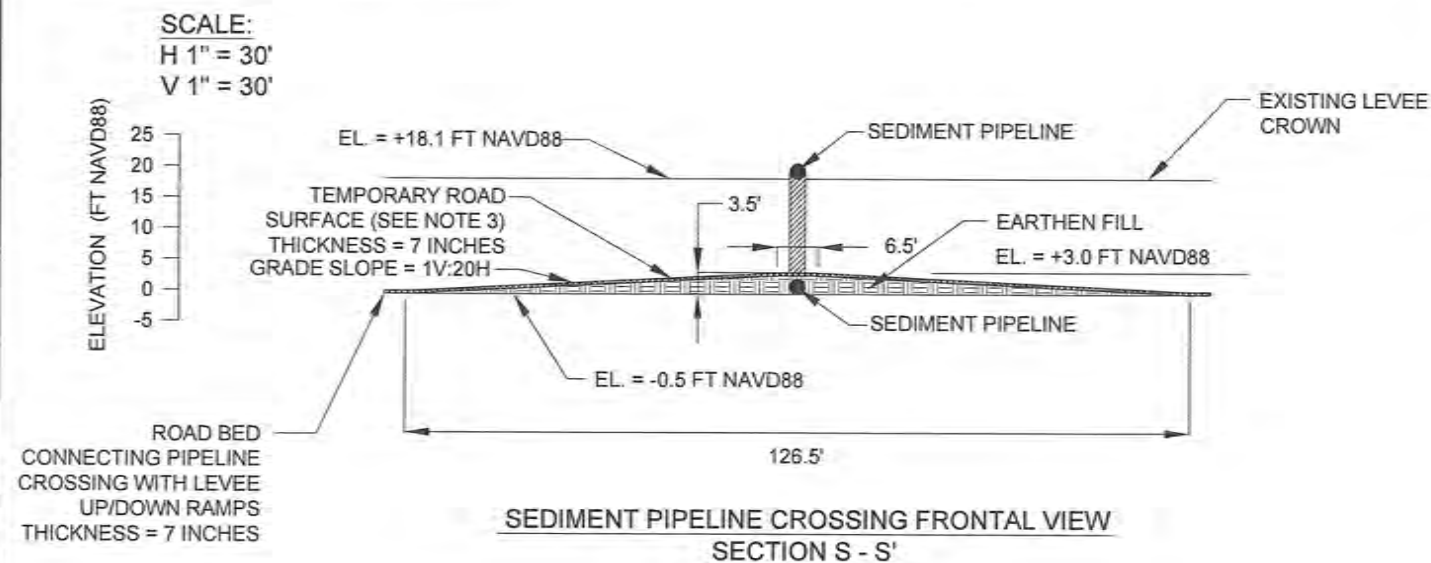
SHEET NO
2
OF
2

ATTACHMENT C

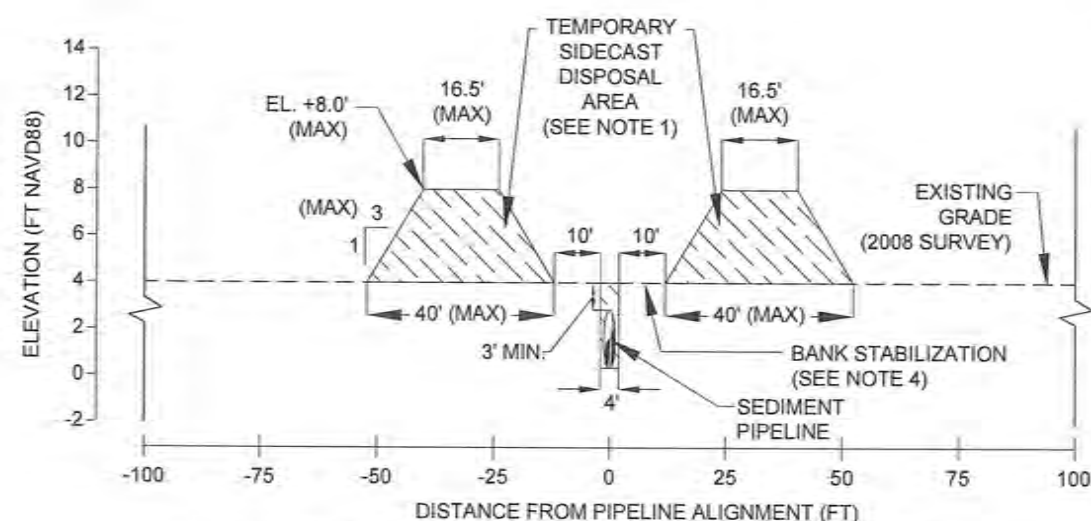
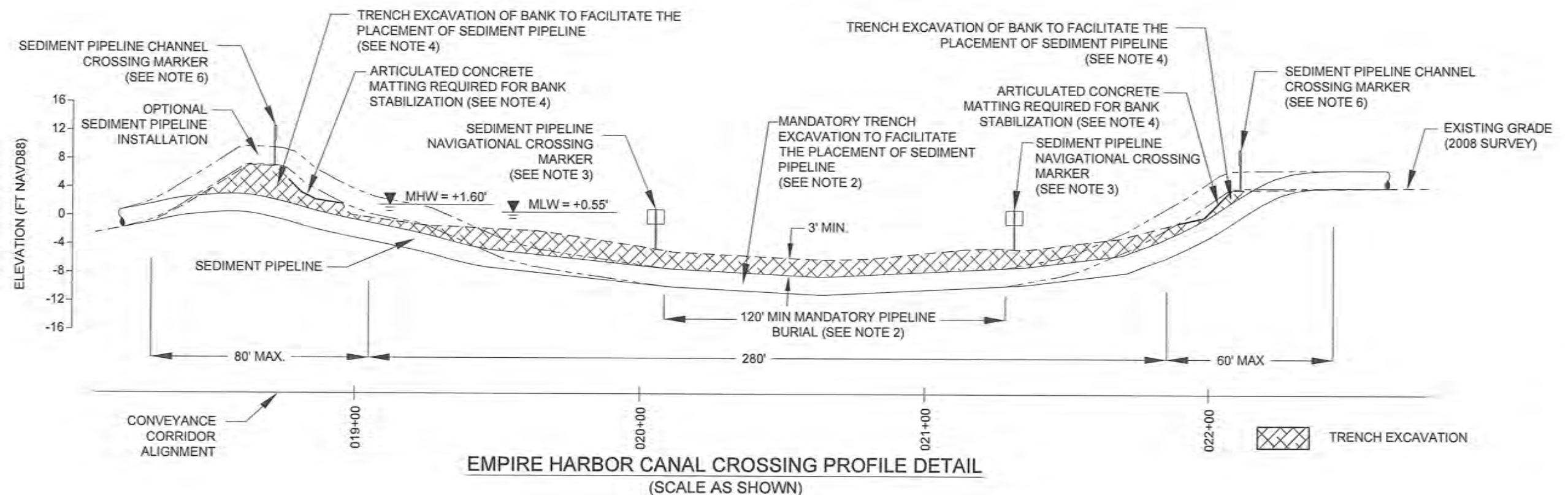
Revised Sheets to Plans

NOTES:

1. TEMPORARY PIPELINE MARKERS INDICATING OWNER, CONTENTS, AND ADDRESS FOR CONTACTING OWNER SHALL BE PLACED AND MAINTAINED AT EACH TOE OF THE LEVEE ADJACENT TO THE SEDIMENT PIPELINE, TO EACH SIDE OF THE SEDIMENT PIPELINE ON THE LEVEE CROWNS, AND AT EACH PIPELINE CROSSING APPROACH RAMP IN ACCORDANCE WITH TS-9. SEE SHEET 36 FOR TEMPORARY PIPELINE MARKER DETAILS.
2. SEE SHEETS 12 - 19 FOR CONVEYANCE CORRIDOR ALIGNMENT.
3. SEE SECTION TS-10 OF THE SPECIFICATIONS FOR INFORMATION REGARDING LEVEE CROSSING APPROACH RAMP, TEMPORARY ROAD SURFACE, AND SEDIMENT PIPELINE CROSSING CONSTRUCTION DETAILS.
4. SURVEYS CONDUCTED BY USACE, 2010. (CHECKED X-SECTION.DGN, 04/27/2011).
5. MINIMUM FILL OVER PIPELINE AT CROSSING IS 1 FOOT.
6. REFER TO TS-4 FOR CONSTRUCTION ACCESS VEGETATION REMOVAL GUIDELINES.
7. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS/HER FAILURE TO EXACTLY LOCATE AND PRESERVE EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS/HER WORK.
8. SEE APPENDIX H OF THE SPECIFICATIONS FOR TOPOGRAPHIC AND LOCATION SURVEY OF THE UPLAND SEGMENT OF THE CONVEYANCE CORRIDOR.



				 <div>COASTAL ENGINEERING CONSULTANTS, INC. PH: (225) 768-1982 FAX: (225) 769-3596 5745 ESSEN LANE, SUITE 200 BATON ROUGE, LA 70810</div>	 <div>SJB GROUP, LLC QUALITY BY DESIGN P.O. BOX 1751 BATON ROUGE, LA. 70821 PHONE (225) 769-3400 FAX (225) 769-3596</div>	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801		RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION		MISSISSIPPI RIVER LEVEE CROSSING PLAN VIEW AND SECTIONS
STATE PROJECT NUMBER: BA-40										
01	12/30/11	ADDENDUM 2	MTP					FEDERAL PROJECT NUMBER: BA-40		DATE: AUGUST 2011
REV.	DATE	DESCRIPTION	BY					DRAWN BY: DARTEZ / ZWERNEMAN	DESIGNED BY: MICHAEL T. POFF, P.E.	APPROVED BY: MAURY CHATELLIER, P.E.

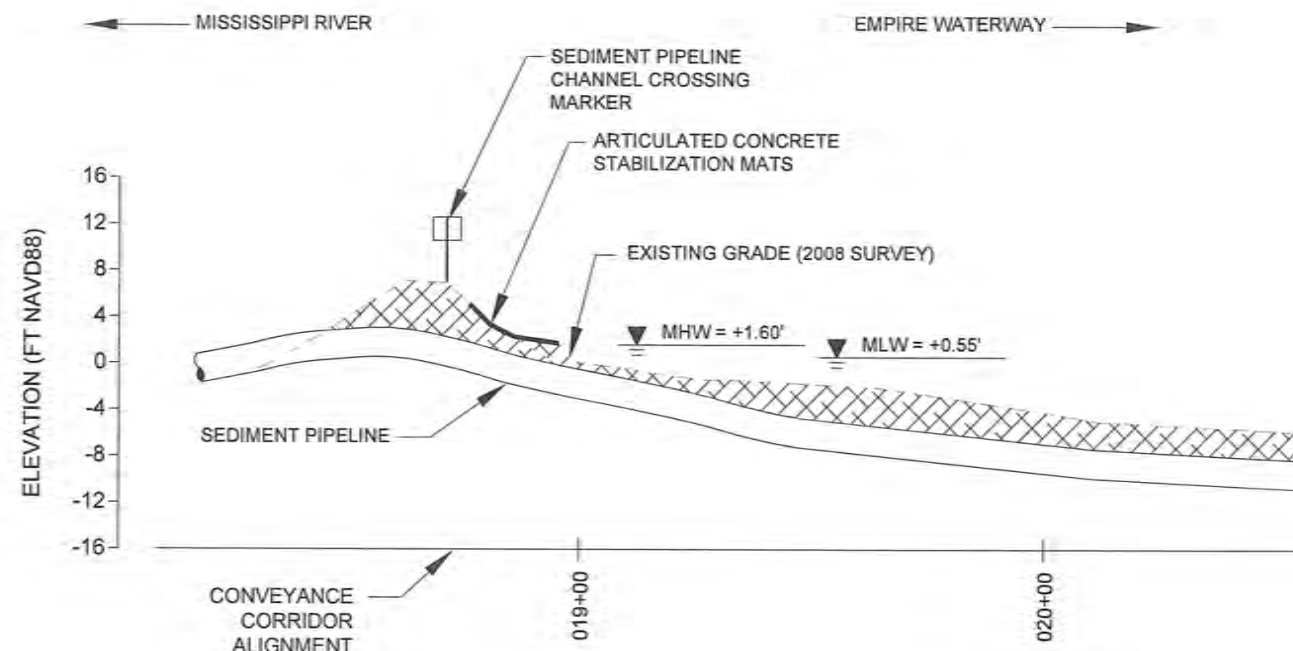


NOTES:

- EXCAVATED MATERIAL SHALL BE PLACED IN THE CONFINES OF THE TEMPORARY DISPOSAL PLACEMENT AREAS. SEE SHEET 29 FOR TEMPORARY DISPOSAL AREA PLACEMENT HORIZONTAL DIMENSIONS. THERE SHALL BE NO SIDECASTING OF EXCAVATED MATERIAL WITHIN THE CROSSING LIMITS.
- TO ENABLE NAVIGATIONAL PASSAGE, THE PIPELINE MUST BE BURIED WITH MINIMUM OF 3 FEET OF COVER OVER A MINIMUM DISTANCE OF 120 FEET CENTERED AT THE LOWEST ELEVATION WITHIN THE EMPIRE HARBOR CANAL CROSSING.
- IF THE CONTRACTOR DOES NOT ELECT TO EXCAVATE THE CANAL BANK, SEDIMENT PIPELINE NAVIGATIONAL CROSSING MARKERS SHALL BE PLACED AT THE POINTS WHERE 3 FEET OF COVER IS NO LONGER PROVIDED.
- IF THE CONTRACTOR ELECTS TO TRENCH EXCAVATE THE CANAL BANKS FOR SEDIMENT PIPELINE INSTALLATION, BANK STABILIZATION MEASURES SHALL BE REQUIRED. THE CONTRACTOR SHALL BACKFILL THE CANAL BANKS AS A FOUNDATION FOR THE INSTALLATION OF THE ARTICULATED CONCRETE MATS. INSTALLATION AND REPLACEMENT OF THE ARTICULATED CONCRETE MATS SHALL BE CONDUCTED FOLLOWING SEDIMENT PIPELINE INSTALLATION AND REMOVAL. SEE SHEET 29 FOR BANK STABILIZATION DETAILS.
- IF NO EXCAVATION IS CONDUCTED ABOVE MEAN LOW WATER, BANK STABILIZATION SHALL NOT BE REQUIRED.
- SEE SHEET 37 FOR SEDIMENT PIPELINE MARKER DETAILS.
- SEE SHEETS 12 - 19 FOR CONVEYANCE CORRIDOR ALIGNMENT.
- SEE SECTION TS-10 OF THE SPECIFICATIONS FOR INFORMATION REGARDING SEDIMENT PIPELINE.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS/HER FAILURE TO EXACTLY LOCATE AND PRESERVE EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS/HER WORK.
- SEE APPENDIX H OF THE SPECIFICATIONS FOR TOPOGRAPHIC AND LOCATION SURVEY OF THE UPLAND SEGMENT OF THE CONVEYANCE CORRIDOR.



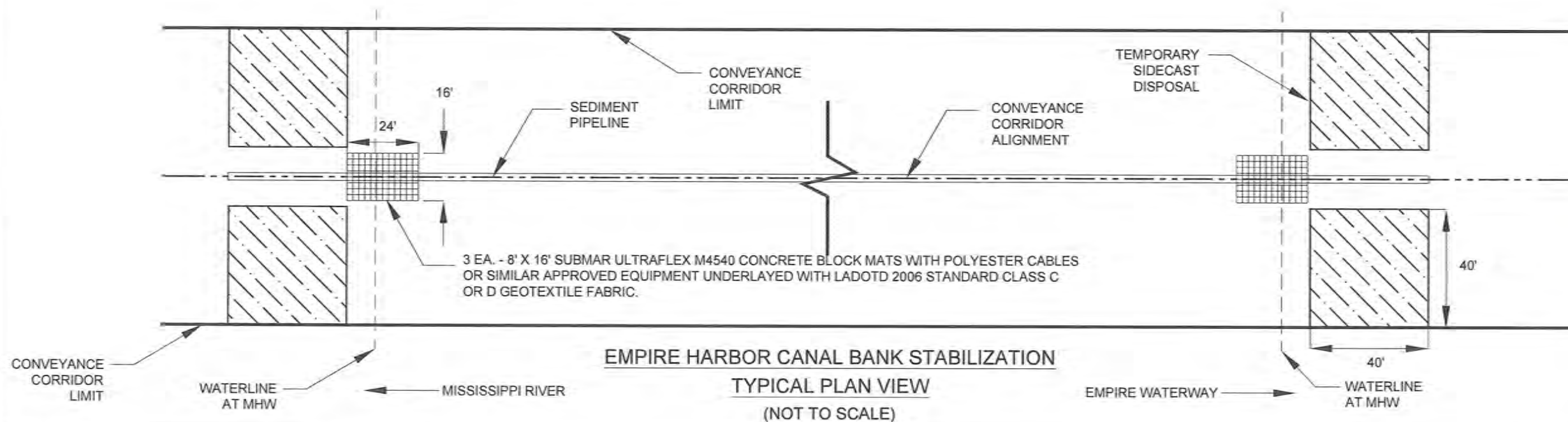
				 <div>COASTAL ENGINEERING CONSULTANTS, INC. PH: (225) 768-1982 FAX: (225) 769-3596 5745 ESSEN LANE, SUITE 200 BATON ROUGE, LA 70810</div>	 <div>SJB GROUP, LLC QUALITY BY DESIGN P.O. BOX 1751 BATON ROUGE, LA. 70821 PHONE (225) 769-3400 FAX (225) 769-3596</div>	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801		RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION		EMPIRE HARBOR CANAL CROSSING DETAIL
STATE PROJECT NUMBER: BA-40		DATE: AUGUST 2011								
01	01/11/12		ADDENDUM 6			MTP	DRAWN BY: DARTEZ / ZWERNEMAN		DESIGNED BY: MICHAEL T. POFF, P.E.	APPROVED BY: MAURY CHATELLIER, P.E.
REV.	DATE	DESCRIPTION	BY							



EMPIRE HARBOR CANAL BANK STABILIZATION
PROFILE TYPICAL DETAILS
 (SCALE AS SHOWN)

NOTES:

1. EXCAVATED MATERIAL SHALL BE PLACED IN THE CONFINES OF THE TEMPORARY DISPOSAL PLACEMENT AREAS. THERE SHALL BE NO SIDECASTING OF EXCAVATED MATERIAL WITHIN THE CROSSING LIMITS.
2. SEE SPECIFICATION TS-10 FOR ARTICULATED CONCRETE STABILIZATION MAT CONSTRUCTION AND INSTALLATION DETAILS.
3. IF THE CONTRACTOR ELECTS TO TRENCH EXCAVATE THE CANAL BANKS FOR SEDIMENT PIPELINE INSTALLATION, BANK STABILIZATION MEASURES SHALL BE REQUIRED. THE CONTRACTOR SHALL BACKFILL THE CANAL BANKS AS A FOUNDATION FOR THE INSTALLATION OF THE ARTICULATED CONCRETE MATS. INSTALLATION AND REPLACEMENT OF THE ARTICULATED CONCRETE MATS SHALL BE CONDUCTED FOLLOWING SEDIMENT PIPELINE INSTALLATION AND REMOVAL.
4. SEE SHEET 36 FOR SEDIMENT PIPELINE MARKER DETAILS.
5. SEE SHEETS 12 - 19 FOR CONVEYANCE CORRIDOR ALIGNMENT.
6. SEE SECTION TS-10 OF THE SPECIFICATIONS FOR INFORMATION REGARDING SEDIMENT PIPELINE CROSSINGS.
7. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS/HER FAILURE TO EXACTLY LOCATE AND PRESERVE EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS/HER WORK.
8. SEE APPENDIX H OF THE SPECIFICATIONS FOR TOPOGRAPHIC AND LOCATION SURVEY OF THE UPLAND SEGMENT OF THE CONVEYANCE CORRIDOR.

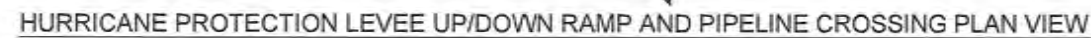


EMPIRE HARBOR CANAL BANK STABILIZATION
TYPICAL PLAN VIEW
 (NOT TO SCALE)



				 <div>COASTAL ENGINEERING CONSULTANTS, INC. PH: (225) 768-1982 FAX: (225) 769-3596 5745 ESSEN LANE, SUITE 200 BATON ROUGE, LA 70810</div>	 <div>SJB GROUP, LLC QUALITY BY DESIGN P.O. BOX 1751 BATON ROUGE, LA. 70821 PHONE (225) 769-3400 FAX (225) 769-3596</div>	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801		RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION		EMPIRE HARBOR CANAL BANK STABILIZATION TYPICAL DETAILS			
STATE PROJECT NUMBER: BA-40													
FEDERAL PROJECT NUMBER: BA-40													
01	01/11/12	ADDENDUM 6	MTP					DRAWN BY: DARTEZ / ZWERNEMAN		DESIGNED BY: MICHAEL T. POFF, P.E.		APPROVED BY: MAURY CHATELLIER, P.E.	
REV.	DATE	DESCRIPTION	BY									SHEET 29 OF 57	

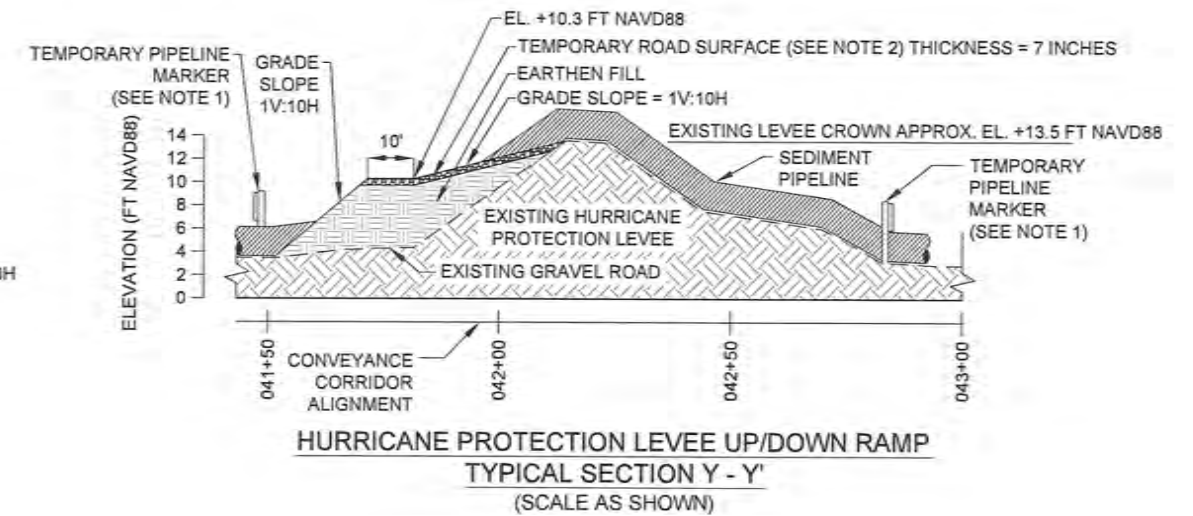
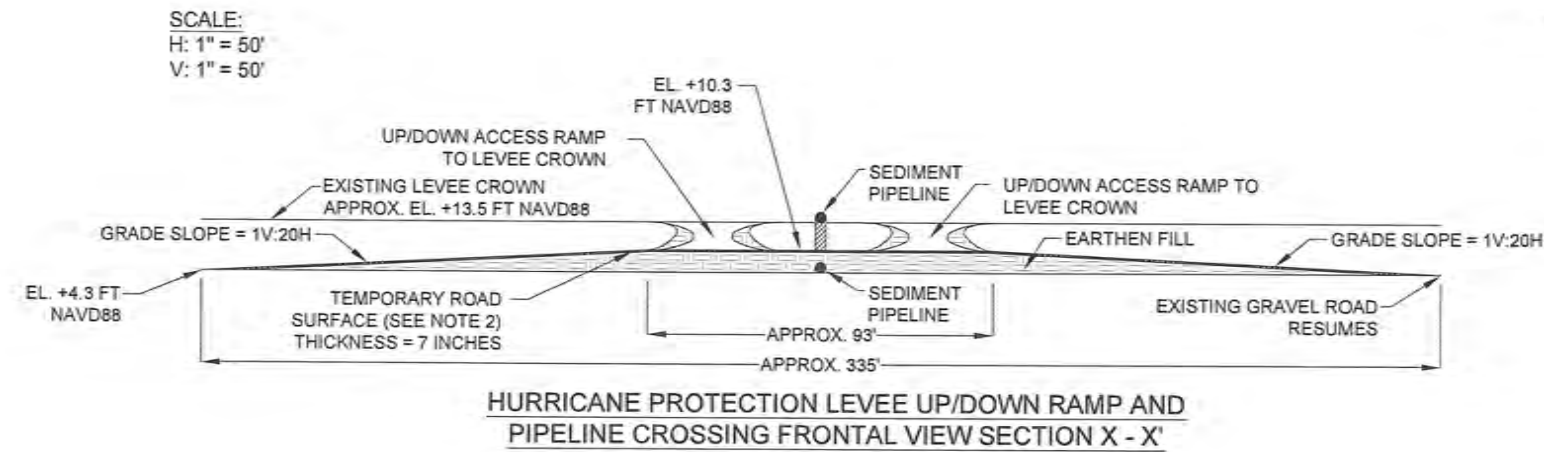
1. TEMPORARY PIPELINE MARKERS INDICATING OWNER, CONTENTS, AND ADDRESS FOR CONTACTING OWNER SHALL BE PLACED AND MAINTAINED AT EACH TOE OF THE LEVEE ADJACENT TO THE SEDIMENT PIPELINE, TO EACH SIDE OF THE SEDIMENT PIPELINE ON THE LEVEE CROWNS, AND AT EACH PIPELINE CROSSING APPROACH RAMP IN ACCORDANCE WITH TS-9. SEE SHEET 36 FOR TEMPORARY PIPELINE MARKER DETAILS.
2. SEE SECTION TS-10 OF THE SPECIFICATIONS FOR INFORMATION REGARDING LEVEE CROSSING APPROACH RAMPS, TEMPORARY ROAD SURFACE AND SEDIMENT PIPELINE CROSSING CONSTRUCTION DETAILS.
3. SEE SHEETS 12 - 19 FOR CONVEYANCE CORRIDOR ALIGNMENT.
4. REFER TO TS-4 FOR CONSTRUCTION ACCESS VEGETATION REMOVAL GUIDELINES.
5. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS/HER FAILURE TO EXACTLY LOCATE AND PRESERVE EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS/HER WORK.
6. SEE APPENDIX H OF THE SPECIFICATIONS FOR TOPOGRAPHIC AND LOCATION SURVEY OF THE UPLAND SEGMENT OF THE CONVEYANCE CORRIDOR.



				 COASTAL ENGINEERING CONSULTANTS, INC. PH: (225) 768-1982 FAX: (225) 769-3596 5745 ESSEN LANE, SUITE 200 BATON ROUGE, LA 70810	 SJB GROUP, LLC QUALITY BY DESIGN P.O. BOX 1751 BATON ROUGE, LA. 70821 PHONE (225) 769-3400 FAX (225) 769-3596	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801		RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION		HURRICANE PROTECTION LEVEE CROSSING PLAN VIEW DATE: AUGUST 2011.	
								STATE PROJECT NUMBER: BA-40			
								FEDERAL PROJECT NUMBER: BA-40			
01	01/11/12	ADDENDUM 6	MTF					DRAWN BY: DARTEZ / ZWERNEMAN	DESIGNED BY: MICHAEL T. POFF, P.E.	APPROVED BY: MAURY CHATELLIER, P.E.	SHEET 31 OF 57
REV.	DATE	DESCRIPTION	BY								


NOTES:

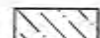
1. TEMPORARY PIPELINE MARKERS INDICATING OWNER, CONTENTS, AND ADDRESS FOR CONTACTING OWNER SHALL BE PLACED AND MAINTAINED AT EACH TOE OF THE LEVEE ADJACENT TO THE SEDIMENT PIPELINE, TO EACH SIDE OF THE SEDIMENT PIPELINE ON THE LEVEE CROWNS, AND AT EACH PIPELINE CROSSING APPROACH RAMP IN ACCORDANCE WITH TS-9. SEE SHEET 36 FOR TEMPORARY PIPELINE MARKER DETAILS.
2. SEE SECTION TS-10 OF THE SPECIFICATIONS FOR INFORMATION REGARDING LEVEE CROSSING APPROACH RAMP, TEMPORARY ROAD SURFACE AND SEDIMENT PIPELINE CROSSING CONSTRUCTION DETAILS.
3. SEE SHEETS 12 - 19 FOR CONVEYANCE CORRIDOR ALIGNMENT.
4. MINIMUM FILL OVER PIPELINE AT CROSSING IS 1 FOOT.
5. REFER TO TS-4 FOR CONSTRUCTION ACCESS VEGETATION REMOVAL GUIDELINES.
6. ELEVATIONS BASED ON 2008 SURVEYS.
7. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS/HER FAILURE TO EXACTLY LOCATE AND PRESERVE EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS/HER WORK.
8. SEE APPENDIX H OF THE SPECIFICATIONS FOR TOPOGRAPHIC AND LOCATION SURVEY OF THE UPLAND SEGMENT OF THE CONVEYANCE CORRIDOR.





					COASTAL ENGINEERING CONSULTANTS, INC. PH: (225) 768-1982 FAX: (225) 769-3596 5745 ESSEN LANE, SUITE 200 BATON ROUGE, LA 70810	 SJB GROUP, LLC QUALITY BY DESIGN P.O. BOX 1751 BATON ROUGE, LA 70821 PHONE (225) 769-3400 FAX (225) 769-3596	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801 DRAWN BY: DARTEZ / ZWERNEMAN DESIGNED BY: MICHAEL T. POFF, P.E.		RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION		HURRICANE PROTECTION LEVEE CROSSING SECTIONS DATE: AUGUST 2011 SHEET 32 OF 57
									STATE PROJECT NUMBER: BA-40		
									FEDERAL PROJECT NUMBER: BA-40		
									APPROVED BY: MAURY CHATELLIER, P.E.		
01	01/11/12	ADDENDUM 6	MTP								
REV.	DATE	DESCRIPTION	BY								


LEGEND

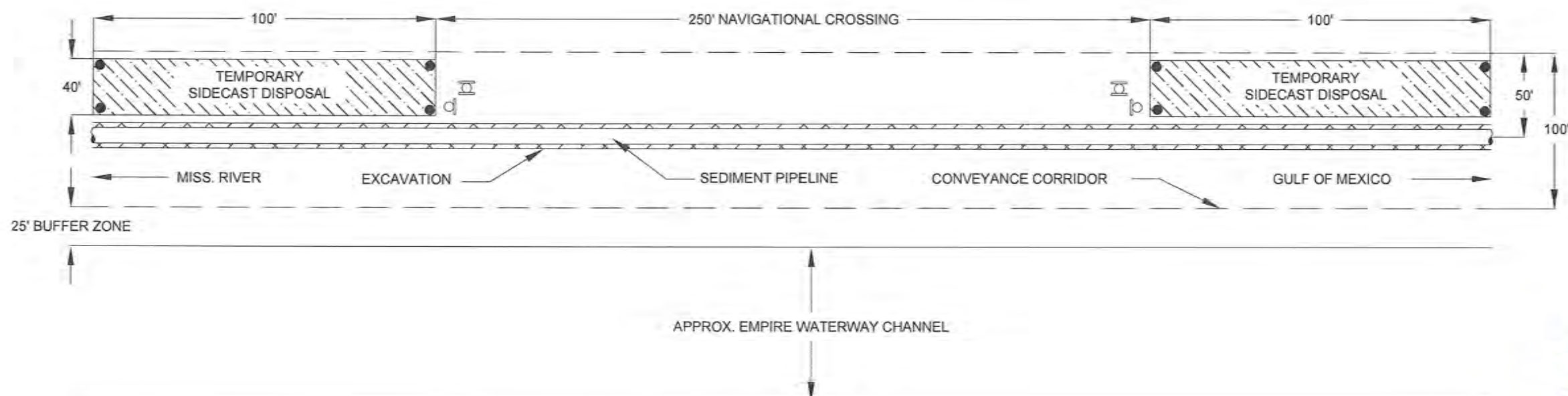
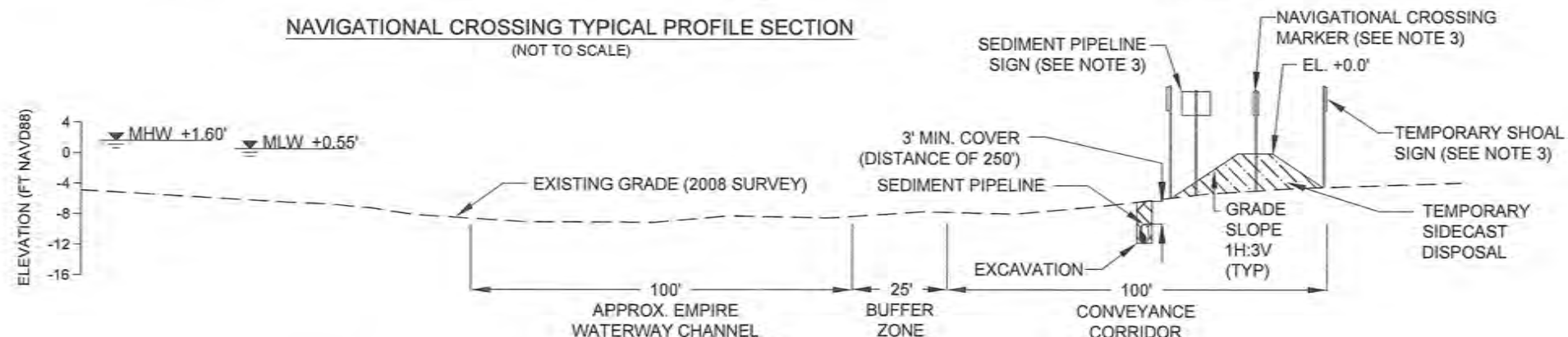
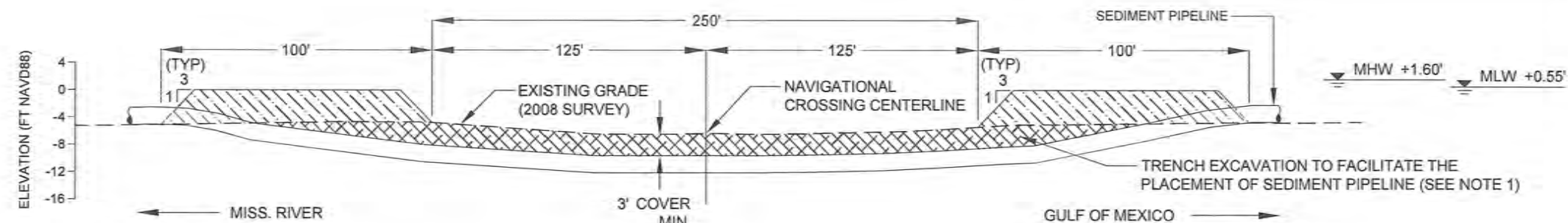
 TRENCH EXCAVATION
(EXTENDS TO BOTTOM OF PIPE)

 TEMPORARY SIDECAST
DISPOSAL

 SEDIMENT PIPELINE SIGN
(SEE NOTE 3)

 SEDIMENT PIPELINE NAVIGATIONAL
CROSSING MARKER (SEE NOTE 3)

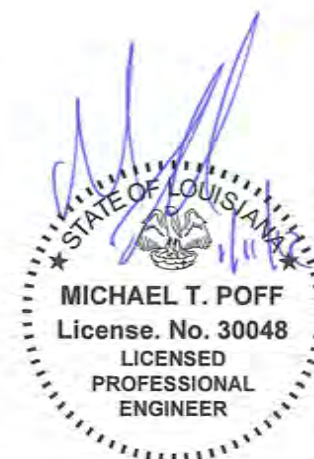
 TEMPORARY SHOAL SIGN
(SEE NOTE 3)



NOTES:

- EXCAVATED MATERIAL SHALL BE PLACED IN THE CONFINES OF THE TEMPORARY SIDECAST DISPOSAL PLACEMENT AREAS. THERE SHALL BE NO SIDECASTING WITHIN CROSSING LIMITS.
- SEE SECTION TS-10 OF SPECIFICATIONS FOR NAVIGATIONAL CROSSING DETAILS.
- SEE SHEET 37 FOR SEDIMENT PIPELINE AND SHOAL SIGN CONSTRUCTION DETAILS.
- SEE SHEETS 12 - 19 FOR CONVEYANCE CORRIDOR ALIGNMENT.

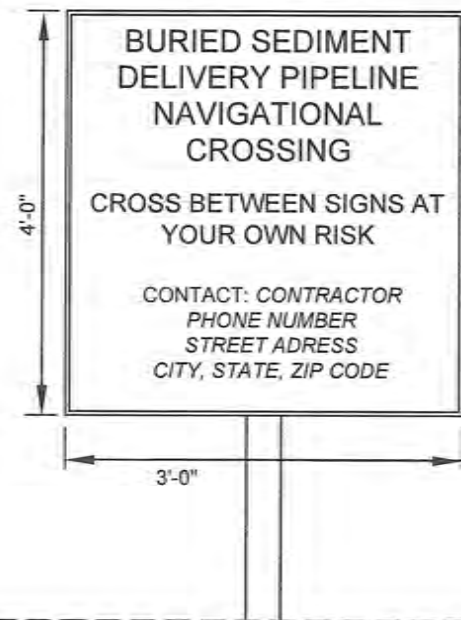
NAVIGATIONAL CROSSING TYPICAL PLAN VIEW NOT TO SCALE



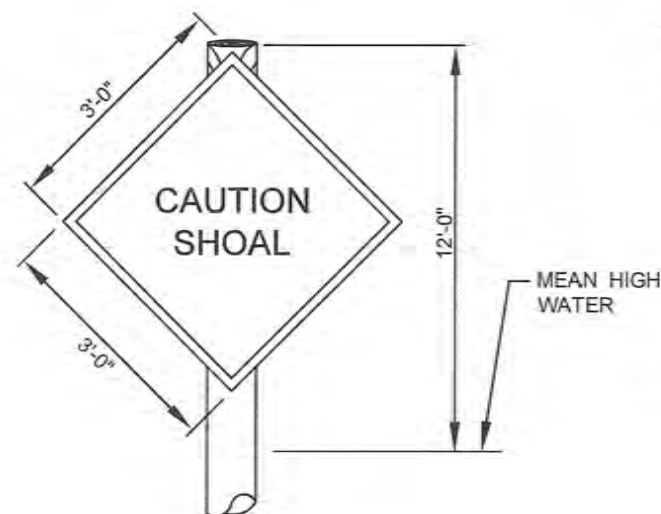
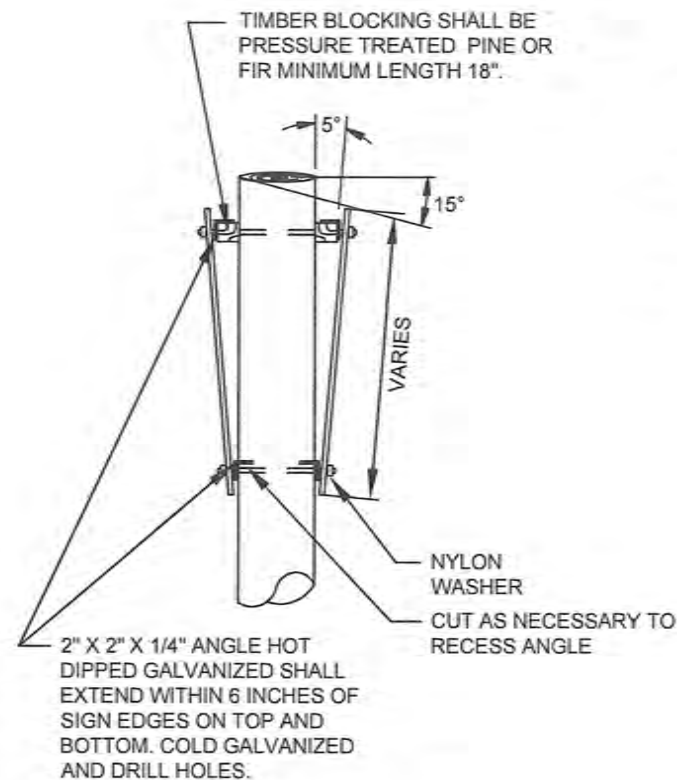
				 <div>COASTAL ENGINEERING CONSULTANTS, INC. PH: (225) 768-1982 FAX: (225) 769-3596 5745 ESSEN LANE, SUITE 200 BATON ROUGE, LA 70810</div>	 <div>SJB GROUP, LLC QUALITY BY DESIGN P.O. BOX 1751 BATON ROUGE, LA. 70821 PHONE (225) 769-3400 FAX (225) 769-3596</div>	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801		RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION		EMPIRE WATERWAY NAVIGATIONAL TYPICAL CROSSING DETAIL	
STATE PROJECT NUMBER: BA-40											
01	01/11/12	ADDENDUM 6	MTP					FEDERAL PROJECT NUMBER: BA-40		DATE: AUGUST 2011	
REV.	DATE	DESCRIPTION	BY					DRAWN BY: DARTEZ / ZWERNEMAN	DESIGNED BY: MICHAEL T. POFF, P.E.	APPROVED BY: MAURY CHATELLIER, P.E.	SHEET 34 OF 57



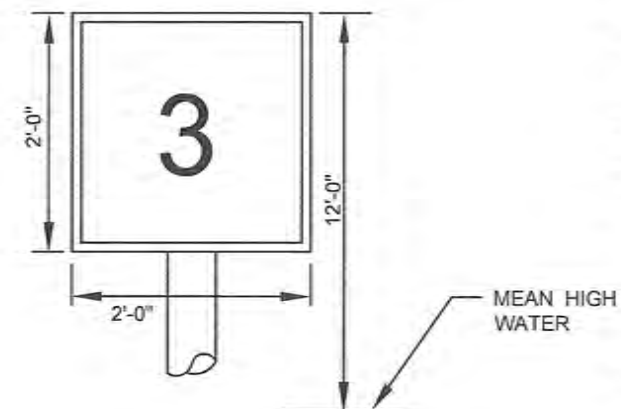
SEDIMENT PIPELINE
CHANNEL CROSSING
MARKER DETAIL
(NOT TO SCALE)



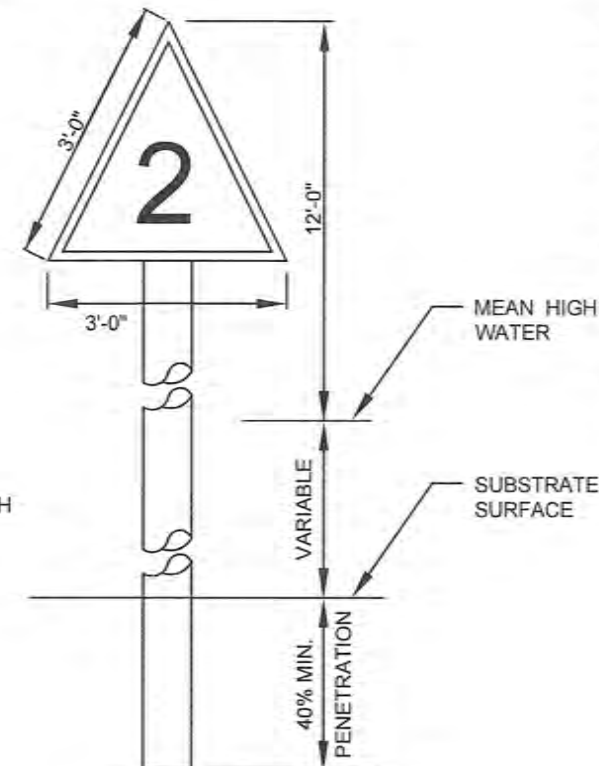
SEDIMENT PIPELINE
NAVIGATIONAL CROSSING
MARKER DETAIL
(NOT TO SCALE)



SHOAL SIGN (S)
(NOT TO SCALE)



GREEN DAY MARKER
(NOT TO SCALE)



RED DAY MARKER
(NOT TO SCALE)

NOTES:

- SEE TS-9 OF THE SPECIFICATIONS FOR SEDIMENT PIPELINE MARKER DETAILS. SEE TS-20 OF THE SPECIFICATIONS FOR NAVIGATION AND SHOAL SIGN DETAILS.
- SHOAL SIGNS SHALL BE INSTALLED AS REQUIRED FOR TEMPORARY SIDECAST DISPOSAL AREAS. SEE SHEETS 22, 34 AND 35 FOR TYPICAL INSTALLATION LOCATIONS.
- NAVIGATION AND SHOAL SIGNS MUST MEET U.S. COAST GUARD STANDARDS IN ACCORDANCE WITH 33 CFR 330.4 (a) (1).
- THE NAVIGATION AND SHOAL SIGNS SHALL HAVE THE DIMENSIONS AND MESSAGES SHOWN. THERE ARE TWO SIGNS PER PILE FOR NAVIGATIONAL SIGNS AND ONE SIGN PER PILE FOR SHOAL SIGNS. THE CONTRACTOR SHALL CONFIRM WITH THE ENGINEER THE DIRECTION THE SIGNS SHOULD FACE.
- THE SEDIMENT PIPELINE CHANNEL CROSSING MARKER SHALL HAVE THE DIMENSIONS AND MESSAGE SHOWN. THERE IS ONE SIGN PER TWO PILES.
- THE SHOAL SIGNS SHALL BE CONSTRUCTED WITH 125 GAUGE 61TS ALUMINUM, COVERED WITH WHITE, ENGINEER GRADE, REFLECTIVE SHEETING; BLACK SCREENED LETTERING AND DESIGN; AND ORANGE, ENGINEER GRADE, REFLECTIVE BORDER.
- NAVIGATION DAY MARKERS SHALL BE CONSTRUCTED OF 125 GAUGE 61TS ALUMINUM, COVERED WITH THE APPROPRIATE RED OR GREEN SHEETING; BLACK SCREENED LETTERING AND DESIGN; AND APPROPRIATE DARKER RED OR GREEN, ENGINEER GRADE, REFLECTIVE BORDER.
- TIMBER PILING SHALL BE A MINIMUM OF 12 INCHES IN DIAMETER (NOMINAL END) AND OF SUCH LENGTH THAT THE PILE HAVE A MINIMUM OF 40% OF THE PILES TOTAL LENGTH AS BOTTOM PENETRATION AND A MARKER TOP ELEVATION OF 12 FEET ABOVE MEAN HIGH WATER.
- HARDWARE FOR TIMBER CONNECTIONS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH SECTION 811.5 OF THE LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, 2006.
- THE CONTRACTOR HAS THE OPTION OF USING TEMPORARY BUOYS FOR SHOAL AND NAVIGATION SIGNS IN LIEU OF TIMBER PILES. BUOYS MUST BE APPROVED BY THE OWNER AND ENGINEER PRIOR TO MOBILIZATION AND MUST BE TO U.S. COAST GUARD STANDARDS.
- MARKERS, SIGNS, AND SUPPORTS SHALL BE REMOVED AND PROPERLY DISPOSED OF PRIOR TO DEMOBILIZATION. IF PILES CANNOT BE REMOVED COMPLETELY, THEY MUST BE REMOVED TO 10 FEET BELOW THE EXISTING MUDLINE.



REV.	DATE	DESCRIPTION	BY
01	01/11/12	ADDENDUM E	MTP



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**COASTAL PROTECTION AND
RESTORATION AUTHORITY**
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

DRAWN BY: DARTEZ / ZWERNEMAN DESIGNED BY: MICHAEL T. POFF, P.E.

RIVERINE SAND MINING /
SCOFIELD ISLAND RESTORATION

STATE PROJECT NUMBER: BA-40

FEDERAL PROJECT NUMBER: BA-40

APPROVED BY: MAURY CHATELLIER, P.E.

SEDIMENT PIPELINE
MARKER / NAVIGATION AND
SHOAL SIGN DETAILS

DATE: AUGUST 2011

SHEET 37 OF 57

FLOTATION CHANNEL ALIGNMENT

PI NUMBER	STATION	NORTHING	EASTING	LATITUDE	LONGITUDE	BEARING TO NEXT PI	DEFLECTION	DEFLECTION TO LEFT OR RIGHT	DISTANCE TO NEXT PI
FC-01	00+00.00	272,759.95	3,846,211.06	29°14'16.7644" N	89°33'38.3100" W	N 03°44'00.97" E			1,099.86'
FC-02	10+99.86	273,857.47	3,846,282.70	29°14'27.6172" N	89°33'37.3101" W	N 30°34'52.66" W	34°18'53.63"	LEFT	1,376.46'
FC-03	24+76.32	275,042.48	3,845,582.41	29°14'39.4541" N	89°33'45.0069" W	N 27°07'45.52" W	03°27'07.14"	RIGHT	1,050.67'
FC-04	35+26.99	275,977.56	3,845,103.30	29°14'48.7832" N	89°33'50.2513" W	N 26°38'46.06" W	00°28'59.46"	RIGHT	493.19'
FC-05	40+20.18	276,418.37	3,844,882.12	29°14'53.1802" N	89°33'52.6709" W	N 03°16'21.15" E	29°55'07.21"	RIGHT	278.81'
FC-06	42+98.99	276,696.72	3,844,898.03	29°14'55.9331" N	89°33'52.4428" W	N 45°01'01.45" E	41°44'40.29"	RIGHT	236.27'
FC-07	45+35.26	276,863.74	3,845,065.15	29°14'57.5608" N	89°33'50.5274" W	N 80°19'01.11" E	35°17'59.66"	RIGHT	330.99'
FC-08	46+66.25	276,919.41	3,845,391.42	29°14'58.0619" N	89°33'46.8351" W	S 61°35'58.56" E	38°05'00.33"	RIGHT	775.09'
FC-09	56+41.34	276,550.75	3,846,073.22	29°14'54.3085" N	89°33'39.2040" W	S 61°03'31.18" E	00°32'27.38"	RIGHT	504.14'
FC-10	61+45.48	276,306.80	3,846,514.40	29°14'51.8261" N	89°33'34.2671" W	S 61°03'31.18" E	00°00'00.00"	--	558.26'
FC-13	67+03.74	276,036.65	3,847,002.94	29°14'49.0772" N	89°33'28.8004" W	N 71°40'39.37" E	47°15'49.45"	LEFT	539.88'
FC-14	72+43.62	276,206.37	3,847,515.44	29°14'50.6785" N	89°33'22.9862" W	S 69°41'19.18" E	38°38'01.45"	RIGHT	532.40'
FC-15	77+76.02	276,021.56	3,848,014.74	29°14'48.7725" N	89°33'17.3831" W	S 69°53'29.80" E	00°12'10.62"	LEFT	500.17'
FC-16	82+76.19	275,849.60	3,848,484.23	29°14'46.9982" N	89°33'12.1143" W	S 69°07'34.62" E	00°45'55.18"	RIGHT	209.77'
FC-17	84+85.96	275,774.86	3,848,680.43	29°14'46.2282" N	89°33'09.9130" W	S 69°47'51.11" E	00°40'16.48"	LEFT	503.53'
FC-18	89+89.49	275,600.97	3,849,152.98	29°14'44.4343" N	89°33'04.6100" W	S 78°49'06.00" E	09°01'14.89"	LEFT	500.38'
FC-19	94+89.87	275,503.93	3,849,643.86	29°14'43.3982" N	89°33'59.0867" W	S 78°35'59.15" E	00°13'06.85"	RIGHT	500.31'
FC-20	99+90.18	275,405.04	3,850,134.30	29°14'42.3437" N	89°33'53.5688" W	S 78°52'46.39" E	00°16'47.24"	LEFT	500.40'
FC-21	104+90.58	275,308.53	3,850,625.30	29°14'41.3126" N	89°33'48.0441" W	S 78°40'00.14" E	00°12'46.25"	RIGHT	500.33'
FC-22	109+90.91	275,210.21	3,851,115.88	29°14'40.2636" N	89°33'42.5246" W	S 79°07'54.36" E	00°27'54.22"	LEFT	500.49'
FC-23	114+91.40	275,115.84	3,851,607.39	29°14'39.2536" N	89°33'36.9936" W	S 78°53'41.96" E	00°14'12.40"	RIGHT	500.41'
FC-24	119+91.81	275,019.46	3,852,098.43	29°14'38.2236" N	89°33'31.4687" W	S 78°36'40.35" E	00°17'01.61"	RIGHT	500.31'
FC-25	124+92.12	274,920.66	3,852,588.89	29°14'37.1696" N	89°33'25.9507" W	S 78°47'35.38" E	00°10'55.03"	LEFT	500.37'
FC-26	129+92.49	274,823.41	3,853,079.72	29°14'36.1311" N	89°33'20.4282" W	S 82°43'30.74" E	03°55'55.36"	LEFT	502.88'
FC-27	134+95.37	274,759.73	3,853,578.56	29°14'35.4234" N	89°33'14.8095" W	S 82°38'57.47" E	00°04'33.27"	RIGHT	502.81'
FC-28	139+96+18	274,695.40	3,854,077.24	29°14'34.7093" N	89°33'09.1927" W	S 82°32'33.94" E	00°06'23.53"	RIGHT	502.71'
FC-29	145+00.89	274,630.16	3,854,575.70	29°14'33.9860" N	89°33'03.5785" W	S 82°41'03.92" E	00°08'29.89"	LEFT	502.85'
FC-30	150+03.74	274,566.13	3,855,074.45	29°14'33.2747" N	89°33'17.9608" W	S 85°36'01.29" E	02°54'57.37"	LEFT	865.88'
FC-31	156+69.62	274,499.70	3,855,937.78	29°14'32.4828" N	89°33'14.8229" W	S 40°25'47.02" E	45°10'14.27"	RIGHT	798.62'
FC-32	166+68.24	273,891.79	3,856,455.70	29°14'26.3848" N	89°33'14.4918" W	S 40°29'38.49" E	00°03'51.47"	LEFT	939.56'
FC-33	176+07.80	273,177.28	3,857,065.82	29°14'19.2171" N	89°33'15.7332" W	S 07°03'50.63" E	47°33'29.11"	RIGHT	1,180.34'
FC-34	187+88.14	272,005.90	3,856,920.66	29°14'07.6450" N	89°33'17.5798" W				
FC-11	190+00.00	276,062.00	3,846,957.09	29°14'49.3351" N	89°33'29.3134" W	S 14°38'57.85" W			1068.27'
FC-12	200+68.00	275,028.46	3,846,686.92	29°14'39.1461" N	89°33'32.5433" W				

SETTLEMENT PLATES

DESIGNATION	NORTHING	EASTING	LATITUDE	LONGITUDE
SP-01	275,788.40	3,846,221.05	29°14'46.7398" N	89°33'37.6686" W
SP-02	275,257.13	3,847,618.43	29°14'41.2667" N	89°33'21.9900" W
SP-03	274,168.60	3,851,278.68	29°14'29.9283" N	89°32'40.8706" W
SP-04	273,323.65	3,854,161.31	29°14'21.1181" N	89°32'08.4867" W
SP-05	272,852.87	3,856,310.73	29°14'16.1237" N	89°31'44.31255" W

ISLAND SURVEY BASELINE ALIGNMENT

PI NUMBER	STATION	NORTHING	EASTING	LATITUDE	LONGITUDE	BEARING TO NEXT PI	DEFLECTION	DEFLECTION TO LEFT OR RIGHT	DISTANCE TO NEXT PI
SBI-1	0+00.00	275,598.21	3,843,545.11	29°14'45.2660" N	89°34'07.9040" W	S 68°24'27.16" E			4,500.00'
SBI-2	45+00.00	273,942.22	3,847,729.26	29°14'28.2342" N	89°33'20.9693" W	S 76°35'10.93" E	08°10'43.77"	LEFT	10,500.00'
SBI-3	150+00.00	271,506.42	3,857,942.90	29°14'02.5413" N	89°33'26.1325" W				

CONTAINMENT DIKE (CDN)

PI NUMBER	NORTHING	EASTING	LATITUDE	LONGITUDE	BEARING TO NEXT PI	DEFLECTION	DEFLECTION TO LEFT OR RIGHT	DISTANCE TO NEXT PI
CDN-01	275,955.44	3,845,717.25	29°14'48.4703" N	89°33'43.3257" W	N 33°25'27.46" E			545.23'
CDN-02	276,410.93	3,846,017.87	29°14'52.9330" N	89°33'39.8532" W	S 62°43'06.96" E	83°51'25.58"	RIGHT	502.47'
CDN-03	276,180.62	3,846,464.45	29°14'50.5848" N	89°33'34.8530" W	S 62°05'35.06" E	00°37'31.90"	RIGHT	392.21'
CDN-04	275,997.05	3,846,811.05	29°14'48.7146" N	89°33'30.9731" W	S 14°38'57.85" W	76°44'32.92"	RIGHT	968.50'
CDN-05	275,080.04	3,846,566.11	29°14'39.4773" N	89°33'33.9014" W	S 44°59'05.73" W	30°20'07.88"	RIGHT	171.46'
CDN-06	274,938.76	3,846,444.91	29°14'38.2954" N	89°33'35.2905" W				
CDN-07	274,745.96	3,846,791.08	29°14'36.3339" N	89°33'31.4171" W	N 03°47'49.97" E			251.47'
CDN-08	274,996.86	3,846,807.73	29°14'38.8151" N	89°33'31.1854" W	N 14°38'57.85" E	10°51'07.89"	RIGHT	954.57'
CDN-09	275,920.41	3,847,049.15	29°14'47.9195" N	89°33'28.2991" W	N 72°00'09.13" E	57°21'11.28"	RIGHT	472.47'
CDN-10	276,066.39	3,847,498.50	29°14'49.2956" N	89°33'23.2019" W	S 70°02'11.33" E	37°33'48.05"	RIGHT	500.20'
CDN-11	275,895.61	3,847,968.64	29°14'47.5329" N	89°33'17.9254" W	S 69°31'41.44" E	00°30'29.89"	RIGHT	500.03'
CDN-12	275,720.73	3,848,437.09	29°14'45.7299" N	89°33'12.6689" W	S 68°59'10.55" E	00°32'30.90"	RIGHT	229.91'
CDN-13	275,638.29	3,848,651.71	29°14'44.8808" N	89°33'10.2611" W	S 69°55'08.96" E	00°55'58.43"	LEFT	503.40'
CDN-14	275,465.45	3,849,124.51	29°14'43.0972" N	89°33'04.9552" W	S 78°43'27.23" E	08°48'18.25"	LEFT	500.35'
CDN-15	275,367.61	3,849,615.20	29°14'42.0532" N	89°32'59.4342" W	S 78°13'21.00" E	00°30'06.23"	RIGHT	500.20'
CDN-16	275,265.52	3,850,104.87	29°14'40.9672" N	89°32'53.9255" W	S 76°47'04.93" E	00°33'43.93"	LEFT	500.37'
CDN-17	275,168.20	3,850,595.69	29°14'39.9281" N	89°32'48.4031" W	S 78°12'18.15" E	00°34'46.78"	RIGHT	500.20'
CDN-18	275,065.95	3,851,085.32	29°14'38.8405" N	89°32'42.8948" W	S 79°47'11.65" E	01°19'14.61"	LEFT	497.03'
CDN-19	274,977.82	3,851,574.48	29°14'37.8925" N	89°32'37.3896" W	S 78°58'12.66" E	00°33'20.10"	RIGHT	500.43'
CDN-20	274,882.08	3,852,065.67	29°14'36.6688" N	89°32'31.8628" W	S 78°07'43.77" E	00°50'28.89"	RIGHT	500.18'
CDN-21	274,779.18	3,852,555.15	29°14'35.7746" N	89°32'26.3565" W	S 78°42'50.93" E	00°35'07.16"	LEFT	500.35'
CDN-22	274,681.26	3,853,045.82	29°14'34.7293" N	89°32'20.8360" W	S 82°50'14.35" E	04°07'23.41"	LEFT	502.99'
CDN-23	274,618.55	3,853,544.89	29°14'34.0312" N	89°32'15.2145" W	S 82°45'16.48" E	00°04'57.87"	RIGHT	502.91'
CDN-24	274,555.12	3,854,043.78	29°14'33.3259" N	89°32'09.5951" W	S 82°20'23.61" E	00°24'52.87"	RIGHT	502.53'
CDN-25	274,488.13	3,854,541.83	29°14'32.5855" N	89°32'03.9859" W	S 82°39'20.64" E	00°18'57.03"	LEFT	502.82'
CDN-26	274,423.86	3,855,040.52	29°14'31.8717" N	89°31'58.3690" W	S 86°14'25.80" E	03°35'05.16"	LEFT	864.98'
CDN-27	274,367.14	3,855,903.64	29°14'31.1760" N	89°31'48.6378" W	S 40°18'54.85" E	45°55'30.95"	RIGHT	1,575.94'
CDN-28	273,165.49	3,856,923.27	29°14'19.1227" N	89°31'37.3441" W	S 07°10'12.42" W	47°29'07.27"	RIGHT	1,135.55'
CDN-29	272,038.82	3,856,781.53	29°14'07.9926" N	89°31'39.1441" W				

BOOSTER PUMP LOCATIONS

DESIGNATION	NORTHING	EASTING	LATITUDE	LONGITUDE
NO. 01	319,398.67	3,833,130.51	29°22'00.3977" N	89°35'57.9687" W
NO. 02	317,885.88	3,833,492.86	29°21'45.3690" N	89°35'54.1330" W
NO. 03	313,336.59	3,834,973.78	29°21'00.1155" N	89°35'38.1793" W
NO. 04	304,489.71	3,832,363.16	29°19'32.9358" N	89°36'09.1849" W
NO. 05	297,084.84	3,833,741.28	29°18'19.4324" N	89°35'54.8845" W
NO. 06	284,067.48	3,832,280.09	29°16'10.7988" N	89°36'13.6053" W
NO. 07	281,181.60	3,831,825.33	29°15'42.3009" N	89°36'19.2305" W

NAVIGATION CROSSING LOCATIONS

DESIGNATION	NORTHING	EASTING	LATITUDE	LONGITUDE
NC-01	314,534.83	3,834,747.50	29°21'12.0103" N	89°35'40.5305" W
NC-02	308,911.48	3,835,300.16	29°20'16.2645" N	89°35'35.2511" W
NC-03	295,147.59	3,833,935.67	29°18'00.2274" N	89°35'53.0206" W
NC-04	288,130.57	3,833,192.49	29°16'50.8808" N	89°36'02.6113" W
NC-05	282,957.03	3,832,125.07	29°15'59.8302" N	89°36'15.5445" W
NC-06	280,141.25	3,831,637.16	29°15'32.0311" N	89°36'21.5317" W



				COASTAL ENGINEERING CONSULTANTS, INC. PH: (225) 768-1982 FAX: (225) 769-3596 5745 ESSEN LANE, SUITE 200 BATON ROUGE, LA 70810	SJB GROUP, LLC QUALITY BY DESIGN P.O. BOX 1751 BATON ROUGE, LA. 70821 PHONE (225) 769-3400 FAX (225) 769-3596	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION STATE PROJECT NUMBER: BA-40 FEDERAL PROJECT NUMBER: BA-40 APPROVED BY: MAURY CHATELIER, P.E.	ALIGNMENT TABLES DATE: AUGUST 2011 SHEET 55 OF 5
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ATTACHMENT D

USACE Seeding Specifications - Section 02922 - Turf Establishment and Maintenance

TURF ESTABLISHMENT AND MAINTENANCE

SECTION 02922 – TURF ESTABLISHMENT AND MAINTENANCE

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PART 1 GENERAL

1.1 SCOPE

The work provided herein consists of furnishing all plant, labor, equipment, and materials, as well as performing all operations necessary for establishing turf including fertilization, seeding, mulching and soil amendments on areas as specified herein and as indicated on the drawings. Turf establishment of the embankment shall be performed upon completion of embankment construction (in minimum lengths of 1000-feet).

1.2 RESERVED

1.3 MEASUREMENT

Measurement for fertilizing, soil amendments, seeding, and mulching will be made by the acre. Acreage will be determined from surface areas computed from the theoretical gross cross section of embankment fertilized, amended, seeded and mulched. Measurement will be to the nearest foot and units computed to the nearest one-hundredth of an acre. No separate measurement will be made for placement of material required for any necessary repairs as described in paragraph 2.1.3. The acreage will be used with the rate of application recommended by Soil Testing Laboratory to determine the weight of materials required.

1.4 PAYMENT

Payment for fertilizing, soil amendments, seeding, and mulch measured as described in paragraph 1.3 and other incidental work, except disposal of debris, will be made at the contract (lump sum) price per acre for "Fertilizing, Soil Amendments, Seeding, and Mulching". Prices and payments shall constitute full compensation for furnishing all plant, labor, materials and equipment and performing the work, including any necessary repairs, in accordance with these specifications.

1.5 SUBMITTALS

The Contractor shall submit the following items in accordance with the Section 01330, "SUBMITTAL PROCEDURES".

1.5.1 Herbicide Application Plan

Approved herbicides may be used on areas requiring new turf establishment. At least 30 days prior to application of any herbicide, the Contractor shall furnish an herbicide application plan for review by the Contracting Officer. The Contractor shall ensure that the plan for herbicide applications complies with all applicable local, state, and federal requirements. The plan shall include the following items, as a minimum:

- proposed herbicides and application rates
- copies of herbicide manufacturer's labels and material safety data sheets
- any state-imposed conditions, copies of commercial and/or restricted use herbicide applicators' certificates from the states in which the work is to be performed
- an activity hazard analysis
- environmental protection procedures

- spill containment procedures
- residue and container disposal procedures
- noncompliance reporting and response procedures

1.5.2 Turf Establishment Plan

At least 30 days prior to initiating grass establishment, the contractor shall furnish a Turf Establishment Plan to the Contracting Officer for review and approval. The plan shall include recommendations for fertilizer and/or soil amendment application based upon soil testing results by a certified agronomist. Recommendations based on soil testing results can be from the testing laboratory, state agricultural extension services, or private consultant.

The contractor shall provide the name of the certified agronomy testing laboratory in addition to copies of the levee/embankment material soil analyses as part of the turf establishment plan. Soil analyses will include soil pH, phosphorus, potassium, calcium, magnesium, sodium, sulfur, copper, zinc, chloride, total dissolved salts, conductivity, and sodium absorption ratio.

The contractor shall also provide the name of the certified water analysis laboratory as well as copies of the findings for all proposed water sources, other than municipal water sources, earmarked for grass establishment and irrigation. Water analyses will include pH, alkalinity, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfur, total dissolved salts, conductivity, and sodium absorption ratio.

In addition to the soil amendment and fertilization plan, the turf establishment plan will describe procedures and specific equipment used for ground surface preparation, seeding or alternative establishment methods, and mulching. Unless the approved turf establishment plan contains a variation, the minimum requirements for ground surface preparation, seeding or alternative establishment methods, and mulching contained in this specification will be controlling.

1.5.3 Seed

The Contracting Officer's Representative shall be furnished duplicate signed copies of statements certifying that each container of seed delivered is labeled in accordance with the Federal Seed Act and any Louisiana Department of Agriculture regulations and is at least equal to the requirements specified in paragraph 2.1.3. This certification shall be obtained from the supplier and shall be furnished on or with all copies of seed invoices.

1.5.4 Alternative Turf Establishment Methods

Certification of sod and sprig material from the original supplier/source will be furnished. Material that is rejected by the Contracting Officer will be removed from the job site by the contractor at no cost to the Government..

1.6 QUALITY CONTROL

1.6.1 General

The Contractor shall establish and maintain quality control for all materials and operations performed during the levee/embankment turf establishment. The Contracting Officer will provide quality control records that shall include, but not be limited to, the following:

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- (1) Soil and Water Analyses. Soil and water analysis reports from a certified agronomic laboratory. Water used for irrigation subsequent to establishment shall be tested a minimum of once every 30 days. Soil samples will be taken in according to paragraph 3.1.1 and the test results used to determine weights of fertilizer and soil amendments required.
- (2) Preparation of Ground Surface. Location and quality of finished dressing, including necessary clearing, filling, or dressing out of washes, smoothness and uniformity of surfaces, and time of year.
- (3) Herbicides. Manufacturer's label, MSDS, date of application, rate of application, location and area of application, environmental conditions during herbicide application (e.g. temperature), valid applicator licensing, pesticide safety plan.
- (4) Fertilizing. Quality of fertilizer materials used. Areas fertilized, quantity applied, and method of application. Certificate of analysis and certificate of delivery shall be furnished to verify quality and quantity as specified in paragraph 1.5.2 . The rate of application will be checked daily to insure conformance to soil testing laboratory recommendations.
- (5) Seeding. Seed species and cultivar, seed label, area covered, quantity of seed applied, and method of seed distribution. All bags of seed furnished will have an analysis tag having all information required by the Louisiana Seed Law. Seed furnished shall be from the previous season's crop and the date of analysis shown on each tag shall be within 5 months of time of delivery. Rate of application will be checked daily to insure that the rate confirms to paragraph 3.4.1.
- (6) Mulching. Quality and type of mulch material applied, area covered by the mulch, quantity applied, and method of mulch application. Certificate of delivery showing weight of material delivered for either vegetative or fiber mulch will be furnished to verify rate of application according to paragraph 3.5.1 or 3.5.2.
- (7) Maintenance and Repair. Location and type of maintenance problems and remedial treatment performed according to paragraph 2.1.3 and 3.4.5.
- (8) Water/Irrigation. Water analysis report, area where water was obtained, area where water was applied, purpose of water application (irrigation or used during establishment), quantity applied, and method of application.
- (9) Alternative Turf Establishment Methods. Type of alternative turf establishment method used, certification of vegetative material quality, source of material, quantity of material applied, placing, spacing, covering, and compaction

1.6.2 Reporting

The Contractor shall furnish the original and two copies of the inspection and test records, as

well as “corrective action taken” records, to the Government daily. Format of the report shall be as prescribed in Section 01451, "CONTRACTOR QUALITY CONTROL".

1.7 AREAS TO BE TREATED

Fertilizing, soil amendment, seeding, and mulching shall be performed on all disturbed areas within the construction limits and on all newly constructed embankments as indicated on the drawings except as specified in__ .

1.8 COMMENCEMENT, PROSECUTION, AND COMPLETION

1.8.1 General

Preparation of the ground surface, fertilizing, adding soil amendments, seeding and mulching operations shall be accomplished during the applicable growing season as specified herein.

1.8.2 Sequence of Work

The sequence of operations for work prescribed in this section, except mowing, shall be as follows:

- (1) Soil and Water Analyses
- (2) Preparation of Ground Surface
- (3) Fertilization and Soil Amendments
- (4) Seeding or Alternative Establishment Method
- (5) Mulching
- (6) Irrigation
- (7) Mowing

Fertilizing and seeding operations shall commence upon completion of embankment construction at a length of 1000 feet of embankment. At no time shall such fertilizing, soil amending, seeding, and mulching operations be more than _14 days behind completed portions of embankment unless approved by the Contracting Officer.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Herbicides

Herbicide shall be delivered to the mixing site in original, un-opened containers bearing legible labels indicating the EPA registration numbers and product label. All operations associated with herbicide applications shall be in strict compliance with manufacturer's label, approved herbicide application plan and all local, state, and federal regulations. The Government shall be informed as to the exact date, location and time of herbicide application prior to herbicide use.

2.1.2 Fertilizers and Soil Amendments

Fertilizers and soil amendments in accordance with the approved turf establishment plan (Sec 1.5.2.) shall be of commercial grade, uniform in composition, free flowing and suitable for contractor's application method. Materials shall be delivered in bulk or labeled containers and shall conform to current Louisiana Department of Agriculture requirements for commercial fertilizers and soil amendments. Federal and state government conforming labels that indicate producer's name, type, analysis, weight, and warranty of producer shall accompany each delivery of fertilizer. The Contractor shall provide duplicate signed copies of invoices from suppliers of fertilizer and/or soil amendments showing quantity, grade, and fertilizer analysis indicating percentages of nitrogen (soluble and insoluble), phosphorus, and potassium.

In accordance with the approved turf establishment plan, pulverized or palletized agricultural lime source will be applied prior to planting and incorporated into the top 4 inches of soil. Seventy-five percent will pass a No. 100 sieve and 100 percent will pass a No. 8 sieve. Dolomitic lime may be substituted for lime if magnesium levels are insufficient based on the soil test results.

2.1.3 Soil for Repairs

In areas not suitable for turf establishment due to undulations or rills in the soil surface, these areas shall be repaired using soil that is in accordance with Section 02318 "Excavation" and Section 02332, "Embankment".

2.1.4 Seed

For turf establishment, the Contractor shall furnish and apply *pure live seed in accordance the example of how to calculate PLS in paragraph 3.4.1 and* ~~certified (blue-tag) seed~~ in accordance with regulations from the U.S. Department of Agriculture (under the Federal Seed Act) and the Louisiana Department of Agriculture. Seed must be in sealed or unopened containers prior to initiation of application. Seed that is wet, moldy or otherwise non-viable due to damage in transit or storage will not be accepted. Seed that is older than one year past label germination tests will not be accepted.

2.1.5 Alternate Turf Establishment Methods (Sprigs or Sod)

Sprigs – Bermuda grass/Seashore paspalum sprigs must be healthy viable rhizomes and stolons

that shall be obtained from a certified grower under the regulations of the Louisiana Department of Agriculture. Sprigs should be from a local source (less than 200 miles from the site of work) or other source approved by the Government. Sprigs shall be weed- and disease-free.

Sod – Bermuda grass/Seashore paspalum sod must be healthy and stable and shall be obtained from a certified grower under the regulations of the Louisiana Department of Agriculture. Sod should be from a local source (less than 200 miles) or other source approved by the Government. Sod shall be weed- and disease-free.

2.1.6 Mulch (For use in rural areas only)

Mulch options include threshed straw from a cereal grain such as oats, wheat, barley, rye, or rice; bagasse; grass hay with vegetative overspray ; or wood fiber that shall be furnished and applied by the Contractor. Materials that contain noxious grass or weed seeds that might be detrimental to the seed establishment or turf growth or to adjacent areas will not be acceptable.

2.1.6.1 Wood Cellulose Fiber or Recycled Wood Pulp Mulch (Vegetative Overspray)

If the recycled wood cellulose fiber option is used for capping the mulch, the overspray shall consist of recycled or by-product material made from printer's scrap paper that contains wood cellulose and kaolin clay. The mulch shall be free of substances that reduce seed germination or limits plant growth. In addition, the mulch must have an indicator dye to gauge proper application of the material on the levee/embankment surface. The mulch material shall be supplied in packages having a net weight not in excess of 100 pounds. The wood cellulose mulch fiber shall contain not in excess of 10 percent moisture, air dry weight basis. The wood-cellulose mulch fiber shall be manufactured so that, after addition and agitation with water and any other additives, the fibers in the material are uniformly suspended to form homogeneous slurry. When hydraulically sprayed on the ground, the material will form a blotter-like ground cover, which, after application, allows moisture absorption and rainfall or mechanical watering to percolate to the underlying soil.. The Contractor shall be prepared to submit, on request, certification from the supplier that laboratory and field-testing of the product has been accomplished, and that the product meets the foregoing requirements.

2.1.7 Water Source

Water, applied during establishment and irrigation of grass on the embankment from a water source other than municipal water supply shall be analyzed by a certified water analysis laboratory. The water source shall be tested every 30 days or until operations cease use of water source for irrigation purposes.

In addition to the agronomic tests to determine irrigation water suitability, the contractor should not apply water as irrigation that may contain any substance toxic to plants or that limits plant growth (e.g. oil, acid, alkali, salt, etc.)

PART 3 EXECUTION

3.1 SOIL AND WATER ANALYSIS

3.1.1 Soil Analysis

Soil samples will be collected every 500 linear feet of completed embankment. Soil shall be a composite sample from no less than six random areas to a depth of four inches on the levee/embankment surface. Collected soil shall be mixed within a clean, non-metallic container. All organic matter from existing vegetation shall be removed from the soil sample prior to submission to the testing laboratory.

3.1.2 Water Source Analysis (only if using non-potable water source)

Water samples from borrow canals or similar sites should be collected in duplicate in the volume of one liter (per sample) in a clean plastic container for analysis by a certified agronomic water analysis laboratory. Debris such as sediment and algae must be limited within the sample.

3.2 PREPARATION OF GROUND SURFACE

3.2.1 General

Equipment, in good condition, shall be provided for the proper ground preparation and for handling and placing all materials. The Contracting Officer shall inspect and approve equipment before work is initiated as part of the turf establishment plan.

3.2.2 Vegetative and Debris Removal

Prior to soil preparation, existing vegetation shall be removed. Vegetation removal may be accomplished through mowing (scalping) or herbicide application. Any debris or material (e.g. clippings) that may hinder seed germination or limit plant growth should be removed as specified in Section 31 11 00.0012, paragraph Disposal of Debris. If an herbicide is to be applied, an herbicide plan shall be submitted and approved by the Contracting Officer prior to herbicide application (paragraph 1.5.1).

3.2.3 Grading

Previously established levee/embankment grades and slopes shall be maintained in a true and even condition on the areas to be established with turf. Necessary repairs to previously graded areas with undulations or irregularities in the surface shall be accomplished with material as described in paragraph 2.1.3 (Soil for Repairs). The material shall be placed and compacted in accordance with Section 31 24 00.00 12, paragraph Embankment (and Berm) Construction. Where grades have not been established, the areas shall be graded as shown, or as directed by the Contracting Officer, and all surfaces shall be left in a true and even condition. The Contracting Officer's Representative shall conduct a Pre-Turfing inspection prior to turfing operation commencing.

3.2.4 Soil Preparation

Soil shall be tilled to a depth of 4 inches by plowing, disking, harrowing, or other approved method in the turf establishment plan in order to provide an acceptable seed bed. The soil preparation shall be performed only during periods acceptable for turf establishment, in the opinion of the Contracting Officer's Representative. Environmental conditions that may constitute unacceptable periods for soil preparation include, but are not limited to, drought, high winds, excessive moisture, etc. The work shall cease until conditions are more favorable for turf establishment. Any additional soil repair must be completed prior to turf establishment.

3.3 APPLICATION OF FERTILIZER AND SOIL AMENDMENTS

Adjustment of soil nutrient levels will be in accordance with the approved turf establishment plan as outlined in section 1.5.2 (Turf Establishment Plan). Unless otherwise specified in the approved plan, initial fertilizers and soil amendments applications will be incorporated into the top four inches of soil prior to seeding, sprigging or sodding.

3.3.2 Nitrogen

In accordance with the approved turf establishment plan, nitrogen shall be incorporated to a depth of 4 inches prior to seeding. Nitrogen shall be applied at 45 lbs per acre in a slow-release form.

3.3.2 Soil pH

Soil pH shall be between 5.5 and 8.0. If the soil pH is outside of this range, one of the following amendments shall be added to adjust the soil pH.

3.3.2.1 Increasing Soil pH

A pulverized or palletized agricultural lime source shall be applied prior to planting and incorporated into the top 4 inches of soil. The rate of lime application shall be as specified in the approved turf establishment plan. Dolomitic lime may be substituted for lime if magnesium levels are insufficient per the soil test results.

3.3.2.2 Reduce Soil pH

Agricultural grade elemental sulfur shall be applied, as specified in the approved turf establishment plan, prior to planting. Elemental sulfur shall be incorporated into the top four inches of soil.

3.4 SEEDING

3.4.1 General

The applicable seed shall be sown at the rate and time as indicated in the table below, unless otherwise specified in the approved turf establishment plan. A satisfactory method of sowing shall be employed; using approved mechanical power-drawn seeders, mechanical hand- seeders, broadcast-seeders, or other approved methods. When delays in operations extend the work beyond the most favorable planting season for the species designated, or when conditions are such by reason of drought, high winds, excessive moisture, or other factors that satisfactory results are not likely to be obtained, work shall be stopped as directed by the Contracting

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Officer's Representative and resumed only when conditions are favorable for turf establishment or when approved alternative or corrective measures and procedures have been completed. If inspection during or after seeding operations indicates that areas have been left unplanted or other areas have not been adequately addressed, additional seed shall be applied if so directed by the Contracting Officer's Representative.

Rates and timings of seed application will be in accordance with the guidelines below:

March 1 to September 1 - hulled common bermuda grass – 65 lbs (min) of PLS / acre

OR

seashore paspalum – 65 lbs (min) of PLS / acre

September 1 to March 1 - unhulled common bermuda grass – 65 lbs (min) of PLS / acre

annual, intermediate or perennial ryegrass–70 lbs (min) of PLS / acre

Hulled bermuda grass may be planted in the month of February if soil temperatures are in excess of 65 F for a minimum of 7 consecutive days.

PLS (Pure Live Seed) = (label germination rate x label purity) x 100

Example of how to calculate PLS:

PLS = (0.95 germination rate x 0.85 purity) x 100

PLS = 81 %

Therefore to plant 1 lb PLS you will need 1.19 lbs of seed

3.4.2 Broadcast Seeding

If the broadcast method of seeding is used, seed shall be broadcast with approved sowing equipment and distributed uniformly over designated areas at the appropriate seeding rates. After broadcast seeding, seed shall be covered to an average depth of 1/4-inch using a brush, harrow, spike-tooth harrow, chain harrow, cultipacker, or other approved device. Seed shall not be broadcast during windy or inclement weather.

3.4.3 Hydro-Seeding

If the hydro-seeding method is used, seeds shall be combined with mulch and applied uniformly with approved equipment. Mulch guidelines (paragraph 3.5.) shall be followed with greater than 85% of the ground covered.

3.4.4 Alternate Turf Establishment Methods

3.4.4.1 Sprigs

Certified sprigs should be planted at a rate of 150 bushels per acre. Sprigs should be tilled, sliced, or disked into the upper 3 inches of soil. No mulching is required.

3.4.4.2 Sod

Certified Sod should be planted in rows parallel to the levee centerline with perpendicular seams

staggered (e.g. brick-like pattern). Stabilizing aids such as staples may be used to prevent sod sloughing. No mulching is required.

3.4.5 Damage to Established Seeding Area

The Contractor shall be fully responsible for any damage to the establishment areas caused by his/her operations. Areas that become damaged as a result of poor workmanship or failure to meet the requirements of the specifications shall be ordered repaired and reseeded to specification requirements, without any additional cost to the Government.

3.5 APPLYING AND ANCHORING MULCH

Application of mulch will follow these guidelines unless otherwise specified in the approved turf establishment plan.

3.5.1 Applying Mulch

The mulch shall be vegetative non-asphalt mulch consisting of grain straw (oats, wheat, or rice) or grass hay. Mulch, as specified in paragraph 2.1.6, shall be applied uniformly on the soil surface at the rate of 2 tons (approximately 80 bales) per acre. Mulching shall be done immediately after seeding. Mulch shall be tacked by spraying with emulsified tackifier conforming to paragraph 2.1.6.1 at the rate of 150 gallons per ton of mulch. The mulch shall be applied by means of approved equipment.

3.5.2 Wood Cellulose Fiber Mulch or Recycled Wood Pulp

Wood cellulose fiber or recycled wood pulp mulch, as specified in paragraph 2.1.6 (Mulch), shall be applied uniformly on the soil at the rate of 2200 to 2500 pounds per acre during the seeding operation with approved equipment.

3.6 Irrigation Application During Turf Establishment

Unless the Contracting Officer's Representative concurs that acceptable levels from precipitation have occurred to support grass establishment, irrigation will be applied one to two days after seeding or other turf establishment method used. Irrigation shall be applied at least 2 times per week for a period of 28 days unless otherwise directed by the Contracting Officer's Representative based upon natural rainfall. The application of water must sufficiently moisten at least the top 2 inches of soil with each irrigation event. The application of water in excess, so that surface runoff occurs, is prohibited.

3.7 MOWING

3.7.1 New Turf Establishment Areas

Turf areas established under this contract shall be mowed with approved mowing equipment to a height of 3 to 4-inches whenever the height of the vegetation is in excess of 12 inches. Debris created from mowing (e.g. clippings) that will be detrimental to turf growth or inhibit turf establishment shall be removed. The Contractor shall perform periodic and final grass mowing within the limits of work until the contract final inspection is held with the sponsor and they accept the levee as suitable.

3.7.2 Existing Turf Maintenance

For the duration of the contract, the Contractor shall maintain existing turf within the limits of work where new embankment is not required, and where new embankment is required but has not yet been placed. Same requirements as paragraph 3.7.1 above.

3.8 Inspections and Reports

After initial planting, the Contractor shall inspect newly turfed areas at least once every two weeks. For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, names of personnel making the inspection, inspection date, height of vegetation, observations and conclusions, maintenance performed, and corrective actions, if required. The report shall be furnished to the Contracting Officer's Representative within 24 hours of the inspection as a part of the Contractor's daily QC Report.

3.9 Replanting

Approximately one month after initial planting, the Contractor shall restore any eroded areas and perform soil preparation, fertilize, replant and mulch all bare spots larger than 100 square feet in accordance with the requirements of this specification, all at no additional cost to the Government.

3.10 Post-planting Fertilizer Application

For those areas that do not require replanting, approximately one month after the initial planting, fertilizer shall be applied at the minimum rate of 45 lbs per acre of a slow-release nitrogen shall be applied with irrigation or rainfall occurring within 24 hours.

3.11 Establishment

Turf will be considered established and completed when the areas to be turfed have produced the required grass species over a minimum of 75 percent of the entire area as determined by the Contracting Officer's Representative by random sampling. Seventy-five percent coverage shall be confirmed by the use a 1 meter square constructed from PVC with 100 blocks of 100cm² (10 cm grid). In order for the method to be non-bias, measurements using the apparatus should be conducted on random areas selected prior to grass establishment. Measurements should be made on both sides of the levee every 100 to 250 feet. If 25 squares are not filled with the desired intended vegetative species; that section of the levee would be deemed unacceptable

3.12 Inspection and Acceptance

Acceptance inspections of the entire turfed area shall be performed by the Contracting Officer's Representative by random sampling and supplemented by visual inspections. Bare areas with diameters larger than 24 inches are to be considered unacceptable. This measurement would supersede the first criteria for vegetative acceptance. These areas should be noted for repairs. If inspection determines that turf establishment is not complete, the Contractor shall meet with the Contracting Officer's Representative at the job site to identify bare spots, eroded areas and rutting damage and to discuss the Contractor's plan of operation for completing new turf establishment.

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Prior to acceptance of turfed areas by the Contracting Officer's Representative, the contractor shall restore any damaged areas resulting from the contractor's operations or by natural forces at no additional cost to the Government. Partial reaches will not be accepted unless determined by the Contracting Officer's Representative to be in the best interest of the Government.