

**BID PACKAGE
FOR
NORTH LAKE MECHANT LANDBRIDGE
RESTORATION PROJECT (TE-44)**

TERREBONNE PARISH, LOUISIANA



**LOUISIANA
DEPARTMENT OF NATURAL RESOURCES
COASTAL ENGINEERING DIVISION**

JANUARY 2008

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DREDGE DATA SHEET

NOTE: All bids should be accompanied by *Dredge Data Sheets*. The Contractor shall complete the following data sheets for the dredge proposed to perform the work under this contract. The dredge data sheet submittal shall constitute a certification that the described plant is available to, and under control of, the Contractor.

The Dredge Data Sheet is for informational purposes only and will not be used as a basis for award. The information submitted in the form is pertinent to the evaluation of the proposed dredges as to their capability of performing the work as required and as agreed to by the bidder through the submittal of a proposal. The bidder may only omit data or information that he considers proprietary.

DREDGE INFORMATION:

Owned: _____ Leased: _____ Leased From: _____

Dredge name: _____

Minimum width of channel in which dredge can successfully operate and make a 180 degree turn: _____

Maximum draft of dredge: _____

Loaded freeboard: _____

Minimum depth in which the dredge can successfully operate: _____

Depth range to which dredge will dig:

Maximum: _____, Minimum: _____

Maximum effective dredge swing, in degrees: _____

Length of dredge spuds: _____

Length and beam of dredge hull: _____

Length of dredge ladder: _____

Length of suction and boat lines: _____

Inside diameter of pump discharge: _____

Inside diameter of pump suction inlet: _____

Suction lift (Elevation of main dredge pump relative to the water surface level): _____

Diameter of pump impeller eye: _____

Outside diameter of pump impeller: _____

Brake horsepower and corresponding engine RPMs (during dredging operations) applied to pump impeller at rated drive of the prime mover, during dredging operations: _____

Cutter head type and diameter: _____

Brake horsepower applied to cutter head during dredging operations: _____

Pump engine(s) horsepower and corresponding RPM: _____

Completion date of each dredge pump engine re-build: _____

Type(s) of production rate monitoring equipment on-board the dredge (measuring cy/hr of material dredged): _____

THE DREDGE MAY BE INSPECTED AT (List location of equipment):

DREDGE OWNER INFORMATION:

Firm name _____

Point of contact _____

Title _____

Business address: _____

Street _____

City _____

Parish/County _____

State _____ Zip+4 _____

Telephone no. (_____) _____ Facsimile no. (_____) _____

PART I GENERAL PROVISIONS

GP-1 DEFINITION OF TERMS

Whenever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to the singular or plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

1. Addenda: Those written or graphic instruments issued prior to opening of Bids in accordance with the Bidding Requirements which clarify or change the bidding requirements or the proposed Contract Documents.
2. Agreement: The written instrument signed by both Owner and Contractor covering the Work and which lists the Contract Documents in existence on the Effective Date of the Agreement including all addenda and documentation pertaining to the Bid, Notice of Award, Bonds, General Provisions, Special Provisions, Technical Specifications, and Plans.
3. Application of Payment: The form acceptable to Owner which is used by the Contractor in requesting progress and final payments and which is accompanied by such supporting documentation as is required by the Contract Documents.
4. A.S.T.M.: American Society for Testing Materials.
5. Bid: An offer or proposal submitted on the prescribed form setting forth the prices for the Work.
6. Bidding Documents: The Bidding Requirements and the proposed Contract Documents (including all Addenda).
7. Bidding Requirements: The Advertisement or Invitation to Bid, Instruction to Bidders, Form of Bid Security, if any, and Bid Form with any supplements.
8. Change Order: A document recommended by Engineer which is signed by the Owner and Contractor and authorizes an addition, deletion, revision to the Contract Documents or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
9. Claim: A written demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both or other relief with respect to the terms of the Contract.
10. Contract: The entire and integrated written agreement between the Owner and the Contractor concerning the work to be performed. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

11. Contract Bond: (Also referred to herein as “Performance/ Payment Bond”) The approved form of security furnished by the Contractor and his surety for the faithful performance of the Work and the payment for all labor, materials, and/ or obligations incurred by him in the prosecution thereof.
12. Contract Documents: Those items listed in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Files in electronic media format of text, data, graphics, and the like are not Contract Documents, and may not be relied on by the Contractor. Approved Shop Drawings and other Contractor’s submittals are not Contract Documents.
13. Contract Price: The moneys payable by the Owner to the Contractor for the Work in accordance with the Contract Documents as stated in the Agreement.
14. Contract Time: The times stated in the Agreement by which the Work must be completed.
15. Contractor: The person, association of persons, firm or corporation entering into the duly awarded Contract.
16. Contracting Agency: The Louisiana Department of Natural Resources (DNR) acting through the Division of Administration.
17. Day: Constituting a calendar day of 24 hours measured from midnight to the next midnight.
18. Drawings: That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, intent, and character of the Work to be performed or furnished by the Contractor.
19. Effective Date of the Agreement: The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
20. Engineer: The Louisiana Department of Natural Resources, Coastal Engineering Division.
21. Equipment: All machinery, implements, and power-tools, in conjunction with the necessary supplies for the operation, upkeep, maintenance, and all other tools and apparatuses necessary for the proper construction and acceptable completion of the Work.
22. Extension of Contract: Any extension of time for completion of the Work beyond the Contract Time granted by the Owner and upon recommendation of the Engineer.
23. Field Order: A written order issued by the Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or Contract Times.
24. Inspector: An authorized representative of the Engineer assigned to make inspections of the Work completed and material furnished by the Contractor.
25. Laboratory: The testing laboratories designated by the Engineer.

26. Laws and Regulations; Laws or Regulations: Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
27. Materials: Any substance used with the construction of any structure, not including material used in false work or other temporary structures not incorporated in the improvements.
28. Milestone: A principal event specified in the Contract Documents relating to an intermediated completion date or time prior to the Contract Times.
29. Notice to Proceed: The written notice given by Owner to Contractor fixing the date the Contract Times commence to run and on which the Contractor shall start to perform under the Contract.
30. Owner: The Owner is the State of Louisiana (State), acting through its agent, the Department of Natural Resources.
31. Plans or Plan Drawings: The part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, intent, and character of the Work to be completed or furnished by the Contractor.
32. Point of Destination: The specific address of the location where delivery of the Submittals shall be made as stated in the Agreement.
33. Right-of-way: The entire area reserved for constructing, maintaining and protecting the proposed improvement, structures, and appurtenances.
34. Samples: Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portions of the Work will be judged.
35. Shop Drawings: All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for the Contractor and submitted by the Contractor to illustrate some portion of the Work to be performed.
36. Site of Work: The location where the Work to be performed will be constructed as stated in the Agreement.
37. Specifications: That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards and workmanship as applied to the work to be performed and certain administrative details applicable thereto.
38. State: The State of Louisiana.
39. Structures: Bridges, plugs, weirs, berms, dams, levees, and other miscellaneous construction encountered during the Work and not otherwise classified herein.
40. Subcontractor: Any person, association of persons, firm, or corporation who contracts with the Contractor to perform any part of the project covered by the Contract.

41. Successful Bidder: The lowest responsible Bidder submitting a responsive Bid, to whom the Owner makes an award.
42. Supplemental Conditions: That part of the Contract Documents which amends or supplements these General Provisions.
43. Surety: The corporate body, licensed to do business in Louisiana, bound with and for the Contractor's primary liability, and engages to be responsible for payment of all obligations pertaining to acceptable performance of the Work contracted.
44. Temporary Structures: Any non-permanent structure required while engaged in the prosecution of the Contract.
45. Written Amendment: A written statement modifying the Contract Documents, signed by the Owner and the Contractor on or after the Effective Date of the Agreement and normally dealing with the administrative aspects of the Contract Documents.
46. Work: All work specified herein or indicated on the Plans as the recommended improvement.

GP-2 EXAMINATION OF BIDDING DOCUMENTS

It is the responsibility of each Bidder before submitting a Bid to:

1. Examine and carefully study the Bidding Documents, including any Addenda and the related data identified in the Bidding Documents.
2. If specified, or if, in Bidder's judgment, any local condition may affect cost, progress or the furnishing of the Work, visit the Point of Destination to become familiar with the local conditions;
3. Become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or the furnishing of the Work;
4. Carefully study and correlate the information known to Bidder, and information and observations obtained from Bidder's visits, if any, to the Point of Destination, with the Bidding Documents;
5. Promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and
6. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for furnishing the requested work.

The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of these Specifications, that without exception the Bid is premised upon furnishing the Work which is required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for furnishing the requested work.

GP-3 MANDATORY PRE-BID CONFERENCE

A pre-bid conference will be held at a date, time, and location as specified in the Notice to Bidders. Representatives of the Owner and Engineer will be present to discuss the Work. Bidders are required to attend and participate in the conference. Failure to attend the Pre-Bid Conference will result in a null or void Bid. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective. **All questions are to be submitted to Jerry Carroll or Sue Lambert by fax at (225) 342-9417 within three (3) business days after the pre-bid conference. No additional questions shall be received after this time. For additional information regarding this requirement, you may contact Jerry Carroll, P.E. at (225) 342-1346.**

GP-4 NOTICE TO PROCEED

The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

GP-5 ENGINEER AND AUTHORITY OF ENGINEER

Engineer will be the designated representative of the Owner and will be the initial interpreter of the Contract Documents and judge of the acceptability of the Work. Claims, disputes, and other matters relating to the acceptability of the Work or to the interpretation of the requirements of the Contract Documents pertaining to the Contractor's performance will be referred initially to Engineer in writing, with a request for a formal decision in accordance with this paragraph.

Engineer will issue with reasonable promptness such written clarifications or interpretations of the Contract Documents as Engineer may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. Such written clarifications and interpretations will be binding on the Owner and the Contractor. If either the Owner or the Contractor believes that a written clarification or interpretation justifies an adjustment in the Contract Price or Contract Times, either may make a Claim therefore.

Engineer will have the authority to disapprove or reject the Work which Engineer believes to be non-conforming. All Work to be ordered to be suspended or resumed will be in writing and will include the reasons for suspension. The Engineer will have the authority to suspend the Work in whole or in part due to: failure of the Contractor to correct conditions unsafe for workmen or the general public, for failure to carry out provisions of the Contract, or for failure to carry out orders.

The Engineer shall keep a daily record of weather and flood conditions and may suspend the Work for such periods as he deemed necessary due to unsuitable weather, for conditions considered unsuitable for prosecution of the Work, or for any other condition or reason deemed to be in the public interest.

GP-6 PROGRESS SCHEDULE

Within 15 days after the Notice to Proceed, the Contractor shall submit to the Owner and Engineer an acceptable progress schedule of activities, including at a minimum, Plan Drawing and Sample submittals,

tests, and deliveries as required by the Bid Documents. No progress payment will be made to the Contractor until an acceptable schedule is submitted to the Owner and Engineer.

The progress schedule will be acceptable to the Owner and Engineer if it provides an orderly progression of the submittals, tests, and deliveries for completion within the specified Milestones and the Contract Times. Such acceptance will not impose on the Owner or Engineer responsibility for the progress schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve the Contractor from the Contractor's full responsibility therefore. Such acceptance shall not be deemed to acknowledge the reasonableness and attainability of the schedule.

GP-7 PRE-CONSTRUCTION CONFERENCE

A Pre-Construction Conference shall be held by the Contractor, Owner, Engineer and other appropriate personnel prior to starting construction on the date specified in the Notice to Proceed. This conference shall serve to establish a mutual understanding of the Work to be performed, the elements of the Progress Schedule and Work Plan, expectations for weekly progress meetings, the Plans and Specifications, processing Applications for Payment, and any other items of concern.

GP-8 CONTRACT INTENT

The Contract Documents and Bid Documents are complementary; what is called for by one is as binding as if called for by all. Clarifications and interpretations of, or notifications of minor variations and deviations in, the Contract Documents, will be issued by Engineer as provided in Section "GP-5 Engineer And Authority Of Engineer".

Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Bid Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided, whether or not specifically called for, at no additional cost to the Owner.

GP-9 LAWS AND REGULATIONS, STANDARDS, SPECIFICATIONS AND CODES

Bidders are required to make themselves familiar with all Federal, State, and local laws, ordinances, and regulations which may affect the Work or its prosecution. The filing of a bid will be presumptive evidence that the Bidder has complied with these requirements. The Owner will not be responsible for any interpretations or conclusions drawn, by the Contractor from data or information provided by the Owner. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws and Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws and Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

No provision of any such standard, specification, manual or code, or any instruction of a supplier shall be effective to change the duties or responsibilities of the Owner or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Bid Documents, nor shall any such provision or instruction be effective to assign to the Owner or Engineer, or any of their consultants, agents, or employees any duty or authority to supervise or direct the performance of the Contractor's obligations or any duty or authority to undertake responsibility inconsistent with the provisions of the Bid Documents.

GP-10 REPORTING AND RESOLVING DISCREPANCIES

Reporting Discrepancies: If, during the performance of the Contract, the Contractor discovers any conflict, error, ambiguity, or discrepancy within the Bid Documents or between the Bid Documents and any provision of any Law or Regulation applicable to the performance of the Contract or of any standard, specification, manual or code, or of any instruction of any supplier, the Contractor shall promptly report it to the Owner in writing for Engineer's review. The Contractor shall not proceed with the furnishing of the Work affected thereby until an amendment to or clarification of the Bid Documents has been issued. The Contractor shall not be liable to the Owner or Engineer for failure to report any such conflict, error, ambiguity, or discrepancy unless the Contractor knew or reasonably should have known thereof.

Resolving Discrepancies: Except as may be otherwise specifically stated in the Bid Documents, the provisions of the Bid Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Bid Documents and:

the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Bid Documents); or

the provisions of any Laws or Regulations applicable to the furnishing of the Work (unless such an interpretation of the provisions of the Bid Documents would result in violation of such Law or Regulation

GP-11 AMENDING AND CLARIFYING DOCUMENTS

The Contract Documents may be amended to provide for additions, deletions, and revisions to the Work or by a Change Order.

The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work to be performed not affecting Contract Price or Contract Times may be authorized, by one or more of the following ways: 1) a Field Order; 2) Engineer's approval of a Plan Drawing pursuant to Section "**GP-47 As-Built Drawings**"; or 3) Engineer's written interpretation or clarification.

GP-12 CONTRACTOR'S REVIEW OF PLANS, SPECIFICATIONS, AND SITE OF WORK

The Contractor is required to carefully examine the site of the proposed Work, proposal form, Plans, Specifications, and contract and bond forms for the Work. It is assumed that he has investigated and satisfied himself to the physical features of the site and conditions to be encountered, as well as the character, quality, and quantities of the Work to be performed, materials to be furnished, and the requirements of these Specifications, special provisions and contract.

GP-13 SUBCONTRACTS

The Contractor shall notify the Engineer, in writing, of the names of the Subcontractors proposed for the principal parts of the Work, or other parts as the Engineer may direct, as soon as practicable and before awarding any Subcontracts.

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his Subcontractors and of persons indirectly employed by him as he is for the acts and omissions of persons directly employed by him. The Contractor shall be responsible for the coordination of the trades, Subcontractors, and material men engaged upon the Work.

The Owner and Engineer will not undertake to settle any differences between the Contractor and his Subcontractors or between Subcontractors. The Contractor shall have appropriate provisions in all Subcontracts to bind Subcontractors to the Contractor by the terms of the General Conditions and other Contract Documents, as applicable to the Work of Subcontractors. The provisions should provide the Contractor the same power regarding termination of Subcontracts that the Owner may exercise over the Contractor under any provisions of the Contract Documents.

GP-14 WORKERS, METHODS, AND EQUIPMENT

The Contractor shall provide competent, qualified and trained personnel in all aspects of its performance of the Contract. Any person employed by the Contractor or any Subcontractor who, in the opinion of the Engineer does not perform the Work in a proper and skillful manner or is intemperate or disorderly shall, upon written request of the Engineer, be immediately removed by the Contractor or Subcontractor employing such person, and such person shall not again be employed in any portion of the Work without approval of the Engineer. If the Contractor fails to remove such a person or fails to furnish suitable and sufficient personnel for proper prosecution of the Work, the Engineer may suspend the Work until such orders are complied with.

All equipment, products and material incorporated into the Work shall be as specified, or if not specified, shall be new, of good quality and protected, assembled, used, connected, applied, cleaned and conditioned in accordance with the original manufacturer's instructions, except as otherwise may be provided in the Bid Documents.

Equipment proposed for use, in the Work, shall be of sufficient size and mechanical condition to meet requirements of the Work and produce a satisfactory quality of Work. Equipment shall not damage the roadway, adjacent property or other highways through performance of the Work.

The Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures used in performing its obligations. The Contractor shall be responsible to see that the completed Work conforms to the Bid Documents.

If the Contractor desires to use a method or type of equipment other than specified in the Contract, he may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods, equipment proposed, and reasons to make the change. A proposed item of material or equipment may be considered functionally equal to an item so named if:

- a) in the exercise of reasonable judgment, Engineer determines that:
 - i) it is at least equal in quality, durability, appearance, strength, and design characteristics; and
 - ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole; and

- b) the Contractor certifies that:
 - i) there is no increase in any cost including capital, installation or operating to the Owner; and
 - ii) the proposed item will conform substantially, even with deviations, to the detailed requirements of the item named in the Bid Documents. If, after trial use of the substituted methods or equipment, the Engineer determines that the Work produced does not meet Contract requirements, the Contractor shall discontinue use of the substituted methods or equipment and shall complete the Work with the specified methods and equipment. The Contractor shall remove the deficient Work and replace it with Work of specified quality or take other corrective action as directed. No change will be made in basis of payment for construction items involved or in Contract Time as a result of authorizing a change in methods or equipment.

GP-15 PRESERVATION AND RESTORATION OF PROPERTY, MONUMENTS, ETC.

The Contractor shall be responsible for the preservation of all public and private property, monuments, etc., along and adjacent to the structure(s) alignment and shall use suitable precautions to prevent damage to pipes, conduits, and other underground structures. The Contractor shall protect carefully from disturbance to or damage to all land monuments, State and United States bench marks, geodetic and geological survey monuments, and property markers until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until directed.

Any utility lines injured by the Contractor shall be repaired at once, at Contractor's expense. The Contractor shall be responsible for any damage to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the Work, or on account of defective Work material and he shall restore, at his own expense, such property to a condition similar or equal to that existing before such damage was done, by repairing, rebuilding, or otherwise restoring same, or he shall make good such damage or injury in an acceptable manner.

Agreements have been reached with the known utilities in both borrow and fill areas for this project. The Contractor must follow the requirements provided within the agreements. See Section "**SP-8 Landowner Requirements**" for the more details regarding each utility.

In case of failure on the part of the Contractor to restore such property or make good such damages or injury, the Owner may, after forty-eight (48) hours, provide written notice to proceed to repair, rebuild, or otherwise restore such property as deemed necessary and the cost thereof will be deducted from any monies due or which may become due the Contractor under his Contract. In case no money is due or to become due, his surety shall be held until damages, all suits, or claims have been settled and suitable evidence to that effect furnished the Owner.

GP-16 LAWS TO BE OBSERVED

The Contractor shall keep informed of all Federal, State and local laws, ordinances and regulations, and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which affect those employed on the Work or which affect the conduct of the Work. He shall, at all times, comply with such laws, bylaws, ordinances, codes, regulations, orders and decrees, and shall indemnify the Owner and its representatives against any claim or liability arising from violation of any such laws, bylaws, ordinances, code, regulation, order or decree, whether by himself or his employees.

GP-17 PERMITS, LICENSES, AND RIGHT-OF-WAYS

All Federal, State and local permits and easements required for construction of the project have been secured by the Owner without expense to the Contractor. The Contractor will be provided a copy of the permits and shall conform to the requirements of the permits and easements.

All necessary right-of-way for the proper completion of the work will be secured by the Owner without cost to the Contractor, unless otherwise specifically provided.

GP-18 CONFORMITY WITH PLANS AND SPECIFICATIONS

All work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions, and material requirements shown on the Plans or indicated in the Specifications.

GP-19 DUTIES OF INSPECTOR

A construction Inspector shall be assigned to the construction site to report to the Engineer the progress of the Work and the manner in which it is being performed. The Inspector will also report whenever it appears that materials furnished and the Work completed by the Contractor fail to fulfill the requirement of the Contract, and to call to the attention of the Contractor any such failure or other infringements.

In case of any dispute between the Contractor and the Inspector as to materials furnished or the manner of performing the Work, the Inspector shall have the authority to reject materials or suspend the Work until the issue can be referred to the Engineer.

However, the Inspector shall not be authorized to revoke, alter, enlarge, relax or release any requirements of the Contract, or to approve or accept any portion of the Work, or to issue instructions contrary to the Plans and Specifications. He shall not act as foreman or perform other duties for the Contractor, nor interfere with the management of the Work.

GP-20 INSPECTION

The Owner shall have the right to perform, or cause to be performed, reasonable inspections and require reasonable tests of the Work to be performed at the Contractor's facility, and at the Site of Work. The Engineer and his Inspectors shall have free access to all parts of the work and to all materials intended for use in the work. The Contractor shall allow the Owner a reasonable time to perform such inspections or tests. The inspections shall not relieve the Contractor from any obligation to perform all the Work in accordance with the requirements of the Contract.

The Contractor shall provide the Owner a 30 day written notice of the readiness of the Work for all inspections, tests, or approvals which the Contract Documents specify are to be observed by the Owner prior to completion. The Owner will give the Contractor timely notice of all specified tests, inspections and approvals of the Work which are to be conducted at the Site of Work.

If, on the basis of any inspections or testing, the Work appears to be conforming, the Owner will give the Contractor prompt notice thereof. If on the basis of said inspections or testing, the Work appear to be non-conforming, the Owner will give the Contractor prompt notice thereof and will advise the Contractor of the remedy the Owner elects under the provisions in section "GP-41 Temporary Suspension Of Work".

Neither payments made by the Owner to the Contractor prior to any tests or inspections, nor any tests or inspections shall constitute acceptance of non-conforming Work, or prejudice the Owner's rights under the Contract.

GP-21 CONSTRUCTION STAKES, LINES, AND GRADES

The Engineer shall direct the Contractor to all key "Control Points", as shown on the Plan Drawings, necessary for setting stakes and templates. The Contractor shall be responsible for laying out the Work and maintaining the stakes, which will be furnished by the Contractor at his expense. Stakes should be in sufficient quantities and sizes to satisfy the Engineer. All layout work shall be witnessed and checked by the Engineer prior to beginning the Work. At any time, the Engineer may require that the Work be suspended when stakes, established by the Contractor, are not reasonably adequate to permit verification of the Work. However, these checks will not relieve the Contractor of his responsibility for constructing the Work in the positions as shown on the Plans or approved revisions thereto. After lines and grades have been checked by the Engineer, the Contractor shall be responsible for proper execution of the Work to such lines and grade stakes.

GP-22 COOPERATION BY CONTRACTOR

The Contractor shall perform all items for the Work covered and stipulated in the Contract, and shall furnish, unless otherwise definitely provided in the Contract, all materials, implements, machinery, equipment, tools, supplies, transportation and labor necessary to the prosecution of the Work. The Contractor shall give the Work his constant attention to facilitate the progress thereof and shall cooperate with the Engineer in every way possible. He shall have available, at all times, one complete copy of the Contract, including Plans, Specifications, and authorized alteration supplied to the Contractor. He shall have, at all times, a competent, qualified and reliable English-speaking superintendent for the Work, satisfactory to the Engineer, authorized to receive orders and to supervise and coordinate all Work to be performed by the Contractor and any of his Subcontractors for the Engineer.

The superintendent shall be qualified to supervise the performance of the particular type of Work to be performed. The qualifications of the superintendent must be established prior to commencement of the Work. Such superintendent shall be furnished by the Contractor, regardless of how much Work may be sublet. In the performance of the Work under this Contract, the Contractor shall conduct his operations to avoid interference with any other Contractors. The Work under this Contract shall be performed in a skillful and workman-like manner by competent workers. The Engineer may, in writing, require the Contractor to remove, from the work, any employee the Engineer deems incompetent, careless, or otherwise detrimental to the project.

GP-23 CONTRACTOR'S RESPONSIBILITY FOR WORK

Until final acceptance of the project, the Contractor shall have the charge and care thereof, and shall take every precaution against damage to any part thereof by action of the elements or from any other cause, whether arising from execution or non-execution of the Work. The Contractor shall rebuild, repair, restore, or make good all damages to any portion of the Work before final acceptance and shall bear the expenses thereof, except if the Engineer deems the damage is due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God, the public enemy or governmental authorities.

GP-24 RESPONSIBILITY FOR DAMAGE CLAIMS

To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify and hold harmless the Owner, Engineer, and their officers, directors, shareholders, partners, employees, agents, consultants, contractors and subcontractors from any and all claims, costs, losses, and demands or judgments for damages for claims (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) caused by, arising out of or relating to a negligent act or omission or the breach of any obligation under this Contract by the Contractor, or its officers, directors, shareholders, partners, employees, agents, consultants, contractors or subcontractors, or anyone for whom the Contractor is responsible, provided that any such claim, cost, loss, or damage;

- A. is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work to be performed themselves), including the loss of use resulting there from; and

- B. is caused in whole or in part by any negligent act or omission of the Contractor or any individual or entity directly or indirectly employed to furnish any of the Work to be performed or anyone for whose acts the Contractor may be liable, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such individual or entity.

The indemnification obligations of the Contractor shall not extend to the liability of Engineer and Engineer's consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

- A. the preparation or approval of, or the failure to prepare or approve, maps, Plan Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
- B. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

GP-25 PAYMENT OF TAXES

The Contractor shall be responsible for all taxes and duties that maybe levied under existing State, Federal and local laws during the completion of the Work. The Owner will presume that the amount of such taxes is included in the unit prices bid by the Contractor and will entertain no claim for extra reimbursement to the Contractor on account of his failure to include such taxes.

GP-26 COOPERATION WITH PUBLIC UTILITIES

It shall be the Contractor's responsibility to notify all public utilities or other parties interested to make all necessary adjustments of public utility fixtures and appurtenances within or adjacent to the limits of construction. It shall also be the responsibility of the Contractor to see that the necessary adjustments of public utility fixtures and appurtenances are made.

The Contractor will be responsible for any damage done by him to any telephone, telegraph, power poles or lines, water or fire hydrants, water or gas mains and pipelines, sewers, conduits and other accessories or appurtenances of a similar nature which are fixed or controlled by a city, public utility company or corporation. He shall perform and carry on the Work in such a manner not to interfere with or damage fixtures mentioned herein, or as shown on the Plans or discovered during construction, which are within the limits of the project. The Owner will not be responsible for any delay or damage incurred by the Contractor due to working around or joining the Work to fixtures left in place.

The Owner will not be responsible for any delays or inconvenience to the Contractor in carrying on the Work in the above mentioned manner while the public utilities companies or cities are making necessary adjustments of their fixtures or appurtenances. The Owner will not be responsible for any costs that may be incurred by the Contractor or the utility owners for making said adjustments by delays, etc.

GP-27 UTILITIES AND IMPROVEMENTS

Prior to commencement of work, the Contractor shall call ALouisiana One Call® at 1-800-272-3020 to locate existing utilities lines in the project area. The Contractor shall cooperate with the authorities or company

representatives and shall conduct his operations in such a manner as to result in a minimum of inconveniences to the owners of said utilities.

The Contractor shall be responsible for notifying pipeline and utility operators seventy-two (72) hours in advance of the work. All pipelines and underground utilities shall be marked for the duration of construction by the Contractor or pipeline or utility company representative. The Contractor shall not anchor, spud, or excavate within fifty (50) feet of any pipeline. The following is a list of known utilities and pipeline operators in the project area and their contact information:

Tennessee Gas	Texas Gas	SLECA
Larry Slowik	Dexter Faulk	Todd Sullivan
(985) 879-3516 ext.2022	(985) 631-0186	(985) 876-6880

Any unidentified pipelines or structures which may be found within the limits of the work during the course of construction shall not be disturbed nor shall construction or excavation be performed at these locations until approved by the Engineer.

GP-28 SANITARY PROVISIONS

The Contractor shall provide and maintain sanitary accommodations for use by his employees and Subcontractors. Facilities shall comply with the requirements of the local and State Board of Health and of other authorities having jurisdiction. The committing of public nuisance on the project site will be prohibited by the Contractor.

GP-29 SAFETY PROVISIONS

- 29.1 General: The Code of Federal Regulations, Title 29, Occupational Safety and Health Administration (OSHA) shall apply. Safety and Health Provisions of the State of Louisiana shall apply where applicable and where not covered by OSHA or specified herein.
- 29.2 Accident Investigations and Reporting: Accidents shall be investigated by the immediate supervisor of employee(s) involved and reported to the Engineer or his representative within one (1) working day after the accident occurs. A written report of all accidents occurring on the project shall be submitted to the Engineer within four (4) calendar days following the incident. All data reported must be complete, timely, and accurate. A follow-up report shall be submitted when the estimated lost time days differ from actual lost time days.
- 29.3 Daily Inspections: The Contractor shall institute a daily inspection program to assure safety requirements are being fulfilled. Reports of daily inspections shall be maintained at the job site in accordance with these specific clauses. The reports shall be records of the daily inspections and resulting actions. Each report shall include, as a minimum, the following:
- Phase(s) of construction underway during the inspection.
 - Locations of areas where inspections were made.
 - Results of inspections including nature of deficiencies observed, corrective action taken or to be taken, date, and signature of the person responsible for its contents.

GP-30 RADIO TELEPHONES

The Contractor shall furnish and maintain radio and telephone equipment throughout the period of the Contract. This equipment shall be of a quality so the Contractor can clearly communicate with the Engineer and Inspector on their commercial telephones.

GP-31 SUBMITTALS, REPORTS, AND RECORDS

The Contractor shall submit an estimated progress schedule, a schedule of material compliance and sample submittals, and schedule of values of the work to the Engineer within fifteen (15) days after the effective date of the Agreement for acceptability and approval, including those of Subcontractors, offsite fabricators, suppliers and purchasing agents. Upon receipt of a submittal, the Engineer shall be allowed a ten (10) day maximum return period for the processing and approval of the submittal.

The Contractor shall maintain, at the job site, orderly files for correspondence, reports of job conferences, submittals, reproductions of original Contract Documents including all Addenda, Progress Reports, Change Orders, Field Orders, additional drawings issued subsequent to the executed Contract, and Engineer's clarifications and interpretations of the Contract Documents, Progress Reports, and other related documents.

The Contractor shall furnish to the Engineer monthly reports of progress of the Work including Contractor's compliance with the approved progress schedule and current schedule of submittal.

GP-32 CERTIFICATES OF COMPLIANCE

Any certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in three (3) copies. Each certificate shall be signed by an authorized official to certify on behalf of the supplying company and shall contain the name and address of the Contractor, the project name and location, and the quantity, date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if after tests are performed on selected samples, the material is found not to meet specified requirements.

GP-33 PROGRESS MEETINGS

Engineer shall schedule and hold regular weekly progress meetings. Contractor, Engineer, and all Subcontractors active on the site shall be represented at each meeting. Contractor may, at his discretion, request attendance by representatives of his suppliers, manufacturers, and other Subcontractors.

Engineer shall preside at the meetings and provide for the keeping and distribution of the minutes. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop.

GP-34 CHANGES IN WORK

Without invalidating the Contract or any provisions thereof, the Owner may order additional Work or make changes by altering, adding to, or deducting from the Work. The Contract Amount and Contract Time shall be adjusted accordingly, and the consent of the Surety being first obtained where necessary or desirable. All

Work bid upon, shall be paid for at the price stipulated in the bid. Any increase or decrease in the quantities shall not alter the Contract Unit Prices.

Changes in the Work will be authorized in writing and by means of Change Orders. No claims for any extra Work or material shall be allowed unless the Work is ordered, in writing, by the Engineer.

Engineer may authorize minor changes in the Work, not involving adjustments in the Contract Price or Time and consistent with the overall intent of the original Contract. The changes may be accomplished by a Field Order and shall be binding on Owner and Contractor. The Contractor shall perform the change promptly. Should the Contractor believe the Field Order justifies an increase in the Contract Price or Contract Time, he may make a claim as provided in Section "GP-35 Change Of Contract Price" or Section "GP-36 Change In Contract Time".

GP-35 CHANGE OF CONTRACT PRICE

The Contract Price constitutes the total compensation, subject to authorized adjustments, payable to Contractor for performing the Work. All duties, responsibilities and obligations assigned to, or undertaken by the Contractor shall be at his expense without change in the Contract Price. The Contract Price may only be changed by:

- A. a Change Order;
- B. a Written Amendment; or
- C. a written unilateral order of the Owner, in which case the Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times for any reasonable and necessary costs or delays incurred by the Contractor to accommodate such a change.

Notice of the extent of the claim with the amount and all supporting data shall be delivered within forty-five (45) days of such occurrence, unless Engineer allows additional time to ascertain accurate cost or data. All claims for adjustment in the Contract Price shall be determined by Owner and Contractor, with the assistance of the Engineer. Any change in the Contract Price, resulting from any claim, must be incorporated into a Change Order.

- A. The value of any Work covered by a Change Order shall be determined in one of the following ways:
- B. By application of unit prices to the quantities of the items involved, where the Work involved is covered by unit prices contained within the Contract Documents.
- C. By mutual acceptance of a lump sum.

GP-36 CHANGE IN CONTRACT TIME

All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this section exclude recovery for damages including compensation for additional professional services for delay by either party. The Contract Time may only be changed by:

- A. a Change Order;
- B. a Written Amendment; or

- C. a written unilateral order of the Owner, in which case the Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times for any reasonable and necessary costs or delays incurred by the Contractor to accommodate such a change.

If the Contractor is prevented from delivering the Work within the Contract Times for any unforeseen reason beyond its control and not attributable to its actions or inactions, then the Contractor shall be entitled to an adjustment of the Contract Times to the extent attributable to such reason. Such reasons include fire, floods, epidemics, abnormal weather conditions, acts of God, acts of war, and directions by government authority and other like matters.

If such an event occurs and delays the Contractor's performance, the Contractor shall notify the Owner in writing within 15 days of the beginning of the event causing the delay, stating the reason therefore. Notice of the extent of the claim with all supporting data shall be delivered within forty-five (45) days of such occurrence, unless Engineer allows additional time to ascertain more accurate data. All claims for adjustment in the Contract Time shall be determined by Owner and Contractor with the assistance of the Engineer. Any change in the Contract Time, resulting from any claim, must be incorporated into a Change Order.

Contract Times will not be modified for delays within the control of the Contractor, including labor strife, transportation shortages or delays at the Contractor's facilities. Delays attributable to and within the control of the Contractor's subcontractors or suppliers shall be deemed to be delays within the control of the Contractor.

If the Contractor is prevented from delivering the Work or furnishing the required Work within the Contract Times due to the actions or inactions of the Owner, the Contractor shall be entitled to any reasonable and necessary additional costs as determined by the Engineer arising out of such delay to the extent directly attributable to the Owner.

Neither the Owner nor the Contractor shall be entitled to any damages arising from delays which are beyond the control of both the Owner and the Contractor, including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, and acts of war, direction by government authority, and other like matters.

GP-37 DETERMINATION AND EXTENSION OF CONTRACT TIME

The Contract Time, on a calendar basis, shall be the number of the calendar days stated in the Contract, counting from the effective date of the Notice to Proceed including all Sundays, holidays and non-working days. All calendar days between the effective dates for suspension and resumption of the Work, ordered by the Engineer and not the fault of the Contractor shall be excluded.

The number of Work days allowed in the awarded Contract is based on original quantities. If satisfactory fulfillment of the Contract requires time greater than that set forth in the Proposal, the Contract Time could be increased on a basis commensurate with the amount of and difficulty of the additional work.

If the Contractor finds completion of the Work within the Contract Time, in accordance with the provisions of this Section, impossible, for reasons beyond his control, he may, prior to the expiration of the Contract Time, make a written request to the Engineer for an extension. The written request must set forth therein the reasons justifying the request. The Contractor's plea of insufficient time specified within the Contract is not a valid reason for extension of time. Delays in the Work are justifiable when occasioned and/or caused by the elements, priorities, order, rules or regulations imposed by any governmental body, or other circumstances unforeseen and beyond control of the Contractor.

If the Engineer finds that the Work was delayed because of conditions beyond control and without the fault of the Contractor, the Owner, upon the recommendation of the Engineer, may extend the completion time to rectify the time lost. The extended time shall then be enforced and affect the same as if it were the original time for completion.

GP-38 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

This provision specifies the procedure for determining time extensions due to unusually severe weather. The listing below defines the monthly anticipated adverse weather for the Contract Time and will constitute the baseline monthly weather time for evaluations. The schedule is based upon National Oceanic and Atmospheric Administration (NOAA) or similar data for the geographical area located near the project.

MONTHLY ANTICIPATED ADVERSE WEATHER CALENDAR DAYS											
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
(5)	(5)	(4)	(4)	(4)	(5)	(7)	(7)	(5)	(3)	(3)	(4)

Upon acknowledgment of the Notice to Proceed, weather days will be recorded on a calendar day basis, include weekends and holidays, and compared to the monthly anticipated adverse weather in the above paragraph. The term actual adverse weather days shall include days impacted by actual adverse weather days.

The number of actual adverse weather days shall be calculated chronologically from the first to the last day of each month. Adverse weather days must prevent work for fifty percent (50%) or more of the Contractor's Work day and delay work critical to the timely completion of the project. If the number of actual adverse weather days exceeds the number of days anticipated in the above paragraph, the Engineer will determine whether the Contractor is entitled to a Time Extension. The Engineer will convert any qualifying delays into calendar days and issue a modification, in accordance with the contract clauses in Section "GP-37 Determination And Extension Of Contract Time".

The Contractor's schedule must reflect the above anticipated adverse weather delays on all weather dependent activities.

GP-39 DEFAULT AND TERMINATION OF CONTRACT

The Engineer will give written notice to the Contractor and his surety that the Contractor may be placed in default if he:

- A. Fails to begin the Work within the time specified in the "Notice to Proceed", or
- B. Fails to perform the Work with sufficient workmen, equipment, or materials to assure prompt completion of said Work, or
- C. Performs the Work unsuitably, neglects, refuses to remove materials, or performs or continues to perform rejected Work, or
- D. Discontinues prosecution of the Work, or
- E. Fails to complete the project within the Contract Time as extended, or

- F. Fails to resume discontinued Work within a reasonable time after notice to continue, or
- G. Becomes insolvent, or is declared bankrupt, or commits any act of bankruptcy or insolvency, or
- H. Allows any final judgment to stand against him unsatisfied for a period of ten (10) days, or
- I. Makes an assignment for the benefit of creditors, or
- J. Fails to carry on the Work in an acceptable manner.

If the Contractor or surety does not proceed within ten (10) days after such notice, in accordance therewith, the Owner will, upon written notification from the Engineer to the Contractor and surety the Contractor's failure to comply with such notice, have authority, without violating the Contract, to take prosecution of the Work out of the hands of the Contractor. The Owner may appropriate or use all materials and equipment on the project, and may enter into an Agreement for completion of said Contract according to the provisions thereof, or use such other methods as required for completion of said Contract in an acceptable manner.

All costs incurred by the Owner, together with the cost of completing the Work under the Contract, will be deducted from any monies due or may become due the Contractor. If expense exceeds the sum payable under the Contract, the Contractor and surety shall be liable and shall pay the Owner the amount of such excess.

GP-40 FAILURE TO COMPLETE ON TIME

The time of completion for the Base Bid of this project shall be within **five hundred ten (510) calendar days** after the Notice to Proceed has been issued, as specified in Section "GP-37 Determination And Extension Of Contract Time".

For each Contract day, counted and charged, as outlined in Section "GP-37 Determination and Extension of Contract Time", that any Work remains uncompleted beyond the Contract Time, the sum of **two thousand dollars (\$2,000) per calendar day** will be deducted as liquidated damages provided the consideration of any adjustment of the Contract Time for completion of the Work granted under the provisions of Section "GP-37 Determination and Extension of Contract Time" has occurred.

The amount of liquidated damages, determined as provided above, will be deducted from any money due or may become due the Contractor, under this Contract, and the Contractor and his surety shall be liable for any liquidated damages in excess of the amount due the Contractor.

GP-41 TEMPORARY SUSPENSION OF WORK

The Engineer shall have the authority to suspend the Work, in whole or in part. The order to suspend the Work for periods exceeding one (1) calendar day shall be in writing and include the specific reasons for the suspension. If the Work is suspended in the interest of the Owner, due allowances in time shall be made for the time elapsed during the period of suspension as herein provided. If the Work is suspended because of the failure or refusal of the Contractor to comply with an order of the Engineer or with the Plans and Specifications, no time extension will be allowed for the time elapsed during such suspension.

GP-42 NON-CONFORMING AND UNAUTHORIZED WORK

Work not conforming to Section “GP-18 Conformity with Plans and Specifications”, or to the Contract will be considered unacceptable.

Unacceptable Work resulting from poor workmanship, defective materials, damage through carelessness or other cause, found to exist prior to final acceptance of the work shall be removed and replaced in an acceptable manner.

The Work completed contrary to the instructions of the Engineer, beyond lines shown on the Plans, except as herein specified or extra Work done without authority of the Engineer will be considered unauthorized and for which will not be paid. The Work completed maybe ordered removed or replaced at the Contractor’s expense.

Upon failure of Contractor to comply with any order of the Engineer made under the provisions of the Section, the Engineer will have authority to cause unacceptable Work to be remedied, removed, or replaced and unauthorized Work to be removed and to deduct the cost from payments for the Work.

GP-43 CLAIMS FOR ADJUSTMENT AND DISPUTES

If the Contractor deems additional compensation is due him for work or material not clearly covered in the Contract or not ordered by the Engineer as extra Work, as defined herein, the Contractor shall notify the Engineer, in writing, of his intention to make claim for such additional compensation before he begins the Work on which he bases the claim. Such notice by the Contractor shall not be construed as proving or substantiating the validity of the claim. If the claim, after consideration by the Engineer, is found to be just, it will be paid for as extra Work. If proper notification is not given, or the Engineer is not afforded proper facilities by the Contractor for keeping account of actual cost, the Contractor agrees to waive any claim for such additional compensation. Nothing in this Section shall be construed as establishing any claim contrary to the terms of Section “GP-34 Changes in Work”.

GP-44 CONTRACTOR’S RIGHT TO TERMINATE CONTRACT

If the Work should be stopped under an order of any court or other public authority, for a period of three (3) months, through no act or fault of the Contractor or of anyone employed by him, then the Contractor may upon ten (10) days= written notice to the Owner, stop Work or terminate this Contract and recover payment from the Owner for all Work executed and material and equipment delivered to the site for incorporation in the Work.

GP-45 TERMINATION OF CONTRACTOR’S RESPONSIBILITY

The Contract will be considered complete when all Work has been satisfactorily completed, final inspection made, the Work accepted by the Owner upon recommendation of the Engineer, and the final payments made. The Contractor will then be released from further obligation except as set forth in his Contract bond.

GP-46 FINAL INSPECTION AND ACCEPTANCE

Upon written notice from Contractor that the Work is complete, Engineer will make an inspection with Owner and Contractor. If Engineer is satisfied that the Work has been completed and Contractor has fulfilled all of his obligations under the Contract, Engineer will make the final acceptance and notify the Owner, in writing, the acceptance, from the date of inspection considered to be the final inspection.

If the inspection disclosed any Work, in whole or in part, as being unsatisfactory, the Engineer will give the Contractor the necessary instructions. Cost of repairs for the Work that was previously deemed satisfactory by the Substantial Completion will be borne by the Owner unless the damage was caused due to negligence of the Contractor. All other corrections for unsatisfactory Work will be at the expense of the Contractor. Upon correction of the Work and provided the Work has been satisfactorily completed, another inspection shall be made constituting the final inspection. In such event, the Engineer will make the final acceptance and notify the Owner, in writing, of the acceptance as of the final inspection.

If, on the basis of the final inspection, the Work, in whole or in part, are non-conforming, the Owner will identify the non-conformity in writing and will provide the Contractor the necessary instructions. Cost of repairs for the Work that was previously deemed satisfactory will be borne by the Owner unless the damage was caused due to negligence of the Contractor. All other corrections for unsatisfactory Work will be at the expense of the Contractor. Upon correction of the Work and provided the Work has been satisfactorily completed, another inspection shall be made constituting the final inspection. In such event, the Engineer will make the final acceptance and notify the Owner, in writing, of the acceptance as of the final inspection.

GP-47 AS-BUILT DRAWINGS

The Contractor shall submit As-Built Drawings and Samples to the Owner for Engineer's review and approval in accordance with the schedule required in Section "GP-6 Progress Schedule". All submittals will be identified as required and furnished in the number of copies specified in the Contract Documents. The data shown on the As-Built Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment the Contractor has provided. The drawings shall incorporate all field changes, change orders, and show the actual quantity of material placed. All revision shall be shown in red and be easily distinguishable from the original design. For As-Built Drawing format, the Contractor shall refer to "TS-3 Surveying".

GP-48 WARRANTY

The Contractor warrants and guarantees to the Owner that all of the Work will conform with the Contract Documents, including any Samples approved by Engineer, and the Work will be of merchantable quality. Engineer shall be entitled to rely on representation of the Contractor's warranty and guarantee. The Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

abuse, improper modification or improper maintenance or operation by persons other than the Contractor, or normal wear and tear under normal usage.

The Contractor's obligation to furnish the Work accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of the Work that are non-conforming, or a release of the Contractor's obligation to furnish the Work in accordance with the Contract Documents:

- observations by the Owner or Engineer;
- recommendation by Engineer or payment by the Owner of any progress or final payment;

- use of the Work by the Owner;
- any acceptance by the Owner (subject to the provisions Section “GP-42 Non-conforming and Unauthorized Work”) or any failure to do so;
- the issuance of a notice of acceptance by the Owner pursuant to the provisions of Section “GP-42 Non-conforming and Unauthorized Work”;
- any inspection, test or approval by others; or
- any correction of non-conforming Work by The Owner.

The Owner shall within a reasonable time notify the Contractor of any breach of the Contractor’s warranties or guarantees. If the Owner receives notice of a suit or claim as a result of such breach, the Owner also may give the Contractor notice in writing to defend such suit or claim. If the Contractor fails to defend such suit or claim, the Contractor will be bound in any subsequent suit or claim against the Contractor by the Owner by any factual determination in the prior suit.

GP-49 NO WAIVER OF LEGAL RIGHTS

Upon completion of the Work, the final inspection will be performed expeditiously as described in Section “GP-46 Final Inspection and Acceptance”, and when the Work is acceptable, the Contractor will be notified of the acceptance. Final acceptance shall not prevent the Owner from correcting any measurement, estimate, or certificate made before or after completion of the Work, nor shall the Owner be prevented from recovering from the Contractor, his surety, or both, overpayment as it may sustain, or through failure by the Contractor to fulfill his obligations under the Contract. A waiver, by the Owner, of any breach of any part of the Contract shall not be held as a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the Contract, shall be liable to the Owner for latent defects, fraud or such gross mistakes as may amount to fraud, or as regards to the Owner’s rights under any warranty or guaranty .

GP-50 PERSONAL LIABILITY OF PUBLIC OFFICIALS

In execution of any of the above provisions or in exercising any power or authority granted to him by the Contract, there shall be no liability upon the Engineer or his authorized representatives.

GP-51 LIABILITY FOR LOSSES BY ACTS OF THE FEDERAL OR STATE GOVERNMENTS

The Owner shall not be liable for any loss or damage suffered by the Contractor arising out of the interruption or cessation of Work under this Contract, resulting from any act or order of any official, agency, the United States Government, or the Government of the State of Louisiana. However, the Contractor may request a time extension, as provided elsewhere in these Specifications, for any delay suffered by the Contractor as the result of the aforementioned government act or order.

GP-52 MISCELLANEOUS

When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday

or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation. A calendar day of twenty-four (24) hours measured from midnight to the next midnight shall constitute a day.

Should Owner or Contractor suffer injury or damage to itself or its property because of any error, omission, or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, a claim shall be made in writing to the other party within a reasonable time of the first observance of such injury or damage, and the claim shall provide all particulars relating to the extent of injury or damage, the details and results of the investigation, and action that has been or is to be taken to prevent a reoccurrence.

The duties, warranties, guarantees, and obligations imposed by these General Provisions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon Contractor by Sections "GP-39 Default and Termination of Contract" and "GP-41 Temporary Suspension of Work" and all of the rights and remedies available to Owner and Engineer hereunder, are in addition to and are not to be construed in any way as a limitation of any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this Section will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply. All representations, warranties and guarantees made in the Contract Documents will survive final payment and termination or completion of the Agreement.

END OF PART I – GENERAL PROVISIONS

PART II SPECIAL PROVISIONS

SP-1 LOCATION OF WORK

The **North Lake Mechant Landbridge Restoration Project (TE-44)** is located in Terrebonne Parish, Louisiana. The Work Site is bounded generally to the south by Lake Mechant, west by Lake Pagie, north by Bayou Decade and east by Small Bayou LaPointe.

The site is only accessible by boat. There is a boat launch at Falgout Canal Marina located off of Louisiana Highway 315 south of Theriot.

SP-2 WORK TO BE DONE

The Work to be performed under these Plans and Specifications consists of furnishing all plant, labor, materials, and equipment required for the mobilization, demobilization, dredging, and placement of spoils, riprap, steel sheetpile, concrete mats, geotextile fabric, settlement plates, and warning signs in accordance with these Specifications and in conformity to lines, grades, and elevations shown on the Plans or as directed by Engineer. **Except for dredging operations, all work performed by the Contractor shall be limited to daylight hours only. Any exception shall be requested in writing by the Contractor to the Engineer. Prior written authorization from the Owner shall be required in order to deviate from this stipulation.** All Work shall be performed in accordance with Louisiana Standard Specifications for Roads and Bridges, latest edition, unless otherwise specified herein.

SP-3 BID AND CONTRACT DATES

Milestone	Location or Recipient	Date Due
Bid Advertisement	Publications	As advertised
Pre-bid Conference	Provided in Notice to Bidders	Provided in Notice to Bidders
Questions on Bid Documents	Deliver to Engineer	3 days after Pre-bid Conference
Site Visit	Provided in Notice to Bidders	Provided in Notice to Bidders
Effective Date of Agreement	Contractor and Owner	Stated in Notice of Award
Start of Contract Time	Contractor and Owner	As stated in Notice to Proceed
Work Plan	Submit to Engineer	At least 14 days prior to Pre-Construction Conference
Progress Schedule	Submit to Engineer	At least 14 days prior to starting construction, monthly thereafter
Pre-Construction Conference	Contractor and Engineer	As determined by the Engineer after the Notice to Proceed is issued
Weekly Progress Meeting	At Project Site	As determined at Pre-Construction Conference
As-Built Drawings	Deliver to Engineer	Within 2 weeks After End of Construction
End of Contract Time	At Project Site	510 days after Notice to Proceed

SP-4 TIME OF COMPLETION

The time of completion for this project shall be within **five hundred ten (510) calendar days** after the Notice to Proceed has been issued. Liquidated damages will be assessed in accordance with Section GP-40 Failure to Complete on Time.

SP-5 WORK PLAN

The Contractor shall develop a written Work Plan which accounts for all of the construction activities required by the Contract Documents. The Work Plan shall include a list of the individual construction tasks to be completed and the estimated dates for beginning and completing the tasks. It shall also include all other items which are applicable to completing the Work such as, but not limited to, the following:

- 5.1 Typical report form for the Weekly Progress Meeting;
- 5.2 Typical form for Daily Progress Report;
- 5.3 Hurricane and Severe Storm Plan;
- 5.4 Health and Safety Plan;
- 5.5 The delivery method and source (s) of all construction materials (company or producer name, mailing and physical address, phone number, and name of contact person).
- 5.6 The personnel, material, subcontractors, fabricators, suppliers, and types of equipment the Contractor proposes to use for construction;
- 5.7 Survey layout and stakeout;
- 5.8 Layout and construction schedule for rock plugs and steel sheet pile structures;
- 5.9 Layout and schedule for temporary access and flotation channels;
- 5.10 Barge displacement table;
- 5.11 Layout and construction schedule for internal training dikes and boundary containment dikes;
- 5.12 Layout and schedule for dredge disposal pipes;
- 5.13 Dredging Disposal Plan as specified in TS-8.5;
- 5.14 Layout and construction scheduling for filling marsh creation areas;
- 5.15 Layout and schedule for dewatering and discharge of marsh creation areas.

The Work Plan shall be submitted to the Engineer at least fourteen (14) days prior to the Pre-Construction Conference. The Engineer shall review the Work Plan and have the Contractor make any necessary revisions prior to acceptance of the plan.

SP-6 CONSTRUCTION SEQUENCING

The Contractor shall be responsible for sequencing the Work described in the Work Plan with the following exception:

Upon mobilization of equipment for the construction of earthen containment dikes, the Contractor shall commence with the construction of the earthen core for the armored earthen dike described in TS-6. The Contractor shall construct and maintain the earthen core to the elevation and section described in the Plans. Construction of other project area containment dikes shall not begin until completion of the first lift for the earthen core for the armored earthen dike along Fill Area 6. Placement of the concrete mats shall not commence until the elevation and section of the earthen core are in compliance with the Plans for a period of 28 days without placement of additional material.

SP-7 PROGRESS SCHEDULE

The Contractor shall develop a written Progress Schedule which provides for an orderly progression of the Work, submittals, tests, and deliveries in order to complete the Work within the specified Milestones and Contract Time. All of the items listed in the Work Plan shall be integrated into the Progress Schedule. The format of the schedule shall be composed using Microsoft Project®, or any other software deemed acceptable by the Engineer. It shall be updated weekly by the Contractor, at a minimum. The Progress Schedule shall also include, but not be limited to the following:

- 7.1 All of the elements in the Work Plan, including updates;
- 7.2 A work order issued from Louisiana One Call ordering all their subscribers in the project area to mark their utilities;
- 7.3 A telephone log verifying that all property owners and utilities have been contacted. This log should list the time, date, and names of the personnel representing the property owners, utilities and Contractor;
- 7.4 Shop drawings, test results and sample submittals.

The Progress schedule must reflect the anticipated adverse weather delays, described in GP-38, on all weather dependent activities. Adverse weather days for consideration must prevent Work for fifty percent (50%) or more of the work day and delay work critical to the timely completion of the project. The number of actual adverse weather days shall be calculated chronologically from the first to the last day of each month.

The Progress Schedule shall be submitted to the Engineer prior to the Pre-Construction Conference. The Engineer shall perform a review and have the Contractor make any necessary revisions prior to acceptance of the schedule. Acceptance will not impose responsibility on the Owner or Engineer for the sequencing, scheduling, or progression of the Work. The Contractor is fully responsible to advance the progression of the Work in order to maintain the compliance with the Progress Schedule.

SP-8 LANDOWNER REQUIREMENTS

The Owner has obtained all temporary easements, servitudes and right-of-way agreements required for construction of the project. The agreements executed with landowners for the Work at the site contain special requirements pertaining to access routes and insurance. The Contractor shall abide by the following stipulations as set forth by the respective landowners (Grantors):

8.1 Louisiana Land and Exploration Company

The Contractor shall notify Louisiana Land and Exploration Company (LL&E) of project initiation not less than forty-eight (48) hours prior to performing any work on LL&E's property. The contact party for LL&E is Jeff Deblieux, (985) 853-3009. The Contractor shall obtain a temporary access and construction permit for accessing and working on the property belonging to LL&E prior to commencing any work. The Contractor shall also furnish LL&E with a certificate for public liability insurance, including personal injury and property damage, naming LL&E as an additional insured. A copy of the access and construction permit, along with the insurance policy limit requirements, is included in Appendix A of the Specifications.

8.2 Apache Louisiana Minerals, Inc.

The Contractor shall notify Apache Louisiana Minerals, Inc. (Apache) of project initiation not less than five (5) working days prior to mobilization. The contact party for Apache is Tim Allen, (985) 879-3528.

8.3 Tennessee Gas Pipeline

The Contractor shall notify Tennessee Gas Pipeline (TGP) of project initiation not less than five (5) working days prior to mobilization. The contact party for Tennessee Gas Pipeline is Larry Slowik, (985) 879-3516, ext. 2022. Location of ingress/egress routes shall be coordinated with TGP. Crossing of pipelines shall be made with floating equipment only.

8.4 Texas Gas Transmission, LLC

The Contractor shall notify Texas Gas Transmission (TGT) of project initiation not less than five (5) working days prior to mobilization. The contact party for Texas Gas Transmissions is Dexter Faulk, (985) 631-0186. Location of ingress/egress routes shall be coordinated with TGT. Crossing of pipelines shall be made with floating equipment only.

8.5 South Louisiana Electric Cooperative Association

The Contractor shall notify the South Louisiana Electric Cooperative Association (SLECA) of project initiation not less than five (5) working days prior to mobilization. The contact party for SLECA is Todd Sullivan, (985) 876-6880. The Contractor should be aware the construction activity planned for the project will require the de-energization of SLECA's facilities in the area. The following are conditions associated with de-energizing SLECA's facilities:

- 8.5.1 The Contractor shall notify SLECA and LDNR a minimum of two weeks in advance of performing any work within 500 feet of the SLECA power line.
- 8.5.2. The electric facilities shall be de-energized from Monday morning at 9:00 a.m. until the following Thursday at 4:00 p.m. for such time as is required for the construction of the work, except as stipulated in the next item.
- 8.5.3. No de-energization of any electric facilities may take place during the shrimp trawling season: August 15 through November 15 of a calendar year.

SP-9 PROTECTION OF WORK

The construction areas may be subject to flows of water during construction. It will be the responsibility of the Contractor to protect his Work and equipment from damages due to inflows, rises in Lake Mechant or other surrounding bodies of water, and ground water. The Owner shall not be held liable or responsible for delays or damages to the Contractor's work or equipment resulting from inflows of surface or ground water or other conditions.

SP-10 DAILY PROGRESS REPORTS

The Contractor shall fill out daily reports. The following information shall be included in the daily report:

- 1) Weather conditions (Temperature, Wind Speed & Direction, Wave Height, Rainfall, etc).
- 2) Bid items under construction.
- 3) The approximate quantity of each bid item installed that day.
- 4) The location of the dredge and cutter head or drag arms at hourly intervals.
- 5) The elevation of the cutter head or drag arms at hourly intervals.
- 6) A brief description of any field change or change order received that day.
- 7) The amount of down time caused by severe weather.
- 8) The location and condition of the lighted buoys.
- 9) Any maintenance performed on the lighted borrow area buoys.
- 10) The location and condition of the dredge discharge pipe buoys.
- 11) Any maintenance performed on dredge discharge pipe buoys.
- 12) The condition of earthen containment dikes and optional training dikes.
- 13) Any maintenance performed on earthen containment dikes and optional training dikes.
- 14) Water quality monitoring results.
- 15) Any severe weather warning issued by NOAA.

The daily progress reports shall be submitted to the Inspector the following morning, and to the Engineer at the weekly progress meetings as defined in GP-33 PROGRESS MEETINGS.

SP-11 CLEAN-UP

The Contractor shall, at all times, keep the area free from accumulations of waste material or rubbish caused by the Contractor's employees or by the Work. Prior to the issuance of final acceptance of the Work, all trash, tools, and surplus materials shall be removed from the project site.

SP-12 CONTROL OF SILTATION AND WATER POLLUTION

The Contractor shall conduct his Work in a manner that will not cause damaging siltation or pollution of navigable waters. All applicable Federal and State regulations of agencies and statutes relating to the prevention and abatement of pollution shall be complied with in the performance of the Contract.

The disturbance of lands and waters that are outside the limits of construction as staked is prohibited, except as found necessary and approved by the Engineer. The Contractor shall conduct his Work in such manner as to prevent the entry of fuels, oils, bituminous materials, chemicals, sewage or other harmful materials into streams, lakes or marshlands. All waterways shall be cleared as soon as practicable of false work, piling, debris, or other obstructions placed during construction operations and not a part of the finished Work.

SP-13 SAFETY AND PROTECTION

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees and other persons who may be affected thereby; all the Work and all materials both on and off the project site; other property at the site including trees, structures, utilities, etc. Costs incurred by the Contractor for compliance with this section should be included in the mobilization and demobilization cost in the Bid Price.

The borrow area experiences local boat traffic and the Contractor shall take all necessary precautions to insure public safety in relation to his/her operations. The Contractor shall display signal lights and conduct his/her operations in accordance with US Coast Guard regulations governing lights and day signals to be displayed, as set forth in Commandant, US Coast Guard Instruction MI 16672.2, Navigation Rules, International - Inland (COMMDTINST MI 16672); 33CFR 81, Appendix A (International); and 33CFR 84 through 33CFR 90 (Inland) as applicable.

Contractor shall comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction over the safety of persons or property and to protect them from damage, injury, or loss; and will erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and utilities when the execution of the Work may affect them. All damage, injury or loss to any property referred to in this item caused directly or indirectly, in whole or in part, by Contractor, and Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by Contractor. Contractor's duties and responsibilities for the safety and protection of the work shall continue until such time as all the work is completed and Engineer has issued a notice to the Owner and the Contractor that the work is acceptable.

SP-14 HURRICANE AND SEVERE STORM PLAN

The Contractor shall submit a Hurricane and Severe Storm Plan at least seven (7) days prior to the pre-construction conference. This plan shall include but not be limited to the following:

- 14.1 Time interval before a storm strike in the project area when action will be taken and details of the actions to be taken. The plan should be specific as what weather/wave conditions will require Work shutdown, removal of the dredge, etc.
- 14.2 List of equipment to be used on the job and its ability to handle adverse weather and wave conditions.
- 14.3 List of safe harbor or ports and the distance from the Work area to these harbors and the time required to move the equipment to these harbors or ports. Copies of letters of approval for use of these safe harbors or ports (local Authorities, U. S. Coast Guard, etc.) where applicable. List of all flood control structures with their operation schedule that will be encountered along the route to the safe harbors.
- 14.4 Method of securing equipment in these safe harbors.
- 14.5 List of equipment to be utilized to make this move to safe harbor or port (tug boats, Work boat etc.). This list shall include the name and horsepower of this equipment. The plan will include only equipment capable of making the move to safe harbors or ports in adverse weather or sea conditions.

- 14.6 Methods of securing equipment not moved: i.e. pipelines (floating or submerged), pump out stations, etc.
- 14.7 Plan of evacuation to include interim measures; i.e., immediate reaction plans to be taken for all storm occurrences, particularly sudden/flash storms.
- 14.8 Operation procedure to be undertaken when critical dredging equipment fails during sudden and severe adverse conditions, to include breaking of spuds, swing wires, anchor wires, or other mooring equipment or facilities, or inability of tugs or similar vessels to secure the dredge.

The Contractor shall continually monitor, for the duration of construction, the NOAA marine weather broadcast and shall use other local commercial weather forecasting as may be available. Submission of a Hurricane and Severe Storm Plan does not constitute an endorsement on the part of the Owner or Engineer as to the adequacy of the plan.

SP-15 NAVIGATION

All marine vessels shall follow the Inland Navigation Rules which are contained in the following Federal Laws or Regulation: International Navigational Rules Act of 1977 (Public Law 95-75, 91 Stat. 308, or 33 U.S.C. 1601-1608), and, the Inland Navigation Rules Act of 1980 (Public Law 96-591, 94 Stat. 3415, 33 U.S.C. 2001-2038). These rules can be found on the Internet at http://www.navcen.uscg.gov/mwv/navrules/rotr_online.htm. All marine vessels shall display the lights and day shapes required by Part C- Lights and Shapes of the Inland Navigation Rules. The location, type, color, and size of the lights and day shape shall be in accordance with Annex I - Positioning and Technical Details of Lights and Shapes. Any vessel engaged in dredging is considered a "Vessel restricted in her ability to maneuver" and shall display all the lights and shapes required in Rule 27: Vessel Not Under Control.

SP-16 OBSTRUCTION TO NAVIGATION

The Contractor will be required to operate in compliance with pertinent U. S. Coast Guard regulations and to conduct the Work in such a manner as to minimize any obstruction to navigation. If the Contractor's dredge or other floating equipment so obstructs any navigation channel as to make navigation difficult or endanger the passage of vessels, said dredge or equipment shall be promptly moved on the approach of any vessel to such extent as may be necessary to afford a practicable passage. Upon completion of Work, the Contractor shall promptly remove the dredge and other floating equipment, as well as ranges, buoys, piles, and other marks or objects that are not permanent project features placed in the navigable water or on shore.

SP-17 MARINE VESSELS AND MARINE ACTIVITIES

All vessels that are regulated by the United States Coast Guard (USCG) shall have current inspection and certifications issued by the USCG before commencing dredging operation. A copy of the certification shall be posted in a public area on board the vessel.

All dredges and quarter boats not subject to USGS inspection and certification or not having a current American Bureau of Shipping (ABS) Classification shall be inspected in the working mode annually by a marine surveyor accredited by the National Association of Marine Surveyors (NAMS) or the Society of Accredited Marine Surveyors (SAMS). The surveyor must have at least five years experience in commercial marine vessels and equipment. All other vessel(s) shall be inspected before it is placed in use and at least

annually by a qualified person. The inspection shall be documented. A copy of the most recent inspection report shall be posted in a public area on board the vessel. A copy of the inspection shall be furnished to the Engineer upon request. The inspection shall be appropriate for the intended use of the vessel. The inspection, as a minimum, shall evaluate the structural integrity of the vessel and comply with the National Fire Protection Association Code 302- Pleasure and Commercial Motor Craft.

Officers and crew shall be in possession of a current valid USCG license which shall be posted in a public area on board the vessel, or correctly endorsed document as required by the USCG.

SP-18 DREDGE DISCHARGE PIPELINES

Dredge pipelines that are floating or supported on trestles shall display appropriate lights at night and in periods of restricted visibility in accordance with USGS regulation and “33 CFR 88.15”. Floating pipelines are any pipelines that are not laid along the channel lake bottom and include rubber discharge hoses. A copy of “33 CFR 88.15” can be downloaded from the internet at <http://www.access.gpo.gov/cgi-bin/cfrassemble.cgi?title=200333>.

Submerged pipelines and any anchors securing the pipeline shall rest on the channel or bay bottom. The depth of any pipeline crossing a navigation channel shall be submitted to the USCG for publication. Submerged pipelines shall be marked in accordance to local USCG requirements and as approved by the Owner. All submerged pipelines installed shall be marked with fluorescent orange buoys and signs stating “DANGER SUBMERGED PIPELINE” every one-hundred fifty feet (150’) for the length of the pipeline. “DANGER SUBMERGED PIPELINE” signs shall also be placed at the beginning and end of all submerged pipelines and at all abrupt change of direction. Signs shall also be installed anywhere the charted depth is reduced by more than ten percent (10%). Unless otherwise specified by the USCG, submerged pipelines are considered to require special marks and shall have a USCG approved flashing yellow light.

SP-19 PIPELINE LEAKS

The Contractor shall maintain a tight discharge pipeline at all times. The joints shall be constructed so as to preclude spillage and leakage. Leaks shall be promptly repaired. The Contractor will transport the Engineer or his Inspector to the leak repair site for visual inspection if so requested by the Engineer or Inspector. Failure to repair leaks or change the method of operation which results in leakage that exceeds turbidity and water quality standards during transport to discharge site will result in suspension of dredging operations and require prompt repair or change of operation to prevent leakage as a prerequisite to the resumption of dredging.

SP-20 DREDGE LOCATION CONTROL

The Contractor is required to have, in continuous operation on the dredge, electronic positioning equipment that will accurately and continuously compute and plot the position of the dredge. A geographical positioning system, Differential Global Positioning System (DGPS), or equivalent, shall be used to maintain precise positioning of the dredge. Whenever dredging operations are underway, the location of the dredge shall be continuously monitored and its position within the borrow area shall be recorded, in the Louisiana South State Plane Coordinate System, NAD 1983 (Lambert Conformal Conic), at intervals not to exceed two (2) minutes. The Contractor shall be running a dredge location and management program. The Engineer or Inspector shall have unrestricted access to the bridge GPS and depth recording units to enable onboard real time review at anytime during construction. Plotters shall also continuously record the X,Y, Z (with respect to NAVD) position of the dredge’s excavator. Such data and the accompanying plots shall be furnished to

the Engineer or Inspector daily. The electronic positioning equipment shall be installed on the dredge so as to monitor, as closely as possible, the actual location of the cutter head or drag arm.

SP-21 SANITARY CONDITIONS

The Contractor shall provide and maintain sanitary accommodations for use by his employees and subcontractors. Facilities shall comply with the requirements of the local and State Board of Health and of other authorities having jurisdiction. The committing of public nuisance on the project site is prohibited by the Contractor.

SP-22 COMMENCEMENT, EXECUTION AND COMPLETION

The Contractor will be required to commence work at the site under the Contract within thirty (30) calendar days after receipt of the Notice to Proceed from the Engineer, or as otherwise specified in the Notice to Proceed. Work shall be conducted in such a manner and with sufficient materials, equipment and labor as is considered necessary to insure its completion within the time limit specified.

SP-23 PERMITS

All Federal and State permits that are required to perform the Work, such as the COE 404 Permit, Coastal Use Permit, and LDEQ Clean Water Permit, have been secured by the Owner. These permits will not relieve the Contractor from the responsibility of obtaining any additional permits which may be needed to complete the Work at no expense to the Owner. Copies of any special permits that are obtained by the Contractor must be submitted to the Owner. The Contractor shall conform to the requirements therein and display copies of the permits in a public setting at the Project Site at all times.

SP-24 TRANSPORTATION

Should the Contractor utilize a boat, quarters barge, or quarters and stay at the project area overnight during construction, the Contractor shall also provide room and board for the Inspector.

The Contractor shall provide a boat for the exclusive use of the Engineer and/or Inspector around the project area for the duration of the project. The boat shall have the following features:

- an enclosed cabin space
- capable of maintaining 25 knots (29 mph)
- six (6) passengers capacity
- Coast Guard certified
- operable marine radio
- all safety equipment required by the Coast Guard for the size and type of vessel
- draft of two feet (2') or less

The Contractor shall also provide the Inspector daily access to an air boat (4 passenger capacity), as necessary, to properly inspect the marsh creation/nourishment areas for the duration of the dredging activity. The Contractor shall supply the fuel and any required maintenance for the boat and airboat for the duration of the project. All mechanical malfunctions of the boat and/or airboat shall be repaired or replaced within twelve (12) hours after the Contractor is directed by the Engineer or Inspector.

In the event that the Contractor refuses, neglects, or delays compliance with these requirements, the specific facilities may be furnished and maintained by the Owner, and the cost thereof will be deducted from any amounts due or to become due the Contractor. The costs associated with providing transportation shall be included in the lump sum price for "Mobilization and Demobilization".

SP-25 JOB OFFICE FOR OWNER

The Contractor shall provide an office at the job site upon written request of the Engineer, acceptable to Owner, for the Engineer and Inspector. The office shall be separate from the Contractor's office, work, and storage areas. The office shall be of a size suitable to Owner and be equipped with sufficient 110 volt electrical outlets to operate office equipment supplied by the Owner. The office shall be provided with lighting, heat, and air conditioning. Access to phone and fax facilities shall be provided by the Contractor. Furnishings shall consist of a work/small conference table, a drafting table with stool, one desk or plan table sufficiently large enough to view full-size plans, one filing cabinet, and two (2) chairs.

In the event that the Contractor refuses, neglects, or delay compliance with these requirements, the specific facilities may furnished and maintained by the Owner, and the cost thereof will be deducted from any amounts due or to become due the Contractor.

The cost for providing and furnishing a Job Office for Owner shall be included in the contract lump sum price for "Mobilization and Demobilization".

SP-26 DELIVERY OF NOTICES, ETC.

The Contractor shall send all Bid documentation or questions to the attention of the Project Engineer. All Contract documentation or questions should be sent to the attention of the Field Engineer. The addresses and contact information for the Engineers are listed as follows:

Project Engineer

Jerry Carroll, P.E.
617 North 3rd Street
10th Floor, Suite 1041
Baton Rouge, Louisiana 70802
Phone: 225-342-1346
Fax: 225-342-6801

Field Engineer

Daniel Dearmond, P.E.
1440 Tiger Drive
Suite B
Thibodaux, Louisiana 70301
Phone: 985-449-5103
Fax: 985-447-0997

The Owner and Engineer shall deliver all written Claims, notices, submittals, Plans and other documents to the Contractor at the address indicated on the Bid.

SP-27 COPIES OF PLANS FURNISHED

Five (5) sets of contract Plans and Specifications will be furnished to the Contractor without charge except applicable publications incorporated into the Technical Specifications by reference. Additional sets will be furnished on request at the cost of reproduction. The Work shall conform to the contract Plans all of which form a part of these Contract Documents and are available at the Coastal Engineering Division of the Louisiana Department of Natural Resources, 617 North 3rd Street, Baton Rouge, Louisiana 70802.

END OF PART II – SPECIAL PROVISIONS

PART III TECHNICAL SPECIFICATIONS

TS-1 GENERAL REQUIREMENTS

1.1 Scope

The Work covered by these Plans and Specifications consists of furnishing all plant, equipment, materials, and labor required for mobilization, demobilization, construction of containment dikes, earthen plugs, rock plugs, steel sheet pile plugs, hydraulic dredging and placement of dredged material in accordance with these Specifications and in conformity to the lines, grades, and elevations shown on the Plans or as directed by the Engineer. Major tasks associated with this work include, but may not necessarily be limited to, the following:

- Mobilization and demobilization.
- Preparation of the marsh creation and marsh nourishment areas as shown on the Plans, including the construction and maintenance of containment dikes, internal training dikes, discharge weirs, and drainage ditches as required for dewatering.
- Hydraulic dredging and placement of dredged material as shown on the Plans.
- Installation of shoreline protection using geotextile fabric, earthen dredged material, and concrete armor mats as shown on the Plans.
- Installation of canal plugs using earthen dredged material, rip-rap, steel sheet pile, geotextile fabric, and concrete armor mats as shown on the Plans.
- Removal of an existing timber pile weir to be replaced with a steel sheet pile weir and concrete armor mats placed over geotextile fabric for scour protection as shown on the Plans.

1.2 Site Examination

Before Bid Submittal, bidders are required to examine the Project Site and determine the characteristics of the material to be dredged from the borrow area and access/flotation channels. The existing infrastructure, nature of the terrain, and native material present at the planned location of the structures should also be evaluated for bidding purposes. Further investigation of the site may show that logs, stumps, snags, debris and other obstructions may be encountered. No separate payment for removal and disposal of these obstructions will be made.

Before submitting a Bid, each Bidder should: (a) examine the bid documents thoroughly, (b) visit the sites to familiarize himself with local conditions that may in any manner affect cost, progress, or performance of the work, (c) familiarize himself with federal, state, and local laws, ordinances, rules, and regulations that may in any manner affect cost, progress, or performance of the work, (d) review such geotechnical data that is on file in the Coastal Engineering Division of the Department of Natural resources or available from other sources and which concerns the area from which materials are to be dredged, and (e) study and carefully correlate Bidder's observations with the bid documents.

1.3 Permits

The Owner has obtained a Consistency Permit from the Louisiana Department of Natural Resources, Coastal Management Division, a Clean Water Certificate from Louisiana Department of Environmental Quality, and a 404 Corps of Engineers Permit. The Contractor will be furnished with a copy of these permits and shall be responsible for compliance with all provisions and conditions. These permits do not relieve the responsibility of the Contractor from obtaining additional permits that may be needed to complete the Work. Copies of any special permits obtained by the Contractor to complete the Work must be submitted to Owner.

1.4 Removal of Trash

The Contractor shall remove all debris, trash, and garbage resulting from construction activities from the project site prior to requesting a final inspection.

1.5 Placement of Dredged Material

The Contractor shall not deposit dredged material into areas other than those shown on the Plans or stated in permits without approval of the Engineer. **Since the dredged material is to be placed in relatively small containment areas, it may be necessary to operate the dredge at a low production rate and/or to allow for dredge Adown time® to allow the material to settle out prior to the discharge of the clarified upper layer of ponded water from the containment areas. The Contractor shall have a sufficient amount of pipe and valves to allow for discharging into a minimum of two different fill areas concurrently.**

1.6 Navigation

All operations in connection with the Work shall be in accordance with Subsection 107.09, ANavigable Waters and Wetlands,@ of the Louisiana Standard Specification for Roads and Bridges, 2002. Failure of the Contractor to familiarize himself with all terms, conditions, and provisions of the rules and regulations applicable to the Work shall not relieve him of his responsibility under the Contract. Navigable depths shall not be impaired except as allowed by laws regulating navigation in the area. Access and flotation channels shall be maintained to provide clear and safe navigation of all vessels to be used for the Work. It is the responsibility of the Contractor to select equipment that can navigate from a maintained navigation channel to the Project Site without dredging except for the flotation and access channels depicted on the Plans. All equipment shall remain floating at all times during the transit to the Project Site. The Contractor shall obtain NOAA Nautical Charts and/or other charts to become familiar with the depths in the vicinity of the Project Site.

1.7 Existing Features

The Contractor shall be responsible for investigating, locating and protecting all existing facilities, structures, services, and pipelines on, above, or under the surface of the area where dredging operations are to be performed. The Owner will not be held responsible for damage to the Contractor-s equipment, employees, subcontractors, adjacent property owners, or anyone else connected with the project due to encountering objects above and below the water line.

Existing features, where indicated on the Plans, are shown only to the extent such information was made available to or discovered by the Engineer during preparation of the Plans. There is no guarantee as to the accuracy or completeness of such information, and all responsibility for the accuracy and completeness is expressly disclaimed. If the Contractor fails to discover an underground installation and damages the same, he shall be responsible for the cost of the repair.

Prior to any construction activity, the Contractor shall call Louisiana One Call (DOTTIE) at 1-800-272-3020 at least five (5) working days prior to mobilization to locate any utility lines in the area. Additionally, the Contractor shall perform a magnetometer survey as denoted on Sheet 2 of the Plans and described in these Specifications.

TS-2 MOBILIZATION AND DEMOBILIZATION

2.1 Description

Mobilization consists of preparatory work and operations, including those necessary for movement of personnel, equipment, supplies and incidentals to the project sites; the establishment of offices, buildings, and other facilities necessary for the Work on the project; the cost of bonds and any required insurance; and other pre-construction expenses necessary for start of the Work, excluding the cost of construction materials.

Demobilization shall include all activities and costs for transportation or personnel, equipment, and supplies not required or included in the Contract from the site. This includes the disassembly, removal, and site cleanup of offices, buildings, and other facilities assembled on the site specifically for this Contract.

2.2 Arbitrary Mobilization by Contractor

The Owner will pay for mobilization and demobilization only once. Should the Contractor demobilize prior to completing the project, such demobilization and subsequent remobilization shall be at no cost to the Owner.

2.3 Ratio of Mobilization and Demobilization Effort

Sixty percent (60%) of the lump sum price will be paid to the Contractor upon completion of his mobilization and commencement of the Work. The remaining forty percent (40%) will be paid to the Contractor upon demobilization from and final acceptance of the Work.

2.4 Justification of Mobilization Costs

In the event that the Engineer considers the amount in this item, sixty percent (60%) and forty percent (40%) which represents mobilization and demobilization respectively does not bear a reasonable relation to the cost of the Work in this Contract, the Engineer may require the Contractor to produce cost data to justify this portion of the bid. Failure to justify such price to the satisfaction of the Engineer will result in payment of actual mobilization costs, as determined by the Engineer, at the completion of mobilization, and actual demobilization costs at the completion of demobilization, and payment of the remainder of this item in the final payment under this contract. The determination of the Engineer is not subject to appeal.

2.5 Measurement and Payment

All costs associated with mobilization and demobilization of the entire Contractor's plant, equipment, personnel, and those of his Subcontractors and such others costs as may be denoted in the Contract Documents shall be paid using the contract lump sum price for Bid Item No. 1, "Mobilization and Demobilization".

TS-3 SURVEYING

3.1 Scope

The scope consists of the surveying of all transects required in this Specification or as shown on the Plans. There are two existing bench marks in the area which were installed as part of DNR's Secondary GPS Network. These benchmarks will be used for horizontal and vertical control. A data sheet for each benchmark is included in Appendix B. All surveying work listed in this section shall be performed under the direct supervision of a professional surveyor licensed in state of Louisiana unless otherwise stated. All Drawings shall be stamped by the surveyor and shall reference the North American Datum of 1983, Louisiana South Zone, U.S. Survey Feet, and the North American Vertical Datum of 1988, U.S. Survey Feet.

3.2 Pre-Construction Survey

Transects and temporary benchmarks shall be surveyed after the Pre-Construction Conference and prior to construction. This survey shall be used to verify the alignment of the various project features and make modifications or adjustments as deemed necessary by the Engineer. Drawings of the plan views and cross sections and calculations of the projected quantities of materials shall be developed by the Contractor from this survey.

- 3.2.1 Temporary Bench Marks (TBMs): TBMs shall be installed by the Contractor at locations necessary to stakeout the marsh creation/nourishment areas as required in section "TS-4 Grade Stakes ". Horizontal and vertical coordinates shall be determined for all TBMs installed. The Contractor shall maintain the TBMs for the duration of construction at the Contractor's expense. In the event that a single TBM is disturbed and/or destroyed, the TBM may be reinstalled by a qualified Contractor employee approved by the Engineer. If multiple TBMs are destroyed, the Engineer may require the TBMs to be reinstalled by a professional surveyor licensed in the state of Louisiana.
- 3.2.2 Fill Area Transects: A pre-construction survey of the fill areas shall be made in order to calculate a theoretical fill volume of each fill area. It shall consist of a grid of marsh transects with 500' offsets and be oriented as shown on Sheet 5 of the project Plans. Elevations shall be recorded at points every 50 feet along each grid line and at all transect intersection points and fill area boundaries. The theoretical volume contained in each Acell® bounded by the adjacent transects shall be calculated based on the difference between the existing mudline elevation of the fill material being at three different elevations: the **first lift** maximum elevation of +1.5 feet NAVD 88, the target/minimum elevation, and the maximum elevation (See Plan Sheet 14 for individual fill area target/minimum and maximum elevation). The theoretical volume for each cell at these elevations shall be calculated using the average end area method or other method approved by the Engineer. The theoretical volume calculation shall be submitted to the Engineer for verification. The cross sections taken shall be submitted to the Engineer digitally in AutoCAD format and 11" X 17" hard copy. The drawings and calculations must be approved by the Engineer prior to the construction of earthen containment dikes.
- 3.2.3 Borrow Area Transects: The borrow area transects shown on Sheet 5 shall be surveyed prior to construction. As indicated on Sheet 4, every other transect shall be surveyed from the existing Lake Mechant shoreline to 500' beyond the borrow area. Elevations shall be obtained at 25' intervals and at each intersection within the borrow area boundary. Transects shall run north/south and east/west and shall extend 500' beyond all borrow area boundaries, except where required to extend to the Lake Mechant shoreline. The Contractor shall create cross sections and plan views of the existing bathymetry within the borrow area. The projected available volume for the borrow area shall also be calculated based on a permitted bottom elevation of -15.0'

NAVD88. The volume shall be determined using a method that is approved by the Engineer, such as the average end area method or AutoCAD Desktop. All drawings shall be submitted to the Engineer digitally in AutoCAD format and 11" X 17" hard copy.

- 3.2.4 Containment Dike Surveys: The alignment of all containment dikes within the fill areas shall be surveyed and staked at 500 ft intervals and at all points of intersection as shown on the Plans. The elevation and coordinates for each stake shall be recorded.
- 3.2.5 Earthen Plugs and Sheetpile Wing Walls: A pre-construction survey of the fill placement area of the earthen plugs and sheetpile wing walls shall consist of cross sections taken 10 feet on centers perpendicular to the centerline of the plug or wing wall. Each cross section shall be surveyed every 10 feet for x, y and z coordinates and shall extend 50 feet beyond the boundary of the proposed feature. **All surveys shall be performed with the Engineer or Inspector present.** Volumes shall be determined using a method that is approved by the Engineer, such as the average end area method or AutoCAD Desktop.
- 3.2.6 Rock Plugs: A pre-construction survey of the placement area of the rock plugs shall consist of cross sections taken 10 feet on centers perpendicular to the centerline of the rock plug. Each cross section shall be surveyed every 10 feet for x, y and z coordinates and shall extend 50 feet beyond the boundary of the proposed feature. **All surveys shall be performed with the Engineer or Inspector present.** Volumes shall be determined using a method that is approved by the Engineer, such as the average end area method or AutoCAD Desktop.

3.3 Magnetometer Survey

The Contractor shall perform a magnetometer survey at the following locations: Access route(s) to the project site; access channels; flotation channels; known well locations; and all proposed pipeline access corridors. Magnetometer lines shall be run along the centerline of the alignment of these features. Magnetometer data shall be collected on a minimum of three circular routes around all known well heads within 150' of the proposed access route, access channels, and borrow area. Perpendicular track lines shall be run at 500' maximum intervals and shall extend 25 feet beyond the outside edge of each of these features, where possible. All pipelines within 150' of the fill area, access and flotation channel, or borrow area shall be probed and their location marked for the duration of construction. Bathymetry data shall be collected along with magnetometer data. All bathymetry data shall be referenced to NAVD 88 U. S. feet. Drawings showing the track lines, elevation contours, coordinates, amplitude, signature type, and signature width of all magnetometer hits along with the results of the pipelines probing, including coordinates, elevation of the top of the pipe, and cover over the pipe shall be submitted to the Engineer prior to mobilization for construction.

3.4 Process Surveys

The borrow area, first and second lifts for the fill areas, and the settlement plates shall be surveyed in order for the Contractor to receive partial payments during construction.

- 3.4.1 Borrow Area Survey: As dredging occurs, transects and alignments within the borrow area shall be surveyed at the same intervals as the pre-construction survey only for the areas that have been dredged. The elevation and coordinates for each survey point shall be recorded and used to create plan views and cross sections of the borrow area. These plan views and cross sections shall be used for partial payment and comparisons of quantity of material dredged with the quantity of material placed.
- 3.4.2 Fill Area Survey: After placement within a fill containment cell area and allowance for the specified settling and dewatering period, all four (4) of the grade stakes comprising a cell within

the fill area shall be visually inspected and the elevation of the fill at each stake recorded. The top of fill elevation, coordinates and identification number shall be recorded for each stake and used to create plan views, cross sections and volumes of the cell. These plan views and cross sections shall be used for comparisons of quantity of material dredged with the quantity of the material placed. The volume for either lift within any cell shall consist solely of fill placed for that lift. The volume for each fill containment cell shall be determined by averaging the fill elevation of the four stakes and interpolating the volume from the method developed during the pre-construction survey.

- 3.4.3 Containment Dike Surveys: After the containment dikes have been constructed around any fill containment cell, the toes and top centerline of the containment dikes shall be surveyed at the locations established in the pre-construction survey. The elevation and coordinates shall be recorded and used to create plan views and cross sections of the containment dikes and to ensure that the dikes are at the required height.
- 3.4.4 Settlement Plates: All settlement plates within any containment cell that has achieved the first or second lift shall be surveyed. The existing ground elevation, top elevation, coordinates and identification number shall be recorded for each settlement plate and placed on the plan views.

3.5 As-Built Surveys

The following features shall be surveyed upon completion:

1. Armored Earthen Dike
 2. Rock Plugs
 3. Steel Sheet Pile Plugs and Weir
 4. Earthen Plugs
 5. Marsh Fill Areas
 6. Borrow Area
 7. Flotation Access Channels
 8. Settlement Plates
- 3.5.1 Armored Earthen Dike: The armored earthen dike shall be surveyed at transects 150 feet apart and at all points of inflection. Elevations along the profile shall be taken 10 feet from the interior toe, at the interior dike toe, the crown elevations, and the bayou side dike toe, and shall extend to the -8' NAVD 88 contour.
 - 3.5.2 Rock Plugs: Transects every 25 feet shall be surveyed at both rock plugs perpendicular to the centerline of the crown. One transect shall be surveyed at the center of the channel. Perpendicular transects shall include elevations at both toes, a minimum of one elevation taken on the slope and a minimum of two elevations delineating the limits of the crown. Perpendicular transects shall also include elevations 50 feet beyond the rock plugs at 10 foot intervals. The Contractor shall also report estimated rock settlement during construction for each perpendicular transect in feet. An additional transect shall be surveyed at both plugs along the centerline of the crown. This centerline transect shall include elevations where the rock begins and ends (existing ground), the beginning and ending of the crown, and crown elevations every 25 feet.
 - 3.5.3 Steel Sheet Pile Plugs and Weir: Transects shall be surveyed at the three sheet pile plugs and weir along the centerline of each structure and at various locations perpendicular to the centerline. At a minimum, perpendicular transects shall be surveyed at the center of the structure and across the earthen wing walls. Additional transects shall be surveyed if minimum requirements do not cover wing wall borrow areas or if required by the Engineer. Perpendicular transects shall extend at least 50 feet to each side of the plug or weir or to the outer most extent of the wing wall borrow areas, if applicable. Elevations shall be recorded every 10 feet capturing

existing channel bottom topography, borrow area depths and extents, if applicable, and top elevation of sheet pile cap or wing wall armor. The centerline transect shall include elevations where wing walls begin and end (existing ground), top of wing wall, the beginning and ending of exposed sheet pile, and top of sheet pile cap every 25 feet.

- 3.5.4 Earthen Plugs and Sheet Pile Wing Walls: Transects shall be surveyed across the entirety of the plugs and wing walls both perpendicular and parallel to the centerline of the channels being plugged. At least three transects shall be surveyed in both the parallel and perpendicular direction. Transects perpendicular to the centerline of the plug or wing wall shall consist of cross sections taken 10 feet on centers. These cross sections will be used for payment as specified in “TS-15 Earthwork”. All surveys used for payment shall be performed with the Engineer or Inspector present. A minimum of three transects shall be surveyed across the borrow areas in both directions as well. Elevations shall be recorded at 10 foot spacings along each transect.
- 3.5.5 Marsh Fill Areas: For the fill areas, the as-built survey shall incorporate the process surveys of the final lift for all of the containment cells. It shall include the cross sections, plan views and volumes from the first and second lifts from the process surveys. The dates, elevations and volumes for each process survey shall be superimposed onto the corresponding fill containment cells on the plan views.
- 3.5.6 Borrow Area: The as-built survey shall incorporate the cross sections and plan views from the process survey. The survey shall include the elevation and coordinates for each survey point recorded and used to create plan views and cross sections of the final borrow area. The volume shall be determined using a method that is approved by the Engineer, such as the average end area or AutoCADD. This volume will be used along with the volume calculated from the pre-construction borrow area survey to determine measurement and payment.
- 3.5.7 Flotation Access Channels: Transects shall be surveyed perpendicular to flotation channels every 500 feet and shall extend 50 feet beyond temporary and permanent spoil areas. Elevations shall be recorded every 25 feet and at changes in topography.
- 3.5.8 Settlement Plates: The elevation of each settlement plate specified in “TS-17 Settlement Plates” shall be recorded and reported to the nearest tenth of a foot (0.1’) NAVD 88.

3.6 Drawings

As-built drawings and drawings associated with pre-construction and process surveys for marsh and borrow area transects and other project features shall be submitted to the Engineer digitally in AutoCAD format and 11” X 17” hard copy. As-built drawings shall incorporate all field changes, change orders, and show the actual quantity of material placed. All revisions shall be shown in red and be easily distinguishable from the original design. The drawings shall be stamped by a professional surveyor licensed in state of Louisiana. A table containing the following information of the grade stakes shall also be submitted:

- stake number
- elevation at end of pumping in the cell
- elevation two weeks after pumping
- elevation at partial acceptance
- elevation at final acceptance of the entire project
- date of each milestone listed above
- The elevations shall be reported to the nearest 0.1’ NAVD 88

3.7 Point Files

Point files of the pre-construction marsh and borrow area transects and as-built surveys shall be submitted in electronic format to the Engineer. The point files shall contain the following information:

- Point number
- Northing (NAD 83 US. FT.)
- Easting (NAD 83 US. FT.)
- Elevation (NAVD 88 FT.)
- Description

3.8 Ratio of Pre and Post Construction Surveying Effort

Sixty percent (60%) of the lump sum price will be paid to the Contractor upon completion of pre-construction surveys and the remaining forty percent (40%) will be paid to the Contractor upon completion of surveys for payment and As-built surveys.

3.9 Justification of Surveying Costs

In the event that the Engineer considers the amount in this item, sixty percent (60%) and forty percent (40%) which represents pre and post construction surveys, respectively as defined in "TS-3.8 Ratio of Pre and Post Construction Surveying Effort" does not bear a reasonable relation to the cost of the Work in this Contract, the Engineer may require the Contractor to produce cost data to justify this portion of the bid. Failure to justify such price to the satisfaction of the Engineer will result in payment of actual surveying costs, as determined by the Engineer at the completion of each survey, and payment of the remainder of this item in the final payment under this contract. The determination of the Engineer is not subject to appeal.

3.10 Measurement and Payment

All costs associated with pre-construction, process and as-built surveys as may be denoted in the contract documents shall be paid for at the contract lump sum price for Bid Item No. 2 "Surveying". All required quality control and acceptance surveys may be performed by approved contract personnel at no direct pay. However, all surveying required in this section shall be performed by a professional surveyor licensed in the state of Louisiana.

TS-4 GRADE STAKES

4.1 Scope

The Contractor shall furnish all of the materials, labor and equipment necessary to construct, install, survey, maintain and inspect all grade stakes until the fill area is completed and accepted according to the Plans and these Specifications.

4.2 Materials

Each stake shall be composed of a gauge sign attached to 2" x 4" x 12' (Minimum length) untreated timber. The gauge sign shall consist of reflective sheeting applied to a rigid substrate of 4" x 0.120" x 3' fiberglass reinforced thermoset polyester laminate using a pressure sensitive urethane adhesive. The sheeting shall be

engineer grade T1500 that is white in color and reflective as manufactured by Avery Dennison, or approved equal. The substrate shall be gray in color, dielectric and non-conductive, acrylic modified and UV stabilized for outdoor weatherability, and possess a tensile strength which exceeds 0.005" aluminum. The top of each gauge sign shall be fastened to each stake using three 2" galvanized #8 wood screws and washers.

The background colors, border lines and elevation numbers on the gauge shall be applied to the sheeting using Avery 7TS ink, or approved equal. Background colors representing tolerance ranges shall be applied to the sheeting using transparent ink. Border lines shall be 1/8" thick applied in black ink. Elevation numbers shall be 2.5" high and placed immediately above each border line in black ink. The following elevations and background colors shall be shown on the gauge sign:

EL = +1.5' NAVD 88 – Orange color background - Target elevation for the first lift (No tolerance specified);

Blue color background - Minimum elevation for the second lift; (See Sheet 14 of the Plans for fill area elevations)

Green color background - Maximum elevation for the second lift; (See Sheet 14 of the Plans for fill area elevations)

The top of each stake shall be set at elevation +4.5' NAVD88. The grade stake number shall be placed vertically between the top of the stake and the top of the sign using a black permanent marker.

4.3 Installation

Grade stakes shall be installed on 500 foot centers at the grade stake coordinates shown on Sheet 6 of the Plans, or as directed by the Engineer. Approximately three feet of stake shall be above mean high water in the project area which is +1.45' NAVD 88. All stakes shall have a minimum of six feet embedment into the soil. All stakes shall be maintained for the duration of the project by the Contractor at no direct pay. The Contractor has the option of installing stakes on a monthly basis. The elevation of the top of each stake and the distance from the top of the stake to the existing ground (tape down distance), the stake identification number, Northing coordinate in NAD 83 U.S. feet, and Easting coordinate in NAD 83, U.S. feet shall be recorded upon completion of installation.

The Contractor shall submit to the Owner for approval the resume(s) of person(s) who will perform survey(s) on the grade stakes. An initial inspection must be performed no more than 30 days prior to beginning filling operations and must be witnessed by the Inspector. A second inspection must also be performed between lifts and must be witnessed by the Inspector. All inspections shall include the measurement of a minimum of 10% of the stakes for tape down distance, plumb, and distance from the transect. The stakes' tape down distance may not vary by more than one inch (1") from the initial tape down distance. The stakes' plumb angle may not vary by more than 15 degrees from the vertical. The stakes may not be located more than 5 feet out of line with transects. If these stakes are found to be beyond these required tolerances, all stakes in that respective fill cell shall be resurveyed and gauges reset. The Contractor has the option of relocating damaged stakes by no more than 5 feet from their original locations, provided they are resurveyed. The Contractor shall provide the Engineer with an electronic file containing the following information:

- Grade Stake identification number
- Northing coordinate, NAD 83 U.S. Ft.
- Easting coordinate, NAD 83 U.S. Ft.
- Elevation of the top of stake, NAVD 88 Ft.
- Tape down distance, Ft/Inches

4.4 Acceptance

The grade stakes will be inspected and monitored in accordance with “TS-4.3 Installation”. Grade stakes will be accepted for payment upon submittal and approval of the electronic file as described in “TS-4.3 Installation”. The Engineer reserves the right to halt dredging operations if grade stakes are not properly maintained.

4.5 Measurement and Payment

Payment for Grade Stakes will be made at the contract unit price per each for Bid Item No. 3, AGrade Stakes®. Price and payment shall constitute full compensation for furnishing all labor, materials and equipment for construction, surveying, and maintenance of all required grade stakes and performing all Work specified herein.

TS-5 EARTHEN CONTAINMENT DIKES

5.1 Scope

The Contractor shall furnish all of the materials, labor and equipment necessary to construct and maintain the earthen containment dikes in accordance with the Specifications and in conformity to the lines, grades, elevations, and tolerances shown on the Plans. The earthen containment dikes shall be maintained by the Contractor until the fill area has been completed and accepted according to the Plans and these Specifications.

The earthen containment dikes shall be constructed such that the discharge from the marsh creation/nourishment areas will not flow back into Lake Mechant, Lake Pagie, Raccourci Bay, Raccourci Bayou or other navigable waters. The boundaries of the containment dikes are depicted on the Plans.

5.2 Construction

Earthen containment dikes shall be erected to the alignment, grade and cross sections shown on the Plans as necessary to prevent discharge into areas mentioned above or other open water areas that are not proposed as fill areas. The dike material shall be taken from within the hydraulic fill placement areas at locations shown on the Plans. The dike borrow area shall be re-filled upon placement of the hydraulic dredge material within the fill area. The containment dikes must be constructed and surveyed prior to placement of fill into the proposed disposal areas. The containment dikes shall be maintained until the fill area has been accepted. All required maintenance of containment dikes shall be performed at no direct pay. Dewatering of hydraulic fill within containment areas shall be in accordance with “TS-8 Hydraulic Dredging”. Special caution shall be exercised in the vicinity of the Texas Gas and Tennessee Gas pipelines as noted in “SP-8 Landowner Requirements”. Multiple lifts during construction are anticipated and should be factored into the Contractor’s bid price.

The boundaries of the containment dikes are based on the field conditions present at the time of the survey. The Contractor may request a change of alignment if field conditions have changed significantly from those represented on the Plans. All requests must be submitted in writing and be included with the dredge disposal plan as specified in “TS-8 Hydraulic Dredging”. Any revision resulting in a change of length will be accomplished by a Change Order. Otherwise, the revision will be accomplished by a Field Order. A permit modification will be required if the length, width, or elevation of the proposed dikes is greater than shown in the Plans. No additional construction time will be granted to obtain permit modifications.

The minimum distance from the toe of the dike to the containment dike borrow area is twenty-five feet (25’).

5.3 Access

The containment dikes shall be accessed through existing open water. Access to the internal areas shall be through open water to the extent possible. Any access route that requires travel across existing marsh must first be approved by the Engineer or his Inspector. Travel across existing marsh will be allowed only within marsh creation areas.

5.4 Tolerance

Construction of the Earthen Containment Dikes shall be as close to the elevations and areas shown on the Plans as possible, with a maximum vertical tolerance of (+) six inches (6"). The target and/or minimum elevation of the containment dikes are as shown on Sheet 14 of the Plans.

5.5 Degradation of Containment Dikes

Containment dikes must be at the same elevation as the marsh creation platform upon completion of the project. Dike elevations greater than +1.0 feet above the marsh creation platform must be degraded to marsh elevations. Dike elevations between +0.0 feet and +0.9 feet above the new marsh fill platform shall be degraded at the discretion of the Engineer. Any spoil material associated with degradation of the containment dikes shall be side cast onto the adjacent fill sites. No spoil material shall be placed outside the fill sites without approval from the Engineer. All costs associated with the degradation of the containment dikes shall be included in Bid Item No. 4, "Earthen Containment Dikes".

5.6 Measurement and Payment

Construction of earthen containment dikes and temporary dewatering facilities will be paid at the contract price per linear foot on a monthly basis. All required maintenance of the dikes shall be performed by the Contractor at no direct pay. Payment for containment dikes will be made at the contract unit price per linear foot for Bid Item No. 4, "Earthen Containment Dikes". Price and payment shall constitute full compensation for furnishing all labor, materials and equipment for construction and maintenance of all required containment dikes and performing all Work as specified herein.

TS-6 ARMORED EARTHEN DIKE

6.1 Scope

The armored earthen dike shall be constructed to serve as containment for hydraulic dredged material on the western edge of Fill Area 6 during construction and as protection for the created marsh from boat generated waves in Bayou Raccourci. The alignment of the armored earthen dike along Bayou Raccourci is depicted on Sheet 11 of the Plans.

6.2 Materials

The core of the armored earthen dike will be constructed of in-situ dredged earthen material. The earthen core will be placed over a woven geotextile fabric. The earthen core will then be armored by concrete mats which will be separated from the earthen material with non-woven geotextile fabric.

- 6.2.1 Concrete Mats: Refer to Section “TS-13 Concrete Mats”.
- 6.2.2 Woven Geotextile Fabric: Refer to Section “TS-11 Woven Geotextile Fabric”.
- 6.2.3 Non-Woven Geotextile Fabric: Refer to Section “TS-12 Non-Woven Geotextile Fabric”.

6.3 Construction

The armored earthen dike shall be constructed to the lines, grades, and elevations specified in the Plans as necessary to prevent discharge of the placed dredged material. The dike material shall be taken from within the hydraulic fill placement area. The dike borrow area shall be re-filled upon placement of the hydraulic dredge material within the fill area. Prior to placing any earthen dike material, the Contractor shall install the woven geotextile fabric. The Contractor shall then place the earthen dike material over the woven geotextile in a **minimum of two (2) lifts**. Each lift shall be allowed to settle and dewater for a minimum of seven (7) days prior to the placement of any additional material. The final lift of the earthen dike material shall be in compliance with the elevation and section indicated on the Plans for a period of 28 days without placement of additional material prior to the placement of the concrete mats. The Contractor shall verify, with approval by the Engineer or Inspector, that the elevation and section of the earthen dike are in compliance with the Plans prior to proceeding with placement of the concrete mats (Reference SP-5 for construction sequencing associated with placement of concrete mats). Upon approval by the Engineer or Inspector, the Contractor shall place concrete mats over the earthen material separated by non-woven geotextile fabric. The entire armored earthen dike section must be accepted prior to the Contractor placing any hydraulic dredge material in Fill Area 6. Discharge from Fill Area 6 shall not be allowed to flow back into Lake Mechant, Lake Pagie, Raccourci Bay, Raccourci Bayou or other navigable waters.

The alignment of the armored earthen dike is based on the field conditions present at the time of the survey performed in October 2003. The Contractor shall perform a pre-construction survey of the armored earthen dike alignment using transects shown on Sheet 4 of the Plans to verify the location of the edge of Bayou Raccourci. Any proposed change in alignment of the armored earthen dike will be initiated by the Contractor for approval by the Engineer. Any revision to the alignment resulting in a change of length or material quantity will be accomplished by a Change Order. Other revisions will be accomplished by a Field Order.

6.4 Utilities

The alignment of the armored earthen containment dike is in the vicinity of a SLECA power line. The work specified will require de-energization of the power line. The Contractor shall be responsible for notifying SLECA a minimum of two weeks in advance (Saturdays and Sundays are not included) of performing any work within 500 feet of the power line. **Power lines will not be de-energized during the shrimp trawling season, August 15th through November 15th of a calendar year.** Furthermore, the power line will be de-energized from Monday at 9:00 am until the following Thursday at 4:00 pm for such time as is required for the construction of the armored earthen dike with the exception of shrimp trawling season. **Contact Todd Sullivan at (985) 876-6880 for coordination with SLECA.**

6.5 Access

The armored earthen dikes shall be accessed through existing open water. Access to the internal areas shall be through open water to the extent possible. Any access route that requires travel across existing marsh must first be approved by the Engineer or Inspector. Travel across existing marsh will be considered only within proposed marsh creation areas.

6.6 Acceptance

The armored earthen dike shall be surveyed and measured for acceptance based on the criteria listed above and shown on the Plans. These measurements will be taken by the Contractor under the supervision of the Engineer or Inspector. The earthen material core shall be constructed using a minimum of two lifts. The Contractor shall wait a minimum of seven (7) days between lifts to allow for de-watering and initial settlement. The Contractor shall verify, with approval by the Engineer or Inspector, that the elevation and section of the earthen dike are in compliance with the Plans prior to proceeding with placement of the non-woven geotextile and the concrete mats (Reference SP-5 for other requirements regarding placement of concrete mats). Final acceptance of the armored earthen dike will occur a minimum of seven (7) days after all dredge material is placed and armoring is completed in accordance with the Plans and Specifications.

6.7 Measurement and Payment

Construction of armored earthen dikes will be paid for using four (4) separate material quantities. The earthen core will be paid for at the contract unit price per linear foot for Bid Item No. 4, "Earthen Containment Dikes". All required maintenance of the dikes shall be performed by the Contractor at no direct pay. Payment for woven geotextile fabric will be made at the contract unit price per square yard for Bid Item No. 8 "Woven Geotextile Fabric". Payment for non-woven geotextile fabric will be made at the contract unit price per square yard for Bid Item No. 9 "Non-Woven Geotextile". Payment for concrete mat armoring will be made at the unit prices per square yard for Bid Item No. 10 "Concrete Mats". Price and payment shall constitute full compensation for furnishing all labor, materials and equipment for construction and maintenance of the required armored earthen containment dike and performing all Work as specified herein.

TS-7 INTERNAL TRAINING DIKES

7.1 Scope

At the Contractor's discretion, internal training dikes may be erected within marsh creation areas to help achieve specified hydraulic fill elevations and to maximize retention of solids. No specific training dike locations have been designated.

7.2 Construction

If the Contractor decides to use training dikes, they shall be built no higher than the maximum fill elevation specified on Sheet 14 of the Plans. The training dike material shall be taken from within the dredged material placement area and re-filled during dredging. A layout of proposed training dikes shall be submitted to the Engineer prior to construction in the dredge disposal plan specified in "TS-8 Hydraulic Dredging". Special caution shall be exercised in the vicinity of the Texas Gas and Tennessee Gas pipelines as noted in Section "SP-8 Landowner Requirements".

7.3 Access

The training dikes shall be accessed through existing open water. Access to the internal areas shall be through open water to the extent possible. Any access route that requires travel across existing marsh must first be approved by the Inspector. Travel across existing marsh will be allowed only within marsh creation areas.

7.4 Measurement and Payment

Internal training dikes are presented as an option to the Contractor to help achieve required hydraulic fill elevations and to maximize retention of solids. There will be no direct payment for the construction of the internal training dikes.

TS-8 HYDRAULIC DREDGING

8.1 Scope

Hydraulic dredging shall consist of removing and satisfactorily placing dredged material in accordance with these Specifications and in conformity to the lines, grades, and elevations shown on the Plans or as directed by the Engineer. The materials to be dredged may consist of gravel, sand, silt, clay, muck, or shell. Additional materials such as logs, stumps, snags, scrap and other debris may be encountered within the specified limits of dredging and shall be removed and disposed of by the Contractor.

8.2 Equipment

The dredge equipment used for the Work shall be cutter head dredge type only. The use of any other type of dredge is prohibited. The Contractor shall determine and select the most appropriate size of the dredge for construction with the highest priority for evaluation and selection being the integrity of the containment dikes. The dredge shall also be capable of performing the Work in a safe, orderly, and environmentally acceptable manner. A complete description of the proposed hydraulic dredging equipment indicating dredge size, horsepower, production rate, and draft, shall be submitted with the bid documents. A DREDGE DATA SHEET is included in these Specifications on pages 8 and 9, and must be completed and submitted with the bid. The dredge equipment and attendant plant shall be in satisfactory operating condition, capable of efficiently performing the Work as set forth in the Plans and Specifications, and shall be subject to inspection by the Owner or Engineer prior to beginning the Work, and at all times during construction. All vessels shall meet the requirements in "SP-17 Marine Vessels And Marine Activities".

8.3 Navigation Depths

It is the responsibility of the Contractor to select equipment that can navigate from a maintained navigation channel to the Project Site. The use of Flotation Access Channels on this project is prohibited except as depicted on the Plans. The equipment shall remain floating at all times during the Work and transit to the Project Site. Areas containing navigable depths shall not be impaired except as allowed by applicable laws or regulations. The Contractor shall obtain NOAA Nautical Charts and/or other charts to become familiar with the depths in the vicinity of the Project Site.

8.4 Placement

Dredged material shall be deposited in the marsh creation areas in **at least two lifts** as described and shown within these Specifications and on the Plans or as approved by the Engineer. Any material that is deposited other than as indicated on the Plans or as approved by the Engineer shall be removed and deposited in approved areas at the Contractor's expense. The discharge from the marsh creation/nourishment areas shall be directed towards adjacent marsh and not be allowed to flow back into Lake Mechant, Lake Pagie, Raccourci Bay, Bayou Raccourci or other navigable waters. Placement of any outfall of the discharge pipe within 100 feet of the boundary of the marsh creation/nourishment area will require prior approval from the Engineer or Inspector. No discharge points shall be placed within 100 feet of grade stakes defined in section "TS-4 Grade Stakes". The flow rate and slurry density shall be regulated to insure that the final fill elevation

complies with the specified tolerances and that the integrity of the containment dikes are maintained. The Contractor will be required to frequently relocate the discharge pipe in order to maintain compliance with the specified tolerances. **The Contractor shall have a sufficient amount of pipe and valves to allow for discharging into a minimum of two different fill areas concurrently.**

Dredged material shall be transported and deposited in such a manner to ensure that impacts to existing marsh caused by this project are minimized. Construction access routes for maneuvering dredge discharge pipes shall be limited to a 100 foot corridor adjacent to the dredge discharge pipes. All access corridors in the marsh creation area(s) shall be repaired by pumping additional material into the area while removing the discharge pipe. Additional material shall be pumped at intervals necessary to meet elevation tolerances within the access corridors. The operation of the Contractor's land-based pipe moving equipment shall be limited to the boundaries of the designated containment areas. Travel across adjacent marsh vegetation outside the designated construction fill areas and access routes will not be allowed. Excess runoff of spoil onto adjacent marshes shall be prevented by maintaining a sufficient distance from the discharge pipe to the edge of the existing marsh. The Contractor will be responsible for the restoration of any damages caused by unnecessary and/or careless operation during construction.

8.5 Dredge Disposal Plan

The Contractor shall construct the marsh creation in at least two lifts of dredge material. The Contractor shall submit a dredge disposal plan for approval outlining the location and length of all earthen boundary containment dikes and optional training dikes. The disposal plan shall also include a timeline of dredging operations taking into account multiple lift requirements and tolerances specified in "TS-8.10 Tolerances". The dredge disposal plan must be reviewed and approved by the Engineer prior to the Contractor mobilizing to the site. All proposed alignments of dredge discharge pipes and temporary dewatering sites shall be shown on the dredge disposal plan. The locations of the dredge discharge pipes may be changed by a Field Order.

8.6 Floating Dredge Discharge Pipeline

Dredge pipelines that are floating or supported on trestles shall display appropriate lights at night and in periods of restricted visibility in accordance with USGS regulation and "33 CFR 88.15". Floating pipelines are any pipelines that are not laid along the channel lake bottom and include rubber discharge hoses. A copy of "33 CFR 88.15" can be downloaded from the internet at <http://www.access.gpo.gov/cgi-bin/cfrassemble.cgi?title=200333>.

8.7 Submerged Discharge Lines

If dredge discharge lines cross a navigable channel, the lines must be submerged and shall at no time reduce the depth and width of the existing channel in which it is placed. When the submerged line is placed in shallow water, outside the navigable channel, where the possibility exists for small outboard powered skiffs to cross over the submerged pipeline, the pipeline shall be marked with fluorescent orange buoys and signs stating "DANGER SUBMERGED PIPELINE" every 150 ft. throughout the length of the submerged pipeline. Costs incurred by the Contractor for compliance with this section should be included in the mobilization and demobilization cost in the Bid Price.

8.8 Dredge Location Control

No Dredging shall be performed except as depicted in the Plans. Dredging outside of the designated borrow area or in excess of the permitted depth is not allowed. The coordinates of the borrow area are provided on the Plans. No dredging is allowed below the permitted depth of -15.0 ft. NAVD 88. The Contractor will be

required to pay any costs, fines, or other expenses related to dredging outside of the borrow limits or permit violations resulting from Contractor negligence. If the Contractor does not pay cost, fines, or other expenses related to dredging outside of the borrow limits and/or permit violation, the Owner will deduct from payments due the Contractor from the Owner, or may be recovered from the Contractor's bond to cover said costs.

8.9 Dewatering

Dewatering of marsh fill areas through constructed containment dikes shall be allowed into marsh nourishment areas and into adjacent marshes. The discharge from the marsh creation/nourishment areas shall be directed towards adjacent marsh and not be allowed to flow back into Lake Mechant, Lake Pagie, Raccourci Bay, Bayou Raccourci or other navigable waters. Dewatering locations and methods shall be included with the dredge disposal plan specified in "TS-8.5 Dredge Disposal Plan". The Contractor shall provide temporary facilities, such as spill boxes, turbidity screens, weirs, or sedimentation berms as necessary to dewater the material placed in the marsh creation areas. Temporary facilities shall be removed by the Contractor upon completion of the Work.

8.10 Tolerances

Placement of hydraulic fill material shall be in at least two lifts as close to the elevations and areas shown on the Plans as possible. The Contractor may request partial payment after placing the first lift in a cell. The elevation of the first lift must be at or below the first lift maximum elevation of +1.5' NAVD 88 for 28 days without any additional placement of dredge material. For the second lift, the Contractor may request payment for the target minimum or maximum elevations. The elevation of the second lift must be at or above the target minimum elevation or the maximum elevation (See Plan Sheet 14 for fill area elevations) for 14 days without any additional placement of dredge material.

8.11 Acceptance

Once the Contractor requests partial payment for a marsh creation or marsh nourishment area, the area will be inspected and fill elevation recorded at each Grade Stake every 7 days to allow for initial settling, completeness, elevation, width, etc. The fill elevation at each Grade Stake will be estimated to the nearest +0.1' and recorded during the bi-weekly inspections. These measurements will be taken by the Contractor and witnessed by the Engineer or his Inspector. No additional dredge material shall be placed on an area once partial or final payment is requested for that area.

- 8.11.1 Marsh Creation Areas: Areas designated as marsh creation will require at least two lifts of hydraulic fill material subject to the tolerances set forth in "TS-8.10 Tolerances". Marsh creation areas under consideration for first lift partial payment must be at or below the first lift maximum elevation of +1.5' NAVD 88 for 28 days without any additional placement of dredge material before partial payment will be approved. If marsh creation areas under consideration for second lift payment are below the target minimum elevation shown on Plan Sheet 14 after 14 days, the Engineer may require the Contractor to place additional material prior to acceptance. If additional material is required in a fill area, the area must undergo another 14-day settling and dewatering period, and must undergo another biweekly inspection prior to acceptance. If a previously accepted area settles below the target/minimum elevation, the Engineer may require the Contractor to place additional material prior to final acceptance. Any material placed in a previously accepted area will be paid at the established unit price. Exterior cells along the boundary of the fill area will be accepted if the stake(s) adjacent to edge of the cell are within the tolerances listed above.

- 8.11.2 Marsh Nourishment Areas: Areas delegated for marsh nourishment require only one lift of fill material. The minimum elevation for marsh nourishment is +1.0' NAVD 88. The maximum elevation is +1.5' NAVD 88. No additional dredge material shall be placed on an area once the specified elevation is achieved and acceptance is requested for that area. The area under consideration for acceptance must be within the tolerances set forth for 14 days before the area will be approved. First lift payments will be considered final payment in marsh nourishment areas. No additional material will be considered for payment in these areas.

8.12 Measurement and Payment

Payment for dredging will be by the cubic yard removed from the borrow area shown on the Plans. There will be no payment for over-dredging quantities in excess of the lines, grades, and elevations shown on the Plans and stated in these Specifications. The Engineer may require material placed above the elevation tolerance to be removed at the Contractor's expense.

Payment for dredging will be made at the contract unit price per cubic yard for Bid Item No. 5, "Hydraulic Dredging". Price and payment shall constitute full compensation for furnishing all plant, labor, materials and equipment for dredging, satisfactory placement of dredged material into designated areas, all operations necessary for containment and dewatering of spoil material, and performing all Work as specified herein.

The Contractor may request partial payment monthly provided that all of the fill area in question has been found to be at the acceptable elevation as described in "TS-8.11 Acceptance". The volume included in the partial payment will be determined by the survey cross sections for the borrow area that are submitted by the Contractor and approved by the Engineer after the bi-weekly inspections are complete. The survey cross sections shall be taken per "TS-3 Surveying".

TS-9 ACCESS AND FLOTATION CHANNELS

9.1 Scope

The Contractor shall furnish all of the materials, labor and equipment necessary to construct the access and flotation channels through removal and permanent and temporary disposal of spoil materials. The limits of work shall conform to the lines and grades shown on the Plans. The channels shall be maintained in a useable configuration throughout the duration of the Work at the expense of the Contractor.

9.2 Method

The access and flotation channels shall be mechanically excavated using a bucket dredge, barge mounted track hoe or approved equal. The Contractor shall use any environmentally acceptable method that will complete the Work in accordance with the Plans. The Contractor shall submit to the Engineer the method and equipment intended to be used to complete dredging of access and flotation channels.

9.3 Excavation Limits

Access and flotation channels shall not be excavated beyond the limits and coordinates shown on the Plans without written approval from the Engineer. The minimum bottom elevation of the channels shall be -6.0' NAVD 88 (i.e. the invert of the channel shall not be lower than -6.0' NAVD 88). The maximum turning radius for transitions between access and flotation channels is 250 feet. The locations of the permitted channels are shown in the Plans. It shall be the responsibility of the Contractor to obtain prior approval from

the Engineer to enlarge or relocate the channels. The Contractor shall also obtain and submit to the Engineer a letter of no objection from any pipeline company for the proposed excavation inside their right-of-way.

9.4 Disposal

Dredged material shall be deposited in areas as shown on the Plans or as directed by the Engineer. As much of the material as possible will be placed as indicated on the Plans in the permanent disposal areas. This material must conform to the elevations, grades, and lines specified in the project Plans. The remainder of the dredged material from the flotation channels shall be placed in temporary disposal areas. Spoil material placed in temporary areas shall be used to backfill the flotation access channel after the project feature being accessed has been accepted by the Owner. The temporary spoil areas shall be reworked to $\pm 6"$ of the original bottom. Any material that is deposited in areas other than the areas indicated on the Plans or as authorized by the Engineer shall be removed and deposited in an approved area at the expense of the Contractor. Additionally, the Contractor will be responsible for restoring unauthorized disposal areas to pre-construction conditions at his own expense.

9.5 Navigation

The Contractor shall mark the channels with buoys and lights in accordance with the rules and regulations of the U.S. Coast Guard and the U.S. Army Corps of Engineers.

9.6 Maintenance

The access and flotation channels shall be maintained according to the dimensions shown on the Plans in order to transport equipment and materials to the Project Site throughout construction. Maintenance excavation shall be performed at the expense of the Contractor.

9.7 Measurement and Payment

The use of access and flotation channels is dependant upon the Contractor's equipment requirements to perform the Work. If the Contractor opts to dig access and flotation access channels to the lines and grades shown on the Plans and as specified herein, they shall be paid sixty percent (60%) of the contract lump sum price upon completion of the dredging and marking of the channels. Price and payment shall constitute full compensation for all materials, labor, supplies and equipment required for dredging the channels and maintaining the dredged channels to the required depth for the duration of construction. The remaining forty percent (40%) will be paid upon the successful completion of the backfilling operation. This work is considered complete when the temporary disposal material is moved back into the access and flotation channels and the bottom depth of the temporary disposal area is back to within $\pm 6"$ of the original bottom depth. The Engineer shall review the final elevation of the backfilled channels on the As-Built Survey in order to determine acceptance. Payment for this item will be made at the contract lump sum price for Bid Item No. 6, "Access and Flotation Channels".

TS-10 RIPRAP

10.1 Scope

This work consists of furnishing all riprap and equipment necessary to transport and place the riprap in accordance with these Specifications and in conformity to lines, grades and thickness shown on the Plans or as directed by Engineer. Stockpiling riprap on site will not be permitted.

10.2 Materials

Riprap shall consist of stone that will not disintegrate upon exposure to the elements or be easily broken from handling, and shall be reasonable free from earth and other foreign materials. When tested in accordance with AASHTO Designation: T 85, the solid weight of stone shall be at least one hundred fifty-five (155) pounds per cubic foot (based on bulk specific gravity) and the absorption shall not exceed two percent (2%). Samples of stone from a source not previously approved shall be taken under supervision of the Engineer and submitted for testing and approval prior to delivery to the project. The least dimension of an individual stone shall be at least one third (1/3) its maximum dimension, and each shipment of stone shall be reasonably well graded within the specific limits.

Control of gradation will be by visual inspection either at the source or project site or both, at the Engineer's option. Any difference of opinion between the Engineer and Contractor shall be resolved by checking the gradation of two uniform size random samples. Equipment, labor and sorting site shall be furnished by the Contractor at his expense.

10.3 Material Sources

On the basis of information and data available to the Engineer, stone meeting the quality requirements of these Specifications has been produced from the sources listed below:

Producer	Nearest Town to Pit	Pit Designation
B.E. Construction Co.	Murfreesboro, AR	Murfreesboro Quarry
Boorhem Fields, Inc.	Black Rock, AR	Valley Stone Quarry
Bussen Quarries, Inc.	Mehlville, MO	Bussen Quarry
Central Stone Co.	Withers Mill, MO	Pitt #1
Central Stone Co.	Perry, MO	Pitt #9
Central Stone Co.	Danby, MO	Plattin Quarry
Dravo Basic Material Co., Inc.	Smithland, KY	Three Rivers Quarry
Farmer's Limestone Co.	Uniontown, MO	Farmer's Limestone Quarry
Graysonia Quarries, Inc.	Delight, AR	Delight Quarry
H.M.B. Construction	Dequeen, AR	H.M.B. Quarry
Hoover Inc.	Iuka, MS	Waldrop Quarry
Industrial Mineral Products Div/3M	Little Rock, AR	3M Arch Street Quarry
Little Rock Quarry Co., Inc.	Caddo Valley, AR	DeRock Creek Quarry
Little Rock Quarry Co., Inc.	Little Rock, AR	Little Rock Quarry
McGeorge Corp.	Sweet Home, AR	Granite Mountain Quarry

Producer	Nearest Town to Pit	Pit Designation
Pine Bluff Sand and Gravel	Delaware, Ark.	River Mountain Quarry
Reed Crushed Stone Co.	Lake City, KY	Givertsville Quarry
Rigsby-Barnard Quarry, Inc.	Cave-In-Rock, IL	Rigsby-Barnard Quarry
Tower Rock Stone Co.	St. Genevieve, MO	Tower Rock Stone Quarry
Vulcan Materials Co.	Tuscumbia, AL	Quarry #114
Vulcan Materials Co.	Iuka, MS	Iuka Plant
West Lake Quarry Materials	Scott City, MO	Gray's Point Quarry
West Lake Quarry Materials	Neely's Landing, MO	Neely's Landing Quarry
West Lake Quarry Materials	Barnhart, MO	Barnhart Quarry
West Lake Quarry No. 2	Musicks Ferry, MO	West Lake Quarry

Riprap stone meeting the specified quality requirements and produced by others will also be accepted but must be approved by the Engineer. In order to gain acceptance, the Contractor shall obtain and test samples of the rock for gradation under the supervision of the Engineer. The Engineer shall accept the rock if the test results comply with this specification.

10.4 Gradation

Riprap for use on this Contract shall be LADOTD Class 250 lb. graded riprap as specified by Section 711.02(a) of the Louisiana Standard Specifications For Roads and Bridges, latest Edition or Owner approved equivalent. The riprap shall meet the following gradation:

PHYSICAL REQUIREMENTS FOR RIPRAP:

LADOTD Class	Stone Size (lbs.)	Spherical Diameter (ft.)	% Smaller Than
250 lb.	1250	2.50	100
	500	1.83	45-100
	250	1.46	15-50
	80	1.00	0-15

Control of gradation will be by visual inspection either at the source, or Project Site or both. The Engineer reserves the right to verify the gradation of any shipment by testing two uniform size random samples. The equipment, labor and cost for testing the samples shall be provided by the Contractor.

10.5 Free Fall

The riprap shall be placed carefully onto the geotextile fabric by limiting the height of drop to less than one (1) foot. If this height of drop causes damage to the geotextile fabric, the stone shall be placed directly onto the geotextile fabric with zero (0) height drop. Before placement of riprap, the Contractor shall demonstrate the stone placement will not damage the geotextile fabric.

10.6 Placement

The riprap material shall be placed along the centerline of the structure and worked outward to reduce mud waves. The Contractor is required to remove any mud waves that are produced if the center to outward method is not used. "Orange Peel" or "Clamshell" buckets shall not be used for the placement of riprap.

Riprap plugs shall be placed using multiple lifts. Each lift shall not exceed five (5) feet vertically. Each lift shall be allowed to settle for at least seven (7) days or as directed by the Engineer. No additional riprap shall be placed until approved by the Engineer or his Inspector.

10.7 Acceptance

Upon completion of riprap plugs, the structure will be allowed to settle for 28 days. At the completion of this period, the structure will be inspected for completeness, elevation, width, etc. These measurements will be taken by the Contractor under the supervision of the Engineer or Inspector. If the inspected structure has undergone considerable settlement and the crest elevation is not within the tolerance specified as shown on Sheet 18 and Sheet 19 of the Plans, the Engineer shall determine if an additional lift of riprap is needed.

10.8 Measurement and Payment

The unit of measurement of riprap satisfactorily placed in the Work will be by the ton (2,000 pounds). Quantities will be computed to the nearest whole ton. The Contractor will measure riprap and the Engineer will verify measurement for payment by weight determined by barge displacement. The Contractor shall furnish the Engineer a barge displacement table, not less than ten (10) days prior to unloading riprap from any barge for which a displacement table has not previously been furnished and approved. The Contractor shall furnish, with the barge displacement table, a drawing or sketch of each barge, dimensionalized in sufficient detail to permit checking of the tables. The drawings shall show, at a minimum, the length, width, and depth of the barge, and dimensions of rake or rakes.

Each such table shall have its accuracy certified by a person or firm, other than the Contractor, customarily performing this service and who has been approved by the Engineer. Each table submitted shall show the name and/or number of the barge, the barge dimensions, the barge owner, the name of the fabricator, certification and date of certification of the person or firm preparing the table. All new or modified barges shall be field checked for current dimensions by the Contractor, in the presence of the Engineer. Each table submitted shall contain in parallel columns, the freeboard of the barge in feet and tenths from zero (0) to the full depth of the barge, and the corresponding gross displacement to the nearest ton. Each barge shall be suitably marked with two displacement gauging lines along each side of the barge. Each gauging line shall be painted perpendicular to the edge of the barge and be no less than four (4) inches wide and one (1) foot long, on both the deck and side of the barge. Barges with rakes shall have the displacement gauging lines placed at each corner of the box section between the rakes. If a barge has a box end or ends, the gauging lines shall be placed approximately four (4) feet from the box end. The freeboard will be measured at the four (4) gauging locations and the displacement determined by the use of the "CELMV Standard Barge Tables" from the average of these measurements. The displacement shall be determined before and after the barge is unloaded and the difference between these values shall be the quantity delivered. Additionally, the

Contractor will provide the Engineer with certified weight tickets issued by the stone quarry for each barge used on the project.

If barge tables are furnished for fresh water and if the Contractor believes that barge displacement measurements made within the contract limits of work are being taken in water that has salinity, he will have the option of obtaining water samples and determining densities or unit weights of these samples. These water samples shall be taken in accordance with ASTM D 3370 (practice A-Grade Sample) at depths of four (4) and eight (8) feet in the area where measurements are made. Water sampling shall be performed when the barges are measured for quantities, both when fully loaded and when empty. Water samples shall be taken by the Contractor and witnessed by the Engineer or his Inspector with the use of "Polypro" 2000 ml. water sampler, or equal. Densities shall be determined as specified in ASTM D 1429 (Method D- Hydrometer Method). Testing shall be done for the Contractor by a certified testing laboratory, and test results certified by this laboratory. After review and approval of the test results by the Engineer, the average of the densities obtained at four (4) feet and eight (8) feet will be used as the suitable salt water conversion factor. In all calculations, the unit weight of 62.45 pounds/cubic foot will be used for fresh water.

If the Contractor does not obtain water samples and densities, then no adjustment or conversion factor will be applied to riprap quantities determined by displacement tables. The determination of satisfactorily placed riprap shall be based on survey cross sections. The quantity of riprap placed in the work will be reasonably estimated at each individual work site and quantities adjusted upon completed use of a barge or material, or completion of the contract. No payment will be made for any unauthorized use of the riprap.

All barges will be measured by the Contractor and witnessed by the Engineer or Inspector prior to light loading, immediately after light loading, and prior to placing any riprap. Payment for riprap will be made at the Contract unit price per ton for Bid Item No. 7 "Riprap". Price and payment shall constitute full compensation for furnishing all materials and for installing, measuring, maintaining, and performing all work as specified herein and incidental thereto.

TS-11 WOVEN GEOTEXTILE FABRIC

11.1 Scope

The work provided herein consists of furnishing all labor, material, equipment, and performance of all operations required for furnishing, hauling, placing, completing, and maintaining the woven geotextile fabric until placement of the stone, concrete or earthen cover is completed and accepted, as specified herein and on the Plans.

11.2 Materials

The material shall be a woven geotextile fabric consisting only of long chain polymeric filaments or yarns formed into a stable network such that the filaments or yarns retain their position relative to each other during handling, placement, and throughout the design service life. At least eighty-five (85) percent, by weight, of the material shall be polypropylenes, polyesters, polyamides, polyethylene, or polyolefins. The geotextile fabric shall be free of any treatment or coating which might adversely alter the geotextile fabric's hydraulic or physical properties after installation. When required, the geotextile fabric shall contain stabilizers and/or inhibitors added to the base material to make filaments resistant to deterioration due to ultraviolet light and/or heat exposure. The edges of the geotextile fabric shall be selvaged. The geotextile fabric shall be free from defects and tears and shall meet or exceed the physical property requirements listed in the table below. Thread used for factory or field sewing shall be of contrasting color to the fabric and made of kevlar, polypropylene, polyester, or polyamide thread. The thread shall be as resistant to deterioration due to ultraviolet light and/or heat exposure.

MINIMUM PHYSICAL PROPERTY REQUIREMENTS FOR WOVEN GEOTEXTILE FABRIC:

Physical Property	Test Method	Geotextile Requirements
* Wide Width Tensile Strength (lb./ft.)	ASTM D 4595	4800 (lb/ft) minimum, in direction perpendicular to centerline
** Seam Strength, (lb./ft.)	ASTM D 4884	2400 (lb/ft) minimum, in direction perpendicular to centerline
Elongation at Break, (%)	ASTM D 4595	≤ 10 in any principal direction
Puncture Resistance, (lb.)	ASTM D 4833	90 minimum
Ultraviolet Radiation Stability, (% residual strength)	ASTM D 4355	70% at 500 hrs. minimum
Apparent Opening Size- AOS	ASTM D 4751	No finer than the U.S standard sieve size no. 50 and no courser than the U.S. standard sieve size no. 30
Water Permittivity, (sec ⁻¹)	ASTM D 4491	.15 minimum
Flow Rate, (gal/min/ft ²)	ASTM D 4491	minimum of 10 and a maximum of 50
Trapezoid Tear Strength, (lb.)	ASTM D 4533	220 minimum

(*) Value represents minimum average roll value (MARV) in the direction perpendicular to the centerline of the new geotextile fabric received from the manufacturer or distributor (i.e., any roll in a lot shall meet or exceed the minimum strength value in the table).

(**) All of the samples shall yield test values greater than the minimum strength value specified.

11.3 Shipment and Storage

The geotextile fabric shall be shipped/transported and maintained in a protective cover prior to placement. During all periods of shipment and storage, the geotextile fabric shall be protected from moisture, dust, debris, ultraviolet light, and other contaminants. Each geotextile fabric roll shall be labeled or tagged with the manufacturer's name, date of manufacture, batch number, and name of product.

11.4 Seams and End Laps

A woven geotextile fabric panel shall consist of multiple geotextile fabric strips sewn together for as large a panel area as is manageable. All geotextile fabric panel seams shall be sewn at the factory using a double row, "butterfly" two-thread ("401") chainstitch. Each row of stitching shall be located a minimum of two (2) inches from the geotextile fabric edge. The sewing shall consist of two parallel stitched rows at a minimum spacing of one (1) inch. The panel width must cover the minimum structure width shown on the Plans and shall overlap the structure edge a minimum of one (1) foot on each side. Each geotextile fabric panel end lap shall be overlapped a minimum of five (5) feet to provide the area coverage shown on the Plans. In areas deemed necessary by the Engineer, the geotextile fabric shall be overlapped a minimum of ten (10) feet or as directed by the Engineer.

11.5 Installation

The woven geotextile fabric shall be placed with the machine direction perpendicular to the centerline under the stone, concrete, or earthen material at the locations, and to the lines and grades shown on the Plans. The Contractor shall prepare the surface to receive the geotextile fabric, assuring the surface is relatively smooth and free of obstructions, depressions, debris, soft or low density pockets of material, and stone, which could damage the geotextile fabric during placement. Prior to installation, any geotextile fabric with defects, rips, holes, flaws, deterioration or damage shall be rejected. The geotextile fabric shall be protected at all times during construction to assure the geotextile fabric's original chemical and physical properties are unchanged. Work shall be scheduled so that the geotextile fabric placed is completely covered with a layer of the specified material by the end of each workday. Failure to comply shall require replacement of geotextile fabric. All wrinkles and sags shall be stretched out immediately before stone is placed on the geotextile fabric. The geotextile fabric shall be protected from damage during placement of stone, concrete or earthen material. This shall be accomplished by limiting the height of drop of stone to less than one (1) foot. In the event the placement of any of these materials damages the geotextile fabric, the stone shall be placed directly on the geotextile fabric with zero (0) height of drop. Before placement of stone, concrete, or earthen material, the Contractor shall demonstrate the placement will not damage the geotextile fabric. Any geotextile fabric rejected or damaged shall be replaced by the Contractor at no additional cost to the Owner. The Contractor shall also submit a geotextile fabric panel placement plan for each site and the corresponding factory sewn panel dimensions. The Contractor shall allow the Engineer a minimum of seven days for review and approval of the placement plan, prior to fabrication of the geotextile fabric. After placement of the specified materials over the geotextile fabric, any geotextile fabric that extends past the limits set forth in the Plans, and/or is above the mean low water level shall be cut off. The cut off pieces of material shall be removed from the job site and the Contractor shall insure that they are disposed of properly at an approved landfill.

11.6 Acceptance

All brands of geotextile fabric and all seams used in construction will be accepted on the basis described herein. At least thirty (30) days prior to installation, the Contractor shall furnish to the Engineer, in duplicate, a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the geotextile fabric. The certificate shall contain the signer's title, the name and address of the Contractor, the contract number, and the project name and location. The mill certificate or affidavit shall attest the geotextile fabric meets the chemical, physical, and manufacturing requirements stated above in this Specification, and the seams used to meet the seam requirements. Accompanying the certificate/affidavit, the Contractor shall submit a three (3) foot by three (3) foot sample of each geotextile fabric to be used. If seams are used, an additional three (3) foot by three (3) foot sample containing a seam in the center of the geotextile fabric sample shall be submitted.

11.7 Measurement and Payment

The woven geotextile fabric will be measured in place to the nearest square yard, as delineated on the Plans. Overlaps will be measured as a single layer. Payment will be made at the applicable contract unit price per square yard for Bid Item No. 8 "Woven Geotextile Fabric". Price and payment shall constitute full compensation for providing all plant, labor, material, and equipment and performing all operations necessary for the complete and satisfactory installation of the geotextile fabric. No payment shall be made for geotextile fabric that is rejected or damaged due to Contractor fault or negligence.

TS-12 NON-WOVEN GEOTEXTILE FABRIC

12.1 Scope

The work provided for herein consists of furnishing all labor, materials, equipment, and performing all operations required for furnishing, hauling, and placing the non-woven geotextile fabric, as specified herein and on the Plans, and maintaining the geotextile fabric until placement of the concrete mat for armored earthen dikes and sheet pile wing walls is completed and accepted as specified in "TS-6 Armored Earthen Dike" and "TS-15 Earthwork", respectively.

12.2 General Requirements

The non-woven geotextile fabric shall meet or exceed the geotextile fabric physical property requirements specified in the Louisiana Standard Specifications for Roads and Bridges, 2000 Edition, Section 1019.01, Table 1019-1 for Class D geotextile fabric.

12.3 Materials

The material shall be a non-woven geotextile fabric consisting only of long chain polymetric filaments or yarns formed into a stable network such that the filaments or yarns retain their position relative to each other during handling, placement, and throughout the design service life. At least eighty-five (85) percent, by weight, of the material shall be polypropylenes, polyesters, polyamides, polyethylene, or polyolefins. The geotextile fabric shall be free of any treatment or coating which might adversely alter the geotextile fabric's hydraulic or physical properties after installation. When required, the geotextile fabric shall contain stabilizers and/or inhibitors added to the base material to make filaments resistant to deterioration due to ultraviolet light and/or heat exposure. The edges of the geotextile fabric shall be selvaged. The geotextile fabric shall be free from defects and tears.

Thread used for factory or field sewing shall be of contrasting color to the fabric and made of high strength polypropylene, polyester, or polyamide thread.

12.4 Shipment and Storage

The geotextile fabric shall be shipped/transported and maintained in a protective cover prior to placement. During all periods of shipment and storage, the geotextile fabric shall be protected from moisture, dust, debris, ultraviolet light, and other contaminants. Each geotextile fabric roll shall be labeled or tagged with the manufacturer's name, date of manufacture, batch number, and name of product.

12.5 Seams and End Laps

The non-woven geotextile fabric panel shall consist of multiple geotextile fabric strips factory sewn for as large a panel area as manageable. The panel width must cover the width shown on the Plans. Each geotextile fabric panel shall be field sewn or overlapped a minimum of five (5) feet to provide the area coverage shown on the Plans. A double locking "J" seam stitch shall be used when seams are sewn.

12.6 Installation

The non-woven geotextile fabric shall be placed over the earthen material once accepted and under the concrete mats at the locations, and to the lines and grades shown on the Plans. The Contractor shall prepare the surface to receive the geotextile fabric, assuring the surface is relatively smooth and free of obstructions, depressions, debris, and soft or low density pockets of material which could damage the geotextile fabric during placement. Prior to installation, any geotextile fabric with defects, rips, holes, flaws, deterioration or damage shall be rejected. The geotextile fabric shall be protected at all times during construction to assure the geotextile fabric's original chemical and physical properties are unchanged. Work shall be scheduled so that the geotextile fabric placed, is completely covered with a layer of the specified material by the end of each workday. Failure to comply shall require replacement of geotextile fabric. All wrinkles and sags shall be stretched out immediately before concrete mats are placed on the geotextile fabric. The geotextile fabric shall be protected from damage during placement of concrete mats. This shall be accomplished by placing, not dropping the concrete mats. The mats shall be placed directly on the geotextile fabric with zero (0) height of drop. Before placement of mats, the Contractor shall demonstrate the mat placement will not damage the geotextile fabric. Any geotextile fabric rejected or damaged shall be replaced by the Contractor at no additional cost to the Owner.

12.7 Acceptance

All brands of geotextile fabric and all seams used in construction will be accepted on the basis described herein. At least thirty (30) days prior to installation, the Contractor shall furnish to the Engineer, in duplicate, a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the geotextile fabric. The certificate shall contain the signer's title, the name and address of the Contractor, the contract number, and the project name and location. The mill certificate or affidavit shall attest the geotextile fabric meets the chemical, physical, and manufacturing requirements stated above in this Specification, and the seams used to meet the seam requirements. Accompanying the certificate/affidavit, the Contractor shall submit a three (3) foot by three (3) foot sample of each geotextile fabric to be used.

12.8 Measurement and Payment

The non woven geotextile fabric will be measured in place to the nearest square yard as delineated on the Plans. Overlaps will be measured as a single layer. Payment will be made at the contract unit price for Bid Item No. 9, "Non-Woven Geotextile Fabric". Price and payment shall constitute full compensation for providing all plant, labor, material, and equipment and performing all operations necessary for the complete and satisfactory installation of the geotextile fabric. No payment shall be made for nonwoven geotextile fabric that is rejected or damaged due to Contractor fault or negligence.

TS-13 CONCRETE MATS

13.1 Scope

This work consists of furnishing all labor, equipment and materials necessary to place concrete mats in accordance with these Specifications and as shown on the Plans or as directed by the Engineer.

13.2 Materials

Concrete mats shall consist of the minimum following specifications:

- 13.2.1 General: All closed cell concrete mats shall be manufactured as 160 single elements cast onto a 5/8" diameter three-strand fiber rope with nominal mat dimensions of eight (8') feet by twenty (20') feet. Each element shall have a minimum thickness of four and one-half inches (4 ½"). Open areas of the mat shall not exceed 10%.

Individual elements will be twelve (12") inches square when measured through the center of the horizontal plane of the mat. The elements will have tapered edges on top and bottom to allow articulation of the mat in every direction. The taper will allow mat articulation of a minimum of a 65° angle between any mat element and an adjacent element. The concrete shall be cast onto the three strand fiber rope in such a way that removal of any individual mat element will not cause sliding of other mat elements on the cable or rope. No metal connectors shall be used in the manufacture of the mat. Individual elements can be removed from the mat so that the mat may be placed over stumps, piles or other structures, without destabilizing the remainder of the mat. Any metal connectors used shall be 316-grade stainless steel and shall only be used to connect one mat to an adjacent mat as specified in "TS-13.2.4 Concrete Connections from Mat to Mat".

- 13.2.2 Physical Requirements: The mat shall conform to the following physical requirements when delivered to the work site:

Minimum Compressive Strength - 4,000 psi

The closed cell elements will have the following nominal characteristics:

Specific Weight (lbs/ft³)	Nominal Thickness (in)	Gross Area Element (ft²)	Element Weight (lbs)	Open Area (%)
140-148	4.5	0.95	36-38	<10

- 13.2.3 Three Strand Fiber Rope: The fiber rope shall connect each element to all adjacent elements. The rope on the mat perimeter elements shall form lifting loops on all four sides of the mat. The rope shall be an ultra-violet stabilized copolymer extruded three-strand fiber rope. Minimum tensile strength shall be 9,500 pounds. The rope shall have a good to excellent resistance to concentrated acids, alkalis and solvents. The rope shall be impervious to rot, mildew, and degradation due to marine organisms. The rope material shall not be affected by continuous immersion in salt water.
- 13.2.4 Connections from mat to mat: Connections between adjacent mats shall be made of A316-grade stainless steel banding. A minimum of eight (8) connectors per set of mats shall be required and installed as shown on the Plans, unless approved by the Engineer. Connectors shall be provided by the mat manufacturer.

13.2.5 Geotextile Fabric: The closed cell concrete mats shall be placed on a non-woven geotextile fabric as shown on the Plans and in accordance with “TS-12 Non-Woven Geotextile Fabric”, unless otherwise directed by the Engineer.

13.3 Material Sources

Closed cellular mats shall be Submar Revetment Mattress as manufactured by Submar, Inc., or an approved equal. **The Engineer must approve equivalent products one (1) week prior to bid date.**

13.4 Installation

The concrete mats shall be placed in the manner recommended by the manufacturer, as specified herein, and at the locations shown on the Plans or as directed by the Engineer. The Contractor shall supply materials in accordance with “TS-13.2 Materials”.

13.5 Acceptance

Concrete mats will be inspected upon completion of the installation by the Contractor. The Contractor, under the supervision of the Engineer or Inspector, shall provide measurements of elevation, width, etc.

13.6 Measurement and Payment

Concrete mats installed in compliance with these Specifications and the Plans will be measured on a square yard basis under the supervision of the Engineer or Inspector. Payment will be made at the contract unit price per square yard for Bid Item No. 10 “Concrete Mats”.

TS-14 STEEL SHEET PILING

14.1 Scope

The work provided herein consists of furnishing all labor, material and equipment necessary for the installation of steel sheet pile plugs and the replacement weir as specified herein and as shown on the Plans. For sheet pile wing wall specifications, refer to “TS-15 Earthwork”.

14.2 Materials

Steel sheet piling shall consist of the following minimum specifications:

14.2.1 General: Steel for sheet piles shall comply with ASTM A572, Grade 50. Steel sheet pile sections shall be PZ-27, Larssen LX 16 or approved equivalent. **The Engineer must approve equivalent products one (1) week prior to bid date.**

14.2.2 Physical Requirements: The steel sheet piling shall be new and conform to these minimum physical requirements when delivered to the work site:

Section Modulus per foot of wall (in ³ /ft)	Web Thickness (in)	Moment of Inertia per foot of wall (in ⁴ /ft)
30.2	0.375	228.4

14.3 Fabrication

Steel sheet piles shall be fabricated in accordance with Section 807 of the Louisiana Standard Specifications for Roads and Bridges, latest Edition or Owner approved equivalent.

14.4 Driving Sheet Piles

The sheet piles shall be driven in a satisfactory condition to the depths and along the alignment shown on the Plans. Pile hammers shall be of approved sizes and types and maintained in proper alignment during driving operations by attachment to suitable leads or guides. A protective pile cap of approved design shall be employed during driving operations in order to prevent damage to the tops of the piles. A satisfactory alignment of the sheet piles shall be maintained by driving in increments or penetration necessary to prevent distortion, twisting or pulling of the interlocks. Piles driven out of interlock with adjacent piles or otherwise injured shall be removed and replaced by new piles at the expense of the Contractor. **Use of a vibratory hammer or jets will not be allowed unless otherwise approved by the Engineer.**

14.5 Cutoffs

Tops of sheet piling shall be cut off or driven to a straight line at the elevation indicated on the Plans or as directed by the Engineer. If the sheet piles are appreciably distorted or otherwise damaged below cut-off level, damaged portions shall be removed and replaced with new piles at the expense of the Contractor.

14.6 Painting

Before driving, the surface of each steel sheet pile shall be cleaned and painted from the top of the sheet pile to a point 10 feet below the mud line. Cleaning and painting shall be in accordance with Section 811 of the Louisiana Standard Specifications For Roads and Bridges, latest Edition or Owner approved equivalent. The paint system shall be a two-coat coal tar epoxy-polyamide system in accordance with Section 1008 of the Louisiana Standard Specifications For Roads and Bridges, latest Edition or Owner approved equivalent.

14.7 Steel Sheet Pile Caps

- 14.7.1 General: Fabrication shall be in accordance with Section 807 of the Louisiana Standard Specifications for Roads and Bridges, latest Edition or Owner approved equivalent. Steel sheet pile caps shall be painted in accordance with "TS-14.6 Painting".
- 14.7.2 Materials: Steel sheet pile caps shall be made of MC 18 x 42.7 steel channels as specified in American Institute of Steel Construction (AISC) Allowable Stress Design Manual, Ninth Edition or Owner approved equivalent. Steel for channels shall comply with ASTM A572, Grade 50.

14.7.3 Installation: Steel sheet pile caps shall be supplied and installed as indicated on the Plans.

14.8 Timber Walers

14.8.1 General: The work consists of furnishing, treating, preparing, and installing timber walers of the size, dimensions, and grade indicated herein and all hardware specified in accordance with Section 812 of the Louisiana Standard Specifications for Roads and Bridges, latest Edition or Owner approved equivalent.

14.8.2 Materials: All timber used for sheet pile walers shall be rough cut southern pine marine grade no. 2 or approved equal. The dimensions of the walers shall be 4" x 6". Engineer must approve equivalent products one (1) week prior to bid date.

14.8.3 Timber Treatment: Wood Preservative (pressure treatment): American Wood Preservers Association (AWPA) Treatment C18 using CCA preservative with 2.5 lbs/ft³ minimum retention.

14.8.4 Installation: Timber walers shall be supplied and installed as indicated in the Plans at no direct pay.

14.9 Measurement and Payment

Quantities of sheet pile for payment will be the design wall area as specified on the Plans and adjustments thereto. Design quantities will be adjusted if the Engineer makes changes to adjust to field conditions, or if design changes are made. Payment for steel sheet pile, pile caps, and timber walers and all other incidentals necessary to install sheet pile plugs and weir will be made at the contract unit price per square foot for Bid Item No. 11 "Steel Sheet Piling". Price and payment shall constitute full compensation for furnishing all materials and for installing, measuring, and performing all work as specified herein and incidental thereto. The cost of the warning signs attached to the steel sheet pile plugs and weir replacement as shown in the Plans shall be included in the cost for the sheet pile in Bid Item No. 11.

TS-15 EARTHWORK

15.1 Scope

The work provided herein consists of furnishing all labor, material, equipment, and performance of all operations required for dredging in-situ earthen material to construct earthen plugs, wing walls of weir replacement, and wing walls of steel sheet pile plugs in areas shown on the Plans.

15.2 Materials

Dredge material shall be taken from areas designated on the Plans and used for earthen plug and sheet pile wing wall construction. At locations where armoring is specified, concrete mats are to be placed above dredge fill material with a layer of non-woven geotextile fabric separating the fill material and concrete mats. The dredge fill material shall also be placed above a layer of woven geotextile fabric where specified.

15.2.1 Concrete Mats: Refer to Section "TS-13 Concrete Mats".

15.2.2 Woven Geotextile Fabric: Refer to Section "TS-11 Woven Geotextile Fabric".

15.2.3 Non-Woven Geotextile Fabric: Refer to Section “TS-12 Non-Woven Geotextile Fabric”.

15.3 Installation

Dredge material shall be placed to the lines, grades, and elevations specified in the Plans or as directed by the Engineer. If the dredge material undergoes considerable settlement, the Contractor may be required to place another lift of material before the section is accepted as specified in Section “TS-15.4 Acceptance”.

15.3.1 Earthen Plugs: This work consists of constructing earthen plugs at three locations specified in the project Plans. The Contractor shall place in-situ dredged earthen material over woven geotextile fabric to the lines, grades, and elevations as specified in the Plans. With the exception of Earthen Plug No. 3, it shall be required that the plugs be constructed in a minimum of two (2) lifts. In such cases, the Contractor shall wait a minimum of seven (7) days between lifts to allow for de-watering and initial settlement.

15.3.2 Sheet Pile Wing Walls: This work consists of constructing armored earthen wing walls at three steel sheet pile plugs and one steel sheet pile weir at locations specified in the project Plans. The Contractor shall place in-situ dredged earthen material to the lines, grades, and elevations specified at each site. The Contractor shall then wait a minimum of seven (7) days before requesting elevation acceptance. Once the elevation of the wing wall is accepted by the Engineer or Inspector the Contractor shall place non-woven geotextile fabric over the earthen material, and then armor the wing walls with the concrete mats.

15.4 Acceptance

Dredge material sections will be inspected for completeness, elevation, width, etc. These measurements will be taken by the Contractor under the supervision of the Engineer or Inspector. Where multiple lifts are specified, the Contractor shall wait a minimum of seven (7) days between lifts to allow for de-watering and initial settlement. Where armoring is required, the Contractor shall wait a minimum of seven (7) days before installing the non-woven geotextile fabric and concrete mats. If the inspected section has undergone settlement that would prohibit proper installation of the concrete mats, the Engineer shall mandate that additional material be utilized prior to the installation of non-woven geotextile fabric and concrete mats. Final acceptance of the plugs and wing walls will be considered a minimum of seven (7) days after all dredge material is placed and armoring is completed.

15.5 Measurement and Payment

Dredge material shall be paid on a cubic yard basis. Dredging quantities will be based on before and after survey cross sections of fill placement area of the plugs and wing walls. The Contractor’s pre and post construction surveys shall consist of cross sections taken 10 feet on centers perpendicular to the centerline of the plug or wing wall. All surveys shall be performed with the Engineer or Inspector present. The Contractor shall submit copies of the survey to the Engineer in the format specified in “TS-3 Surveying”. Payment quantities shall be calculated using the average end area method or other method approved by the Engineer. The in-situ dredged earthen material will be paid for at the contract unit price per cubic yard for Bid Item No. 12, AEarthwork®. All required maintenance of the earthen material shall be performed by the Contractor at no direct pay. Payment for woven geotextile will be made at the contract unit price per square yard for Bid Item No. 8 "Woven Geotextile Fabric". Payment for the non-woven geotextile fabric will be made at the contract unit price for Bid Item No. 9, "Non-Woven Geotextile Fabric". Payment for concrete mat armoring will be made at the contract unit price per square yard for Bid Item No. 10 “Concrete Mats”.

TS-16 EXISTING WEIR REMOVAL

16.1 Scope

The work provided herein consists of furnishing all labor, equipment, and performance of all operations required for removing the existing weir as shown on the Plans.

16.2 Removal

The Contractor shall be responsible for the demolition, removal, and disposal of the existing weir structure depicted on the Plans. The existing condition of the structure may not be as depicted on the Plans. The Contractor will be responsible for inspecting the structure's condition prior to bidding. Any structure penetrating the mud line must be removed in its entirety with as little soil disturbance possible. If this is not possible, and as approved by the Engineer, any and all such structures shall be removed to four (4) feet below the mud line or lower.

16.3 Disposal

Once removed, all materials shall be disposed of in accordance with Title 33, Part VII, Sub-Part 1 (Solid Waste) of the Louisiana Environmental Regulatory Code, latest revision. The Contractor is responsible for any and all costs associated with the disposal of removed materials.

16.4 Acceptance

The existing weir location will be inspected for remnant materials above and below the water line. The area will also be probed to ensure that any remaining buried objects are at least four (4) feet below the mud line. Final acceptance for the work will be made upon receipt of proof of disposal at an appropriate facility specified in Title 33, Part VII, Sub-Part 1 (Solid Waste) of the Louisiana Environmental Regulatory Code, latest revision.

16.5 Measurement and Payment

All costs associated with removal of the existing weir and disposal of all associated materials shall be paid at the contract lump sum price for Bid Item No. 13 "Existing Weir Removal".

TS-17 SETTLEMENT PLATES

17.1 Scope

This work consists of furnishing and assembling the materials needed to construct, install and maintain settlement plates in accordance with these Specifications and the project Plans or as directed by the Engineer. Settlement plates will be placed at locations shown on the Plans within containment dikes and hydraulic fill areas. It should be noted that the settlement plates are intended for DNR's long term monitoring of the project area and acceptance and payment for hydraulic fill or containment dikes shall not be based on the settlement of these plates.

17.2 Materials

Settlement plates shall be fabricated with a four foot (4') x four foot (4') x one fourth inch (1/4") steel plate with a three inch (3") diameter galvanized riser pipe connected to the center of the plate with a 3/16" continuous fillet weld. For settlement plates located in containment dikes, the pipe shall be nine feet (9') in length. For settlement plates located in the marsh fill areas, the pipe shall be nine feet (9') in length and extend one foot below the plate. The top of all pipes shall be closed with a threaded galvanized cap. All materials shall be made of ASTM A36 steel. After fabrication, the settlement plate shall be hot dipped galvanized.

17.3 Zinc Coating

Zinc coating shall be applied in a manner and thickness quality conforming to ASTM A 123. In any case where the zinc coating becomes damaged, the damaged area shall be re-galvanized with a suitable low-melting zinc base alloy as recommended by the American Hot-Dip Galvanizers Association. One coat of a vinyl wash primer followed by red top coat shall be applied over the zinc coat. All painting shall conform to the latest edition of the LA DOTD Standard Specification Section 811 and 1008, or approved equivalent.

17.4 Installation

The settlement plates shall be installed within containment dikes and hydraulic fill areas at locations shown on the Plans or as directed by the Engineer. Settlement plates must be placed such that the vertical pipe conforms to a vertical plumb standard of no more than one part per hundred from true vertical. The Contractor shall exercise care when placing any construction material in the vicinity of the settlement plates. Any damaged settlement plates shall be replaced by the Contractor at no expense to the Owner. Damaged settlement plates are defined as plates which would not accurately represent the elevation of the project feature where the settlement plate is installed as determined by the Engineer. Leveling of the plate bed shall be accomplished by removing the minimum amount of earth or debris necessary to produce an even foundation and in such manner that the density of the plate bed will remain at the same density as the undisturbed adjacent ground. Leveling of the plate bed by the addition of fill will not be permitted.

17.5 Acceptance

Acceptance of settlement plates installed in accordance with these Specifications will be made when associated project features are accepted. Top of settlement plate elevations shall be recorded by the Contractor's professional surveyor. Coordinates and elevations of the settlement plates shall be included in the as-built survey and Drawings as specified in "TS-3 Surveying".

17.6 Measurement and Payment

Settlement plates will be measured per each, complete and installed. Payment will be made at the contract unit price for Bid Item No. 14 "Settlement Plates".

TS-18 WARNING SIGNS

18.1 Scope

The Contractor shall furnish all of the materials, labor and equipment necessary to construct and install the warning signs in accordance with the Plans and these Specifications. The signs shall also conform to the

regulations in the United States Coast Guard (USCG) Commandant Directives Manuals No. 16500.3 (Series), "Aids to Navigation Manual – Technical" and No. 10360-3 (Series), "Coatings and Color Manual".

18.2 Materials

18.2.1 Sign: Each of the warning signs shall be fabricated from 1/8 inch thick commercial grade aluminum plate that is 3 feet high and 3 feet wide. Each sign shall be overlaid with white vinyl film. All letters and borders shall be retroreflective and match the locations, dimensions, colors and sizes shown on the Plans. The film, letters, and borders shall be obtained from a USCG qualified supplier.

18.2.2 Piles: The piles shall be 40 feet long treated timber piles with a nominal 12-inch diameter butt and 7-inch minimum diameter at the tip. All timber piles shall conform to LA DOTD 2000 Standard Specifications Sections 812 and 1014. All piles shall be treated with Creosote or Chromated Copper Arsenate (CCA). All creosote treatment shall meet American Wood Preservers Association (AWPA) P2 with a minimum retention of 20 lbs./cu. ft. All creosote treated piles shall be steam flushed for a minimum of one (1) hour at 240° F (116° C) after treatment. All CCA treated piles shall conform to AWPA C2 with a minimum retention of 2.5 lbs/cu. ft. of CCA oxides in the outer 0.60 inches. Retention shall be determined by assay performed and certified by the treating company.

18.3 Fabrication

Fabrication of structural aluminum shall conform to the requirements in the Aluminum Construction Manual, Specifications for Aluminum Structures, sections 6 and 7, the Aluminum Associations, November 1994 or Owner approved equivalent.

18.4 Installation

The warning signs shall be installed equally at locations shown on the Plans or as directed by the Engineer. The 40 ft timber piles shall be driven 28 ft so that the warning signs will stand a total of 12 ft high above the bottom elevation.

18.5 Measurement and Payment

Warning signs will be measured per each, complete and installed. Payment will be made at the contract unit price for Bid Item No. 15 "Warning Signs". The cost of the warning signs attached to the sheet pile plugs and the weir replacement shall be included in the cost for the steel sheet pile in Bid Item No. 11.

TS-19 DELIVERABLES

19.1 Prior to Construction

19.1.1 The Contractor shall submit a work plan and an estimated work schedule, in writing to Engineer, within fifteen (15) days after the Effective Date of the Agreement for review and approval, as specified in "GP-6 Progress Schedule". The Engineer shall have ten (10) days to review the work plan and estimated work schedule to determine its acceptability. The work plan shall include information regarding:

1. The source(s) of all construction materials (company or producer name, mailing and physical address, phone number, and name of contact person). This includes the required certificate or affidavit and sample(s) required for woven and non-woven geotextiles as specified in “TS-11 Woven Geotextile Fabric” and “TS-12 Non-Woven Geotextile Fabric”, respectively.
 2. The personnel and types of equipment the Contractor proposes to use for construction and delivering construction materials to the delivery site, to the construction site and on the construction site.
 3. The dredge disposal plan as described in “TS-8 Hydraulic Dredging”.
 4. A telephone log verifying that landowners and pipeline companies in General Notes 3, 4 and 5 have been contacted. This log should list the time, date, and names of the personnel representing the contacted agency and the Contractor.
- 19.1.2 The estimated work schedule shall show the planned schedule of dates and timelines for the major elements of work required to complete the work described in these Specifications, including but not limited to the anticipated dates of the following:
- The anticipated date(s) for site layout, surveying, and staking.
1. The anticipated date(s) for performing the magnetometer survey.
 2. The anticipated initiation of delivery of materials and equipment and construction operations at the Work Location.
 3. The estimated duration and beginning and ending dates of individual construction operations.
- 19.1.3 Before construction operations commence or materials are delivered, the Contractor, any Subcontractors, the Engineer, and the Inspector(s) shall have a mandatory pre-construction meeting. This meeting shall be held in accordance with “GP -7 Preconstruction Conference” to discuss pertinent details of the work schedules, etc. The Contractor shall provide the following information to the Engineer at the pre-construction conference:
1. Communication Plan as specified in “GP-30 Radio Telephones”.
 2. Safety Plan and report format as specified in “GP-29 Safety Provisions”.
 3. Resume of person(s) performing grade stake surveys as specified in “TS-4 Grade Stakes ”.
 4. Change Order and Field Order submittal format.
 5. Temporary access permit and insurance certificate required by Burlington Resources Inc. in accordance with “SP-8 Landowner Requirements”.
 6. If the Contractor plans to dredge flotation channels, the type of equipment which will be used.
- 19.1.4 The following items to be performed after the commencement of the contract time shall be submitted before the individual construction activities specified can begin:

1. Pre-construction marsh and borrow area surveys shall be submitted as specified in “TS-3 Surveying” before any hydraulic dredging or marsh filling activities can begin.
2. Electronic grade stake file shall be submitted as specified in “TS-4 Grade Stakes ” prior to any marsh fill being placed in the area being considered.
3. The geotextile placement plan as specified in “TS-11 Woven Geotextile Fabric” prior to placing earthen plugs, rock plugs, and the armored earthen dike.

19.2 During Construction

The daily progress reports shall be submitted to Inspector each day and to the Engineer at the weekly progress meetings as specified in SP-10 Daily Progress Reports.

The Contractor shall furnish the Engineer with copies of delivery slips, indicating the source of construction materials, date delivered, exact quantity, and size of materials delivered with each shipment of the materials to the delivery site. Delivery slips must be furnished to the Engineer before payments are made for installation.

Prior to the acceptance of the weir removal, the Contractor shall submit proof of disposal for all removed materials in accordance with “TS-16 EXISTING Weir Removal”.

19.3 Post Construction

The Contractor shall contact the Engineer by phone, a minimum of five (5) working days prior to the anticipated completion for the purpose of scheduling Final Inspection and Acceptance as specified in “GP-46 Final Inspection and Acceptance”.

The Contractor shall furnish the Engineer with as-built drawings in accordance with “GP-47 As-Built Drawings” and “TS-3 Surveying” prior to Final Acceptance.

END OF PART III – TECHNICAL SPECIFICATIONS

APPENDIX A: BURLINGTON PERMIT APPLICATION

Date

Contractor Name
Address

Attention:

Re: Temporary Access and Construction Permit
North Lake Mechant Landbridge Restoration Project (TE-44)
T20S-R14E, T20S-R15E, T19S-R15E
Terrebonne Parish, Louisiana

Gentlemen:

This letter will serve as your permit to enter upon certain lands owned by The Louisiana Land and Exploration Company (LL&E), wholly owned subsidiary of Burlington Resources, Inc., included in the area described above for the purpose of constructing the TE-44 Project and as outlined in the above referenced Construction Plans. You shall give at least 48 hour notice to LL&E's Houma Office prior to any work commencing on LL&E's property. It is understood and agreed that in connection with your exercise of rights under or pursuant to this permit upon the subject lands that you and your assigns are accepting the condition of the same and all canals and waterways leading thereto or thereupon as they exist and that you will not place any material upon the subject lands in a manner which unreasonably impedes or restricts the use of any portion thereof. It is further understood that upon completion of this project or cancellation of this permit by either party, that you shall promptly remove any materials placed upon subject lands other than the proposed work in the referenced Project and repair/restore said lands back to its original condition, all repair work shall be approved by LL&E's Houma Office, failing to complete this work will cause LL&E to have them removed, and/or conduct such restoration, at your expense.

Additionally, you further agree that you will hold LL&E harmless against and indemnify it for all loss, damage or liability on account of injuries to or death of persons or damage to property of any kind or to the environment, or the violation of any law or regulation arising wholly or partially out of or in connection with the use of the property subject hereto (including any canals or waters

Contractor

Date

Page 2

leading thereto or thereupon) by you, or your representatives, or in the exercise of any rights granted herein except for any loss or liability on account of injuries resulting from the gross negligence or willful misconduct of LL&E. You will further obey and comply with all laws and regulations, which may be applicable to the subject lands or your use thereof. If any Federal or State permitting is required for your work, you shall coordinate with LL&E's Houma Office prior to submitting proposed plans to the permitting agencies.

You shall, at your own sole cost and expense, maintain in full force, during the entire existence of this permit, Workman's Compensation Insurance in an amount necessary to satisfy the minimum requirements of the laws of the State of Louisiana, and a policy or policies of public liability insurance, including personal injury and property damage, which will insure you and LL&E (and such other persons, firms, or corporations as are designated by LL&E) against liability for injury to persons in and about the premises. Said policy shall be in an amount not less than \$1 Million per person, \$1 Million per accident and \$1 Million property damage, and said policy shall include a thirty (30) day cancellation clause with notice of cancellation being given to LL&E. You shall furnish LL&E a certificate evidencing such insurance and naming LL&E as additional insured with all rights of subrogation waived. Failure to maintain said insurance shall entitle LL&E to cancel this permit, at its option and without notice to you. You shall maintain said insurance on the permitted premises during the existence of this permit.

This permit shall remain in effect for a period of _____ (_____) months from the date hereof but may nevertheless be canceled without cause upon ten (10) days prior notice to you.

This permit is further subject to all mineral and surface leases, permits, licenses, rights of way or other agreements, recorded and unrecorded, which now or may hereafter affect the property, which is the subject hereof.

Should the permit, as written, meet with your approval, please signify by signing, dating and returning one (1) executed original to this office for our file.

Yours truly,

THE LOUISIANA LAND AND EXPLORATION
COMPANY, a wholly owned subsidiary of
Burlington Resources, Inc.

Kermit J. Coulon, Jr.

Contractor
Date
Page 3

AGREED AND ACCEPTED THIS ____ DAY OF _____, 2005

CONTRACTOR

BY: _____

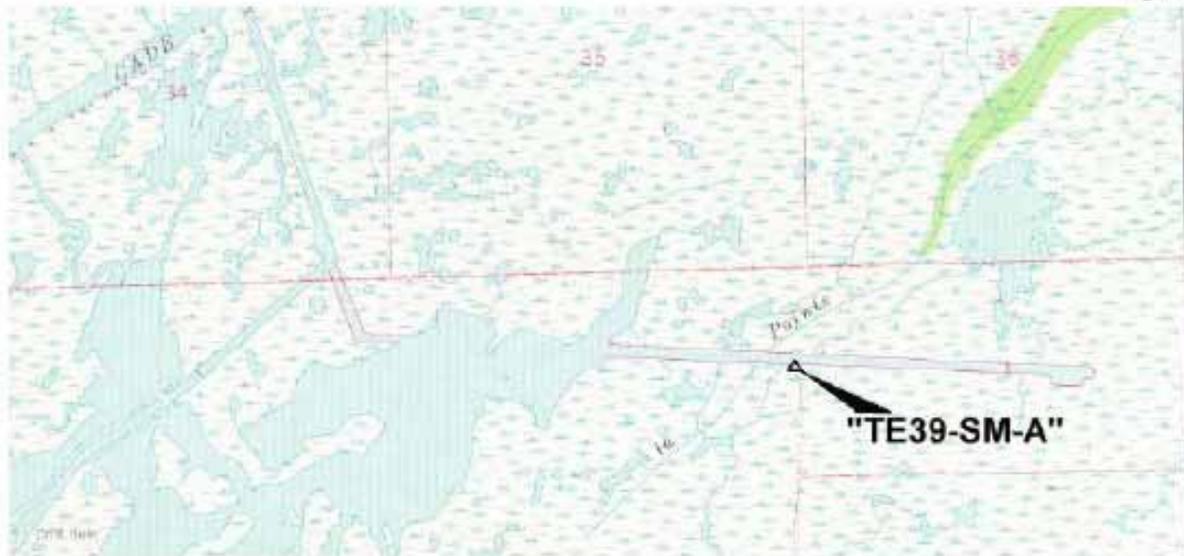
NAME: _____

TITLE: _____

s:Public/Jeff/DNR/Lake Mechant Contractor Permit/kln

Attachments

APPENDIX B: LDNR SECONDARY MONUMENTS



VICINITY MAP Scale: 1" = 2000'

reproduced from USC&GS "LAKE MECHANT" Quadrangle

Station Name: "TE39-SM-A"

Location: From the boat launch on Falgout Canal in Theriot, Louisiana, by boat, proceed westerly and west-southwesterly in Falgout Canal to Lake De Cade, then in Lake De Cade west-southwesterly to Bayou De Cade, then in Bayou De Cade westerly to a canal leading on the left. Turn left in the canal and proceed southerly then easterly to Small Bayou la Pointe crossing the canal and the monument at right.

Monument Description: NGS Style Floating Sleeve Monument; datum point set on 9/16" stainless steel rods driven 80 feet to refusal, set in sand filled 6" PVC pipe with access cover and set in concrete flush with ground.

Date: June 20, 2002

Monument Established By: John Chance Land Surveys, Inc.

For: Louisiana Department of Natural Resources, CRD

Adjusted NAD 83 Geodetic Position

Lat. 29° 21' 39.607531"N

Long. 90° 53' 24.999842"W

Adjusted NAD 83 Datum LSZ (1702) Feet

N= 313,392.82

E= 3,421,972.68

Adjusted NAVD88 Height

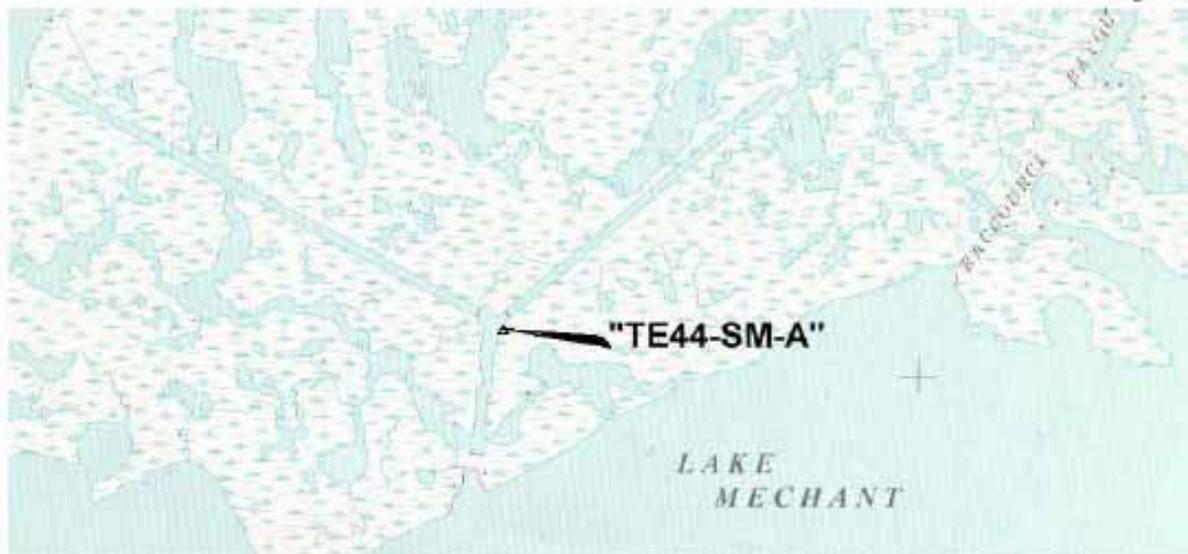
Elevation = 1.05 ft (0.320 mtrs)

Geoid99 Height = -24.908 mtrs.

Ellipsoid Height = -24.589 mtrs.



Adjusted Position Established for Louisiana Department of Natural Resources, Coastal Restoration Division



VICINITY MAP Scale: 1" = 2000'

Reproduced from USC&GS "LAKE MECHANT" Quadrangle

Station Name: "TE44-SM-A"

Monument Location: From the boat launch on Falgout Canal in Theriot, Louisiana, by boat, proceed westerly and west-southwesterly in Falgout Canal to Lake De Cade, then in Lake De Cade west-southwesterly to Bayou De Cade, then in Bayou De Cade southwesterly to a Bayou on the left. Turn left and proceed southerly in the bayou to Raccourci Bay, then across Raccourci Bay to Raccourci Bayou and Lake Mechant. Turn right in Lake Mechant and proceed westerly for approximately 1 mile to a small bayou leading on the north. Turn right in the small bayou and proceed northwesterly and northerly in a canal to the monument on the right.

Monument Description: NGS Style Floating Sleeve Monument; datum point set on 9/16" stainless steel rods driven 80 feet to refusal, set in sand filled 6" PVC pipe with access cover and set in concrete flush with ground.

Date: June 20, 2002

Monument Established By: John Chance Land Surveys, Inc.

For: Louisiana Department of Natural Resources, CRD

Adjusted NAD 83 Geodetic Position

Lat. 29° 20' 04.466514"N
Long. 90° 58' 30.665643"W

Adjusted NAD 83 Datum LSZ (1702) Feet

N= 303,687.77
E= 3,394,954.87

Adjusted NAVD88 Height

Elevation = 0.84 ft (0.255 mtrs)

Geoid99 Height = -24.867 mtrs.
Ellipsoid Height = -24.612 mtrs.



Adjusted Position Established for Louisiana Department of Natural Resources, Coastal Restoration Division

APPENDIX C: SOIL BORING LOGS

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-1

File: 02-1073
Date: 08/01/02
Logged by: F. Ward
Driller: Triangle Resources
Rtg: Barge



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 13" LONG. -90° 59' 43"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -0.5 (ft., NAVD88)
						LL	PL	PI		Description	
		Vane Shear							FVS	Extremely soft gray ORGANIC CLAY (OH) w/shell	
		No (P)	0.07t1	65	66	58	21	37			
	5	No (P)	0.08t2	44	76					Extremely soft dark gray CLAY (CH) w/2-inch sand pocket, shell, and organics	
		No (P)		35		32	20	12	MVS1		
	10	No (P)	0.24	72	51	143	36	107	SG,CS	Extremely soft dark gray ORGANIC CLAY (OH) w/wood	
	15	No (P)		104					MVS2	Extremely soft dark gray ORGANIC CLAY (OH)	
	20	No (P)	0.37	41	78					Soft gray CLAY (CH) w/silt layer	
	25	No (P)	0.19	140	36	157	40	117		Very soft gray ORGANIC CLAY (OH) w/peat and wood	
										Boring completed at 25 ft.	
	30										
	35										
	40										

02-1073 LDNR LOG 02/10/03 CPU LOG01.GDT 08/25/02

Ground Water Level Data	Boring Advancement Method	Notes
	4" Dia. Rotary Wash: 0 to 25 ft.	FVS: Field Vane Shear = 48 psf t: Unconsolidated, Undrained Triaxial Compression Test t1: Lateral Pressure = 1.0 psi t2: Lateral Pressure = 1.6 psi MVS: Mini Vane Shear 1 = 42 psf, 2 = 63 psf SG: Specific Gravity = 2.67 CS: See Consolidation Curve
	Boring Abandonment Method	
1.5 ft. Water Depth at Borehole	Borehole grouted upon completion	Strata Boundaries May Not Be Exact

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-2

File: 02-1073
Date: 07/31/02
Logged by: F. Ward
Driller: Triangle Resources
Rig: Barge



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 57" LONG. -90° 59' 22"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: 0.0 (ft., NAVD88)
						LL	PL	PI		Description	
		No (P)	0.10t1	75	57	83	22	61		Extremely soft black ORGANIC CLAY (OH)	
		No (P)		54					MVS1	Very soft gray ORGANIC CLAY (OH), jointed, w/roots	
	5	No (P)	0.43	36	85	61	23	38	SG, CS	Soft gray CLAY (CH), jointed, w/organics	
		No (P)		43					MVS2	- w/roots and organics	
	10	Vane Shear							FVS	Very soft gray CLAY (CH) w/organics	
	15	No (P)	0.36	37	84	62	24	38		Soft gray CLAY (CH), jointed, w/organics	
	20	No (P)		35					MVS3	- w/ferrous stains	
	25	No (P)	0.34t2	34	86					Soft gray SILTY CLAY (CL) w/organics and fine sand seams	
										Boring completed at 25 ft.	
	30										
	35										
	40										
Ground Water Level Data			Boring Advancement Method						Notes		
1.0 ft. Water Depth at Borehole			4" Dia. Rotary Wash: 0 to 25 ft.						t: Unconsolidated, Undrained Triaxial Compression Test t1: Lateral Pressure = 0.5 psi t2: Lateral Pressure = 8.8 psi MVS: Mini Vane Shear 1 = 209 psf, 2 = 564 psf, 3 = 794 psf SG: Specific Gravity = 2.59 CS: See Consolidation Curve FVS: Field Vane Shear = 127 psf		
			Boring Abandonment Method								
			Borehole grouted upon completion						Strata Boundaries May Not Be Exact		

02-1073.LDNR.LOG 02-1073.CPJ LOG01.CDT 09/25/02

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-3

File: 02-1073
Date: 08/07/02
Logged by: F. Ward
Driller: D. Thibodaux
Rig: Air Boat



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 16" LONG. -90° 57' 47"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: 0.0 (ft., NAVD88)
						LL	PL	PI		Description	
		Vane Shear		536					FVS	Extremely soft black PEAT (PT) and dark gray ORGANIC CLAY (OH) w/roots	
		No (P)	0.04t1	314	19	119	33	86		Extremely soft dark gray and black PEAT (PT) w/clay and roots	
	5	No (P)		534					MVS1		
									MVS2	Gray ORGANIC CLAY (OH) w/roots	
		No (P)	0.12t2	67	67	64	25	39	CS	Very soft gray ORGANIC CLAY (OH) w/silty sand seams	
		No (P)		25						Very loose gray SILTY SAND (SM) w/clay seams	
	10			34						Very soft dark gray SILTY CLAY (CL) w/sand and shell	
		No (P)	0.18	132	38					Very soft dark gray and black ORGANIC CLAY (OH) w/peat	
	20	No (P)		97 129					MVS3 MVS4	- w/3-inches of peat and shell	
		No (P)	0.09	97	46	116	34	82			
	25									Boring completed at 25 ft.	
	30										
	35										
	40										
Ground Water Level Data			Boring Advancement Method						Notes		
1.0 ft. Water Depth at Borehole			4" Dia. Rotary Wash: 0 to 25 ft.						FVS: Field Vane Shear = 25 psf t: Unconsolidated, Undrained Triaxial Compression Test t1: Lateral Pressure = 1.0 psi t2: Lateral Pressure = 2.4 psi MVS: Mini Vane Shear 1 = 21 psf, 2 = 41 psf, 3 = 104 psf, 4 = 251 psf CS: See Consolidation Curve		
			Boring Abandonment Method								
			Borehole grouted upon completion								
Strata Boundaries May Not Be Exact											

02-1073 LDNR LOG 02/10/02 GPU LOG 01 GDT 08/25/02

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-4

File: 02-1073
Date: 08/07/02
Logged by: F. Ward
Driller: D. Thibodaux
Rig: Air Boat



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 47" LONG. -90° 55' 45"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: 0.5 (ft., NAVD88)
						LL	PL	PI		Description	
		No (P)		72					MVS1	Very soft gray ORGANIC CLAY (OH), disturbed - w/silt pockets and seams	
		No (P)	0.17	43	75	55	21	34			
	5	Vane Shear							FVS	Extremely soft ORGANIC CLAY (OH)	
		No (P)	0.27	48	70	40	23	17	CS	Soft gray SILTY CLAY (CL) w/organics	
	10	No (P)		53					MVS2	Very soft gray ORGANIC CLAY (OH) w/sand lenses and silty sand seams - w/sand layers, seams, and pockets	
	15	No (P)	0.14	45	70						
	20	No (P)		53					MVS3		
	25	No (P)	0.18	55	69	80	29	51			
										Boring completed at 25 ft.	
	30										
	35										
	40										
Ground Water Level Data			Boring Advancement Method						Notes		
			4" Dia. Rotary Wash: 0 to 25 ft.						MVS: Mini Vane Shear 1 = 167 psf, 2 = 167 psf, 3 = 209 psf FVS: Field Vane Shear = 39 psf CS: See Consolidation Curve		
			Boring Abandonment Method								
0.5 ft. Water Depth at Borehole			Borehole grouted upon completion								
Strata Boundaries May Not Be Exact											

02-1073 LDNR LOG 02-1073.CPJ LOG01.GDT 09/25/02

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-5

File: 02-1073
Date: 08/07/02
Logged by: F. Ward
Driller: Triangle Resources
Rig: Barge



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 32" LONG. -90° 56' 56"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: 0.5 (ft., NAVD88)
						LL	PL	PI		Description	
	0	No (P)	0.05t1	124	33					Extremely soft dark gray PEAT (PT)	
	5	Vane Shear No (P)							FVS		
	10	No (P) No (P)		30 39					MVS1	Very soft gray SILTY CLAY (CL) w/sand seams and lenses	
	15	No (P)		40						Very loose dark gray and gray SANDY SILT (ML) w/organics	
	20	No (P)	1.27t2	31	80	32	28	4		Firm gray and black SANDY SILT (ML) w/ 1/8-inch clay seams	
	25	No (P)		105	42	154	43	11	MVS2, CS	Soft dark gray ORGANIC CLAY (OH) w/silt traces	
	40									Boring completed at 25 ft.	
Ground Water Level Data			Boring Advancement Method						Notes		
0.5 ft. Water Depth at Borehole			4" Dia. Rotary Wash: 0 to 25 ft.						t: Unconsolidated, Undrained Triaxial Compression Test t1: Lateral Pressure = 0.5 psi t2: Lateral Pressure = 5.6 psi FVS: Field Vane Shear = 37 psf MVS: Mini Vane Shear 1 = 188 psf, 2 = 334 psf CS: See Consolidation Curve		
			Boring Abandonment Method						Strata Boundaries May Not Be Exact		
			Borehole grouted upon completion								

02-1073 LDNR LOG 02-1073.CPU LOG01.GDT 09/25/02

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-6

File: 02-1073
Date: 08/03/02
Logged by: F. Ward
Driller: Triangle Resources
Rig: Air Boat



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 2

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 22" LONG. -90° 59' 09"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -0.5 (ft., NAVD88)
						LL	PL	PI		Description	
		No (P)	0.03t1	218	24	177	54	123		Extremely soft black and gray PEAT (PT) w/1-inch of gray organic clay - w/alternating layers of gray silt - w/wood - w/silty sand seams and wood	
		No (P)		117					MVS1		
	5	No (P)	0.08t2	159	34	92	30	62	SG, CS		
		No (P)		288					MVS2		
		No (P)		229					MVS3		
		Vane Shear							FVS1		
	15	No (P)	0.12t3	167	31	175	50	125		Very soft gray ORGANIC CLAY (OH) w/peat seams - w/peat and wood - w/peat and wood traces	
		No (P)		251					MVS4		
		Vane Shear							FVS2		
	25	No (P)	0.23	134	35						
	30	No (P)		47						Very soft gray CLAYEY SILT (ML) w/fine sand	
		Vane Shear							FVS3		
	35	0.5 (P) 0.5 (P)	0.36t4	35	84	37	19	18		Soft gray ORGANIC CLAY (OL) w/alternating silty sand layers	
	40	0.25 (P) 0.5 (P)		50 49					MVS5 MVS6	Very soft gray CLAY (CH) w/sand seams and organics	
Continued Next Page											
Ground Water Level Data			Boring Advancement Method						Notes		
1.5 ft. Water Depth at Borehole			Borehole grouted upon completion						t: Unconsolidated, Undrained Triaxial Compression Test		
									Lateral Pressure: t1 = 0.5 psi, t2 = 1 psi, t3 = 2 psi, t4 = 12 psi		
									MVS: Mini Vane Shear 1 = 21 psf, 2 = 21 psf, 3 = 84 psf 4 = 209 psf, 5 = 188 psf, 6 = 167 psf		
									SG: Specific Gravity = 2.53 CS: See Consolidation Curve		
									FVS: Field Vane Shear 1 = 30 psf; 2 = 104 psf, 3 = 195 psf		
									Strata Boundaries May Not Be Exact		

02-1073 LDNR LOG 02-1073.CPJ LOG.DWG 09/25/02

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-6

File: 02-1073
Date: 08/03/02
Logged by: F. Ward
Driller: Triangle Resources
Rig: Air Boat



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 2 of 2

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 22" LONG. -90° 59' 09"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -0.5 (ft., NAVD88)
						LL	PL	PI		Description	
										Gray CLAY (CH) w/silty sand seams	
	45	No (P) No (P)	0.18t5	50	66	62	22	40		Very soft gray ORGANIC CLAY (OH) w/silty sand seams	
	50	0.5 (P)	0.30	68	59					Soft gray ORGANIC CLAY (OH)	
	55	0.25 (P)		67					MVS7	Very soft gray ORGANIC CLAY (OH), jointed	
	60	0.5 (P)	0.46	75	54	109	33	76		Soft gray ORGANIC CLAY (OH) w/silty sand seams	
										Boring completed at 60 ft.	
	65										
	70										
	75										
	80										
Ground Water Level Data			Boring Advancement Method						Notes		
1.5 ft. Water Depth at Borehole									t: Unconsolidated, Undrained Triaxial Compression Test t5: Lateral Pressure = 12 psi MVS: Mini Vane Shear 7 = 230 psf		
									Boring Abandonment Method		
			Borehole grouted upon completion						Strata Boundaries May Not Be Exact		

02-1073 LDNR LOG 02-1073.GPJ LOG.G1.CDT 08/25/02

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-7

File: 02-1073
Date: 08/03/02
Logged by: B. Ray
Driller: Triangle Resources
Rig: Barge



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 2

FIELD DATA			LABORATORY DATA							Location: LAT. 29° 20' 00" LONG. -90° 58' 32"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Other	Soil Type	Description
						LL	PL	PI			
		No (P)	0.02	685	8	492	136	356			Extremely soft black PEAT (PT)
		No (P)		376							
	5	No (P)	0.07	52	67	54	21	33	SG, CS		Extremely soft gray ORGANIC CLAY (OH) w/silty sand seams
		No (P)		66							
	10	No (P)	0.13t1	36	81	38	25	13	FVS1		Very soft gray ORGANIC SILTY CLAY (OL)
		Vane Shear									
	15	No (P)	0.20t2	84	48						Very soft dark gray ORGANIC CLAY (OH) w/shells
		No (P)		85					MVS1		- w/sand and shell
	20	No (P)							FVS2		
		Vane Shear									
	25	No (P)	0.16	67	58	90	28	62			- w/wood
		No (P)									
	30	No (P)		45							Soft gray ORGANIC CLAY (OH) w/silty sand seams and layers
		Vane Shear							FVS3		
	35	0.5 (P)	0.32	34	79						- w/alternating layers of clayey silt
		No (P)									
	40	No (P)		57					MVS2		- w/silty sand seams

Continued Next Page

Ground Water Level Data

Boring Advancement Method

Notes

1.5 ft. Water Depth at Borehole

Boring Abandonment Method

SG: Specific Gravity = 2.69
CS: See Consolidation Curve
t: Unconsolidated, Undrained Triaxial Compression Test
t1: Lateral Pressure = 3 psi
t2: Lateral Pressure = 2.5 psi
FVS: Field Vane Shear
1 = 140 psf, 2 = 104 psf, 3 = 140 psf
MVS: Mini Vane Shear
1 = 146 psf, 2 = 188 psf

Strata Boundaries May Not Be Exact

02-1073 LDNR LOG 02-1073.CPJ LOG01.GDT 08/25/02

LDNR
 North Lake Mechant
 Landbridge Restoration Project
 (TE-44)
 Terrebonne Parish, LA

LOG OF SOIL BORING B-7

File: 02-1073
 Date: 08/03/02
 Logged by: B. Ray
 Driller: Triangle Resources
 Rig: Barge



C-K & Associates, Inc.
 Baton Rouge, LA

Sheet 2 of 2

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 00" LONG. -90° 58' 32"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -0.5 (ft., NAVD88)
						LL	PL	PI		Description	
										Soft gray ORGANIC CLAY (OH) w/silty sand seams and layers	
	45	No (P)	0.24	51	72	61	20	41		Very soft gray ORGANIC CLAY (OH) w/silt seams and pockets	
	50	No (P)		56					MVS3	- w/silty sand seams	
	55	0.25 (P)	0.27	60	63					Soft gray ORGANIC CLAY (OH)	
	60	0.5 (P)	0.49	59	65	77	23	54	MVS4		
										Boring completed at 60 ft.	
	65										
	70										
	75										
	80										
Ground Water Level Data			Boring Advancement Method						Notes MVS: Mini Vane Shear 3 = 167 psf, 4 = 230 psf		
1.5 ft. Water Depth at Borehole			Boring Abandonment Method								

02-1073 LDNR LOG 02/10/02 CPU LOG01.GDT 09/25/02

Strata Boundaries May Not Be Exact.

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-8

File: 02-1073
Date: 08/05/02
Logged by: F. Ward
Driller: Triangle Resources
Rig: Barge



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 2

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 22" LONG. -90° 56' 12"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -4.0 (ft., NAVD88)
						LL	PL	PI		Description	
		No (P)	0.08	63	62	73	25	48		Extremely soft gray ORGANIC CLAY (OH) w/sand seams	
		No (P)		59					MVS1		
				40					MVS2	- w/6-inches of gray sand	
	5	No (P)	3.24t1	47	89	30	21	9	SG1,CS	Dense 5-inches of gray SILTY SAND (SM) and 3-inches of gray ORGANIC CLAY (OH)	
		No (P)		47					MVS3		
	10	No (P)	0.11	86	49				FVS1	Very soft gray ORGANIC CLAY (OH)	
		Vane Shear									
	15	No (P)	0.12	103	44	99	30	69	SG2,CS	- w/peat	
	20	No (P)									
	25	No (P)		58					MVS4	- w/sand seams	
				88					MVS5	- w/shell, roots, sand layers, pockets, and seams	
	30	No (P)	0.25t2	89	33				FVS2		
		Vane Shear									
	35	No (P)		38					MVS6	- w/alternating layers of sand, silt, and mica	
	40	No (P)	0.45t3	48	71	46	19	27	SG3,CS	Soft gray SILTY CLAY (CL) w/silty sand lenses and layers	
Continued Next Page											
Ground Water Level Data			Boring Advancement Method						Notes		
5.0 ft. Water Depth at Borehole			4" Dia. Rotary Wash: 0 to 60 ft.						MVS: Mini Vane Shear 1 = 125 psf, 2 = 209 psf, 3 = 84 psf 4 = 125 psf, 5 = 209 psf, 6 = 209 psf SG1: Specific Gravity = 2.69 CS: See Consolidation Curve FVS: Field Vane Shear 1 = 114 psf, 2 = 170 psf SG2: Specific Gravity = 2.54 SG: Specific Gravity = 2.69 CS: See Consolidation Curve Strata Boundaries May Not Be Exact		
			Borehole grouted upon completion								

02-1073 LDNR LOG 02-1073.CPJ LOG01.GDT 08/25/02

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-8

File: 02-1073
Date: 08/05/02
Logged by: F. Ward
Driller: Triangle Resources
Rig: Barge



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 2 of 2

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 22" LONG. -90° 56' 12"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -4.0 (ft., NAVD88)
						LL	PL	PI		Description	
	45	No (P)		45					MVS7	Soft gray SILTY CLAY (CL) w/silty sand lenses and layers - w/alternating layers of sand	
	50	No (P)	0.40	46	69					- w/silt lenses	
	55	No (P)		47					MVS8	Soft gray CLAY (CH) w/silt seams	
	60	No (P)	0.51	54	66	80	27	53		Boring completed at 60 ft.	
	65										
	70										
	75										
	80										
Ground Water Level Data			Boring Advancement Method						Notes		
5.0 ft. Water Depth at Borehole			4" Dia. Rotary Wash: 0 to 60 ft.						MVS: Mini Vane Shear 7 = 292 psf, 8 = 376 psf		
			Boring Abandonment Method								
			Borehole grouted upon completion								
Strata Boundaries May Not Be Exact											

02-1073 LDNR LOG 02-1073.GPJ LOG01.CMT 08/25/02

LDNR
 North Lake Mechant
 Landbridge Restoration Project
 (TE-44)
 Terrebonne Parish, LA

LOG OF SOIL BORING B-9

File: 02-1073
 Date: 07/31/02
 Logged by: F. Ward
 Driller: Triangle Resources
 Rig: Barge



C-K & Associates, Inc.
 Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 31" LONG. -90° 59' 43"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -1.5 (ft., NAVD88)
						LL	PL	PI		Description	
		No (P)	0.11	54	67	61	20	41		Very soft dark gray ORGANIC CLAY (OH) w/silt traces and roots	
		No (P)		62					MVS		
	5	No (P)	0.22	52	66					Very soft gray ORGANIC CLAY (OH), jointed	
		No (P)	0.33	41	78	48	20	28	SG, CS	Soft gray ORGANIC CLAY (OH) w/silt seams	
	10	Vane Shear							FVS		
	15	No (P)	0.35	45	75					- w/trace of silt	
	20	No (P)		59						- w/roots	
	25	No (P)	0.48	63	60	88	31	57		- w/roots	
										Boring completed at 25 ft.	
	30										
	35										
	40										

02-1073 LDNR LOG 02/10/03 CPU LOG01.GDT 08/25/02

Ground Water Level Data	Boring Advancement Method	Notes
	4" Dia. Rotary Wash: 0 to 25 ft.	MVS: Mini Vane Shear = 146 psf SG: Specific Gravity = 2.67 CS: See Consolidation Curve FVS: Field Vane Shear = 45 psf
	Boring Abandonment Method	
2.5 ft. Water Depth at Borehole	Borehole grouted upon completion	

Strata Boundaries May Not Be Exact

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-10

File: 02-1073
Date: 07/31/02
Logged by: F. Ward
Driller: Triangle Resources
Rig: Barge



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 19' 55" LONG. -90° 59' 53"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -0.5 (ft., NAVD88)
						LL	PL	PI		Description	
		No (P)	0.03t1	483	12	271	68	203		Extremely soft black PEAT (PT) and gray ORGANIC CLAY (OH) w/peat seams	
		No (P)	0.07t2	107	46						
	5	Vane Shear							FVS	Very soft gray ORGANIC CLAY (OH) w/sand seams	
		No (P)	0.11t3	64	60	64	25	39	SG, CS		
		No (P)		50					MVS1	- w/silt and organics	
	10			42					MVS2	- w/sand seams and 3-inches of gray silty sand	
		No (P)	0.21t4	47	75					- w/silty sand seams and gray silty sand	
	15										
		No (P)		188					MV3	- w/3-inches of black peat w/roots	
	20										
		No (P)	0.49t5	31	84	32	22	10		Soft gray CLAYEY SAND (SC) w/silt	
	25									Boring completed at 25 ft.	
	30										
	35										
	40										

02-1073.LDNR.LOG 02/10/03.CFU LOG.DWG CDT 09/25/02

Ground Water Level Data	Boring Advancement Method	Notes
	4" Dia. Rotary Wash: 0 to 25 ft.	t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure: t1 = 0.5 psi, t2 = 1 psi, t3 = 2 psi, t4 = 4.6 psi, t5 = 8.0 psi FVS: Field Vane Shear = 44 psf SG: Specific Gravity = 2.71 CS: See Consolidation Curve MVS: Mini Vane Shear 1 = 42 psf, 2 = 125 psf, 3 = 167 psf
	Boring Abandonment Method	
1.5 ft. Water Depth at Borehole	Borehole grouted upon completion	

Strata Boundaries May Not Be Exact

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-11

File: 02-1073
Date: 07/30/02
Logged by: F. Ward
Driller: Triangle Resources
Rig: Barge



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 19" LONG. -90° 57' 19"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -4.0 (ft., NAVD88)
						LL	PL	PI		Description	
		No (P)	0.03t1	89	50	72	21	51		Extremely soft dark gray ORGANIC CLAY (OH) w/shell, peat, and sand - w/silty sand pockets and 4-inches of gray silty sand	
		No (P)		40					MVS1		
	5	No (P)	1.14t2	31	95					Medium gray SILTY SAND (SM) w/mica and organic traces	
		Vane Shear		34					FVS	Very soft gray SILTY CLAY (CL) w/gray silty sand seams and 7-inch layer of shell	
	10	No (P)	1.36t3	31	95					Medium gray SILTY SAND (SM) w/silty clay seams and shell	
	15	No (P)		95					MVS2	Very soft gray ORGANIC CLAY (OH)	
	20	No (P)	0.30	162	30					Soft black PEAT (PT) w/gray clay layer	
	25	No (P)	0.14	30	85	39	17	22		Very soft gray ORGANIC CLAY (OL) w/alternating silty sand seams	
										Boring completed at 25 ft.	

Ground Water Level Data	Boring Advancement Method	Notes
5.0 ft. Water Depth at Borehole	4" Dia. Rotary Wash: 0 to 25 ft.	t: Unconsolidated, Undrained Triaxial Compression Test t1: Lateral Pressure = 0.5 psi t2: Lateral Pressure = 2.0 psi t3: Lateral Pressure = 4.0 psi MVS: Mini Vane Shear 1 = 104 psf, 2 = 125 psf FVS: Field Vane Shear = 128 psf
	Boring Abandonment Method Borehole grouted upon completion	

Strata Boundaries May Not Be Exact

02-1073 LDNR LOG 021073.CPJ LOG01.GDT 09/25/02

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-12

File: 02-1073
Date: 08/05/02
Logged by: F. Ward
Driller: Triangle Resources
Rig: Barge



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 21' 11" LONG. -90° 54' 24"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -3.0 (ft., NAVD88)
						LL	PL	PI		Description	
		No (P)	0.24t1	42	80	40	25	15		Very soft gray very SANDY CLAY (CL) w/organics	
		No (P)	0.15t2	44	75					Very soft gray SILTY CLAY (CL) w/silty sand seams	
	5	No (P)	0.44t3	38	93	34	26	8	SG, CS	- w/sand seams	
		Vane Shear							FVS	Very soft gray very SILTY CLAY (CL) to gray CLAYEY SILT (ML) w/sand	
	10	No (P)	0.21	34 32	79					Soft gray CLAY (CH) w/silt seams and sand layers	
		No (P)	0.41	60	67					Gray SILTY SAND (SM) w/clay	
	15			30						Soft gray ORGANIC CLAY (OH)	
		No (P)	0.42	76	55	106	31	75			
	20										
		No (P)									
	25									Boring completed at 25 ft.	
	30										
	35										
	40										

Ground Water Level Data	Boring Advancement Method	Notes
	4" Dia. Rotary Wash: 0 to 25 ft.	t: Unconsolidated, Undrained Triaxial Compression Test t1: Lateral Pressure = 0.5 psi t2: Lateral Pressure = 1 psi t3: Lateral Pressure = 1.5 psi SG: Specific Gravity = 2.67 CS: See Consolidation Curve FVS: Field Vane Shear = 136 psf
	Boring Abandonment Method	
4.0 ft. Water Depth at Borehole	Borehole grouted upon completion	

Strata Boundaries May Not Be Exact

02-1073 LDNR LOG 08/05/02 CPU LOG01.GDT 08/25/02

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-13

File: 02-1073
Date: 08/02/02
Logged by: F. Ward
Driller: Triangle Resources
Rig: Barge



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 19' 17" LONG. -90° 59' 05"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -3.0 (ft., NAVD88)
						LL	PL	PI		Description	
		No (P)		98						Extremely soft to soft gray ORGANIC CLAY (OH)	
		Vane Shear		66		63	23	40	GS1, FVS	Extremely soft gray ORGANIC CLAYEY SILT (OL) w/sand and shell	
	5	No (P)		43	89					Extremely soft to soft gray SANDY CLAY (CL) w/shell and peat seams	
		No (P)		56					MVS	Extremely soft to soft gray ORGANIC CLAY (OH) w/silty sand pockets and seams	
	10	No (P)		77	53	53	22	31	GS2	Extremely soft to soft gray ORGANIC CLAY (OH) w/silt pockets and seams	
	15	No (P)		98						- w/peat pockets	
	20	No (P)		101		132	39	93	GS3	- w/peat and fine sand	
	25	No (P)		89						- w/shell, peat, and organics	
										Boring completed at 25 ft.	
	30										
	35										
	40										
Ground Water Level Data			Boring Advancement Method						Notes		
4.0 ft. Water Depth at Borehole			4" Dia. Rotary Wash: 0 to 25 ft.						GS: Particle Size Analysis GS1: Gravel = 1.7%, Sand = 11.8%, Silt = 59.6%, Clay = 27% GS2: Sand = 0.4%, Silt = 31.5%, Clay = 68.1% GS3: Sand = 7.5%, Silt = 35.9%, Clay = 56.6% FVS: Field Vane Shear = 63 psf MVS: Mini Vane Shear = psf		
			Boring Abandonment Method								
			Borehole grouted upon completion								
Strata Boundaries May Not Be Exact											

02-1073 LDNR LOG 02/10/03 CPU LOG01.GDT 08/25/02

LDNR
 North Lake Mechant
 Landbridge Restoration Project
 (TE-44)
 Terrebonne Parish, LA

LOG OF SOIL BORING B-14

File: 02-1073
 Date: 08/02/02
 Logged by: F. Ward
 Driller: Triangle Resources
 Rig: Barge



C-K & Associates, Inc.
 Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 19' 19" LONG. -90° 56' 38"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -5.0 (ft., NAVD88)
						LL	PL	PI		Description	
		No (P)		34						Very loose dark gray very CLAYEY SAND (SC) - w/shell - w/shell - w/shell and gravel	
		No (P)		33	88	35	18	17	GS1		
	5	No (P)		31							
		Vane Shear		36					FVS		
	10	No (P)		77	54	81	23	58	GS2	Extremely soft to soft gray ORGANIC CLAY (OH) w/peat - w/wood and peat - w/black peat	
	15	No (P)		97							
	20	No (P)		149							
	25	No (P)		70		109	39	70	GS3	Extremely soft to soft black PEAT (PT) w/gray silty clay and shell	
										Boring completed at 25 ft.	
	30										
	35										
	40										

02-1073.LDNR.LOG 02-1073.CPJ LOG.DWG CDT 08/25/02

Ground Water Level Data	Boring Advancement Method	Notes
	4" Dia. Rotary Wash: 0 to 25 ft.	GS: Particle Size Analysis GS1: Gravel = 0.3%, Sand = 51.3%, Silt = 31.7%, Clay = 16.7% GS2: Sand = 1.3%, Silt = 42.8%, Clay = 55.9% GS3: Gravel = 0.5%, Sand = 8.3%, Silt = 64%, Clay = 27.1% FVS: Field Vane Shear = 101 psf
	Boring Abandonment Method	
6.0 ft. Water Depth at Borehole	Borehole grouted upon completion	
Strata Boundaries May Not Be Exact		

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-15

File: 02-1073
Date: 07/29/02
Logged by: F. Ward
Driller: Triangle Resources
Rig: Barge



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 44" LONG. -90° 56' 53"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -1.0 (ft., NAVD88)
						LL	PL	PI		Description	
		No (P)		93		107	33	74		Very soft gray ORGANIC CLAY (OH)	
		No (P)	0.14t1	88	49						
	5	Vane Shear							FVS	Extremely soft gray ORGANIC CLAY (OH) w/silty sand seams	
		No (P)	0.25t2	60	66	45	21	24	SG, CS	Soft gray ORGANIC CLAY (OL) w/silty sand seams - w/1/8-inch silty sand seams	
	10	No (P)		84					MVS1		
	15	No (P)	0.26	52	69					Soft gray SILTY CLAY (CL) w/sand seams and organics	
	20	No (P)		42					MVS2	Gray ORGANIC SLIGHTLY SILTY CLAY (OH) w/silty sand seams	
	25	No (P)	0.63	172	28	226	75	151		Medium black PEAT (PT) w/2-inches of gray clay and wood	
										Boring completed at 25 ft.	

Ground Water Level Data	Boring Advancement Method	Notes
2.0 ft. Water Depth at Borehole	4" Dia. Rotary Wash: 0 to 25 ft.	t: Unconsolidated, Undrained Triaxial Compression Test t1: Lateral Pressure = 1 psi t2: Lateral Pressure = 2 psi FVS: Field Vane Shear = 81 psf SG: Specific Gravity = 2.74 CS: See Consolidation Curve MVS: Mini Vane Shear 1 = 84 psf, 2 = 167 psf
	Boring Abandonment Method	
	Borehole grouted upon completion	

Strata Boundaries May Not Be Exact

02-1073.LDNR.LOG 02/10/03.GPJ LOG01.CDT 09/25/02

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-16

File: 02-1073
Date: 07/31/02
Logged by: F. Ward
Driller: Triangle Resources
Rig: Barge



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 14" LONG. -90° 59' 57"	
Ground Water Level	Depth (ft)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -3.5 (ft., NAVD88)
						LL	PL	PI		Description	
		Vane Shear		127					FVS	Extremely soft gray ORGANIC CLAY (OH) w/wood, shell, and silt	
		No (P)		133	37	82	28	54	GS1	Extremely soft to soft dark gray ORGANIC CLAYEY SILT (OL) w/shell and sand	
	5	No (P)		31						- w/2-inch gray very silty clay layer	
		No (P)		66						- w/clay and sand	
	10	No (P)		57	63	75	23	52	GS2		
	15	No (P)		63						Very soft to soft gray ORGANIC CLAY (OH)	
	20	No (P)		93							
	25	No (P)		91							
										Boring completed at 25 ft.	
	30										
	35										
	40										

Ground Water Level Data

Boring Advancement Method

Notes

4.5 ft. Water Depth at Borehole

4" Dia. Rotary Wash:
0 to 25 ft.

FVS: Field Vane Shear = 32 psf
GS: Particle Size Analysis
GS1: Gravel = 5.8%, Sand = 8.5%, Silt = 51.4%, Clay = 34.3%
GS2: Sand = 1.5%, Silt = 61.8%, Clay = 36.7%

Boring Abandonment Method

Borehole grouted upon completion

Strata Boundaries May Not Be Exact

02-1073.LDNR.LOG 02/1073.GPJ LOG.DWG CDT 09/25/02

LDNR
North Lake Mechant
Landbridge Restoration Project
(TE-44)
Terrebonne Parish, LA

LOG OF SOIL BORING B-17

File: 02-1073
Date: 08/02/02
Logged by: F. Ward
Driller: Triangle Resources
Rtg: Barge



C-K & Associates, Inc.
Baton Rouge, LA

Sheet 1 of 1

FIELD DATA			LABORATORY DATA						Soil Type	Location: LAT. 29° 20' 37" LONG. -90° 59' 54"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -3.0 (ft., NAVD88)
						LL	PL	PI		Description	
		Vane Shear No (P)							FVS	Extremely soft gray SILTY CLAY (CL) to CLAYEY SILT (ML) w/organics	
	5	No (P)	0.05t	97	48					Extremely soft gray ORGANIC CLAY (OH) w/silty sand seams - w/silty sand pockets	
		No (P)	0.05	75	50	101	34	67	CS		
	10	No (P)		98					MVS1		
	15	No (P)	0.10	93	45					- w/silty sand seams	
	20	No (P)		85					MVS2	- w/silty sand pockets	
	25	No (P)	0.13	93	46	106	32	74		Very soft gray ORGANIC CLAY (OH)	
										Boring completed at 25 ft.	
	30										
	35										
	40										

02-1073 LDNR LOG 02/1073 CPU LOG01 GDT 08/25/02

Ground Water Level Data	Boring Advancement Method	Notes
	4" Dia. Rotary Wash: 0 to 25 ft.	FVS: Field Vane Shear = 11 psf t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = 1.0 psi CS: See Consolidation Curve MVS: Mini Vane Shear 1 = 84 psf, 2 = 167 psf
	Boring Abandonment Method	
4.0 ft. Water Depth at Borehole	Borehole grouted upon completion	

Strata Boundaries May Not Be Exact

LA DNR
 North Lake Mechant Landbridge
 Restoration Project (TE-44)
 Terrebonne Parish, Louisiana

LOG OF SOIL BORING B-18



File: 06-3091
 Date: 01/05/07
 Logged by: D. Thibodeau
 Driller: Protech
 Rig: Boat

Perrin & Carter, Inc.
 Metairie, LA

Sheet 1 of 1
 LELAP Certificate No. 02052

FIELD DATA			LABORATORY DATA							Location: X Coordinate (ft.) 340045.36 Y Coordinate (ft.) 302417.26			
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (psf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Organic Content (%)	Other	Soil Type	Description
							LL	PL	PI				
					42		44	16	28	4.00	#200a	Gray SILTY CLAY (CL) w/shells and organic matter	
	5			49		43	16	27	3.90	#200b			
	10												
	15											Boring completed at 12 ft.	
	20												
	25												
	30												
	35												
	40												
Ground Water Level Data				Boring Advancement Method				Notes					
				4" Nom. Dia. Short Flight Auger: 0 to 12 feet				Boring drilled over water- 3 feet deep -200: Percent Passing #200 Sieve = a = 56.8 % b = 57.2 %					
				Boring Abandonment Method									
				Borehole backfilled with soil upon completion									

ARD\LOG01_063091.GPJ_1.05061.GDT_041007

Strata Boundaries May Not Be Exact

LA DNR
 North Lake Mechant Landbridge
 Restoration Project (TE-44)
 Terrebonne Parish, Louisiana

LOG OF SOIL BORING B-19



File: 06-3091
 Date: 01/05/07
 Logged by: D. Thibodeau
 Driller: Protech
 Rig: Boat

Perrin & Carter, Inc.
 Metairie, LA

Sheet 1 of 1

LELAP Certificate No. 02052

FIELD DATA			LABORATORY DATA							Location: X Coordinate (ft.) 3482534.14 Y Coordinate (ft.) 301661.63			
Ground Water Level	Depth (feet)	Sample	Field Test Results	Compressive Strength (psf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Organic Content (%)	Other	Soil Type	Surface Elevation: N/A (ft., NGVD)
							LL	PL	PI				Description
					52		44	14	30	4.45	#200a	Gray SILTY CLAY (CL) w/organic matter	
	5				44		36	14	22	4.05	#200b		
	10				40		36	17	19	3.95			
	15											Boring completed at 12 ft.	
	20												
	25												
	30												
	35												
	40												
Ground Water Level Data			Boring Advancement Method				Notes						
			4" Nom. Dia. Short Flight Auger; 0 to 12 feet				Boring drilled over water- 3 feet deep -200: Percent Passing #200 Sieve = a = 60.7 % b = 66.7 %						
			Boring Abandonment Method										
			Borehole backfilled with soil upon completion										

ARD10001_063091.GPJ.LCG01.GDT_04/10/07

Strata Boundaries May Not Be Exact

LA DNR
 North Lake Mechant Landbridge
 Restoration Project (TE-44)
 Terrebonne Parish, Louisiana

LOG OF SOIL BORING B-20



File: 06-3091
 Date: 01/05/07
 Logged by: D. Thibodeau
 Driller: Protech
 Rig: Boat

Perrin & Carter, Inc.
 Metairie, LA

Sheet 1 of 1
 LELAP Certificate No. 02052

FIELD DATA			LABORATORY DATA							Soil Type
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (psf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Organic Content (%)	
						LL	PL	PI		
	0									
	5			33		28	17	11	3.20	#200a
	5			39		28	15	13	3.60	#200b
	10			71		68	15	53	5.35	
	10									
	15									
	20									
	25									
	30									
	35									
	40									

Location: X Coordinate (ft.) 3404596.48
 Y Coordinate (ft.) 301139.74

Surface Elevation: N/A (ft., NGVD)

Description

Gray CLAYEY SAND (SC) w/shells and organic matter

Gray CLAY (CH) w/silt and organic matter

Boring completed at 12 ft.

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Ground Water Level Data	Boring Advancement Method	Notes
	4" Nom. IDia. Short Flight Auger: # to 12 feet	Boring drilled over water- 3 feet deep -200: Percent Passing #200 Sieve = a = 45.1 % b = 47.0 %
	Boring Abandonment Method	
	Borehole backfilled with soil upon completion	

Strata Boundaries May Not Be Exact

LA DNR
 North Lake Mechant Landbridge
 Restoration Project (TE-44)
 Terrebonne Parish, Louisiana

LOG OF SOIL BORING B-21



File: 06-3091
 Date: 01/05/07
 Logged by: D. Thibodeau
 Driller: Protech
 Rig: Boat

Perrin & Carter, Inc.
 Metairie, LA

Sheet 1 of 1

LELAP Certificate No. 02052

FIELD DATA			LABORATORY DATA							Soil Type
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (pcf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Organic Content (%)	
						LL	PL	PI		
	0									
	5			43		46	16	30	5.15	#200a
				45		42	20	22	4.30	#200b
	10			68		58	19	39	5.35	
	12									
	15									
	20									
	25									
	30									
	35									
	40									

Location: X Coordinate (ft.) 3490583.02
 Y Coordinate (ft.) 308399.18

Surface Elevation: N/A (ft., NGVD)

Description

Gray SILTY CLAY (CL) w/organic matter

Gray CLAY (CH) w/organic matter

Boring completed at 12 ft.

Ground Water Level Data

Boring Advancement Method

Notes

4" Nom. Dia. Short Flight Auger:
 0 to 12 feet

Boring drilled over water- 3 feet deep
 -200: Percent Passing #200 Sieve =
 a = 86.5 %
 b = 71.2 %

Boring Abandonment Method

Borehole backfilled with soil upon
 completion

Strata Boundaries May Not Be Exact

ARD-0101_063091.GPJ 10:30:13DT 04/10/07

LA DNR
 North Lake Mechant Landbridge
 Restoration Project (TE-44)
 Terrebonne Parish, Louisiana

LOG OF SOIL BORING B-22



File: 06-3091
 Date: 01/05/07
 Logged by: D. Thibodeau
 Driller: Protech
 Rig: Boat

Perrin & Carter, Inc.
 Metairie, LA

Sheet 1 of 1

LELAP Certificate No. 02052

FIELD DATA			LABORATORY DATA								Soil Type	Location: X Coordinate (ft.) 3402471.88 Y Coordinate (ft.) 299564.19	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (psi)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Organic Content (%)	Other		Surface Elevation: N/A (ft., NGVD)	Description
						LL	PL	PI					
	5			35		28	16	12	3.50	#200a		Gray clay CLAYEY SAND (SC) w/shells and organic matter	
				37		31	15	16	3.25	#200b			
	10			44		38	15	23	5.05			Gray SILTY CLAY (CL) w/organic matter	
												Boring completed at 12 ft.	
	15												
	20												
	25												
	30												
	35												
	40												
Ground Water Level Data			Boring Advancement Method				Notes						
			4" Nom. Dia. Short Flight Auger; 8 to 12 feet				Boring drilled over water- 3 feet deep -200: Percent Passing #200 Sieve = a = 42.2 % b = 42.2 %						
			Boring Abandonment Method										
			Borehole backfilled with soil upon completion										

ARD.L0501.063091.GPJ.L0501.GDT.04/10/07

Strata Boundaries May Not Be Exact

LA DNR
 North Lake Mechant Landbridge
 Restoration Project (TE-44)
 Terrebonne Parish, Louisiana

LOG OF SOIL BORING B-23



File: 06-3091
 Date: 01/05/07
 Logged by: D. Thibodeau
 Driller: Protech
 Rig: Boat

Perrin & Carter, Inc.
 Metairie, LA

Sheet 1 of 1

LELAP Certificate No. 02052

FIELD DATA			LABORATORY DATA							Soil Type	Location: X Coordinate (ft.) 3484613.25 Y Coordinate (ft.) 298044.43
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (psi)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Organic Content (%)		
						LL	PL	PI			Description
	5		31			27	15	12	3.05	#200a	Gray CLAYEY SAND (SC) w/shells and organic matter
			35			27	16	11	3.65	#200b	
	10		33			29	19	10	3.95		Gray SILTY CLAY (CL) w/organic matter
											Boring completed at 12 ft.
	15										
	20										
	25										
	30										
	35										
	40										

ARD.L01001.D00091.GPJ.LOG001.GDT 04/10/07

Ground Water Level Data	Boring Advancement Method	Notes
	4" Nom. Dia. Short Flight Auger: 0 to 12 feet	Boring drilled over water- 3 feet deep -200: Percent Passing #200 Sieve = a = 40.8 % b = 40.5 %
	Boring Abandonment Method	
	Borehole backfilled with soil upon completion	

Strata Boundaries May Not Be Exact

South Lake DeCade Project
Task Order IV
Terrebonne Parish, LA

LOG OF SOIL BORING B-6

File: 01-1124
Date: 06/13/01
Logged by: M. Allen
Driller: MASA
Rig: MASA



USDA - Natural Resources Conservation Service
Alexandria, LA

Soil Testing Engineers, Inc.
Sheet 1 of 1

FIELD DATA			LABORATORY DATA							Location: N 29d 21' 44.45" W 90d 54' 27.49"		
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Other	Soil Type	Surface Elevation: N/A (ft., NGVD)
							LL	PL	PI			Description
			0.2 (T)	0.0911	46	70	75	24	51		Extremely soft gray CLAY (CH) w/organics and shells	
			0.04 (V)									
	5		0.3 (T)	0.3812	30	98					Soft gray very SILTY CLAY (CL) w/silty sand pockets	
			0.4 (T)		25						Very loose gray SANDY SILT (ML) w/clay	
	10		0.2 (T)	0.1013	40	86	33	19	14	CS	Very soft gray SILTY CLAY (CL) w/silty sand layers	
			WOP		37					GG		
			0.12 (V)								- w/shell fragments	
	15		0.8 (T)	0.1714	145	35	145	36	109		Very soft gray ORGANIC CLAY (OH) w/peat pockets and seams	
			0.9 (T)		176							- becoming black and dark gray w/peat and wood
	20		1.4 (T)	0.22	65	62					Very soft gray CLAY (CH) w/organics, and wood and shell fragments	
	25		1.1 (T)	0.2415	68	60					Very soft gray SILTY CLAY (CL) w/silt seams and organic clay layers	
	30		0.9 (T)	0.2016	54	72	38	20	18		- w/silty sand and shell fragments	
											Boring completed at 30 ft. below mudline	
	35											
	40											

Ground Water Level Data Not Applicable	Boring Advancement Method 4" Dia. Rotary Wash: 0 to 30 ft.	Notes t: Unconsolidated, Undrained Triaxial Compression Test (psi) t1: Lateral Pressure = 0.3 t2: Lateral Pressure = 1.3 t3: Lateral Pressure = 3.6 t4: Lateral Pressure = 2.3 t5: Lateral Pressure = 6.3 t6: Lateral Pressure = 9.7 CS: See Consolidation Curve WOP: Weight of Pipe GS: Particle Size Analysis Sand = 17%, Silt = 64%, Clay = 18%
T = Torvane (tsf) V = Vane Shear (tsf) Water to Mudline 2.17 ft.	Boring Abandonment Method Borehole grouted with cement/ bentonite upon completion	

Strata Boundaries May Not Be Exact

South Lake DeCade Project
Task Order IV
Terrebonne Parish, LA

LOG OF SOIL BORING B-7

File: 01-1124
Date: 06/13/01
Logged by: M. Allen
Driller: MASA
Rig: MASA



STE

Soil Testing Engineers, Inc.

USDA - Natural Resources Conservation Service
Alexandria, LA

Sheet 1 of 2

FIELD DATA			LABORATORY DATA							Soil Type	Location: N 29d 21' 42.56" W 00d 53' 54.85"
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				
							LL	PL	PI		Surface Elevation: N/A (ft., NGVD)
											Description
			0.3 (T)	0.0811	151	30	191	47	144		Extremely soft dark gray ORGANIC CLAY (OH) w/peat
			0.2 (T)		63		119	34	85	CS	- w/wood fragments and silty sand layers
	5		WOP		44						Very soft gray SILTY CLAY (CL) w/intermittent silty sand layers
			0.04 (V)								
	10		WOP		30						Very loose gray CLAYEY SILT (ML) w/silty sand layers and clay pockets
			WOH		33					GS	- w/shell fragments
			WOH		34						- w/shell fragments
	15		0.06 (V)								Very soft dark gray ORGANIC CLAY (OH) w/peat seams and pockets
			0.9 (T)	0.19	140	35	162	32	130		
	20		0.8 (T)		28						Very loose gray SILTY SAND (SM)
			0.7 (T)	0.0912	135	37					Extremely soft dark gray ORGANIC CLAY (OH) w/peat seams and wood fragments
	25										
			0.9 (T)	0.2413	53	74	43	19	24		Very soft gray SILTY CLAY (CL) w/silty sand layers
	30										
			0.9 (T)	0.2414	40	76					- w/silt seams and shells
	35										
			0.8 (T)	0.15	158	32					Very soft dark gray and black ORGANIC CLAY (OH) w/peat and wood fragments
	40										

Continued Next Page

Ground Water Level Data
Not Applicable
T = Torvane (tsf)
V = Vane Shear (tsf)
Water to Mudline 3.50 ft.

Boring Advancement Method
4" Dia. Rotary Wash;
0 to 50 ft.
Boring Abandonment Method
Borehole grouted with cement/
bentonite upon completion

Notes
L: Unconsolidated, Undrained Triaxial Compression Test
11: Lateral Pressure = 0.1 psi
12: Lateral Pressure = 4.1 psi
13: Lateral Pressure = 10.2 psi
14: Lateral Pressure = 10.3 psi
CS: See Consolidation Curve
WOP: Weight of Pipe
WOH: Weight of Hammer
GS: Particle Size Analysis
Sand = 19%, Silt = 67%, Clay = 14%
Strata Boundaries May Not Be Exact

DRAWN BY: 011847 SPS, LSP/ML/ST, 06/13/01

South Lake DeCade Project
Task Order IV
Terrebonne Parish, LA

LOG OF SOIL BORING B-8

File: 01-1124
Date: 06/12/01
Logged by: M. Allen
Driller: MASA
Rig: MASA



USDA - Natural Resources Conservation Service
Alexandria, LA

Sheet 1 of 2

FIELD DATA		LABORATORY DATA							Soil Type	Location: N 29° 21' 39.97" W 90° 53' 27.93"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: N/A (R., NGVD)
	Samplers					LL	PL	PI		Description	
		.2 (T)	0.08t1	57	70	61	22	39		Extremely soft gray CLAY (CH) w/organics, sand pockets, and silt seams	
		WOH		44					GS	- winterbedded silty sand layers	
		0.4 (T)	0.08t2	35	83	53	18	35	CS	- w/organics and silty sand layers	
		0.4 (T)		54						- w/organics, silty sand layers, and shells	
		0.04 (V)									
		0.4 (T)	1.50t3	30	96	24	24	0		Medium gray SANDY SILT (ML) w/shells	
		0.6 (T)		57						Soft gray ORGANIC CLAY (OH) w/shells and silty sand layers	
		1.5 (T)	0.32	91	49					- becoming very soft	
		0.06 (V)									
		1.1 (T)		26						Loose gray SILTY SAND (SM) w/clay	
		0.9 (T)	0.24	100	46	84	30	54		Very soft gray ORGANIC CLAY (OH) w/peat layers, and wood and shell fragments	
		1.0 (T)		55						Soft gray CLAY (CH) w/shells and organics	
		1.4 (T)	0.31	55	64	69	25	44		- w/silt seams and sand pockets	
		1.6 (T)		57						- w/silt	
Ground Water Level Data		Boring Advancement Method							Notes		
Not Applicable		4" Dia. Rotary Wash: 0 to 50 ft.							Continued Next Page		
T = Torvane (tsf) V = Vane Shear (tsf)		Boring Advancement Method							t: Unconsolidated, Undrained Triaxial Compression Test		
Water to Mudline 7.42 ft.		Borehole grouted with cement/ bentonite upon completion.							t1: Lateral Pressure = 0.3 psi t2: Lateral Pressure = 2.6 psi t3: Lateral Pressure = 4.8 psi WOH: Weight of Hammer GS: Particle Size Analysis Sand = 13%, Silt = 54%, Clay = 33% CS: See Consolidation Curve		

Strata Boundaries May Not Be Exact

Strata boundaries May Not Be Exact