ADDENDUM NO. 1

to
BIDDING/CONTRACT DOCUMENTS
for
AIRPORT DRAINAGE IMPROVEMENTS – PHASE II- PUMP PROCUREMENT
at
LAKEFRONT AIRPORT for the LAKEFRONT MANAGEMENT AUTHORITY

TO: All Prospective Bidders DATE: May 8, 2024

DELIVERY: Central Auction House

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents as noted below. **Acknowledge receipt of this Addendum in the space provided on Page BF-1** of the Bid Form. Failure to do so may subject a Bidder to disqualification.

This Addendum consists of 1 page plus attachments (72 pages).

A. PROJECT MANUAL

1. SUPPLEMENTARY PROVISIONS – Added the following:
    a. *SUPPLEMENTARY PROVISIONS*
        i. *INSERT: Cover Page*
    b. *SUPPLEMENTARY PROVISIONS*
        i. *INSERT: Pages SP-1 through SP-36*

2. PROCUREMENT SPECIFICATIONS (TECHNICAL SPECIFICATIONS) – Added the following:
    a. *PROCUREMENT SPECIFICATIONS*
        i. *INSERT: Cover Page*
    b. *Section 01730 - Operating and Maintenance Data*
        i. *INSERT: Pages 01730-1 through 01730-4*
    c. *Section 15110 – Pump*
        i. *INSERT: Pages 15110-1 through 15110-12*
    d. *Section 15132 - Gear Drive*
        i. *INSERT: Pages 15132-1 through 15132-6*
    e. *Section 15170 - Electric Motor*
        i. *INSERT: Pages 15170-1 through 15170-12*

ATTACHMENTS TO ADDENDUM NO. 1:

1. SUPPLEMENTARY PROVISIONS - Cover Page (1 page)
2. SUPPLEMENTARY PROVISIONS -SP-1 through SP-36 (36 pages)
3. PROCUREMENT SPECIFICATIONS - Cover Page (1 page)
4. Section 01730 - Operating and Maintenance Data (4 pages)
5. Section 15110 - Pump (12 pages)
6. Section 15132 - Gear Drive (6 pages)
7. Section 15170 - Electric Motor (12 pages)

END OF ADDENDUM NO. 1

SUPPLEMENTARY PROVISIONS

NEW • ORLEANS
LAKEFRONT AIRPORT

BID DOCUMENTS

AIRPORT DRAINAGE IMPROVEMENTS - PHASE II –
PUMP PROCUREMENT

AT LAKEFRONT AIRPORT

ADDENDUM No. 1

SUPPLEMENTARY PROVISIONS

The project is being undertaken and accomplished by the Lakefront Management Authority ("LMA") in accordance with the terms and conditions of the Airports Improvements Program ("AIP") administered by the Federal Aviation Administration ("FAA"). For AIP projects, the United States, FAA, and La DOTD has agreed to reimburse the Lakefront Management Authority for the Contract Sum. Contractor shall provide to the Lakefront Management Authority all information, reports, documents, and/or certifications requested by the Lakefront Management Authority for the satisfaction of any grant requirements for the project. Contractor shall comply with all applicable laws, regulations, executive orders, policies, guidelines, and requirements for AIP funded projects. Nothing herein shall be construed as making the FAA a party to the Agreement.

Contractor shall abide by terms and conditions of these Supplementary Provisions. In addition, Contractor shall:

1) insert these Supplementary Provisions in each lower tier contracts (e.g., subcontract or sub- agreement);
2) incorporate the applicable requirements of these Supplementary Provisions by reference for work done under any purchase orders, rental agreements and other agreements for supplies or services; and
3) ensure compliance with these Supplementary Provisions by any subcontractor, lower-tier subcontractor, or service provider.

Contractor failure to comply with the terms of these Supplementary Provisions may be sufficient grounds to:

1) Withhold progress payments or final payment;
2) Terminate the contract for cause;
3) Seek suspension/debarment; or
4) Take other action determined to be appropriate by the Lakefront Management Authority, the FAA or LaDOTD.

SP-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.

a. Acceptance: A written approval from the Authority Representative which certifies that specific items of work in the Contract have been completed and/or obligations

have been fulfilled by the Contractor.

b. Addenda: Those written or graphic documents which are issued prior to opening of Bids in accordance with the Bidding Requirements and clarify or change the bidding requirements or the proposed Contract Documents.

c. Application of Payment: That form which is used by the Contractor to request partial and final payment and is deemed acceptable to the Owner. It shall be accompanied by any supporting documentation required by the Contract Documents.

d. Authority: The Lakefront Management Authority(LMA)

e. Authority Representative: On site representative for the Lakefront Management Authority(LMA).

f. A.S.T.M.: American Society for Testing and Materials.

g. Bid: An offer or proposal submitted on the prescribed form setting forth the prices for the Work.

h. Bidder: The person, association of persons, firm, or corporation submitting an offer or proposal for the Work.

i. Bidding Requirements: The Advertisement for Bids, Instructions to Bidders, Form of Bid Security, if any, and Bid Form with any supplements.

j. Change Order: A written order which is submitted to the Contractor, signed by the Owner, and authorizes an addition, deletion, or revision in the Work, or an adjustment in the contract price or the contract time issued after the effective date of the Contract.

k. 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.

l. Contract: The written agreement between the Owner and the Contractor which defines the work to be completed and shall be understood to include all Contract Documents.

m. Contract Documents: The Contract, all addenda which pertains to the Contract Documents, Bid Documents and specified Attachments accompanying the Bid and any post-bid documentation submitted prior to the Notice of Award, Contractor's Bid when attached as an exhibit to the Agreement, the Bonds (Bid and Performance/Payment), General Provisions, Special Provisions, Technical Specifications, Plans, and all Field or Change Orders issued after the execution of the Agreement. Shop Drawings and other submittals by the Contractor are not Contract Documents.

n. Contract Price: The moneys payable by the Owner to the Contractor for the Work in accordance with the Contract Documents as stated in the Contract.

o. Contract Time: The number of calendar days specified in the Contract for completion of the Work, together with any extensions authorized through change orders.

p. Contractor: The person, association of persons, firm, or corporation entering into the duly awarded Contract.

q. Contracting Agency: The Lakefront Management Authority(LMA).

r. Day: When any period of time is referred to in the Contract Documents using days, it will be computed to exclude the first day and include the last day of such period. If the last day of any such period falls on a Saturday, Sunday, or a legal holiday, that day will be omitted from the computation. A calendar day is measured as twenty-four (24) hour period starting at midnight and ending the following midnight.

s. Design Report: A written report by the Engineer which provides the design methodology for the Work.

t. Effective Date of the Contract: The date indicated in the Contract on which it becomes effective.

u. Engineer: The Lakefront Management Authority, or its designee.

v. 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 assembly, delivery and acceptable completion of the Work.

w. Extension of Contract: Any extension of time for completion of Work beyond the Contract Time which is granted by the Owner, recommended by the Engineer and approved by the Management Authority in the form of a Change Order.

x. Federal Sponsor: The federal agency which has been tasked, if applicable, to manage the implementation of the project.

y. 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 Time.

z. Laboratory: The firm, company, or corporation which is used to test materials and is approved for use by the Engineer.

aa. 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.

bb. Materials: Any substance used in the Work to build specified products, but does not include material used in false work or other temporary structures not incorporated in the

Work.

cc. Milestone: A principal event specified in the Contract Documents relating to an intermediated completion date or time prior to the Contract Times.

dd. Notice of Award: A written notice to the successful Bidder stating that the Bid has been accepted by the Owner and that the successful Bidder is required to execute the Contract and furnish the Payment and Performance Bond and Non-Collusion Affidavit.

ee. Notice to Proceed: The written notice to the Contractor by the Owner which provides the starting date for the Contract Time.

ff. Owner: The Owner is the Lakefront Management Authority.

gg. Performance and Payment Bond: The approved form of security furnished by the Contractor and Surety for the faithful performance of the Work, and the payment for all labor, materials, and/or obligations incurred by the Contractor in the prosecution thereof.

hh. Plans: That part of the Contract Documents prepared or approved by the Engineer which graphically shows the scope, intent, and character of the Work to be completed by the Contractor.

ii. Project Site: The location where the Work is to be performed as stated in the Contract Documents, or as directed by the Owner. Airport premises.

jj. Resident Project Representative: An authorized representative of the Engineer who is responsible to inspect the Work and materials furnished by the Contractor.

kk. Right-of-way: That entire area reserved for constructing, maintaining, and protecting the proposed improvement, structures, and appurtenances of the Work.

ll. 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.

mm. 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.

nn. 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.

oo. State: Louisiana.

pp. Structures: Bridges, plugs, weirs, bulkheads, berms, dams, levees, and other miscellaneous construction encountered during the Work and not otherwise classified herein.

qq. 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.

rr. Submittals: Certificates, samples, shop drawings, and all other project data which are submitted to the Engineer in order to verify that the correct products will be installed on the project.

ss. Successful Bidder: The lowest responsible Bidder whom the Owner makes an award.

tt. Special Provisions: That part of the Contract Documents which amends or supplements these General Provisions.

uu. 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.

vv. Temporary Structures: Any non-permanent structure required while engaged in the prosecution of the Contract.

ww. Work: All work specified herein or indicated on the Plans.

xx. Work Plan: A written plan by the Contractor that details how the Work will be provided including layout drawings, projected schedule (Initial Progress Schedule), and a list of labor hours, materials, and equipment.

SP-2 CONTACT INFORMATION

Prior to Bid opening date, the Contractor shall send all questions and requests for clarification or interpretation of the Bid Documents in writing to the attention of the DESIGN ENGINEER. The address and contact information are as follows:

Infrastructure Consulting & Engineering, PLLC
4000 S. Sherwood Forest Blvd, Suite 301
Baton Rouge, LA 70816
Attention: Doug Hambrecht P.E.
Phone: 813.330.2701
Email: Doug.Hambrecht@ice-eng.com

After execution of the contract between Owner and Contractor, the successful Contractor shall contact the Engineer concerning contract documentation or questions. The addresses and contact information for the Engineer is listed as follows:

Same as above

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-3 LAWS, REGULATIONS, STANDARDS, SPECIFICATIONS, AND CODES

Bidders are required to become familiar and remain in compliance with all Federal, State, and local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority which may affect those employed for the execution of the Work or which may affect the conduct of the Work. The Contractor shall indemnify the Owner and its representatives against any claim or liability arising from all violations of any laws, bylaws, ordinances, codes, regulations, orders, or decrees, whether by the Contractor or by the Contractor's employees. The filing of a bid will be presumptive evidence that the Bidder has complied with this requirement. The Owner will not be responsible for any inaccurate interpretations or conclusions drawn by the Contractor from information and documentation provided by the Owner.

References 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, may not be in effect at the time of opening the Bids (or on the Effective Date of the Contract 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. No such provision shall 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 Contract Documents.

The obligations imposed by these specifications are in addition to and are not to be construed in any way as a limitation of any rights available to the Engineer or Owner which are otherwise imposed by any laws or regulations or other provisions within the Contract Documents.

The Contractor shall abide by laws set forth in the Davis-Bacon Act of 1931 which states that all laborers and mechanics employed by recipients, the recipient's contractors, or subcontractors on this project shall be paid wages at rates no less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with Subchapter IV of Chapter 31 of Title 40 United States Code. Additionally, with respect to the labor standards specified in this section, the Secretary of Labor shall have the authority and functions set forth in Reorganization Plan Number 14 of 1950 (64 Stat. 1267; 5 U.S.C. App.) and The Copeland Act of Title 40 (40 U.S.C. § 3145). Prevailing Wage Determination Schedules, as determined by the United States Department of Labor, are provided in the Appendix. Prevailing Wage Determination Schedules are subject to modification by the United States Department of Labor. The Contractor is responsible for utilizing the most current Prevailing Wage Determination

Schedule. These documents can be downloaded from the following link: http://www.wdol.gov/dba.aspx#3. Modifications to Prevailing Wage Determination Schedules shall be effective if received (or posted) no less than 10 days prior to bid opening.

SP-4 INSURANCE AND BONDS

A. Minimum Scope and Limits of Insurance

The Contractor shall purchase and maintain without interruption for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Work hereunder by the Contractor, its agents, representatives, employees or subcontractors. The duration of the contract shall be from the inception of the contract until the date of final payment.

1) Worker's Compensation & Employer's Liability

Worker's Compensation insurance shall be in compliance with the Worker's Compensation law of the State of Louisiana. Employers Liability is included with a minimum limit of $500,000 per accident/per disease/per employee. If Work is to be performed over water and involves maritime exposure, applicable LHWCA, Jones Act or other maritime law coverage shall be included and the Employers Liability limit increased to a minimum of $1,000,000.

A.M. Best's insurance company rating requirement may be waived for Worker's compensation coverage only.

2) Commercial General Liability

Commercial General Liability insurance, including Personal and Advertising Injury Liability and Products and Completed Operations Liability, shall have a minimum limit per occurrence based on the project value. The Insurance Services Office (ISO) Commercial General Liability occurrence coverage form CG 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. Claims-made form is unacceptable.

The aggregate loss limit must apply to each project. ISO form CG 25 03 (current form approved for use in Louisiana), or equivalent, shall also be submitted. The State project number, including part number, and project name shall be included on this endorsement.

COMBINED SINGLE LIMIT (CSL) PER OCCURRENCE

The required minimum combined single limit amount of insurance shall be as provided below:

Initial Contract Amount	Minimum Insurance
Up to $1,000,000	$1,000,000
From $1,000,001 to $2,000,000	$2,000,000
Over $2,000,000	$5,000,000

3) Automobile and Watercraft Liability

Automobile Liability Insurance and Watercraft Liability Insurance shall have a minimum combined single limit per occurrence of $1,000,000. ISO form number CA 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. This insurance shall include third-party bodily injury and property damage liability for owned, hired and non- owned automobiles and/or watercraft. If any non-licensed motor vehicles and/or watercraft are engaged in operations within the terms of the contract on the site of the work to be performed thereunder, such insurance shall cover the use of any such vehicles.

NOTE: If the Contractor does not own automobiles and/or watercraft, and such vehicles are utilized in the execution of the contract, then hired and non-owned coverage is acceptable. If automobiles and/or watercraft are not utilized in the execution of the contract, then automobile and/or watercraft coverage is not required.

4) Excess Umbrella

Excess Umbrella Insurance may be used to meet the minimum requirements for General Liability, Automobile Liability, and Watercraft Liability only.

5) Pollution Liability (required when asbestos or other hazardous material abatement is included in the contract)

Pollution Liability insurance, including gradual release as well as sudden and accidental shall have a minimum limit of not less than $1,000,000 per claim. A claims-made form will be acceptable. A policy period inception date of no later than the first day of anticipated Work under this contract and an expiration date of no earlier than 30 days after anticipated completion of all Work under the contract shall be provided. There shall be an extended reporting period of at least 24 months, with full reinstatement of limits, from the expiration date of the policy. The policy shall not be cancelled for any reason, except non-payment of premium.

6) Builders Risk Coverage

Contractor shall procure at its expense, if applicable, “All Risk” type Builder’s Risk Insurance policy covering the work to be performed under the Contract with coverage for the full value of the equipment and other constructions at the time of completion. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke during the Contract Time, and until the work is accepted by the Owner. The policy shall name as insured the Contractor, Owner and Orleans Levee District as additional insured.

7) Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and accepted by the Owner. The Contractor shall be responsible for all deductibles and self-insured retentions.

B. Other Insurance Provisions

1) The policies are to contain, or be endorsed to contain, the following provisions:

i. Worker's Compensation and Employers Liability Coverage

ii. The insurer shall agree to waive all rights of subrogation against the Owner and the Orleans Levee District, their commissioners, officers, agents, and employees for losses arising from Work performed by the Contractor for the Owner.

2) General Liability Coverage

i. The Owner and the Orleans Levee District, and their commissioners, officers, agents, and employees are to be added as additional insureds as respects liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor, premises owned, occupied or used by the Contractor. ISO Form CG 20 10 (current form approved for use in Louisiana), or equivalent, is to be used;

ii. The Contractor's insurance shall be primary as respects the Owner and the Orleans Levee District, and their commissioners, officers, agents, and employees. The coverage shall contain no special limitations on the scope of protection afforded to the Owner and the Orleans Levee District, and their commissioners, officers, agents, and employees. Any insurance or self-insurance maintained by the Owner shall be excess and non-contributory of the Contractor's insurance;

iii. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the policy limits.

3) All Coverages

i. Coverage shall not be canceled, suspended, or voided by either party (the Contractor or the insurer) or reduced in coverage or in limits except after 30 days written notice has been given to the Owner. Ten-day written notice of cancellation is acceptable for non-payment of premium. Notifications shall comply with the standard cancellation provisions in the Contractor's policy;

ii. Neither the acceptance of the completed Work nor the payment thereof shall release the Contractor from the obligations of the insurance requirements or indemnification agreement;

iii. The insurance companies issuing the policies shall have no recourse against the Owner for payment of premiums or for assessments under any form of the policies;

iv. Any failure of the Contractor to comply with reporting provisions of the policy shall not affect coverage provided to the Owner, its officers, agents, employees and volunteers.

4) Acceptability of Insurers

All required insurance shall be provided by a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located. Insurance shall be placed with insurers with an A.M. Best's rating of A-:VI or higher. This rating requirement may be waived for Worker's compensation coverage only.

If at any time an insurer issuing any such policy does not meet the minimum A.M. Best rating, the Contractor shall obtain a policy with an insurer that meets the A.M. Best rating and shall submit another certificate of insurance as required in the contract.

C. Verification of Coverage

Contractor shall furnish the Owner with Certificates of Insurance reflecting proof of required coverage. The Certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The Certificates are to be received and approved by the Owner before Work commences and upon any contract renewal thereafter. The Certificate Holder must be listed as follows:

Lakefront Management Authority (LMA)
6001 Stars and Stripes Blvd, Suite 219
New Orleans, LA 70126
Attn: Project: Airport Drainage Improvements - Phase I

In addition to the Certificates, Contractor shall submit the declarations page and the cancellation provision endorsement for each insurance policy. The Owner reserves the right to request complete certified copies of all required insurance policies at any time.

Upon failure of the Contractor to furnish, deliver and maintain such insurance as above provided, this contract, at the election of the Owner, may be suspended, discontinued or terminated. Failure of the Contractor to purchase and/or maintain any required insurance shall not relieve the Contractor from any liability or indemnification under the contract.

If the Contractor does not meet the insurance requirements at policy renewal, at the option of the Owner, payment to the Contractor may be withheld until the requirements have been met, OR the Owner may pay the renewal premium and withhold such payment from any monies due the Contractor, OR the contract may be suspended or terminated for cause.

D. Subcontractors

Contractor shall include all subcontractors as insureds under its policies OR shall be responsible for verifying and maintaining the certificates provided by each subcontractor. Subcontractors shall be subject to all of the requirements stated herein. The Owner reserves the right to request copies of subcontractor's certificates at any time.

If Contractor does not verify subcontractors" insurance as described above, Owner has the right to withhold payments to the Contractor until the requirements have been met.

E. Worker's Compensation Indemnity

In the event Contractor is not required to provide or elects not to provide Worker's compensation coverage, the parties hereby agree the Contractor, its Owners, agents and employees will have no cause of action against, and will not assert a claim against, the Owner, its agents and employees as an employer, whether pursuant to the Louisiana Worker's Compensation Act or otherwise, under any circumstance. The parties also hereby agree that the Owner, its agents and employees shall in no circumstance be, or considered as, the employer or statutory employer of Contractor, its Owners, agents and employees. The parties further agree that Contractor is a wholly independent Contractor and is exclusively responsible for its employees, Owners, and agents. Contractor hereby agrees to protect, defend, indemnify and hold the Owner, agents and employees harmless from any such assertion or claim that may arise from the performance of this contract.

F. Indemnification/Hold Harmless Agreement

The Contractor shall indemnify and save harmless the Owner and the Orleans Levee District and their commissioners, officers, employees, or agents against any and all claims, losses, liabilities, demands, suits, causes of action, damages, and judgments of sums of money to any person for loss of life or injury or damage to property growing out of, resulting from, or by reason of, any negligent act or omission, operation or work of the Contractor, its agents, servants, or employees, while engaged upon or in connection with the Services required or performed by the Contractor under this contract. The obligation of the Contractor to defend the Owner and the Orleans Levee District shall arise upon notice of any such claim to Owner or the Orleans Levee District. The obligations under this provision of this Contract shall survive the expiration or earlier termination of this Contract.

Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demands, suits or causes of action at its sole expense and agrees to bear all other costs and expenses related thereto, even if the claims, demands, suits, or causes of action are groundless, false or fraudulent.

SP-5 NOTICE TO PROCEED AND CONTRACT TIME

The Contractor shall begin the Contract Time upon receipt of the Notice to Proceed and start the Work within thirty (30) calendar days after receipt of the Notice to Proceed from the Owner. The Work shall be conducted using sufficient labor, materials, and equipment as necessary to ensure completion within the Contract Time. The Contract Time for completion of the Base Bid for the Work is provided in the Instructions to Bidders, unless an extension is granted to the Contract Time as specified

in SP-45. If the Bid contains an Alternate Bid(s), and the Alternate Bid(s) is awarded and included in the Contract, the Contract Time associated with the Alternate Bid(s) will be as provided in the Special Provisions.

SP-6 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. 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 be submitted to the Engineer prior to the Pre-Construction Conference by the date provided in the Special Provisions. The Engineer shall perform a review and have the Contractor make necessary 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 for progression of the Work in order to maintain the compliance with the Progress Schedule.

SP-7 PROGRESS MEETINGS AND REPORTS

The Engineer shall schedule meetings to review the progress of the Work, coordinate future efforts, discuss compliance with the Progress Schedule and resolve miscellaneous problems. Representatives of suppliers, manufacturers, and other Subcontractors may also attend at the discretion of the Contractor. The Contractor shall record the details of each meeting in a Progress Report. The format of this report shall be developed by the Contractor, approved by the Engineer, and included in the Work Plan. The progress meetings and reports shall be scheduled according to the Special Provisions.

SP-8 PRE-CONSTRUCTION CONFERENCE

A Pre-Construction Conference shall be held by the Contractor, Owner, Engineer, local stakeholders, and other appropriate personnel prior to starting construction on a date specified by the owner following the Award of the contract. 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 bi-weekly progress meetings, the Plans and Specifications, processing Applications for Payment, and any other items of concern. If any subcontractors are not present, another pre-construction conference will be required.

SP-9 CONTRACT INTENT

The Bid Documents are complementary; what is called for by one is as binding as if called for by all. Clarifications and interpretations or notifications of minor variations and deviations of the Contract Documents will be issued by Engineer as provided in these Specifications. 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 at no additional cost to the Owner.

SP-10 ENGINEER AND AUTHORITY OF ENGINEER

The Engineer will be the designated representative of the Owner, the initial interpreter of the Contract Documents and the judge over acceptability of all the Work. Claims, disputes, and other matters relating to the acceptability of the Work, performance by the Contractor or the interpretation of the requirements of the Contract Documents must be submitted to the Engineer in writing. Upon written request from the Contractor, the Engineer shall issue written clarifications or interpretations which are consistent with the overall intent of the Contract Documents. Such written clarifications and interpretations will be binding on the Owner and the Contractor. Either the Owner or the Contractor may make a Claim if a written clarification or interpretation justifies an adjustment in the Contract Price or Contract Times.

The Engineer has 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, carry out provisions of the Contract, perform conformance work, or to carry out orders. The Engineer shall submit a written order to the Contractor for work which must be suspended or resumed. Nothing in this provision shall be construed as establishing responsibility on the part of the Engineer for safety which is the responsibility of the Contractor.

SP-11 CONFORMITY WITH PLANS AND SPECIFICATIONS

All work and materials involved with the Work shall conform with the lines, grades, cross sections, dimensions, and other requirements shown on the Plans or indicated in these Specifications unless otherwise approved by the Engineer.

SP-12 CLARIFICATIONS AND AMENDMENTS TO CONTRACT DOCUMENTS

The Contract Documents may be clarified or amended by the Engineer to account for additions, deletions, and revisions to the Work after the Effective Date of the Contract. The clarifications and amendments shall be addressed by either a Change Order or a written clarification by the Engineer. The Contractor shall not proceed with the Work until the Change Order or clarification has been issued by the Engineer. The Contractor shall not be liable to the Owner or Engineer for failure to report

any such discrepancy unless the Contractor had reasonable knowledge.

The Contractor may request a clarification or amendment for the following:

a. Any conflict, error, ambiguity, or discrepancy within the Contract Documents; or

b. Any conflict, error, ambiguity, or discrepancy between the Bid Documents and the provision of any Law or Regulation applicable to the performance of the Bid; or

c. Any standard, specification, manual, or code (whether or not specifically incorporated by reference in the Bid Documents); or

d. Instructions by a supplier.

The written clarification shall be filled out appropriately by the Contractor and submitted to the Engineer. The Engineer shall clarify the issue in writing on either the Field Order or a Change Order and submit it to the Contractor.

SP-13 SUBCONTRACTS

The Contractor shall provide the names of all Subcontractors to the Engineer in writing before awarding any Subcontracts. The Contractor shall be responsible for the coordination of the trades and Subcontractors engaged in the Work. The Contractor is fully responsible to the Owner for the acts and omissions of all the Subcontractors. The Owner and Engineer will not settle any differences between the Contractor and 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 Provisions 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.

SP-14 WORKERS, METHODS, AND EQUIPMENT

The Contractor shall provide competent, qualified, and trained personnel to perform the Work. The Contractor shall not employ any person found objectionable by the Engineer. Any person employed by the Contractor or any Subcontractor who, in the opinion of the Engineer, does not perform the Work in a proper, skillful, and orderly manner shall be immediately removed upon receiving a written order by the Engineer. The Engineer may also suspend the Work until the Contractor removes the employee or provides a suitable replacement. Such an employee shall not be re-employed in any portion of the Work without written approval from the Engineer.

The Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures used to complete the Work in conformance with the Contract Documents.

The Contractor shall obtain permission from the Engineer if a method or type of equipment other than specified in the Contract is desired. The request shall be in writing and shall include a full description of the methods, equipment proposed, and reasons for the modification. A proposed item of material or equipment may be considered by the Engineer to be functionally equal to an item specified in the Contract if:

a. It is at least equal in quality, durability, appearance, strength, and design characteristics;

b. There is no increase in any cost including capital, installation, or operating to the Owner;

c. 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 items involved or in Contract Time as a result of authorizing a change in methods or equipment.

SP-15 ACCIDENT PREVENTION, INVESTIGATIONS, AND REPORTING

The Contractor shall be responsible to develop and maintain all safeguards and safety precautions necessary to prevent damage, injury, or loss throughout the performance of the Work. All accidents shall be investigated by the immediate supervisor of employee(s) involved and reported to the Engineer or Resident Project Representative within one (1) working day. A complete and accurate written report of the accident including estimated lost time days shall be submitted to the Engineer within four (4) calendar days. A follow- up report shall be submitted to the Engineer if the estimated lost time days differ from the actual lost time days.

SP-16 PRESERVATION AND RESTORATION OF PROPERTY, MONUMENTS, ETC.

The Contractor shall comply with all applicable laws, ordinances, rules, and regulations of any government agency having jurisdiction over the preservation and protection of public and private property. The Contractor shall install and maintain suitable safeguards and safety precautions during the Work as necessary to prevent damage, injury, or loss to property. This responsibility shall remain with the Contractor until the Work has been completed and accepted. Any damage, injury, or loss to property which is caused by the Contractor or Subcontractors shall be repaired or replaced at the expense of the Contractor.

The Contractor shall protect all land monuments, State and United States bench marks, geodetic and geological survey monuments, and property markers from disturbance or damage until an authorized agent has witnessed or otherwise referenced their location. The Contractor shall also provide protection for all public and private property including trees, utilities, pipes, conduits, structures, etc. These items shall not be removed unless directed by the Engineer. The Contractor shall be responsible to completely repair all damages to public or private property due to any act, omission, neglect, or misconduct in the execution of the Work unless it 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, public enemies, or governmental authorities. The damage must be repaired at the expense of the Contractor before final acceptance of the Work can be granted by the Engineer. If the Contractor fails to repair the damage within forty-eight (48) hours, the Owner may independently proceed with the repairs at the expense of the Contractor by deducting the cost from the Contract. If the Contractor cannot provide for the cost of repairs, the Surety of the Contractor shall be held until all damages, suits, or claims have been settled

SP-17 PROTECTION OF THE WORK, MATERIALS, AND EQUIPMENT

N/A

SP-18 LAND RIGHTS

N/A

SP-19 UTILITIES

N/A

SP-20 PERMITS

N/A

SP-21 PROJECT SITE CLEAN-UP

N/A

SP-22 OWNER INSPECTION

The Owner shall have the right to perform reasonable inspections and testing of the Work–Access shall be granted for inspection including all materials intended for use in the Work. The Contractor shall allow reasonable time for these inspections and tests to be performed. The inspections shall not relieve the Contractor from any obligation in accordance with the requirements of the Contract.

The Owner shall notify the Contractor prior to all tests, inspections, and approvals of the Work which are to be conducted. The Owner shall also provide the Contractor with the written results of all inspections and tests. Inspections, tests, or Payments

made by the Owner shall not constitute acceptance of non-conforming Work or prejudice the Owner's rights under the Contract.

SP-23 CONTRACTOR'S RESPONSIBILITY FOR WORK

The Contractor shall execute all items covered by the Contract, and shall furnish, unless otherwise definitely provided in the Contract, all materials, implements, machinery, equipment, tools, supplies, transportation, and labor necessary to complete the Work. The Contractor shall pay constant attention to the progress of the Work and shall cooperate with the Engineer in every way possible. The Contractor shall maintain a complete copy of the Contract at all times, including the Plans, Specifications, and any authorized modifications.

SP-24 ENVIRONMENTAL PROTECTION

The Contractor shall comply with and abide by all federal, state, and local laws and regulations controlling pollution of the environment, including air, water, and noise. The Contractor shall take precautions to prevent pollution of waters and wetlands with fuels, oils, bituminous materials, chemicals, sewage, or other harmful materials and contaminants, and to prevent pollution of the atmosphere from particulate and gaseous matter, in accordance with all terms and conditions of federal, state, and local air and water pollution control laws and programs and their rules and regulations, including the federal Clean Air Act and the federal Clean Water Act.

The Contractor shall adhere to the provisions which require compliance with all standards, orders, or requirements contained under Section 306 of the Clean Air Act and Section 508 of the Clean Water Act, which prohibit the use under non-exempt Federal contracts, grants, or loans, of facilities included on the Environmental Protection Agency (EPA) list of Violating Facilities.

Construction operations in rivers, streams, lakes, tidal or coastal waters, reservoirs, canals, wetlands, and any other impoundments shall be restricted to areas where it is necessary to accomplish the Work and performed in accordance with any applicable federal, state, and local laws, regulations, permit requirements, and guidelines, and the Contractor shall conduct the Work in a manner that will not cause damaging concentrations of silt or pollution to water.

Contractor shall maintain and operate equipment to minimize noise, dust, and vibration near noise, dust and vibration-sensitive areas such as churches, hospitals, schools, and residential areas, and assure that any activities conducted near such areas are not unduly disruptive. Contractor shall maintain all equipment with properly functioning mufflers.

The Contractor shall be responsible for determining and utilizing any erosion and pollution control features or methods that may be necessary to comply with all federal, state, and local laws and regulations.

When any item having apparent historical or archeological interest is discovered in the course of any construction activities, then no work will proceed in the area containing these cultural resources until a CEMVN archaeologist has been notified

and final coordination with the State Historic Preservation Officer and any federally-recognized Tribes has been completed. The Contractor will leave the archeological find undisturbed and shall immediately report the find to the Authority so that the proper authorities may be notified.

SP-25 SANITARY PROVISION

The Contractor shall provide and maintain sanitary accommodations for use by all employees and Subcontractors. Facilities shall comply with the requirements of the Louisiana State Board of Health and Hospitals and other authorities having jurisdiction. Committing public nuisance on the Project Site is prohibited.

SP-26 PAYMENT OF TAXES

The Contractor shall be eligible for an exemption to be responsible for Louisiana Sale's taxes, as prescribed in the project manual, Bid Form- Designation of Construction Contractor as Agent of a Governmental Entity and Exemption Certificate. This form is utilized for granting Louisiana State sales-tax exemption for construction materials purchasing and is to be completed by the apparent low bidder as part of its 10-day submittal. However, responsibilities and duties that may be levied under other non-listed exemptions for existing State, Federal, and local laws arising in connection with the Contractor's receipt of payments made pursuant to this Agreement 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 not provide additional reimbursement.

SP-27 RADIO AND TELEPHONES

N/A

SP-28 NAVIGATION

N/A

SP-29 OBSTRUCTION TO NAVIGATION

N/A

SP-30 MARINE VESSELS AND MARINE ACTIVITIES

N/A

SP-31 (RESERVED)

SP-32 (RESERVED)

SP-33 (RESERVED)

SP-34 RECORD KEEPING

The Contractor shall maintain orderly records of the Progress Schedule, Progress Meetings, correspondence, submittals, reproductions of original Contract Documents, Change Orders, Field Orders, certificates, additional drawings issued subsequent to the executed Contract, clarifications and interpretations of the Contract Documents by the Engineer, and other related documents until all of the Work is accepted by the Engineer.

SP-35 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 certified by an authorized agent of the supplying company and shall contain the name and address of the Contractor, the project name and location, and the quantity and date of shipment. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the testing date. The Contractor shall also certify that all materials and test reports conform to the requirements of the Contract. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material if the material is tested and determined to be in nonconformance.

SP-36 SUBMITTALS

The Contractor shall review all Submittals for compliance with the requirements of the Contract prior to delivery to the Engineer. Each Submittal shall contain a signed statement by the Contractor that it complies with the Contract requirements with any exceptions explicitly listed. The Contractor shall comply with these requirements for Submittals from Subcontractors, manufacturers, and suppliers.

All Submittals shall include sufficient data to demonstrate that the requirements of the Contract are met or exceeded. All submittals shall be legible and marked with the project title and clearly identify the item submitted. Each submittal package shall include an itemized list of the items submitted.

All Submittals will be reviewed within fourteen (14) days after being received by the Engineer. The Contractor shall allow the Engineer sufficient time for review, corrections, and resubmission of all Submittals prior to beginning the associated Work. The Contract Time shall not be extended based on incorrect or incomplete Submittals.

The Contractor shall maintain a submittal register for the project in accordance with the specifications. The submittal register shall show items or equipment and materials for which submittals are required by the specifications; this submittal register may not be all inclusive and additional submittals may be required. The Authority will provide the initial submittal register in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns.

Dates on which submittals are received and returned by the Authority will be included in its export file to the Contractor. The Contractor shall track all submittals.

SP-37 CLAIMS FOR EXTRA COST

The Contractor is expected to complete the Work for the Contract Price specified in the Contract Documents. If the Contractor deems additional compensation is due for work, materials, delays or other additional costs/or expenses not covered in the Contract or not ordered as extra work, the Contractor shall give the Engineer written notice thereof within fourteen (14) calendar days after the receipt of such instructions and, in any event, before commencing the work. The Contractor shall justify the claim for extra cost by providing supporting data and calculations. The Engineer shall determine whether the Contractor is entitled to be compensated for such extra cost and shall make any required adjustments of the Contract in accordance with SP-43. If no written claim is made within this fourteen (14) calendar-day period, the Contractor will be deemed to have waived any claim for extra cost for such work.

Claim for damages or delays of the Work shall not be made by the Contractor for a relocation of the manufacturing and assembly operations or portions thereof to other locations within the geographical scope of the project, when in the opinion of the Engineer, such relocation is necessary for the most effective prosecution of the Work and may be accomplished without undue hardship.

SP-38 ALTERATION OF THE CONTRACT AND COMPENSATION

Using Change Orders, Field Orders, or Written Amendments, the Owner may order extra work or make changes by altering the details of procurement, manufacturing and assembly operations add to or deduct from the Work. The requirements and stipulations of these documents shall be binding on the Owner and Contractor throughout the remainder of the Contract. Any claim for an extension of Contract Time caused thereby shall be adjusted at the time of ordering such change.

The value of any such extra work or change shall be determined in one or more of the following ways and in the following priority:

a. By application of the unit prices in the Contract to the quantities of the items involved or subsequently agreed upon; or

b. By mutual acceptance between the Owner and Contractor of a lump sum.

If none of the above methods is agreed upon, the Contractor, provided he is so ordered by the Owner in writing, shall proceed with the Work on a "force account" basis. In such a case, the Contractor shall keep and preserve in such form as the Engineer may direct, a correct itemized account of the direct cost of labor, materials, equipment, together with vouchers bearing written certification by the Contractor. In any case, the Engineer shall certify to the amount, including an allowance of fifteen percent (15%) for jobsite and home office overhead indirect expenses and profit due to the

Contractor. Where such change involves a subcontractor, an allowance of fifteen percent (15%) for overhead and profit shall be due the subcontractor and an allowance of ten percent (10%) shall be due the Contractor. Pending final determination of value, payments on account of changes shall be made on the Engineer's estimate and as approved in an executed Change Order.

If the Contractor is prevented from completing the Work according to the Contract Price due to the Owner, the Contractor may be entitled to any reasonable and necessary addition of cost as determined by the Engineer. Neither the Owner nor the Contractor shall be entitled to any damages arising from events or occurrences which are beyond their control, including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, acts of war, and other like matters. The provisions of this section exclude recovery for damages caused by the Contractor and compensation for additional professional services by either party.

SP-39 EXTENSION OF CONTRACT TIME

The Contractor is expected to complete the Work within the Contract Time specified in the Bid Documents. A legitimate increase of the Contract time may be requested by the Contractor throughout the course of the Work. This Claim must be submitted to the Engineer in writing within fourteen (14) days of the event which caused the time delay to the Contractor. If an extension of Contract Time involves an increase in Contract Price, both claims shall be submitted together. The Contractor shall justify the increase of the Contract Time in the Claim using supporting data and calculations. The Engineer may deny the claim if there is insufficient information to make a determination. The Contract Time shall be increased on a basis that is commensurate with the amount of additional or remaining Work.

SP-40 OWNER'S RIGHT TO TERMINATE CONTRACT FOR CAUSE OR CONVENIENCE

47.1 TERMINATION FOR CAUSE

The Owner shall submit a written notice to the Contractor and Surety which justifies placement of the Contractor in default if:

a. The Work is not begun within the time specified in the Notice to Proceed; or

b. The Work is performed with insufficient workmen, equipment, or materials to assure prompt completion; or

c. The Contractor performs unsuitable, neglected or rejected work, refuses to remove materials; or

d. The Work is discontinued; or

e. The Work is not completed within the Contract Time or time extension; or

f. Work is not resumed within a reasonable time after receiving a notice to continue; or

g. The Contractor becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency; or

h. The Contractor allows any final judgment to stand unsatisfied for a period of ten (10) days; or

i. The Contractor makes an assignment for the benefit of creditors; or

j. The Work is not performed in an acceptable manner.

If the Contractor or Surety does not remedy all conditions cited in the written notice within two (2) days after receiving such a notice, except as provided in sub-section h. above, the Contractor will be in default and the Owner shall remove the Contractor from the Work. If the Contractor is placed into default, the Owner may obtain the necessary labor, materials, and equipment or enter into a new Contract in order to complete the Work.

If the Contractor is placed into default, all costs incurred by the Owner for completing the Work will be deducted from the payment due the Contractor, including any costs, expenses and attorney fees incurred in connection with the completion of the work, without prejudice to other remedies the Owner may have under this Contract. If the expense exceeds the sum payable under the Contract, the Contractor and Surety shall be liable to pay the Owner the difference.

47.2 TERMINATION FOR CONVENIENCE

Owner may, at any time, terminate this Contract or any portion thereof, for Owner's convenience, upon providing written notice to the Contractor. In such case, Contractor shall be paid for all work completed through the date notice was provided (less payments already received) and reasonable demobilization and restocking charges incurred and reasonable overhead and profit based upon industry standards on the work performed. In no event shall the Contractor be entitled to payment of overhead and profit on work not performed. In the event it is determined that the Contractor was wrongfully terminated for cause, pursuant to Section SP 45.1 above, such termination shall be automatically converted to a termination for convenience under and payment made as provided under this Section.

SP-41 TEMPORARY SUSPENSION OF WORK

The Engineer shall have the authority to temporarily suspend the Work in whole or in part. A Field Order shall be issued to the Contractor for any of the Work that is suspended for periods exceeding one (1) calendar day. The Field Order shall include

the specific reasons and details for the suspension. The Contract Time shall not be extended if the Work is suspended due to failure by the Contractor to comply with a Field Order or with the Plans and Specifications. If the Work is suspended in the interest of the Owner, the Contractor shall make due allowances for the lost time.

SP-42 NON-CONFORMING AND UNAUTHORIZED WORK

Work not conforming to the Plans, Specifications, Field Orders, or Change Orders shall not be accepted for payment. Unacceptable or unauthorized work shall be removed and replaced in an acceptable manner at the expense of the Contractor in order to obtain final acceptance of the Work.

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the Owner after seven (7) calendar days written notice to the Contractor, may correct such deficiencies itself or by use of other contractors without prejudice to any other remedy it may have, and may deduct the cost thereof from the payment then or thereafter due to the Contractor.

SP-43 CONTRACTOR'S RIGHT TO TERMINATE CONTRACT

The Contractor may terminate the Contract or Work and recover payment from the Owner for labor and materials if the Work is stopped through no act or fault of the Contractor for more than three (3) months. For example, such an occurrence could be caused by a court order or other public authority. In any case, the Contractor shall submit a written notice to the Engineer at the beginning of the occurrence, and a written Claim to the Owner at the end of the occurrence.

SP-44 BREACH OF CONTRACT

The Owner shall submit a written Claim to the Contractor regarding any breach of the Contract. The Contractor must provide a written response to the Owner regarding the breach of Contract within ten (10) days after the Claim. This response must provide either an admission to the Claim or a detailed denial based on relevant data and calculations. The failure of the Contractor to provide a proper response within ten (10) days shall result in justification of the Claim by default.

SP-45 NO WAIVER OF LEGAL RIGHTS

The Owner shall not be prevented from recovering costs from the Contractor, Surety, or both due to failure of the Contractor to fulfill all of the obligations under the Contract. If a waiver is provided to the Contractor for a breach of Contract by the Owner, it shall not apply to any other breach of Contract. Final acceptance of the Work shall not prevent the Owner from correcting any measurement, estimate, or certificate. The Contractor shall be liable to the Owner without prejudice to the terms of the Contract or any warranty for latent defects, fraud, or gross negligence.

SP-46 LIABILITY FOR DAMAGES AND INJURIES

To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify and hold harmless the Owner, Orleans Levee District, Engineer, and their officers, employees, representatives, and/or agents from all suits, actions, claims, costs, losses, demands, and judgments (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) brought because of injuries or damage sustained by an person or property due to the operations of Contractor; due to negligence in safeguarding the Work, or use of unacceptable materials in constructing the Work,; or any negligent act, omission, or misconduct of the Contractor; or claims or amounts recovered under the Workmen-s Compensation Act or other law, ordinance, order, or decree; any money due the Contractor as considered necessary by the Owner for such purpose may be retained for use of the Owner or in case no money is due, the performance and payment bond may be held until such suits, actions, claims for injuries or damages have been settled and suitable evidence to that effect furnished to the Owner; except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that adequate Workman's Compensation, Public Liability, and Property Damage Insurance are in effect.

The indemnification obligations of the Contractor shall not extend to the liability of the Owner, Engineer, and their affiliates arising out of the preparation or approval of the Plans, Specifications, maps, opinions, reports, surveys, or Change Orders or for the intentional acts or gross negligence of the Owner, Engineer and their officers, employees, representatives, and/or agents.

Should the Owner or Contractor suffer from any injury or damage due to an error, omission, or act of the other party or their legally liable affiliates, a written Claim shall be submitted to the other party within ten (10) days. The Claim shall provide all details regarding the injury or damage, the results of any investigations, and the action to be taken to prevent any reoccurrence.

SP-47 LIABILITY FOR LOSSES BY ACTS OF THE GOVERNMENT

The Owner shall not be liable for any loss or damage suffered by the Contractor arising out of a cessation of Work under this Contract due to any act or order of any local, state, or federal government agency. If this cessation occurs, the Contractor may request an extension of the Contract Time according to the provisions in SP-44.

SP-48 SUBSTANTIAL COMPLETION AND NOTICE OF ACCEPTANCE

Upon notice from the Contractor that it believes the project has reached substantial completion, and before final acceptance, the Engineer will make an inspection of the product. "Substantial Completion" is defined as the date on which the product is delivered and inspected in accordance with the Contract Documents in order that the Owner can occupy and use the project for its intended use. The date of Substantial Completion shall be specified in the Notice of Acceptance.

If the Owner or its representative determines the Project is substantially complete, the Owner shall issue a Notice of Acceptance identifying the date the Project reached Substantial Completion and attach a punch list, if applicable, identifying the remaining items that must be completed before final payment. The Contractor shall then file the executed Notice of Acceptance with the Clerk of Court in the Parish where the work is performed and shall forward one copy of the recorded acceptance to the Owner and Engineer.

If the inspection discloses any work as being unsatisfactory or incomplete and such work generates a formal punch list, the Engineer will give the Contractor instructions for correction of same, and the Contractor shall immediately comply with such instructions. Upon satisfactory completion of the corrections, when a "Punch List" is generated, the Engineer shall prepare a "Recommendation of Acceptance" incorporating the punch list and submit to the Owner. Upon approval of the Recommendation of Acceptance, the Owner may issue a Notice of Acceptance of the Contract which shall establish the date of Substantial Completion.

In accordance with Louisiana Revised Statutes Title 38, Section 2248(B), any punch list generated during this project shall include the cost estimates for the particular items of work based on the mobilization, labor, material, and equipment costs of each punch list item. The Owner shall retain his working papers used to determine the punch list items cost estimates should the matter be disputed later. The Owner shall not withhold from payment more than the value of the punch list. Punch list items completed shall be paid upon expiration of the forty-five day retainage period provided for under the Louisiana Public Works Act and delivery of a clear Lien & Privilege Certificate. La.Rev.Stat. 38:2248, et seq.

If the dollar value of the punch list exceeds the amount of funds, less retainage amount, in the remaining balance of the Contract, the Project shall not be accepted as Substantially Complete. If the funds remaining are less than required to complete the punch list work, the Contractor shall pay the difference. The provisions listed above shall not be subject to waiver.

Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work/project as provided in the Notice of Acceptance, unless otherwise agreed to in writing by the Owner and Contractor. In the instance where the Owner has accepted the Work/project as substantially complete and issued a Notice of Acceptance, and the Contractor must remain on the premises to complete the "Punch List" or for whatever reason, the Contractor shall maintain Commercial General Liability insurance, Auto Liability insurance and Worker's Compensation insurance as set forth herein until the expiration of the forty-five (45) day lien period or upon the completion of the work/project, whichever is later. Builder's Risk insurance, if applicable, may be cancelled only with the written permission of the Owner or the Owner's representative at Substantial Completion.

If the punch list is not completed within Thirty (30) days, through no fault of Owner or

Engineer, the Owner may, but is not required, to place the Contractor in default. Thereafter, the Owner shall notify the Surety. If the Surety has not completed the punch list within forty-five days of receipt of notification, the Owner may, but is not required to, complete the remaining punch list items. Any costs incurred shall be paid for first out of any remaining Contract funds. If the costs incurred exceed the remaining Contract funds, the Contractor and its Surety shall be liable for such costs.

Upon completion of the punch list, Contractor shall request Final Inspection.

SP-49 FINAL INSPECTION AND ACCEPTANCE

Whenever the work provided for, or contemplated by the contract, have been satisfactorily completed, all punch list items completed and the final cleaning up is performed, the Engineer shall be notified in writing that said work is completed and ready for final inspection. The Engineer shall, unless otherwise provided, make the final inspection within a reasonable length of time after the receipt of such notification.

If equipment as provided for in the contract is found completed to the Engineer's satisfaction that inspection shall constitute the final inspection and the Engineer will make recommendation to the Owner for final acceptance and notify the Contractor in writing of this recommendation of acceptance.

SP-50 COMPLETION OF CONTRACT

Notwithstanding any other provision of this Contract and all applicable and necessary time delays under Louisiana law, completion of the Contract requires all of the Work to be complete, inspected by the Engineer, accepted by the Owner as recommended by the Engineer, and after final payment is made. After the Contract is complete, the Contractor will then be released from further obligation except as set forth in the Contract Bond and Contractor's Guarantee.

SP-51 CONTRACTOR'S GUARANTEE

The Contractor is obligated to provide a written guarantee to the Owner that all of the Work conforms to the Contract Documents.

a. The guarantee shall exclude defects or damage caused by:

    1. Abuse or improper modification, maintenance, or operation by anyone other than the Contractor; or

    2. Wear and tear under normal usage.

b. This obligation by the Contractor shall be absolute. The following actions will not constitute acceptance of non-conformance Work or release the Contractor from obligation to furnish the Work in accordance with the Contract Documents:

1. Observations by the Owner or Engineer; or

2. Recommendations by the Engineer or payment by the Owner; or

3. Use of the Work by the Owner; or

4. Issuance of a notice of acceptance by the Owner pursuant to the provisions of SP-53, or failure to do so; or

5. Any inspection, test, or approval by others; or

6. Any correction to non-conforming work by the Owner.

SP-52 DISPUTE RESOLUTION

The parties shall use their best efforts to resolve all disputes in an amicable fashion. Prior to filing suit by either party with respect to any claims, or disputes arising between the parties, the disputes shall be submitted first to non-binding mediation. The mediation shall be conducted in accordance with the Construction Industry Mediation Rules of the American Arbitration Association. If the parties cannot agree to a private mediator, then the mediator shall be selected by the American Arbitration Association, upon the filing of a demand for mediation.

If the dispute is not resolved by mediation within 60 days from the request for mediation, then either party may institute legal proceedings. Any litigation involving the Owner and arising under or related to the Contract or the bidding or award thereof shall be instituted exclusively in the Civil District Court for the Parish of Orleans, State of Louisiana.

SP-53 PAYMENT

The Owner hereby agrees to pay to the Contractor as full compensation for all work performed under the contract, and/or supplemental agreements thereto, the monetary value of the actual quantities in the completed work according to the schedule of unit prices and/or lump sum prices set forth in attached bid proposal and/or duly authorized supplements thereto, and made a part of the Contract.

Partial payments under the Contract shall be made at the request of the Contractor not more than once each month, based upon partial estimates agreed to by the Contractor and Engineer and shall be furnished to the Engineer and approved by the Engineer prior to transmittal to the Owner for approval and payment.

The partial estimates will be approximately stated, and all partial estimates and payments shall be subject to corrections in the estimate rendered following the discovery of any error in any previous estimates.

The payment of the partial estimate shall be taken as verification that the work has been performed and that its quality is satisfactory, however it will in no way serve as a release to the Contractor for the responsibility of any portions thereof. The Work and any particulars relating thereto shall be subject to revision and adjustment by the Engineer and/or the Owner at any time prior to final payment, regardless of any previous action taken.

There shall be reserved from the payments provided for the Contract ten percent (10%) for contracts less than $500,000 or five percent (5%) for contracts of $500,000 or more, of the estimates submitted, said sum to constitute a trust fund for the protection of and payment to any person or persons, mechanic, subcontractor or material men who shall perform any labor upon such contract, or the doing of said work, and all persons who shall supply such person or persons or subcontractors with provisions and supplies for the carrying on of such work, and shall be withheld for a minimum of forty-five (45) calendar days after final acceptance of the completed contract.

In accordance with Louisiana Revised Statutes Title 38, Section 2248(A), payment of the retainage held by the Owner shall be made forty-five (45) days after recordation of acceptance of the work in the office of the Clerk of Court, Ex-Officio Recorder of Mortgages for the Parish of Orleans, State of Louisiana and after delivery by the Contractor to the Owner of a Certificate from the Clerk of Court, Ex-Officio Recorder of Mortgages for the Parish of Orleans showing that no liens or claims have been filed in connection with the work, except for punch list items that have not been completed, which will be paid after completion of the punch list items. The cancellation of all liens and claims that might be recorded, growing out of this Contract, shall be at the cost and expense of the Contractor, and the cost of same may be retained by the Owner from payments due or to become due until the liens and claims are cancelled by the Contractor.

SP-54 PAYMENTS WITHHELD

In addition to the percentage provided for in Section SP-61 of these General Provisions and in accordance with any other provision of this Contract, the Owner may withhold such amounts from any payment as may be necessary to protect himself from loss on account of:

a. Defective work not remedied;

b. Claims filed or reasonable evidence indicating probable filing of claims;

c. Failure of the Contractor to make payments properly to subcontractors or for material or labor;

d. Reasonable evidence that the Work will not be completed within the Contract time and that the unpaid balance would not be adequate to cover damages for the anticipated delay;

e. A reasonable doubt that the contract can be completed within the time period remaining under the contract;

f. Damage to another contractor;

g. Failure to submit required reports; or

h. Modifications of the contract which necessitate the execution of change orders prior to payment of funds.

Furthermore, nothing contained in this Section shall be deemed to limit the right of the Owner to withhold liquidated damages, as stated in the Instructions to Bidders and as permitted under the Special Provisions, from any amounts which may be due and owing the Contractor for work performed under the contract.

SP-55 LIENS

Neither the final payment nor any part of the retained percentage shall come due until the Contractor shall deliver to the Owner a complete release of all liens arising out of this contract, or receipts in full in lieu thereof, and, if required by the Owner, an affidavit that so far as he has knowledge or information, the releases and receipts include all labor and material for which a lien could be filed; but if any subcontractor refuses to furnish a release or receipt in full, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against any lien, construction cost, or attorney's fees.

SP-56 DISADVANTAGED BUSINESS ENTERPRISE (DBE) REQUIREMENTS

It is the established policy of the Management Authority to provide reasonable opportunities for Disadvantaged Business Enterprises to compete for or perform on contracts let by the Management Authority. Toward this end, the Management Authority encourages, to the extent feasible, the structuring of major projects into categories which may be commensurate with the capabilities of Disadvantaged Business Enterprises and actively encourages major prime contractors to provide opportunities for these businesses to become involved as subcontractors. **The goal for participation is 24%.**

"Disadvantaged Business Enterprise" means a small business organized for profit performing a commercially useful function which is owned and controlled by one or more DBE individuals or businesses. Owned and controlled means a business in which one or more DBE owns at least fifty-one percent, or in the case of a corporation, at least fifty-one percent of the voting stock and controls at least fifty-one percent of the management and daily business operations of the business.

The Code of Federal Regulations, Title 49, Part 26 (49 CFR 26) as amended and the Lakefront Management Authority Disadvantaged Business Enterprise (DBE) Program are hereby made a part of and incorporated by this reference in this contract. Copies of

these documents are available upon request from Lakefront Airport (NEW), DBE Liaison Officer (DBELO), 6001 Stars and Stripes Blvd, New Orleans, LA 70126 or call (504) 355-5990.

PART I – POLICY/ COMPLIANCE

(A) DBE OBLIGATION: The requirements of 49 CFR Part 26, regulations of the U.S. Department of Transportation, apply to this contract. It is the policy of the Lakefront Management Authority and Lakefront Airport (NEW) to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. All firms qualifying under this solicitation are encouraged to submit Qualification Statements or Proposals.

The Contractor, Sub recipient, Subcontractor or Subconsultant shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor or Consultant shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor or Consultant to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

Award of this contract will be conditioned upon satisfying the requirements of this solicitation. These requirements apply to all Respondents or Proposers including those who qualify as a DBE. **A DBE contract goal of 24% has been established for this contract. Respondents are encouraged to contract with Certified DBE Contractors wherever possible to meet and/or exceed this goal.** The Respondents or Proposers shall make good faith efforts, as defined in Appendix A, 49 CFR Part 26, to meet the contract goal for DBE participation in the performance of this contract. Good faith efforts include meeting this DBE goal or providing documentation demonstrating that the Respondents or Proposers made sufficient good faith efforts in attempting to meet this goal.

(B) PROMPT PAYMENT: Under the DBE program, the Prime Contractor or Consultant agrees to pay each Subcontractor or Subconsultant under this contract for satisfactory performance of its contract no later than 14 days from the receipt of each payment the Prime Contractor or Consultant receives from NEW. The Prime Contractor or Consultant agrees further to return retainage payments to each Subcontractor or Subconsultant within 14 days after the Subcontractor's or Subconsultant's work is satisfactorily completed. Any delay or postponement of payment from the above-referenced time frame may occur only for good cause following written approval of NEW. This clause applies to both DBE and non-DBE Subcontractor or Subconsultants. In the event of the Contractor's or Consultant's noncompliance with these prompt payment provisions, NEW may impose such sanctions and penalties as it or FAA may determine to be appropriate, including, but not limited to, the following:

1. Withholding of payments to the Contractor or Consultant under the contract until it complies, and/or
2. Deduction from a contract funds due or to become due the Contractor or Consultant, and/or
3. Disqualification of the Contractor or Consultant as non-responsible, and/or
4. Cancellation, termination or suspension of the contract in whole or in part, and/or
5. Any other remedy as NEW or FAA deems appropriate.

(C) FAILURE TO COMPLY WITH DBE REQUIREMENTS: All federally-assisted contract performers (Prime Contractors, Consultants, Subcontractors, Subconsultants, Engineers, Architects, etc.) are hereby notified that failure to carry out the DBE obligation, as set forth above, shall constitute a breach of contract. The breach of contract will be reviewed by NEW and FAA which may result in termination of the contract or other remedies deemed appropriate for the given situation.

(D) SUBCONTRACTS: All Contractors or Consultants and Subcontractors or Subconsultants hereby assure that they will include the following clauses in all subcontracts, which offer further subcontracting opportunities.

The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor or Consultant to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient (NEW) deems appropriate.

Under the DBE program, the Prime Contractor or Consultant agrees to pay each Subcontractor or Subconsultant under this contract for satisfactory performance of its contract no later than 14 days from the receipt of each payment the Prime Contractor or Consultant receives from NEW. The Prime Contractor or Consultant agrees further to return retainage payments to each Subcontractor or Subconsultant within 14 days after the Subcontractor's or Subconsultant's work is satisfactorily completed. Any delay or postponement of payment from the above-referenced time frame may occur only for good cause following written approval of NEW. This clause applies to both DBE and non-DBE Subcontractors or Subconsultants.

(E) AWARD OF DBE SUBCONTRACTS: The Contractor or Consultant shall, not later than thirty (30) days from the award of a contract, execute formal contracts or purchase orders with the DBE(s) included in Schedule A.

(F) COUNTING DBE PARTICIPATION: NEW will count DBE participation toward overall and contract goals as provided in 49 CFR §26.55. NEW will only count

DBE participation by those DBEs performing commercially useful functions as defined in 49 CFR §26.55. NEW will not count the participation of a DBE Subcontractors or Subconsultants toward a Contractor's or Consultant's final compliance with its DBE obligations on a contract until the amount being counted has actually been paid to the DBE.

The Contractor or Consultant may count its entire expenditure to DBE manufacturers (i.e., a supplier that produces goods from raw materials or substantially alters them before resale). The Contractor or Consultant may count sixty percent (60%) of its expenditures to DBE suppliers that are not manufacturers, provided that the DBE supplier performs a commercially useful function in the supply process as defined in 49 CFR Part 26.55.

A Contractor or Consultant may not count the value of any payment made to a DBE for work that was further subcontracted out by the DBE to a non-DBE.

PART II – PROCEDURE TO DETERMINE QUALIFICATION STATEMENT OR PROPOSAL
COMPLIANCE

(A) ELIGIBILITY OF DBEs: The Lakefront Management Authority utilizes the certification program of the State of Louisiana, Department of Transportation and Development (LDOTD) for DBE certifications. LDOTD uses the certification standards of Subpart D of 49 CFR Part 26 and the certification procedures of Subpart E of 49 CFR Part 26 to determine the eligibility of firms to participate as DBEs. Only DBE firms certified by LDOTD at the time the Qualification Statement or Proposal is submitted will count toward this DBE goal.

(B) INFORMATION SUPPLIED BY THE RESPONDENT OR PROPOSER WITHIN 10 DAYS OF QUALIFICATION STATEMENT OR PROPOSAL SUBMITTAL: The Respondents or Proposers shall complete and submit the following schedules (forms) and documents within TEN (10) days of its Qualification Statement or Proposal as a condition of responsiveness. The Schedules shall have all blank spaces filled in completely and correctly.

SCHEDULE A – RESPONDENT'S OR PROPOSER'S DBE PARTICIPATION ASSURANCE FORM (copy attached): The obligation of the Respondent or Proposer is to make good faith efforts to meet the DBE goal. Respondents or Proposers can demonstrate their good faith efforts either by meeting the contract goal or documenting good faith efforts. Schedule A shall accurately detail the work proposed by the Respondents or Proposers to be performed by the DBE firm(s) and, if it is a proposal, the dollar value of that work. If a Respondent or Proposer is unable to fully meet the DBE goal of this contract, the Respondent or Proposer shall submit at the time of Qualification Statement or Proposal submittal Schedule C and any documentation demonstrating the good faith efforts made to comply with the DBE

requirements. Further explanation of good faith efforts may be found in Appendix A of 49 CFR Part 26. It is up to NEW to make a fair and reasonable judgment whether a Respondent or Proposer that did not meet the contract goal made adequate goo faith efforts.

SCHEDULE B – DBE FIRM'S PARTICIPATION ASSURANCE FORM (copy attached): Schedule B shall accurately detail the work to be performed by the DBE firm and, if it is a proposal, the agreed rates and prices to be paid. Schedule B shall indicate what percentage of the subcontract with the DBE Contractor or Consultant will be further subcontracted out to non-DBE firms. A separate Schedule B shall be submitted by the Respondent or Proposer for each DBE firm included on Schedule A. A Schedule B must be submitted for the Respondent or Proposer if it is a DBE. A copy of the DBE firm's CURRENT LETTER OF CERTIFICATION SHALL BE ATTACHED TO AND SUBMITTED WITH EACH SCHEDULE B.

SCHEDULE C – DBE UNAVAILABILITY CERTIFICATION (copy attached): If a Respondent or Proposer cannot fully meet the DBE goal of the Contract, the Respondent or Proposer shall complete Schedule C and attach documentation demonstrating the Respondent's or Proposer's good faith efforts. See Appendix A of 49 CFR Part 26, Guidance Concerning Good Faith Efforts. It is up to NEW to make a fair and reasonable judgment whether a Respondent or Proposer that did not meet the contract goal made adequate good faith efforts.

(C) DETERMINATION OF SUCCESSFUL BIDDER AND AWARD OF CONTRACT: In accordance with the provisions of the NEW Disadvantaged Business Enterprise Program, failure by any bidder to furnish the completed and properly executed documents (Schedules A, B, & C) as part of its bid package showing subcontract awards to DBE's equaling or exceeding the prescribed goal will cause the Contractor's bid to be rejected unless no other bid meets the requirements and the bidder has demonstrated to the satisfaction of the Airport that a good faith effort has in fact been made and that meeting the goals is not reasonably possible. This in no way relieves potential bidders from striving to meet the said goal.

To determine whether a "Good Faith Effort" has been made, the Lakefront Management Authority will use the following criteria:

1. Whether the Contractor attended any pre-solicitation or pre-bid meetings that were scheduled by the AIRPORT to inform DBE's of contracting and subcontracting opportunities

2. Whether the Contractor advertised in general circulation, trade association, and minority-focus media concerning the subcontracting opportunities
3. Whether the Contractor provided written notice to a reasonable number of specific DBE's that their interest in the contract was being solicited, in sufficient time to allow the DBE's to participate effectively
4. Whether the Contractor followed up initial solicitations of interest by contacting DBE's to determine with certainty whether the DBE's were interested
5. Whether the Contractor selected portions of the work to be performed by DBE's in order to increase the likelihood of meeting the DBE goals (including, where appropriate, breaking down contracts into economically feasible units to facilitate DBE participation)
6. Whether the Contractor provided interested DBE's with adequate information about the plans, specifications, and requirements of the contract
7. Whether the contractor negotiated in good faith with interested DBE's, not rejecting DBE's unqualified without sound reasons based on a thorough investigation of their capabilities
8. Whether the Contractor made efforts to assist interested DBE's in obtaining bonding, lines of credit, or insurance required by the Commission or Contractor; and
9. Whether the Contractor effectively used the services of available minority community organizations, minority contractors' groups, local, state, and Federal Minority business assistance offices, and other organizations that provide assistance in the recruitment and placement of DBE's.

The following points apply to good faith effort determinations:

1. Good Faith Efforts are those that could reasonably be expected to result in goal attainment by a bidder who aggressively and actively seeks to obtain DBE participation
2. The above list of nine efforts is generally accepted as evidence of good faith efforts taken by bidders/proposers to obtain DBE participation. It does not represent a mandatory checklist of required actions; no one or combination is required in all cases.
3. The above list is not intended to be exhaustive; other factors or efforts may be relevant in appropriate instances.
4. The Airport will examine the quantity and intensity of the efforts as well as the type of actions taken by the bidders/proposers. Efforts that are merely pro forma are not sufficient, even though they may be sincerely motivated.

PART III – REPORT/RECORDKEEPING REQUIREMENTS

(A) CONTRACTOR OR CONSULTANT MONTHLY REPORT (copy attached): This form shall be submitted each month with the Prime Contractor or Consultant's invoice for payment from NEW and shall accurately represent the amount paid to DBE Subcontractor or Subconsultants during that invoice period. This form must be submitted with every monthly invoice regardless of the amount of payment or

lack of payment. This form shall be signed bythe Prime Contractor or Consultant and signed by the DBE Subcontractor(s) or Subconsultant(s) and submitted to the DBELO. DBE participation will not officially be counted toward the Prime Contractor's or Consultant's commitment until payment has been rendered to the DBE. Failure to submit the required reports may result in the withholding of payment or partial payments to the Contractor or Consultant until the reports are submitted. This form is not required at the time of Qualification Statement or Proposal submittal.

(B) REQUEST FOR REMOVAL AND/OR SUBSTITUTION OF DBE SUBCONTRACTOR OR SUBCONSULTANT: (copy attached): Any and all requests for authorization to remove and/or substitute a DBE Subcontractor(s) or Subconsultant(s) must be made in writing by the Prime Contractor, Prime Consultant, Subcontractor or Subconsultant seeking removal or substitution. This request shall document the scope and value of work to be affected. The Prime Contractor or Consultant making the request must submit with the request the name(s) of replacement DBE and non-DBE Subcontractor(s) or Subconsultant(s). This form is not required at the time of Qualification Statement or Proposal submittal.

SP-57 EQUAL EMPLOYMENT OPPORTUNITY

The LMA is an equal opportunity employer, and looks to its Contractor, subcontractors, vendors and suppliers to take affirmative action to effect this commitment in its operations.

By submitting the bid proposal and executing the Contract, the Contractor agrees to abide by the requirements of the following as applicable: Title VI and VII of the Civil Rights Act of 1964, as amended by the Equal Opportunity Act of 1972, Federal Executive Order 11246, the Federal Rehabilitation Act of 1973, as amended, the Vietnam Era Veterans Readjustment Assistance Act of 1974, Title IX of the Education Amendments of 1972, and the Age Act of 1975, and the Contractor agrees to abide by the requirements of the Americans with Disabilities Act of 1990.

The Contractor agrees not to discriminate in its employment practices, and will render services the Contract, without regard to their race, age, color, religion, sex, national origin, veteran status, political affiliation or disabilities. Any act of discrimination committed by the Contractor, or failure to comply with these statutory obligations when applicable, shall be grounds for termination of the Contract.

SP-58 ANTI-KICKBACK CLAUSE

The Contractor agrees to adhere to the mandate dictated by the Copeland "Anti-Kickback" Act which provides that each contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the completion of the work, to give up any part of the compensation to which he is otherwise entitled.

SP-59 SUSPENSION/DEBARMENT

Contractor certifies, by signing and submitting any bid, that their company, any subcontractors, or principals are not suspended or debarred by the General Services Administration (GSA) in accordance with the requirements in OMB Circular A-133. A list of parties who have been suspended or debarred can be viewed via the internet at www.epls.gov.

Contractor agrees to secure from any contractor(s) and subcontractor(s) for the captioned project, certification that such contractor(s) and subcontractor(s) are not suspended, debarred or declared ineligible from entering into contracts with any department or agency of the Federal Government or of the State of Louisiana, or in receipt of a notice of proposed debarment or suspension.

Contractor shall provide immediate notice to Owner in the event of it or its contractor(s) or any subcontractor(s) being suspended debarred or declared ineligible by any department or agency of the Federal Government or of the State of Louisiana, or upon receipt of a notice of a proposed debarment or suspension, either prior to or after execution of this Contract.

Upon receipt of notice of suspension, debarment, or declaration that Contractor or its contractor(s) or any subcontractor(s) is/are ineligible to enter into contracts with any department or agency of the Federal Government or of the State of Louisiana, either prior to or after execution of this Contract, Owner reserves the right to review cause for said debarment, suspension, or declaration of ineligibility, and to terminate this Contract pursuant to the terms of SP-45 OWNER'S RIGHT TO TERMINATE CONTRACT FOR CAUSE OR CONVENIENCE, or take such other action it deems appropriate under this Contract.

SP-60 LOUISIANA FIRST HIRING ACT

Contractor shall comply with the Louisiana First Hiring Act (La. R.S. 39:2201-2204), which requires that within ten (10) days of executing the Contract, Contractor shall submit the following information to the Louisiana Workforce Commission:

1. The number and types of jobs anticipated for the Work.

2. The skill level of the jobs anticipated for the Work.

3. The wage or salary range for each job anticipated for the Work.

4. Methods, if any, that the Contractor will use to recruit unemployed persons or person employed in low wage jobs to fill job openings for the Work.

END OF SUPPLEMENTARY PROVISIONS

PROCUREMENT SPECIFICATIONS (TECHNICAL SPECIFICATIONS)

NEW • ORLEANS
LAKEFRONT AIRPORT

BID DOCUMENTS

AIRPORT DRAINAGE IMPROVEMENTS - PHASE II –
PUMP PROCUREMENT

AT LAKEFRONT AIRPORT

ADDENDUM No. 1

SECTION 01730

OPERATING AND MAINTENANCE DATA

PART I - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under contract. Prepare operating and maintenance data as specified in this section and as referenced in other pertinent sections of the specifications.

B. Instruct Owner's personnel in maintenance of products and in operation of equipment and systems.

1.02 RELATED REQUIREMENTS

A. Section 01300: Submittals.

B. Section 01700: Contract Closeout.

C. Section 01740: Warranties and Bonds.

1.03 FORM OF SUBMITTALS

A. Prepare data in form of an instructional manual for use by Owner’s personnel.

B. Format:

1. Size: 8 1/2" X 11".
2. Paper: 20 pound minimum, white, for typed pages.
3. Text: Manufacturer's printed data, or neatly typewritten.
4. Drawings:
   a. Provide reinforced punched binder tab, bind in with text.
   b. Fold larger drawings to size of text pages.
5. Provide fly-leaf for each separate product or each piece of operating equipment.
   a. Provide typed description of product and major component parts of equipment.
   b. Provide indexed tabs:
6. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS".
   List:
   a. Title of project.
   b. Identity of separate structure as applicable.

c. Identity of general subject matter covered in the manual.

C. Binders:

1. Commercial quality 3-ring binders with durable and cleanable plastic covers.
2. Maximum ring size: 1”
3. When multiple binders are used, correlate the data into related consistent groupings.

1.04 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Submit five (5) copies of complete manual in final form along with one (1) electronic copy.

B. Content, for each unit of equipment and system, as appropriate:

1. Description of unit and component parts.

a. Function, normal operating characteristics, and limiting conditions.

b. Performance curves, engineering data and tests.

c. Complete nomenclature and commercial number of replaceable parts, which are cross-referenced with manufacturer's parts list.

2. Operating procedures:
   a. Start-up, break-in, routine and normal operating instructions.
   b. Regulation, control, stopping, shutdown and emergency instructions.
   c. Summer and winter operating instructions (if applicable).
   d. Special operating instructions.

3. Maintenance Procedures:
   a. Routine operations.
   b. Guide to "trouble-shooting".
   c. Disassemble, repair and reassemble.
   d. Alignment, adjusting and checking.

4. Servicing and lubrication schedule.
   a. List of lubricants required.

5. Manufacturer's printed operating and maintenance instructions.

6. Description of sequence of operation by control manufacturer.

7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
   a. Predicted life of parts subject to wear.
   b. Items recommended to be stocked as spare parts.

8. As-installed control diagrams by controls manufacturer.

9. Each contractor's coordination drawings.
   a. As-installed color coded piping diagrams.

10. Charts of valve tag numbers, with location and function of each valve.

11. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.

12. Other data as required under pertinent sections of specifications.

C. Content, for each electric and electronic system, as appropriate:

1. Description of system and component parts.
   a. Function, normal operating characteristics, and limiting conditions.
   b. Performance curves, engineering data and tests.
   c. Complete nomenclature and commercial number of replaceable parts.

2. Circuit directories of panel boards.
   a. Electrical service.
   b. Controls.
   c. Communications.

3. As-installed color coded wiring diagrams.

4. Operating procedures:
   a. Routine and normal operating instructions.
   b. Sequences required.
   c. Special operating instructions.

5. Maintenance procedures:
   a. Routine operations.
   b. Guide to "trouble-shooting".
   c. Disassembly, repair and reassembly.
   d. Adjustment and checking.

6. Manufacturer's printed operating and maintenance instructions.

7. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.

8. Other data as required under pertinent sections of specifications.

D. Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.

E. Additional requirements for operating and maintenance data: Respective sections of specifications.

1.05 SUBMITTAL SCHEDULE

A. Submit two (2) copies of preliminary draft of proposed formats and outlines of contents. Engineer will review draft and return one copy with comments.

B. Submit one (1) copy of completed data in final form fifteen days prior to final inspection. Copy will be returned after final inspection with comments.

C. Submit specified number of copies of approved data in final form ten (10) days after final inspection.

1.06 INSTRUCTION OF OWNER'S PERSONNEL

A. Prior to final inspection or acceptance, fully instruct Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems.

B. Operating and maintenance manual shall constitute the basis of instruction. Review contents of manual with personnel, in full detail, to explain all aspects of operations and maintenance.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 15110

VERTICAL PROPELLER PUMPS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A Furnish all labor, materials, equipment and incidentals required and to procure, shop test and deliver two (2), 90,000-gpm horizontal driven vertical propeller pumps, gear boxes and motors.

B. These Specifications are intended to give a general description of what is required, but do not cover all details which will vary in accordance with the requirements of the equipment application. It is, however, intended to cover the furnishing, the shop testing, the delivery and storage, of all materials, equipment and all appurtenances for the complete pumping units as herein specified, whether specifically mentioned in these Specifications or not.

C. All pumping equipment furnished under this Section shall be of a design and manufacture that has been used in similar applications, and it shall be demonstrated to the satisfaction of the Owner that the quality is equal to equipment made by that manufacturer specifically named herein.

D. All of the products under this specification section, the electric motor (Section 15170), gear drive (Section 15132), and required appurtenances not explicitly specified shall comprise of a complete pumping unit. The pump manufacturer shall be responsible for coordinating the compatibility and completeness of the entire pumping unit including all drive train connections. Submittals from the pump manufacturer will document this coordination.

E. The pumping units shall be designed in accordance with the most current version of the Hydraulic Institute Standards and ISO 9906. The applicable test level shall be Grade 1B.

F. Each pump shall be designed to operate without excessive vibration, noise or strain to any part, over the entire operating range of the pump as stated in this specification. Acceptable vibration will be as outlined in the Hydraulic Institute Standards, ANSI/HI 9.6.4-2022.

1.02 RELATED WORK

A. Gear Drives are included in Section 15132.

B. Electric Motors are included in Section 15170.

1.03 DESCRIPTION OF SYSTEMS

A. Two (2) pumping units are required under this Contract, each of which shall be driven by induction motor attached to a right-angle gear (RAG) as specified in this Section.

B. Each pumping unit will take suction from the reservoir sump with an arrangement and water level variation as shown on the Drawings.

C. All working parts of the pumps and motors such as bearings, wearing rings, shaft, sleeves, etc., shall be standard dimensions built to limit gauges or formed to templates, such that parts will be interchangeable between like units and such that the Owner may, at any time in the future, obtain replacement and repair parts for those furnished in the original machines. All parts shall be properly stamped for identification and location in the machines as shown on the Assembly Drawings in the Instruction books furnished.

1.04 QUALIFICATIONS

A. To assure unity of responsibility, the pumps, motors, and gear drives shall be coordinated and furnished by the pump manufacturer.

B. The equipment covered by these Specifications are intended to be standard units of proven ability as manufactured by a competent organization having long experience in the production of such equipment. A single manufacturer shall furnish units specified herein. The pumps furnished shall be designed, constructed, delivered, and stored in accordance with the best practice and methods, and shall operate satisfactorily when installed in a separate phase of construction. Pumps shall be manufactured in accordance with the Hydraulic Institute Standards, except where otherwise specified herein.

C. All equipment furnished under this Specification shall be new and unused and shall be the standard product of manufacturers having a successful record of manufacturing and servicing the equipment and systems specified herein for a minimum of five (5) years.

1.05 SUBMITTALS

A. Copies of all materials required to establish compliance with the specifications shall be submitted. Submittals shall include at least the following:

1. Certified shop and erection drawings showing all-important details of construction, dimensions and anchor bolt locations.

2. Descriptive literature, bulletins, and/or catalogs of the equipment.

3. Data on the characteristics and performance of each pump shall be provided. Data shall include guaranteed performance curves, based on actual shop tests of similar units, which show that they meet the specified requirements for head, capacity,

efficiency, NPSHR, and horsepower. Curves shall be submitted on 8-1/2-inch by 11-inch sheets; at as large a scale as is practical. Curves shall be plotted from no flow at shut off head to pump capacity at minimum specified total head. Catalog sheets showing a family of curves will not be acceptable. Curves shall be plotted for both minimum and maximum speed. The minimum head system curve shall also be plotted on the submittal.

4. The total weight of the equipment including the weight of the single largest item.

5. A complete total bill of materials of all equipment.

6. A list of the manufacturer's recommended spare parts to be supplied in addition to those specified in paragraph 1.07, with the manufacturer's current price for each item. Include gaskets, packing, etc., on the list. List bearings by the bearing manufacturer's numbers only.

7. Complete motor data.

8. Copies of all factory test results, as specified in PART 2 - PRODUCTS of this Section of the Specifications.

B. Design Data

1. Complete motor performance data shall be furnished.

C. Test Reports

1. A schedule of the date of shop testing and delivery of the equipment to the job site.

2. Description of pump factory test procedures and equipment.

3. Copies of all inspection reports, as specified in Part 3 of this Section.

D. Operation and Maintenance Data

Complete operating and maintenance instructions shall be furnished for all equipment included under these specifications as provided in Section 01730. The maintenance instructions shall include troubleshooting data and full preventative maintenance schedules, and complete spare parts lists with ordering information. The maintenance instructions shall also include directions on how to properly maintain all equipment delivered and stored at the project site prior to installation, in the event that the equipment is required to be stored for a prolonged period of time. This would include full inspection and maintenance instructions and schedules for the Owner to complete during the storage time between delivery and installation.

E. In the event that it is impossible to conform to certain details of the specifications due to different manufacturing techniques, describe completely all non-conforming aspects.

1.06 OPERATING INSTRUCTIONS

A. Operating and maintenance manuals shall be furnished. The manuals shall be prepared specifically for this installation and shall include all required cuts, drawings, equipment lists, descriptions, etc. that are required to instruct operation and maintenance personnel unfamiliar with such equipment.

B. A factory representative of all major component manufacturers, who has complete knowledge of proper operation and maintenance, shall be provided for two (2) days to instruct representatives of the Owner and the Engineer on proper operation and maintenance. With the Owner's permission, this work may be conducted in conjunction with the inspection of the installation and test run of the pumping units in a future phase of construction. If there are difficulties in operation of the equipment due to the manufacturer's design or fabrication, additional service shall be provided at no cost to the Owner.

1.07 TOOLS AND SPARE PARTS

A. One (1) set of all special tools required for normal operation and maintenance shall be provided. All such tools shall be furnished in a suitable steel tool chest complete with lock and duplicate keys.

B. The pump manufacturer shall furnish the spare parts for each component of the pumping systems listed in the respective paragraphs of PART 2 - PRODUCTS paragraph 2.02 (D). The manufacturer shall furnish a complete list of recommended spare parts necessary for the first five- (5) years of operation of the pumping system.

C. Spare Parts shall be properly bound and labeled for easy identification without opening the packaging and suitably protected for long term storage.

1.08 PRODUCT HANDLING

A. All parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is completed and the units and equipment are ready for operation.

B. All equipment and parts must be properly protected against any damage during a prolonged storage period at the site.

C. Factory assembled parts and components shall not be dismantled for shipment unless permission is received in writing from the Engineer.

D. Finished surfaces of all exposed pump openings shall be protected by wooden blanks strongly built and securely bolted thereto.

E. Finished iron or steel surfaces not painted shall be properly protected to prevent rust and corrosion.

F. After hydrostatic or other tests, all entrapped water shall be drained prior to shipment, and proper care shall be taken to protect parts from the entrance of water during shipment, storage and handling.

G. Each box or package shall be properly marked to show its net weight in addition to its contents.

1.09 WARRANTY

A. Each complete pumping unit supplied under this contract shall be warranted by the pump manufacturer for a period of thirty-six (36) months minimum from delivery to the owner.

B. The equipment required to comprise a complete operable pumping unit shall be warranted to be free from defects in workmanship, design and materials. If any part of the equipment should fail during the warranty period, it shall be replaced in the machine(s) and the unit(s) restored to service at no expense to the Owner.

1.10 GUARANTEE

The pumps shall be guaranteed to perform as specified, as indicated by the performance curves, and as stated in the Pump Manufacturer's Proposal. The pumps shall be guaranteed to operate without excessive vibration or excessive noise over the entire operating range specified. The following shall be guaranteed:

A. Capacity at the design point.

B. Total head at the design point.

C. Efficiency, including all pump losses from the suction bell inlet to the pump discharge flange connection, at the design point.

D. Net positive suction head required at the design point.

1.11 UNIT RESPONSIBILITY

Equipment systems made up of two or more components shall be provided as a unit by the manufacturer of the driven equipment. The manufacturer of the driven equipment shall assume the unit responsibility. The extent of the manufacturer's responsibilities shall include engineering the specified equipment, preparation of all submittal materials, coordinating manufacture and procurement, compatibility and shipment of all specified components, design of all equipment supports, providing installation and testing specialists to assist in completing the installation and commissioning the equipment in a later construction phase, furnishing factory certified specialists to train the OWNER's staff, and the production and submission of specified operation and maintenance manuals. The manufacturer is responsible to the OWNER for performance of all systems as indicated. The manufacturer shall provide the OWNER with a Certificate of Unit Responsibility.

1.12 VIBRATION ANALYSIS

Prior to manufacture, submit a report the engineer indicating the required vibration analysis outline below has been performed. The dynamic vibration analysis required by the following paragraphs shall be performed by the pump OEM.

A. Before pump and electric motor are released for manufacture, pump supplier shall analyze the system for harmful torsional natural frequencies using mass elastic information provided by the electric motor manufacturer. A natural frequency that occurs within 20 percent above or below normal operating speed is considered to be unacceptable.

B. A lateral rotordynamic analysis of the pump rotating system including the motor rotor, extended shafting, couplings, pump shaft and impeller shall identify and predict that the first lateral critical speed shall have a separation margin of at least +20% above the maximum speed or -20% below the minimum speed. If a design modification cannot resolve a separation margin deficiency or is not practical, a forced dampened response analysis shall be performed to demonstrate the pump will function properly over the speed range.

C. A torsional rotodynamic analysis of the complete rotating system, pump, motor, extended shafting, and coupling shall identify and predict that no torsional natural frequencies occur within a separation margin extending -20% below to +20% above the specified pump operating speed range. No natural frequencies shall be +/-10% of 2x time running speed, line frequency, 2x line frequency, vane pass frequency. If a design modification cannot resolve a separation margin deficiency or is not practical a forced damped response analysis shall be performed to show that infinite life will be achieved with a safety factor of at least two.

D. Campbell diagrams shall be submitted, documenting the structural lateral, rotating component lateral, and torsional analysis results, graphically demonstrating the separation margins above.

E. Maximum pump vibration velocity in inches per second RMS, and vibration displacement in mils peak-to-peak, measured in the field shall conform to the requirements of ANSI/ HI 9.6.4 for all specified operation conditions.

1.13 MEASUREMENT AND PAYMENT

Vertical propeller pumps shall be measured for in the number of complete pumping units delivered. Each pumping unit will include, but not be limited to, all equipment included in Part 2 of this specification, gear drives, electric motors, and all other incidental, indicated, or required work in accordance with these specifications. Payment will be at the contract unit price bid times the number of units installed for “200 CFS Pump (Electric) (Horizontal Drive)”.

PART 2 - PRODUCTS

2.01 GENERAL

A The pumping units required under this section shall be complete including suction barrels and pumps with proper alignment and balancing of the individual units. All parts shall be so designed and proportioned as to have liberal strength, stability, and stiffness and to be especially adapted for the service to be performed. Ample room for inspection, repairs and adjustment shall be provided.

B. All necessary anchor bolts, nuts and washers shall be provided to the Owner to be stored with each pumping unit. Anchor bolts, nuts and washers shall be 316 stainless steel. A molybdenum disulfide anti-seize agent shall be supplied for use with all stainless-steel bolts.

C. Stainless steel nameplates giving the name of the manufacturer, the rated capacity, head, speed and all other pertinent data shall be attached to each pump.

D. Each pumping unit and its driving equipment shall be designed and constructed to withstand the maximum turbine run-away speed of the unit due to back flow through the pump with the maximum TDH specified available at the pump discharge flange. The maximum reverse runaway speed shall not exceed 120 percent of the design pump maximum operating speed. A statement of compliance with this requirement must be furnished with the Shop Drawings submittal.

2.02 PUMPS

A General

1. The pumps shall be of the vertical propeller axial flow type.

2. The pumps shall be built to standard dimensions such that parts will be interchangeable between like units and the same manufacturer shall supply all units.

3. The pumps shall be manufactured by

a. MWI
b. Or Approved Equal

B. Performance Requirements

1. When operating at the maximum output speed of the motor, each pump shall have a characteristic performance curve, which meets all the minimum conditions listed in Table 15110-lA. The pumps and drive motors shall be capable of operating satisfactorily under the full range of conditions as defined by Table 15110-lA

2. Each pump shall be capable of continuous adjustable speed operation over the speed range from 100 percent to 90 percent of pump design speed. There shall be no significant change in vibration and noise level over the entire listed range of speed and flow of the pumping system.

3. Maximum pump design speeds shall not exceed that listed in Table 15110-A to satisfy the specified hydraulic duty requirements. All pumps shall have identical propeller sizes.

4. With the pumping units operating at full motor speed, the maximum brake horsepower required by the pumps shall not exceed the maximum horsepower listed in Table 15110-lA. If the pumping units require more than the maximum horsepower listed in Table 15110-lA. at the motor output shaft at any full motor speed operation point between primary and secondary discharge head, they will be rejected.

5. Certified Factory Tests

    a. Factory testing in accordance with the standards of the Hydraulic Institute shall be required for all pumps. Accommodations for witnessing the pump testing via virtual options should be made available to representatives of the Owner and/or the Engineers.

    b. Certified pump performance curves shall be submitted, including head, capacity, brake horsepower, and pump efficiency for each pump supplied.

    c. All electronic transducers, meters, gauges, and other test instruments shall be calibrated in accordance with the frequency listed in the Hydraulic Institute Standards. Copies of calibration data shall be provided. Differential pressure type flow meters, such as Venturi shall have been calibrated within 5 years. Mechanical variation of the meter throat diameter will be accepted as verification of calibration validity.

    d. All pumps shall be tested at full speed and complete staging through the specified range of flow, and head/capacity/efficiency curves plotted. During each test, the pump shall be run at each head condition for sufficient time to accurately determine discharge, head, power input, and efficiency. Pump efficiency as defined herein will include all head losses from the bowl assembly entrance, bowl assembly, pump column, and discharge head.

    e. If any pump tested fails to meet any specification requirement it will be modified until it meets all specification requirements. If any pump tested fails to meet the efficiency requirements at any of the listed flow or head conditions listed in Table 15110-lA. and all reasonable attempts to correct the inefficiency and unsuccessful, the pump(s) shall be replaced with unit(s), which meet the specified requirements.

C. Pump Construction

1. The discharge head shall be a segmented, fabricated steel construction of ASTM A-36 steel, 1/2-inch minimum thickness and of the below base type and shall be not less than 60" with a 150 lb. flat faced flanged discharge connection conforming, dimensionally, to ANSI/AWWA A21.15/Cll5. The packing gland access openings shall be of adequate size to allow for packing adjustment and replacement and shall be protected by expanded metal screens constructed of 316 stainless steel.

2. Incorporated in the fabrication of the discharge head shall be a suitable pump support base not less than 2 inch in thickness of standard ANSI B16 B2 flanged dimensions to support both the pump and the motor. The flange bolting shall be in accordance with the requirements of ANSI B16 B2.

3. The discharge head will be fitted with a bronze tension nut assembly.

4. The pump head shaft shall be constructed of ASTM A-276 316 or 17-4 P.H. stainless steel alloy.

5. The pump column shall be constructed of ASTM A-36 steel, not less than 60" inches in diameter and not less than Schedule 20, flanged at each end. The column shall mate with the pump bowl assembly and the discharge head with fits to assure correct alignment.

6. The pump line shaft shall be constructed of ASTM A-276 316 Stainless Steel Lineshafting shall be of ample size to transmit the torque and operate the pump without distortion or vibration but in no case shall it be less than the minimum diameter listed in Table 15110-lA. The enclosing tube connector bearings shall be of an ASTM B505 C93200 bronze construction. The enclosing tube shall be schedule 80, 316SS.

7. The line shaft couplings shall be of the threaded type constructed of Stainless Steel and of such design that no threaded parts, which could cause "galling", are interconnected. Alternate constructions must be of a design acceptable to the Engineer.

8. The pump propeller shall be a maximum of 4-blades and of the axial flow type constructed of AISI 316SS. The impellers shall be attached to the shaft by means of a 316 Stainless Steel Fastener.

9. The pump bowls shall be constructed of ASTM A242 low alloy steel having a minimum tensile strength of 70,000 psi. The pump bowls shall be of sufficient thickness to withstand stresses and strains at full operating pressure. The bowls shall be designed and manufactured with open and smooth water passages to assure efficient, reliable operation.

10. The suction case bearings and all intermediate bowl bearings shall be constructed of ASTM B-584 alloy 932 or 836 bronze.

11. Pump Coating: All portions of the column and pump discharge head not exposed to view, except for the interior of the bowls, shall have an interior and an exterior coating of high build modified epoxy of 6 to 8 mils dry thickness, compatible with the pump service. Surface preparation shall be in accordance with the coating manufacturer's recommendations.

12. Galvanic Isolation: All pump parts, including nuts, bolts, washers, other hardware and appearances shall be galvanically isolated at all points where differing metals are in direct contact. Coating systems are not sufficient for galvanic isolation.

D. Spare Parts

The pump manufacturer shall furnish the following spare parts:
1. One (1) complete impeller/ propeller
2. One set of bowl bearings
3. One set of line shaft bearings
4. Top tube tension bearing

E. Motor

1. The pump shall be supplied with a motor HP as listed in the data tables. The motors shall also be provided per the requirements of this Section and Section 15170. The drive shaft of the motors will connect to the vertical propeller shaft through a RAG drive per the requirements of Section 15132.

Table 15110-IA
PUMPING UNIT DESIGN REQUIREMENTS DRAINAGE PUMP

Item	Design Conditions
Maximum Pump Speed (rpm)	338
Motor to be Supplied (hp)	800Hp
Rated pumping Temperature	76°F
Number of Pumps	2
Column and Discharge Size (inches) (minimum)	60"
Minimum Pump Shaft Diameter (inches)	3.9"
Minimum Line Shaft Diameter (inches)	3.9"
Design Capacity (gpm)	90,000
Minimum TDH at Design Capacity (feet)	25
Minimum Bowl Efficiency at Design Capacity (%)	78.0%

PART 3: EXECUTION

3.01 EXAMINATION AND PREPARATION

A. Examine storage facility and verify it is adequate and ready to receive and stow two complete pumping units.

B. Deficiencies in the storage facility should be addressed to the owner and corrective actions should be verified prior to the delivery of the pumping units.

C. Delivery of the pumping units shall constitute acceptance of the storage facility conditions.

3.02 INSTALLATION

A. Delivery: Pumping Units shall be delivered to the site, secured on necessary pallets, crating, containers or other packaging as required by the manufacturer. Product labeling shall be visible from the outside of the packaging, intact and free of damage.

B. Manufacturer shall deliver all materials included for a full pumping unit to the OWNER at 6001 Stars and Stripes Blvd, New Orleans, LA 70126. Manufacturer shall confirm with the OWNER the location on the Airport Property that the pumping units will be stored until installation. OWNER shall ensure that the storage location is an area free from the elements. Manufacturer shall also confirm with the OWNER a specific date in the future that will be the earliest allowed date for delivery of the equipment.

C. Handling: All pumping unit packages shall be unloaded and handled using appropriate machinery compatible with the packaging. Mis-handling of equipment during loading and unloading will result in rejection of the product(s).

D. Storage: Products shall be stored as per manufacturer's requirements. Supplier shall provide Owner with storage environmental requirements as part of the submittal package.

E. Physical installation of the pumping units will be performed under a separate contract.

3.02 INSPECTION AND TESTING

A. Visual Inspection: Inspect all packaging for damage. Separate components (i.e. hardware, templates, appurtenances, lubricants, spare parts, etc.) shall be inventoried for inclusion. Nameplates shall be reviewed for completeness and compliance with the plans and specifications.

3.03 CLEANING AND PROTECTION

A. Ensure any packaging that was opened for inspection has been closed and sealed as per manufacturers' recommended practices.

3.04 OPERATION AND MAINTENANCE

A. Provide instructions and training to the owner on how to properly maintain the pumping unit components while in prolonged storage.

B. Owner will maintain records documenting maintenance items performed while in storage and in their possession.

3.05 STARTUP AND COMMISSIONING

A. Pumping unit supplier for this contract shall include in their bid price for this supply contract pump startup and commissioning, which will occur under a separate installation contract.

END OF SECTION

SECTION 15132

GEAR DRIVES

PART 1 GENERAL

1.01 SUMMARY OF WORK INCLUDED

A. The work provided herein consists of furnishing and testing two (2) identical right angle gear drive speed reducers for the two (2) horizontal driven pumps, complete with all accessories as specified herein.

B. Definitions and standard practices shall be as defined and set forth by the American Gear Manufacturers Association (AGMA).

C. The following paragraphs describe the minimum requirements for one gear reducer drive, but these requirements shall apply to all gear reducer drives furnished under this contract. The gear reducer drive will be used to transmit the power from the electric motor to the vertical pump as indicated on the drawings and specified herein. The drive shall be adequately designed and conservatively rated to provide a reliable, efficient, smooth, and quiet running unit under all operating conditions. The unit shall be furnished complete in every respect, with all items of equipment ready for operation.

D. The gear drive shall be a solid shaft, single reduction, spiral bevel right angle type, speed reducer with horizontal input shaft from the motor, vertical downward output shaft to the pump, dry well construction to prevent oil leakage, with thrust bearing and anti-reverse backstop, DERAN Model M30A, or Engineer approved equal, built to AGMA standards, and made to drive vertical drainage pumps.

E. The gear shall be the product of a manufacturer, with a proven service record with this type and size of gear of not less than ten (10) years of operation at 1200 hours per year, at a minimum of three-quarter (3/4) rate load as a pump driver.

F. The Pumping Unit Supplier shall be responsible for the proper sizing of the gear which shall be furnished as an integral part of the pumping package.

1.02 RELATED WORK

A. SECTION 15110 - VERTICAL PROPELLER PUMPS

B. SECTION 15170 - ELECTRIC MOTORS

1.03 REFERENCES

A. ASTM AMERICAN SOCIETY FOR TESTING MATERIALS

B. ASME AMERICAN SOCIETY FOR MECHANICAL ENGINEERS

C. ANSI AMERICAN NATIONAL STANDARDS INSTITUTE

D. AWWA AMERICAN WATER WORKS ASSOCIATION

E. ASA AMERICAN STANDARDS ASSOCIATION

1.04 SYSTEM PERFORMANCE

A. Horsepower Rating: The gear drive shall be capable of transmitting 100% of the maximum horsepower required by the pump at the highest head condition on a continuous basis. A minimum service factor of 1.5 shall be used in the gear drive unit design at this horsepower rating.

B. Ratio: The overall reduction ratio shall be such as to properly match the motor speed with the pump speed. The maximum input speed is 1200 RPM. The output speed shall be that required by the pump. The exact pump speed and gear ratio shall be determined by the Contractor through the pump machinery supplier.

C. Gear Efficiency: The gear drive shall have an overall efficiency of not less than 97%.

1.05 SUBMITTALS

A. All submittals shall comply with requirements of Section 01300.

B. The Pumping Unit Supplier shall submit for the Engineer's review, dimensional drawings, and other technical information on the right angle gear drive to verify compliance with the specifications and drawings, which shall at least include the following:

1. Manufacturer and Model No. of gear drive.
2. Gear Ratio
3. Horsepower rating at 1.5 service factor
4. Efficiency at rated horsepower
5. Thermal rating of gear drive at rated horsepower
6. Type of lube oil system in gear drive
7. Type of gears, method of cutting and finishing, and finished Rockwell hardness.
8. Type of bearings and B-10 life rating.
9. Downthrust capacity of thrust bearing at B-10 life of 50,000 hrs.
10. Weight of complete gear assembly
11. Dimensional drawings of the gear drive assembly, including bolt pattern of hold

down flange, and material description of all components.

12. Certified statement of gear quality and Rockwell C hardness of finished gears (to be submitted after gear is manufactured).
13. Calculations for B-10 life of thrust bearing.
14. Calculations for U-Joint size.
15. Details, dimensional drawings and material descriptions of the input and output shaft couplings.
16. Operation and maintenance manuals including dimensional drawings, parts list, lubrication and maintenance requirements, disassembly and repair instructions, and operating instructions.

1.06 INSTALLATION, OPERATION AND MAINTENANCE DATA

A. Six (6) Bound Installation-Operation-Maintenance Manuals shall be furnished containing complete information relating to installation, operation, lubrication adjustment, routine and special maintenance, maintenance instructions and schedules for prolonged storage, repair, etc., including drawings, parts lists, handling weights, and performance data.

1.07 QUALITY ASSURANCE

A. The gear manufacturer shall conduct a full speed run of the gear before shipment in order to check the operation, balance, lubrication system, backstop device and noise level. The Engineer reserves the right to witness these tests. Fourteen (14) days notice of the tests shall be given to the Engineer.

1.08 SHIPPING AND PROTECTION

A. All openings shall be sealed with plastic caps, plugs or films. The gear drive and any accessories shall be mounted on a skid and boxed. The skid mounting and boxing shall be done in a manner which will prevent damage to the gear drive and any accessories during loading unloading, storage and subsequent handling. Weatherproof covers shall be provided to protect the gear reducer during shipment.

1.09 COORDINATION

A. The rotation of the gear drive reducer output shaft shall be determined by the design rotation of the motor and the required rotation of the pump and motor and shall be chosen by the pumping unit supplier.

1.10 SPECIAL TOOLS

A. The gear manufacturer shall furnish all "special" tools required to completely assemble, disassemble or maintain the gear reducer. "Special" tools are any grossly oversized or specially dimensioned tools of any kind, any special attachments or fixtures, or any other

similar items.

1.11 QUALITY ASSURANCE

A. The gears to be supplied in the section will be the product of one manufacturer. The manufacturer will be a member of AGMA and be the owner of the facility where these units will be produced and must have a minimum of 10 years manufacturing gears of this type. A reference list will be provided with projects of like size gears. The list will include owners name, phone number and email address with contact person. The manufacturing facility must be located inside the continental US.

B. The equipment furnished shall be fabricated, assembled, and delivered in proper operating condition in full conformity with approved drawings, specifications, engineering data, and/or recommendations furnished by the equipment manufacturer.

C. The manufacturer shall warehouse all replacement parts inside the continental US. These parts shall be readily available for shipment to the Owner.

1.12 WARRANTY

A. Products supplied under this specification shall be provided with a thirty-six (36) month warranty from delivery to the owner, and the warranty will be provided through the pump manufacturer. (Section 15110)

B. The equipment required to comprise a complete operable pumping unit shall be warranted to be free from defects in workmanship, design and materials. If any part of the equipment should fail during the warranty period, it shall be replaced in the machine(s) and the unit(s) restored to service at no expense to the Owner.

1.13 MEASUREMENT AND PAYMENT

A. Right angle gear drive speed reducers shall be measured for in the number of complete pumping units delivered. Each unit will include, but not be limited to, the housings, gears, driveshafts, bearings, backstops, lubricants, couplings, finishes and all other incidental, indicated, or required work in accordance with these specifications. Payment will be at the contract unit price bid times the number of units installed for “200 CFS Pump (Electric) (Horizontal Drive)”.

PART 2 PRODUCTS

2.01 MATERIALS AND COMPONENTS

A. Housing: The housing shall be of close grained cast iron, cast steel, ductile iron or fabricated steel. Welded fabrications shall be heat treat stress relieved before any

machining. The housing shall be so constructed as to provide rigid stability that maintains precise alignment of gears and shafts. Lifting lugs shall be provided. Flanged and screwed connections shall be provided as required.

B. Gears: Gears shall be spiral bevel type precision cut from alloy steel, carburized and hardened then precision hard cut, lapped or ground for optimum tooth contact. Each gear shall be statically and dynamically balanced. Maximum pitch line velocity shall be 4000 fpm. Gear precision shall be AGMA Quality 9 or better, and surface hardness shall be 58 Rockwell C or higher. Final surface finish of gear teeth shall be 16 RMS or better.

C. Shafting: All shafting shall be of heat treated alloy steel, conservatively sized, with a precision ground surface for bearings and gears. Alloy steel bar or forgings shall be used on the pinion gear which shall be integral with the pinion shaft if ratio is greater than 40:1 which shall have a minimum diameter of 3.749". Individual shafts and gearing shall be statically and dynamically balanced along the axial and radial axis to ISO 6.3 or 4w/N tolerances. The output shaft shall have a minimum diameter of 3.749".

D. Bearings: All bearings shall be anti-friction, ball or roller type, oil lubricated, and designed for a B-10 life of 50,000 hours based on the loads imposed at the highest operating load condition of the pump. The output shaft thrust bearing shall be a tapered or spherical roller type thrust bearing, located above the final drive gear, and have a thrust rating capable of supporting the weight of the pump rotating elements plus the highest hydraulic thrust load produced by the pump at the highest head condition. The thrust bearing shall have a minimum B-10 life of 50,000 hours.

E. Backstop: The shaft shall have a self-actuated anti-reverse backstop device mounted in front of the outboard bearing to prevent reverse rotation of the pump, gear, and motor during backflow. A minimum service factor of 1.5 shall be used in the backstop unit design. The backstop shall be a type with cylindrical rollers on inclined cam planes, Form sprag type or Engineer approved pin type, oil lubricated, and capable of not less than 10,000 stops at the design conditions without undue wear or other indications of failure. Torque shall be transmitted directly to the gear housing.

F. Cooling: The gear drive will be air cooled. A vertically mounted heat exchanger will be mounted directly below the vertical fan. The vertical fan will rotate with the vertical output shaft.

    1. The gear shall have a horizontal fan which rotates with the input shaft. The fan shall be guarded.

G. Noise Level: Noise measured 3 feet from the gear case shall not exceed 87 decibels and shall be in accordance with AGMA 914.B04.

H. Lubrication: The gear drive shall be equipped with a complete self-contained lubrication system. Forced feed lubrication shall be provided for the gear meshes, bearings, backstop and all other moving parts of the reducer (except when submerged in oil) by a positive displacement, gear type, integrally mounted pump which shall be gear driven from the output shaft assembly of the gear. Oil pressure and temperature gages shall be provided to monitor the status of the lubrication system. In addition, an oil pressure switch and temperature switch shall be provided to alarm and shut down the motor in the event of loss of oil pressure or high oil temperature in the gear drive. A Murphy VS94 Vibration Switch will be mounted to shut the motor down in the event excessive vibration is encountered. Contractor shall coordinate through the pump manufactured the required flow capacity required to cool the gear should remote radiator cooling be required.

2.02 COUPLINGS

A. Driveshaft/Coupling between motor and gear drive shall be carden-type u-joint type as manufactured by Spicer Driveshaft or engineer approved equal. Driveshaft shall be minimum 4" diameter tube with a minimum operation angle of 3 percent. Length to be selected by contractor but not exceed 100 inches. Driveshaft shall have a minimum 16,000 hr B-10 life and selected with a power factor of 1.5.

2.04 FINISHES

A. The exterior of the gear drive shall have any grease, rust or scale cleaned from the surface and painted with a suitable anti-rust metal primer and two coats of the manufacturer's standard paint suited for a corrosive environment. Color to be selected by the Engineer.

B. All interior surfaces shall be thoroughly cleaned and coated in accordance with the manufacturer's standard procedure.

PART 3 EXECUTION

A. SEE PUMP SECTION 15110 FOR REQUIREMENTS.

END OF SECTION

SECTION 15170

ELECTRIC MOTORS, 3-PHASE HORIZONTAL INDUCTION TYPE

PART 1 GENERAL

1.1 SUMMARY OF WORK INCLUDED

A. The work provided herein consists of furnishing and testing two (2) identical 3-phase horizontal induction type electrical motors for the two (2) horizontal driven pumps, complete with all accessories as specified herein.

B. These specifications describe the functional requirements and minimum standards to be applied to each of the pump motors required to operate the pumps described in Section 15110.

C. The motors shall be conservatively rated to assure a quality product. Efficiencies will be reviewed and evaluated as secondary to need for utmost reliability.

D. The motor shall be horizontal constructed to drive the pump through a right angle gear for the pumps.

E. Each motor shall be supplied by the pump manufacturer as an integral package with their pump.

F. The Pumping Unit Supplier shall be responsible for the proper sizing of the of the electrical motor. If motor sizing or other specified requirements vary from this specification, please notify the engineer and issue a Request for Clarification before proceeding.

1.2 RELATED WORK

A. SECTION 15110 – VERTICAL PROPELLER PUMPS

B. SECTION 15132 – GEAR DRIVES

1.3 REFERENCES

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

NEMA MG-1-2011
IEEE Std 112-2004

ASTM B117-97

1.4 SCOPE

This specification covers NEMA frame horizontally mounted, TS Shaft, 3-phase, squirrel cage, AC induction motors that are totally enclosed fan cooled, 800 HP, 4160 V.

1.5 STANDARD SERVICE CONDITIONS

Motors conforming to this specification shall be suitable for operation in accordance with their rating under the following service conditions.

A. Ambient temperature in a range of -29°C to 40°C (-20°F to 104°F).

B. Maximum altitude of 1000 meters (3300 feet) above sea level.

C. Indoor or outdoor installations.

D. Full voltage, across-the-line starting.

1.6 SUBMITTALS

Submit the following:

A. Shop Drawings: Motors

Six (6) copies of equipment foundation dimensions; outline drawings with weights, nameplate data, and details showing method of mounting and anchoring the motor. Engineer's approval shall be obtained in writing prior to the commencement of manufacture of motors.

B. Product Data: Insulated Windings

A detailed description of and specification for the manufacturing process, the materials and the insulating varnish or compound used in insulating the windings shall be submitted to the Engineer for approval before manufacture of the motors is commenced. If, in the opinion of the Engineer, the insulation proposed is not of the quality specified and if the methods of manufacture are not considered to be in accordance with best modem practice, the motors will not be accepted. Six (6) copies of motor design curves and Six (6) copies of motor speed-torque curves, as specified, shall be submitted.

C. Test Reports: Starting Capabilities

Six (6) copies of certified test reports, when available, of test previously performed on

motors of each type and size specified or calculated data to substantiate the motor's capability to conform to the specified requirements.

D. Factory Tests

Six (6) copies of test reports recording all data obtained during the tests shall be provided to the Engineer for each motor used. Test reports shall include performance curves indicating the results of paragraph COMPLETE TEST. The base value shall be given whether ANSI or IEEE standard system is used.

E. Certificates: Power Factor and Efficiency

Certification of guaranteed value of power factor and efficiency for full load, ¾ full load, and ½ full load.

F. Factory Test

Six (6) certified copies of the results of a "Complete Test" for duplicate equipment will be accepted in lieu of the "Complete Test" as specified in subparagraph COMPLETE TEST for equipment of the respective rating and type. No substitute will be accepted for the "Check Test."

G. Operation and Maintenance: Data Instructions

Six (6) copies of complete instructions for the proper installation, inspection, and maintenance of the machines provided for this particular service. Instruction manuals shall be submitted to the Engineer not later than the date the equipment is shipped from the manufacturer's plant. The instructions shall include a cross-sectional drawing indicating the major component parts of the motor and the procedure for disassembly.

1.7 QUALITY ASSURANCE

A. Corrosion Prevention and Finish Painting

The equipment provided under these specifications will be subjected to severe moisture conditions and shall be designed to render it resistant to corrosion from such exposure. The general requirements to be followed to mitigate corrosion are specified below. Any additional special treatment or requirement considered necessary for any individual items is specified under the respective item. However, other corrosion-resisting treatments that are the equivalent of those specified herein may, with the approval of the Engineer, be used.

B. Fastenings and Fittings

Where practicable, all screws, bolts, nuts, pins, studs, springs, washers, and other similar

fittings shall be of corrosion-resisting material or shall be treated in an approved manner to render them resistant to corrosion.

C. Corrosion-Resisting Materials

Corrosion-resisting steel, copper, brass, bronze, copper-nickel, and nickel-copper alloys are acceptable corrosion-resisting materials.

D. Corrosion-Resisting Treatments

Hot-Dip galvanizing shall be in accordance with ASTM A 123/A 123M or ASTM A 153/ A 153M as applicable. Other corrosion-resisting treatments may be used if approved by the Engineer.

E. Frames

Motor frames, end bells, covers, conduit boxes, and any other parts, if of steel, and if they will be coated during the process of insulting the windings, shall be cleaned of rust, grease, millscale, and dirt, and then treated and rinsed in accordance with manufacturer's standard process. If any of the above-listed parts are not coated during the process of insulating the windings then, in addition to the above, they shall be given one coat of primer and then two coats of manufacturer's standard moisture-resistant coating, processed as required.

F. Cores

The assembled motor core shall be thoroughly cleaned and then immediately primed by applying a minimum of two coats of a moisture-resisting and oil-resisting insulating compound. Air gap surfaces shall be given a minimum of one coat.

G. Shafts

Exposed surfaces of motor shafts shall be cleaned of rust, grease, and dirt and, except for bearing surfaces, given one coat of a zinc molybdate or equivalent primer and two coats of a moisture- proof coating, each cured as required. Shafts of a corrosion-resisting steel may be used in lieu of the above treatment.

H. Finish Painting

Finish painting of all equipment shall be in accordance with the standard practice or recommendation of the manufacture, as approved by the Engineer.

1.8 PREPARATION FOR SHIPMENT:

A. Shipment:

The motor shall be shipped with the rotor blocked inside the starter to prevent damage to the bearings. The motor shall be securely mounted on a skid or pallet of ample size. The skid mounting and boxing shall be done in a manner which will prevent damage to the motor and its auxiliary accessories during loading and shipment. All power and control terminal boxes shall be shipped completely installed in final position on motor housing. Provide suitable bracing for all terminal boxes to prevent damage from vibration in shipment.

All small parts and loose materials shall be boxed and included with the shipment. The manufacturer shall be required to provide information and description of eye bolts, slings, other devices, tools and equipment, as used in the unloading and handling of the motors.

The pump machinery supplier through the motor manufacturer, shall furnish all special tools required to complete assembly or disassembly of the motor. This requirement shall include any grossly oversized or specially dimensioned tools of any kind. Any special attachments or fixtures will be treated in a similar manner.

1.9 WARRANTY

A. Products supplied under this specification shall be provided with a thirty-six (36) month warranty from delivery to the owner, and the warranty will be provided through the pump manufacturer. (Section 15110)

B. The equipment required to comprise a complete operable pumping unit shall be warranted to be free from defects in workmanship, design and materials. If any part of the equipment should fail during the warranty period, it shall be replaced in the machine(s) and the unit(s) restored to service at no expense to the Owner.

1.10 MEASUREMENT AND PAYMENT

A. Pump motors shall be measured for in the number of complete units delivered. Each unit will include, but not be limited to, the motor, coupling, bolts, painting, electrical wiring and all other incidental, indicated, or required work in accordance with the drawing and these specifications. Payment will be at the contract unit price bid times the number of units installed for "200 CFS Pump (Electric) (Horizontal Drive)".

PART 2 PRODUCTS

2.1 NAMEPLATES

Nameplate data shall include rated voltage, rated full-loaded amperes, rated horsepower, service factor, number of phases, RPM at rated load, frequency, code letter, locked-rotor amperes, duty rating, insulation system designation, and maximum ambient design temperature. Motor nameplate horsepower shall be equal to or greater than the maximum load imposed by the driven equipment.

2.2 MOTORS

A. Rating

The two (2) 800 hp minimum electric motors to be furnished under this contract shall be 1200 RPM, 4160 volt, 3 phase 60 hertz, TEFC, Horizontal, induction type and shall be constructed with Class F Insulated Form Wound Copper Stator Coils. Motors shall be U.S. Motors or approved equal.

B. Coordination

Pump Manufacturer shall coordinate horsepower requirements as well as speed requirements for the pump he has selected. In no case, shall the horsepower be less than that specified herein nor the speed be greater than that specified for the pumps in section.

C. Starting Torque

The pump and motor unit shall be provided with the starting torque characteristics and sustained horsepower rating to satisfy the pump operating conditions as identified in section 15110 conditions 1 thru 3 considering all losses and to comply with all the requirements of this specification, but in no case shall the starting torque be less than 60 percent of full-load torque. Breakdown torque shall be not less than 200 percent of full-load torque.

D. Service Factor

The motor shall have a continuous service factor of 1.15 times the nameplate. The nameplate horsepower will be available at 80 degrees C rise by resistance with a 40 degree C ambient temperature.

E. Efficiency, Power and Amps maximums for each motor shall be as follows:

	Load Efficiency	Power Factor	Amps
4/4	95.8	83.9	103
3/4	96.4	81.2	79
1/2	96.0	73.3	59
1/4	93.7	51.9	43

F. Starting Condition

The starting condition, KVA per horsepower, when started at full voltage shall conform to NEMA Code "G". The motors will be soft start furnished by the installation contractor in a separate construction phase. Design of the motor and pump combination shall be based upon the worst case condition of either across the line or 65% voltage tap reduced voltage starting. Evaluation shall be part of submittal for approval of motors.

G. Noise

All motors shall operate at a noise level less than 84 decibels A-weighted mean sound pressure level (dBA). The specified noise limit applies for a reference distance of one meter for free-field conditions.

H. Duty Cycle

Each motor, when operating at rated voltage and frequency and on the basis of the connected pump load inertia Wk2 and the speed-torque characteristics of the load during starting conditions as furnished by the pump manufacture, shall be capable of performing on a continuous basis the following motor duty cycle without injurious temperature rise. A starting information nameplate setting forth the starting capabilities shall be provided on each motor. This nameplate shall also include the minimum time at standstill and the minimum running time prior to an additional start. The number of starts per hour shall conform to the limitations of MG-1-20.43 and MG-1-12.50 of NEMA MG-1.

I. Mounting

Horizontal motor shall be supplied with base, soleplate and jack screws for mounting on the EL. 15.00 deck.

J. Coating

The motor exterior shall have all grease, rust or scale cleaned from the surface and painted with a suitable primer followed by two coats of the manufacturers standard paint for outdoor environment. The color shall be Manufacturer's Standard ASA-61 Gray to match pump.

K. Lifting Lugs

Means for lifting the complete motor with an overhead crane by the use of wire rope slings without the use of spreaders of special rigging tools shall be provided. The bearing surface of the lifting means shall be free of sharp edges.

L. Control Wiring

The motor manufacturer shall route all motor mounted control device wiring, which terminates at the control terminal box, in flexible liquid tight conduit mounted perfectly parallel and perpendicular to vertical and horizontal axis of motor frame. Liquid tight conduit shall be secured to motor frame with approved one hole straps and fastened by 316 stainless steel machine screws in drilled and tapped holes.

M. Accessory Leads and Boxes

Terminal leads for motor winding space heaters, thermistors and any other auxiliary equipment shall be brought into conveniently located terminal boxes provided with terminal blocks for extension by others. The terminal boxes shall be drip-proof and treated with a tropical coating. All auxiliary wiring shall be stranded copper conductors with 600-volt flame-retardant insulation, except temperature detector leads may be in accordance with the manufacturer's standard practice. All wiring and terminals shall be properly identified.

2.3 ELECTRICAL REQUIREMENTS

A. Motors shall operate successfully under running conditions at rated load with variation in the voltage or the frequency not exceeding the following conditions:

1. +/-10% rated voltage at rated constant volts/hertz ratio except for specific torque boost situations.
2. Motors shall operate successfully under running conditions at rated load and volts/ hertz ratio when the voltage unbalance at the motor terminals does not exceed one percent.

B. Operating Characteristics - With rated volts/hertz ratio applied under standard service conditions, motor performance shall be as follows for critical operating characteristics:

1. Torques - Motors shall meet or exceed the minimum locked rotor (starting) and breakdown torques specified in NEMA Standard MG1 Part 12 for Design B for the rating specified when on sine wave power.
2. Currents - Locked rotor (starting) currents shall not exceed 600 percent of rated (full-load) current.
3. Efficiency - Motor efficiency will be determined according to NEMA standard MG1 Part 12, IEEE Test Procedure 112 Method B, using accuracy improvement by

segregated loss determination including stray load loss measurements.

4. Temperature Rise - The temperature rise, by resistance, shall meet Class F requirements at 1.15 service factor.

C. Service Factor and Ambient - Standard motors shall be rated for a 1.15 service factor on sine wave power in a 40°C ambient.

D. Insulation

1. Special anti-fungal tropical treatment shall be provided. Insulife 2000 insulation system or equal, two dips and bakes.

E. Grounding Provisions

1. Grounding lug in main conduit box.

2. Grounding terminal on frame.

2.3 MECHANICAL REQUIREMENTS

A. Enclosures

1. Motors shall be totally enclosed fan cooled (TEFC).

2. Material - Motor frame and end shields shall be cast iron. Fan covers will be constructed of cast iron. The installation will be outdoors on a concrete deck above a water-filled basin with brackish water - expect a damp, outdoor, semitropical environment with high concentrations of salt at 100% relative humidity for extended time periods. All units shall receive tropical protection to meet the conditions of this environment.

a. Motor ventilation openings shall have 316 stainless steel screens to prevent insect entry, particularly the nest-building wasps. The Class F insulation shall be completed with non-hygroscopic materials and bonded together with epoxy resins.

B. Bearings

Motors shall be supplied with grease lubricated anti-friction ball bearings. The minimum bearing life for all motor bearings shall be a minimum B-10 bearing life of 100,000 hours.

C. Ventilating Fans - shall be corrosion resistant, non-sparking material.

D. Terminal Box

The main terminal box shall be sized to house power factor correction capacitors and shall in addition, provide ample space to properly join and insulate motor leads, capacitor leads and external leads with an underside point of entry for the feeder leads. The box shall be located to avoid interference with cooling air passages. The capacitors shall be grouped with an easily removable dust cover over the bushings and fuses. The placement of this cover shall conceal all exposed parts of the corrective capacitor system. The cover to the terminal box shall be side hinged with two large captured thumb screw wing bolts to secure the cover closed. Box shall be drip proof, cast iron with a coating for a tropical environment. There shall also be a hasp for lock on this cover. Should capacitors not fit in the terminal box, a free standing, enclosed, fused 5 kv power factor correction capacitors with conduit and wiring back to the Main Terminal Box will be accepted as an alternative. A "HIGH VOLTAGE - 4160 VOLTS" warning sign shall be provided on the cover of the box.

Insulated terminal leads shall receive a treatment equal to that of the motor winding. Leads shall be brought out of the stator frame and shall be provided with terminal lugs for connection to the motor supply wiring.

E. Fasteners

All screws, nuts, bolts, pins, studs, washers and other similar fittings shall be 316 stainless steel. All metal surfaces both internal and external shall be painted or varnished for maximum protection from corrosion.

F. Motor Shaft- Stainless Steel (303 or 304)

G. External Paint- shall be mill and chemical duty paint, capable of passing a 500 hours salt spray test in accordance with ASTM B1 7 test method.

H. Motor Vibration - Velocity shall peak at 0.15 IPS.

I. Accessory Conduit Box: NEMA type 4 enclosure to terminate leads of accessories such as space heaters and thermostats.

K. Space Heaters

Space heaters shall be of the metal-sheathed cartridge type, and raise the inside motor temperature a minimum of 6 degrees C above the ambient temperature. The space heaters shall be single phase 110/220 volt built into the motor frame with leads wired to terminals in the control terminal box.

L. Thermal Protection

1. Bearings: 1 RTD type per bearing, 100 ohm platinum

2. Windings: Two resistance temperature detectors RTD's shall be provided per phase/6 in stator slots between coils, wired to a terminal block in the control terminal box. The sensing elements shall be platinum type, 3 wire, 100 ohms at 0 degrees C.

M. Vibration Detector: Provide a vibration switch, Robertshaw 366A8 type or equal.

N. Winding Treatment

Special fungus treatment shall be provided for all windings, connections, lashings and other materials susceptible to fungus growth.

2.4 WRENCHES, TOOLS, AND SPECIAL EQUIPMENT

Provide all nonstandard and special equipment required for dismantling, reassembly, and general maintenance of the motor units. Provide one complete set of lifting attachments such as detachable eyebolts or special slings for handling various parts with a hoist.

2.5 FACTORY TESTS

One motor selected at random by the Engineer, shall be given the complete and vibration test. The remainder of the motors shall be given a check test and winding space heater test.

A. Complete Test

Test per IEEE Standard 12, method B, dynamometer test. Test full-load heat run, percent slip, no- load current, full-load current, locked rotor current, lock rotor torque, breakdown torque (calculated), efficiency and power factor at 100%, 75%, and 50% full load, insulation resistance per IEEE Standard 43, winding resistance and high potential.

B. Vibration Test

Test at three points on the drive end and three points on the opposite drive end in accordance with NEMA MG-1 Part 7.

C. Check Test

Test the no-load current, locked rotor current, winding resistance high potential tests.

D. Winding Space Heater Test

Each winding space heater unit shall be tested at the factory for successful operation and dielectric strength.

PART 3 EXECUTION

SEE PUMP SECTION 15110 FOR REQUIREMENTS.

END OF SECTION