

**TERREBONNE PARISH RECREATION DISTRICT #10
1330 Doctor Beatrous Road Theriot La 70397**

PROJECT MANUAL

FOR

RECREATION DISTRICT 82921TPRD10

**TPR DIST. 10 BALLFIELD IDA
625 Bayou Dularge Rd Houma La 70363**

Daniel Constant - Chairman
Brent Rodrigue – Vice Chairman

TERREBONNE PARISH RECREATION DIST. 10 BOARD MEMBERS

Travis Mailbrough
John Bascle
Martha Guidry
Harold Turner

Prepared By:

Marrero, Couvillon & Associates, LLC

Kimball Schlafly, P.E.
kschlaflly@mca-llc.com
504.834.3448

September 11, 2026

GENERAL TABLE OF CONTENTS

	Page No.
SECTION A - INVITATION TO BIDDERS	A-6
SECTION B - INSTRUCTION TO BIDDERS	B-1
1.0 Defined Terms	B-1
2.0 Copies of Bidding Documents	B-2
3.0 Examination of Contract Documents and Site.....	B-3
4.0 Interpretations and Addenda	B-4
5.0 Bid Security	B-5
6.0 Contract Time	B-5
7.0 Liquidated Damages	B-6
8.0 Substitute Material and Equipment of "Or-Equal" Items	B-6
9.0 Proposal Document Forms.....	B-7
10.0 Preparation and Submission of Bids	B-7
11.0 Modification and Withdrawal of Bids	B-8
12.0 Opening of Bids	B-9
13.0 Bids to Remain Open	B-9
14.0 Award of Contract.....	B-9
 SECTION C – PROPOSAL FORMS	C-1
Louisiana Uniform Public Works Bid Form.....	C-1
Unit Price Form.....	C-2
 SECTION D -Low Bidder Additional Information and Documentation	D-1
15.0 Due Within 10 Days From Opening Of Bid	D-1
16.0 Due Within 10 Days Of Receipt Of Notice Of Award	D-3
E-Verification Form (Sample)	D-5
Criminal Attestation Affidavit (Sample)	D-6
 SECTION E- Reserved	

SECTION F - STANDARD FORM OF AGREEMENT BETWEEN	
OWNER AND CONTRACTOR	F-1
Article 1 Work	F-1
Article 2 Engineer	F-1
Article 3 Contract Time	F-1
Article 4 Contract Price.....	F-2
Article 5 Payment Procedure	F-2
Article 6 Contractor's Representations.....	F-3
Article 7 Miscellaneous	F-3
Article 8 Contract Documents.....	F-4

SECTION G - CONTRACTOR'S AFFIDAVIT	G-1
---	------------

SECTION H - PERFORMANCE BOND	H-1
---	------------

SECTION I - GENERAL CONDITIONS.....	I-1
--	------------

.....	
.....	
39	
Article 1 Definitions.....	I-1
.....	
Article 2 Preliminary Matters	I-5
Article 3 Contract Documents; Intent, Amending, Re-use	I-6
Article 4 Availability of Lands; Physical Conditions Ref. Points	I-9
Article 5 Bonds and Insurance	I-13
Article 6 Contractor's Responsibilities.....	I-22
Article 7 Other Work	I-33
Article 8 Owner's Responsibilities.....	I-35
Article 9 Engineer's Status During Construction	I-36
Article 10 Changes in Work.....	I-38
Article 11 Change in Contract Price	I-41
Article 12 Change of Contract Time.....	I-47
Article 13 Warranty and Guarantee; Test & Inspections; Correction, Removal or Acceptance of Defective Work	I-49
Article 14 Payments to Contractor and Completion	I-53
Article 15 Suspension of Work & Termination	I-59
Article 16 Dispute Resolution.....	I-61
Article 17 Miscellaneous	I-62
Exhibit "B" Quality Control Daily Reports	I-64

SECTION K – TECHNICAL SPECIFICATIONS

DIVISION 01- GENERAL REQUIREMENTS

SECTION 01 00 00	SUMMARY OF WORK
SECTION 01 10 40	SPECIAL PROJECT PROCEDURES

SECTION 01 20 00	PROJECT ADMINISTRATION
SECTION 01 30 00	SUBMITTALS
SECTION 01 37 00	SCHEDULE OF VALUES
SECTION 01 50 00	TEMPORARY FACILITIES, UTILITIES AND OPERATIONS
SECTION 01 60 00	MATERIAL AND EQUIPMENT
SECTION 01 70 00	PROJECT CLOSEOUT
SECTION 01 70 10	CLEAN-UP

DIVISION 02 – EXISTING CONDITIONS

SECTION 02 41 19	SELECTIVE DEMOLITION
------------------	----------------------

DIVISION 26 - ELECTRICAL SPECIFICATIONS

SECTION 26 00 50	BASIC ELECTRICAL REQUIREMENTS
SECTION 26 05 19	LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
SECTION 26 05 26	GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
SECTION 26 05 29	HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
SECTION 26 05 33	RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
SECTION 26 05 43	UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS
SECTION 26 05 53	IDENTIFICATION FOR ELECTRICAL SYSTEMS
SECTION 26 24-16	PANELBOARDS
SECTION 26 28 13	FUSES
SECTION 26 28 16	ENCLOSED SWITCHES AND CIRCUIT BREAKERS
SECTION 26 43 13	SURGE PROTECTION FOR LOW-VOLTAGE ELECTRICAL POWER CIRCUITS
SECTION 26 55 68	ATHLETIC FIELD LIGHTING
SECTION 26 56 13	LIGHTING POLES AND STANDARDS
SECTION 26 56 19	LED EXTERIOR LIGHTING

SECTION A

INVITATION TO BIDDERS

Sealed bids will be received on **Tuesday, October 19 2026** by the (TPCG) Purchasing Division, 301 Plant Road, in Houma, Louisiana until 2:00 P.M as shown on the Purchasing Division Conference Room Clock, and TPCG shall at that time and place publicly open the bids and read them aloud.

Bid documents are posted on <http://www.centrauctionhouse.com/rfp.php?cid=65>. To view these, download, and receive bid notices by e-mail, you must register with Central Auction House (CAH). Vendors/Contractors have the option to submit their bids electronically or by paper copy. For information about the electronic submittal process, contact Bobby Callender with Central Auction House at 225.810.4814.

Each bid shall be either hand delivered by the bidder or his agent, or such bid shall be sent by United States Postal Service registered or certified mail with a return receipt requested, or shall be submitted electronically with Central Auction House (CAH). Bids shall not be accepted or taken, including receiving any hand delivered bids, on days which are recognized as holidays by the United States Postal Service.

**The mailing address for bids is: TPCG Purchasing Division
 301 Plant Road
 Houma, Louisiana 70363**

No bid received after the scheduled time for opening will be considered. Failure of the U.S. Mail to deliver the bids timely shall not be considered due cause for the scheduled time of the bid opening to be extended.

Project Name: TPR District 10 Ballfield Ida

Project No: 82921TPRD10

Project Description: TPR District 10 Ballfield Ida Repairs

Bids must be submitted on the Louisiana Uniform Public Works Bid Form furnished with the Bidding Documents. Bidding Documents shall be made available only to contractors who are licensed by the Licensing Board of Contractors.

This Project shall require a Louisiana Contractors license number for Building Construction with all sub-trades appropriately licensed also.

Complete Bidding Documents for this Project are available in electronic format only from the Central Auction House website; printed copies are not available. They may also be obtained without charge or deposit from Marrero, Couvillon & Associates, LLC. Phone (504) 834-3448, Email: dburley@mca-llc.com.

After downloading the documents, arrangements can be printed through most reprographic firms; plan holders are responsible for their own reproduction costs.

Questions about the download procedures above or for any clarification or information with regard to the Bidding Documents shall be directed to the Designer at **Marrero, Couvillon, & Associates, LLC, 3525 Hessmer Ave, Suite 304, Metairie, Louisiana 70002. Phone (504) 834-3448. Attention Kimball Schlafly, P.E. Email: kschlaflly@mca-llc.com**

A Non-mandatory Pre-Bid Conference will be held on **Tuesday, October 06, 2026 at 10:00 am** at the office of Terrebonne Parish Recreation District No. 10, Conference Room, located at 1630 Dr. Beatrous Road, Theriot, Louisiana 70397.

The Terrebonne Parish Consolidated Government reserves the right to reject any and all bids in accordance with Louisiana State Bid Law.

DANIEL CONSTANT - CHAIRMAN
TERREBONNE PARISH RECREATION DIST. 10

PUBLISH:

September 24, 2026
October 01, 2026
October 08, 2026

SECTION B

INSTRUCTIONS TO BIDDERS

1.0 DEFINED TERMS

1.1 Terms used in these Instructions to Bidders which are defined in the Standard General Conditions of the Construction Contract have the meanings assigned to them in the Standard General Conditions and the Supplementary Conditions.

1.2 Other terms used in the Bidding Documents and not defined elsewhere have the following meanings which are applicable to both the singular and plural thereof:

Addenda - Written or graphic instruments issued prior to the date for opening of Bids which may interpret or modify the Bidding Documents by additions, deletions, clarifications, or corrections.

Alternate – An item on the bid form that may either increase or decrease the quantity of work or change the type of work within the scope of the project, material, or equipment specified in the bidding documents or both. The owner may or may not incorporate an alternate into the contract at the time of contract award.

Base Bid – The amount of money stated in the bid as the sum for which the bidder offers to perform the work described in the bidding documents prior to the adjustments for alternate bids but including any unit prices.

Louisiana Uniform Public Works Bid Form (Bid Form) - The written offer of the Bidder on the bid forms furnished within the Bidding Documents for the Work proposed.

Bid – A complete signed proposal to perform work or a designated portion for a stipulated sum in accordance with the bidding documents.

Bidder - An entity or person who submits a bid for a contract with the owner. A bidder is not a contractor on a specific project until a contract is executed between the bidder and the owner.

Successful Bidder - The lowest responsible and responsive Bidder to whom OWNER (on the basis of OWNER'S evaluation as hereinafter provided) makes an award.

Bid Security – A bid bond or deposit submitted with a bid to guarantee to the owner that the bidder, if awarded the contract, will execute the contract within a specified period of time and will furnish any bonds or other requirements of the bidding documents.

Bidding Documents – means the bid notice or invitation to bidders, plans and specifications, instructions to bidders, bid form, addenda, special provisions, and all other written instruments prepared by or on behalf of a public entity for use by prospective

bidders on a public contract.

Legal Alien - Is a person who is or was lawfully present or permanently residing legally in the United States and allowed to work at the time of employment and remains so throughout the duration of that employment.

Owner – The public entity issuing the bid.

Public entity – Means and includes the state of Louisiana, or any agency, board, commission, department, or public corporation of the state, created by the constitution or statute or pursuant thereto, or any political subdivision of the state, including but not limited to any political subdivision as defined in Article VI Section 44 of the Constitution of Louisiana, and any public housing authority, public school board, or any public officer whether or not an officer of a public corporation or political subdivision.

Public Work – means the erection, construction, alteration, improvement, or repair of any public facility or immovable property owned, used, or leased by a public entity.

Qualifications Submittals - The information required on AIA Document A305, and as required the Preliminary Progress Schedule, the Bid Breakdown and Subcontractor Qualifications Statement List.

Status Verification System - Means the electronic verification of work authorization program of the Illegal Immigration Reform and Immigration Responsibility Act of 1996, 8 U.S.C. 1324(a), and operated by the United States Department of Homeland Security, known as the “E-Verify” program.

Unit Price – The amount stated on the bid form representing the price per unit of materials and/or services.

2.0 COPIES OF BIDDING DOCUMENTS

2.1 A single complete set of the Bidding Documents may be obtained as set forth in the Invitation to Bidders.

2.2 Complete sets of Bidding Documents should be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.3 OWNER and ENGINEER, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

3.0 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

3.1 Before submitting a Bid it is recommended that each Bidder (a) examine the Bidding Documents thoroughly, (b) visit the site to become familiar with local conditions that may in any manner affect cost, progress, performance or furnishing of the Work, (c) familiarize himself with and consider federal, state and local Laws and Regulations that may in any manner affect cost, progress, performance or furnishing of the Work, (d) study and carefully correlate Bidder's observations with the Bidding Documents, and (e) notify ENGINEER of all conflicts, errors or discrepancies in the Bidding documents.

3.2 Review the Supplementary Conditions for identification of:

3.2.1 those reports of explorations and tests of subsurface conditions at the site which have been utilized by ENGINEER in preparation of the Bidding Documents. Bidder may rely upon the accuracy of the technical data contained in such reports but not non-technical data, interpretations or opinions contained therein or for the completeness thereof for the purposes of Bidding or construction.

3.2.2 those drawings of physical conditions in or relating to existing surface and subsurface conditions (except Underground Facilities) which are at or contiguous to the site which have been utilized by ENGINEER in preparation of the Bidding Documents. Bidder may rely upon the accuracy of the technical data contained in such drawings but not upon the completeness thereof for the purposes of Bidding or construction.

3.2.3 Copies of subsurface soil investigation reports and drawings will be made available by OWNER to any Bidder on request if such report exists. Those reports and drawings are not part of the Bidding Documents, but the technical data contained therein upon which Bidder is entitled to rely as provided in Paragraphs 3.2.1 and 3.2.2 are incorporated therein by reference. Such technical data has been identified and established in the General Conditions, Article 4.

3.3 Information or data reflected in the Bidding Documents with respect to Underground Facilities at or contiguous to the site is based upon information or data furnished to OWNER and ENGINEER by owners of such Underground Facilities or others, and OWNER does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.

3.4 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, Underground Facilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in the General Conditions.

3.5 Before submitting a Bid each Bidder may, at Bidder's own expense and with OWNER's prior approval, make or obtain any additional examinations, investigations,

explorations, tests and studies and may obtain any additional information and data which pertain to the physical conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may in any manner affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

3.6 On request in advance, OWNER may provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations.

3.7 The lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and other lands designated for use in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities, access, or storage of materials and equipment are to be provided by Successful Bidder who has been awarded the Contract. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by OWNER unless otherwise provided in the Contract Documents.

3.8 Each Bidder shall inform himself of, and the Bidder awarded a Contract shall comply with, Federal, State and local laws, ordinances, rules and regulations affecting the execution of the Work and the furnishing of the necessary materials. This requirement includes, but is not limited to, applicable regulations concerning minimum wages, non-discrimination in employment, protection of public and employee safety and health, environmental protection, fire protection and permits, and fees and licensing.

3.9 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with recommendations of this Article; that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding and Contract Documents; and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

4.0 INTERPRETATIONS AND ADDENDA

4.1 All questions about the meaning or intent of the Bidding Documents are to be directed to ENGINEER as set forth herein. Interpretations, clarifications, or modifications considered necessary by ENGINEER in response to such questions will be issued by Addenda as set forth below.

4.2 Bidders shall promptly notify ENGINEER in writing of any ambiguity, inconsistency, or error which they may discover upon examination of the Bidding Documents or of the site and local conditions. Bidders requiring clarification or interpretation of any of the Bidding Documents shall make a written request of the ENGINEER at the address in the Bidding Documents or Contract Documents.

4.3 All requests pertaining to questions about the meaning or intent of the Bidding Documents received less than ten days prior to the date for opening of Bids may not be answered unless, in the opinion of the ENGINEER, the ambiguity in the Bidding Documents is so significant that it may necessitate postponement of the Bid date and issuance of an addendum to respond to the Bidder's request.

4.4 Any interpretation, clarification, correction, or modification to the Bidding Documents shall be only by a written addendum. Interpretations, clarifications, corrections or modifications made by any other manner shall not be binding and shall not be relied upon by Bidders. Addenda shall be transmitted in accordance with Louisiana Bid Law.

4.5 Addenda may be issued to modify the Bidding Documents as deemed advisable by OWNER or ENGINEER.

4.6 Prior to submittal of bids, each Bidder shall ascertain that he has received all addenda issued. The Bidder shall acknowledge receipt of each Addendum by completing the acknowledgment space provided on the Bid Form. Failure by a Bidder to acknowledge each individual addendum shall render that Bidder's Bid proposal non-responsive.

5.0 BID SECURITY

5.1 The bid must be accompanied by bid security which shall be in the amount of five (5%) percent of the proposed total contract amount. Said security can be in the form of a certified check, cashier's check, or bid bond.

5.2 The Bid Security of the Successful Bidder will be retained until such Bidder has furnished other additional information and required documentation in accordance with the bidding documents, executed the Standard Form Agreement, furnished the required payment and performance bonds, and provided the required insurance documentation whereupon the Bid Security will be returned. If the Successful Bidder fails to furnish other required documentation or to execute and deliver the Standard Form of Agreement and furnish the required bonds, OWNER may annul the Notice of Award and the Bid Security of that Bidder will be forfeited to OWNER. Should the OWNER be required to engage the services of an attorney in connection with the enforcement of Bids, Bidder agrees to pay OWNER's reasonable costs, including attorney fees, and all court, arbitration, or hearing costs incurred with or without suit. The Bid Security of any Bidder whom OWNER believes to have a reasonable possibility of receiving the award may be retained by OWNER until the forty-fifth (45th) day after the Bid opening or seven (7) days after the effective date of the Standard Form of Agreement.

6.0 CONTRACT TIME:

The numbers of days within which, or the dates by which, the Work is to be substantially

completed and also completed and ready for Final Payment (the Contract Times) are set forth in the Standard Form of Agreement. If for any reason, a Bidder believes that the Contract Time specified is insufficient or excessive to complete the work, said Bidder shall so inform the ENGINEER at the Pre-Bid Conference or at any time prior to the deadline for the receipt of requests for clarification/interpretation. Replies may be issued by addenda in accordance with these Instructions to Bidders.

By submission of bid, Bidder acknowledges and represents that Bidder has carefully correlated the provisions in Article 3 of the Standard Form of Agreement with the other terms and conditions of the Bidding Documents and unequivocally accepts the contract time for the work and any other designated parts of the work as specified.

7.0 LIQUIDATED DAMAGES: By submission of bid, Bidder unequivocally accepts the liquidated damages provisions set out herein and specified in Article 3 of the Standard Form of Agreement in the event of failure, neglect or refusal to complete the work, or any designated part of the work, within the corresponding contract times.

By submission of Bid, Bidder agrees that for each calendar day beyond the Contract Time set forth in the Agreement, and any extension thereof, that the Work remains incomplete, the Owner may retain from the total amount of the Contract Price, as Liquidated Damages the following sums: 800 Dollars (\$250.00) a day.

8.0 SUBSTITUTE MATERIAL AND EQUIPMENT OR "OR-EQUAL" ITEMS

8.1 Whenever materials or equipment are specified or described in the Bidding Documents or specifications by using the name of a certain brand, make, supplier, manufacturer, or definite specification; the naming or specification of the item is only intended to denote the quality standard of the product and they do not restrict bidders to the specific brand, make, manufacturer, or specification named; that they are used only to set forth and convey to prospective bidders the general style, type, character, and quality of product desired; and that equivalent products will be acceptable. It shall be the responsibility of the professionally employed architect or engineer to determine what is considered an equivalent product on any and all projects in which he has been legally employed to perform his professional services.

8.2 With respect to equal brand products other than those specified:

(1) The name of a certain brand, make, manufacturer, or definite specifications is to denote the quality standard of the article desired, but does not restrict bidders to the specific brand, make, manufacturer, or specification named. It is to set forth and convey to prospective bidders the general style, type, character, and quality of article desired.

(2) When in specifications or contract documents a particular brand, make of material, device, or equipment is shown or specified, such brand, make of material, device, or equipment shall be regarded merely as a standard.

8.3 When in specifications or contract documents an architect, prime design professional or engineer specifies a particular brand, make of material, device, or equipment, or equal thereto, he shall adequately identify said product by including, minimally, the model or catalog number of the product.

8.4 If a potential supplier wishes to submit for prior approval a particular product other than a product specified in the contract documents, he shall do so no later than seven working days prior to the opening of bids. Within three days, exclusive of holidays and weekends, after such submission, the prime design professional shall furnish to both the public entity and the potential supplier written approval or denial of the product submitted.

9.0 PROPOSAL DOCUMENT FORMS

9.1 Bid Forms for the Project are included with the Bidding Documents; additional copies may be obtained from ENGINEER.

9.2 Bids shall be submitted on the Bid Forms provided with the Bidding Documents. All blank spaces on the bid form required for Bid prices shall be properly filled in ink, or typed, in both words and figures as indicated.

10.0 PREPARATION AND SUBMISSION OF BIDS

10.1 Bids shall be submitted by the time and at the place indicated in the Invitation to Bidders and, unless submitted electronically, shall be enclosed in an opaque sealed envelope. The envelope shall be marked with the Project title and name, address and state license number of the Bidder as set forth in the Invitation to Bidders.

10.2 Each bid shall be either hand delivered by the bidder or his agent, or such bid shall be sent by registered or certified mail with a return receipt requested, or shall be submitted electronically with Central Auction House (CAH) (<http://www.centralauctionhouse.com/rfp.php?cid=65>). Bids shall not be accepted or taken including receiving any hand delivered bids, on days which are recognized as holidays by the United States Postal Service.

10.3 The following items are to be included within each Bid:

10.3.1 Completed Uniform Public Works Bid Form.

10.3.2 Signature Authorization. Written evidence of the authority of the person signing the bid for public works shall be submitted at the time of bidding, in accordance with LA R.S. 38:2212(B)(5) as follows:

- (a) The signature on the bid is that of any corporate officer listed on the most current annual report on file with the secretary of state, or the signature on the bid is that of any member of a partnership, limited liability company, limited liability partnership, or other legal entity listed in the most current business records on file with the secretary of state.
- (b) The signature on the bid is that of an authorized representative as documented by the legal entity certifying the authority of the person.
- (c) The legal entity has filed in the appropriate records of the secretary of state of this state an affidavit, resolution, or other acknowledged or authentic document indicating the names of all parties authorized to submit bids for public contracts. Such document on file

with the secretary of state shall remain in effect and shall be binding upon the principal until specifically rescinded and canceled from the records of the office.

Failure to include the appropriate signature authorization shall result in rejection of the bid as non-responsive.

10.3.3 Bid Bond with Power of Attorney, or Certified Check or Cashier's Check, all in the amount of five (5%) percent of the amount of the bid.

10.3.4 The Unit Price Form where unit prices are utilized. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

10.4 Only for the purpose of interpretation of the base bid total and alternate bids, when applicable, written words shall govern if a conflict exists between words and numerals. If the public works requires unit price bids and there is a discrepancy between the base bid total and the sum of extended unit prices, the unit price shall govern.

10.5 A bidder may alter or correct an entry on the bid form by crossing out the entry, entering the new figure above or below the deleted entry, and initialing on the line of change. The crossing out of an entry and the initials shall be legibly handwritten with ink or typed. Any ambiguity arising from entries altered or corrected on the Bid Form will cause the rejection of said Bid Proposal as non-responsive.

10.6 **TAXES:** It is understood that all applicable taxes are included in the Bid price. Successful bidder as an authorized agent of OWNER will be authorized by OWNER to receive an exemption from Louisiana State Sales taxes related to the work to be performed. As such, the bid price should reflect this exemption.

11.0 MODIFICATION AND WITHDRAWAL OF BIDS

11.1 Bids may be modified or withdrawn by an appropriate written document duly signed and authorized (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the deadline for submitting Bids. Withdrawal of a Bid will not prejudice the rights of a Bidder to submit a new Bid prior to the Bid Date and Time. After expiration of the period for receiving Bids, no Bid may be withdrawn, modified, or explained except as provided for herein.

11.2 In accordance with Louisiana law, more particularly, R.S. 38:2214, as may be amended, bids containing patently obvious, unintentional, and substantial mechanical and clerical, or mathematical errors, or errors of unintentional omission of a substantial quantity of work, labor, material, or services made directly in the compilation of the bid, may be withdrawn by the bidder if clear and convincing sworn, written evidence of such errors is furnished to the OWNER within 48 hours of the bid opening excluding Saturdays, Sundays and legal holidays. Such errors must be clearly shown by objective evidence drawn from inspection of the original work papers, documents or materials used

in the preparation of the bid sought to be withdrawn. If the OWNER determines that the error is a patently obvious mechanical, clerical or mathematical error, or unintentional omission of a substantial quantity of work, labor, material or services as opposed to a judgment error, and that the bid was submitted in good faith, it shall accept the withdrawal and return the bid security to the bidder. A bidder who attempts to withdraw a bid under these provisions of this section shall not be allowed to re-submit a bid on the contract. Any modifications or amendments to the above stated applicable State law shall supersede this procedure.

12.0 OPENING OF BIDS

12.1 All Bids received prior to the announced closing time for the receipt of Bids stipulated in the Invitation to Bidder will be opened publicly. Bids will be read aloud and a tabulation of the amounts of the Base Bids and alternates (if any) will be made available to Bidders after the opening of Bids.

12.2 Any Bid received after the announced closing time will be returned unopened. Any uncertainty as to whether a Bid was submitted in time will be resolved against the Bidder.

13.0 BIDS TO REMAIN OPEN

13.1 The OWNER shall act not later than forty-five calendar days after the date of opening Bids to award such public works contract to the lowest responsible and responsive bidder or to reject all bids.

13.2 The OWNER and the lowest responsible and responsive bidder, by mutually written consent, may agree to extend the deadline for award by one or more extensions of thirty calendar days.

14.0 AWARD OF CONTRACT

14.1 To the extent permitted by applicable local, state and federal laws and regulations, OWNER reserves the right to reject any and all Bids for just cause. The Terrebonne Parish Consolidated Government reserves the right to reject any and all bids in accordance with Louisiana State Bid Law.

14.2 In order to be responsive, the apparent low bidder must submit the additional information and documentation required by the OWNER and ENGINEER within the time delays established by law.

14.3 The apparent low Bidder must establish to the complete satisfaction of the OWNER, a minimum, that he has: (a) adequate financial resources to meet bid Contractual obligations and will maintain same for the Contract Time; (b) adequate equipment to perform the Work properly and within the Contract Time; (c) the necessary experience and technical qualifications in the type of Work provided for in the Contract; (d) conformed to the Qualification Submittals as requested.

14.4 OWNER may conduct such investigations as it deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of the Bidders, proposed Subcontractors, and other persons and organizations to do the Work in accordance with the Contract Documents to OWNER'S satisfaction within the prescribed time. OWNER reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to OWNER'S satisfaction.

14.5 If the Contract is to be awarded for the Work, it will be awarded to the lowest responsive and responsible Bidder as determined by the evaluation of the corresponding Bid. The successful Bidder who is awarded the Contract will be required to perform the Work as an Independent Prime Contractor. No assignment of a Contract will be allowed without written permission from OWNER.

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: **TPCG Purchasing Division**

301 Plant Road

Houma, LA 70363

BID FOR:

Recreation District 82921TPRD10

TPR Dist. 10 Ballfield IDA

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: **Marrero, Couvillon, & Associates, LLC, 3525 Hessmer Ave, Suite 304, Metairie, Louisiana 70002. Phone (504) 834-3448. Attention Kimball Schlafly, P.E. Email: kschlafly@mca-llc.com** and dated: **September 11, 2026**

(Owner to provide name of entity preparing bidding documents.)

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of **ADDENDA:** (Bidder must enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) _____.

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" * but not alternates) the sum of:

_____ Dollars (\$ _____)

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

Alternate No. 1: Ballfields 2, 3 & 4 complete install, Ballfields 1 and 5 Install Poles only for future mast lighting, and as described in Bid Drawings for the lump sum of

_____ Dollars (\$ _____)

Alternate No. 2 Ballfields 2, 3 & 4 complete install, Ballfields 1 and 5 raceways only for future lighting and as described in Bid Drawings for a lump sum of

_____ Dollars (\$ _____)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

NAME OF AUTHORIZED SIGNATORY OF BIDDER: _____

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: _____

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **: _____

DATE: _____

THE FOLLOWING ITEMS ARE TO BE INCLUDED WITH THE SUBMISSION OF THIS LOUISIANA UNIFORM PUBLIC WORK BID FORM:

* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

** **A CORPORATE RESOLUTION OR WRITTEN EVIDENCE** of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5).

BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA R.S. 38:2218(A) attached to and made a part of this bid.

SECTION D

ADDITIONAL INFORMATION AND DOCUMENTATION REQUIRED OF APPARENT LOW BIDDER ONLY

15.0 DUE WITHIN 10 DAYS FROM OPENING OF BID

In order to be responsive and no later than ten (10) days after the date bids are opened, the apparent low bidder must submit the following additional information and documentation as required by the OWNER or ENGINEER as indicated below:

If the apparent low bidder does not submit the proper information or documentation as required by the bidding documents within the ten-day period, such bidder shall be declared non-responsive, and the public entity may award the bid to the next lowest bidder, and afford the next lowest bidder not less than ten days from the date the apparent low bidder is declared non-responsive, to submit the proper information and documentation as required by the bidding documents, and may continue such process until the public entity either determines the low bidder or rejects all bids.

15.1 REQUIRED: a Criminal Attestation Affidavit in accordance with LARS 38:2227– sample attached

15.2 REQUIRED: an E–Verification Form in accordance with LARS 38:2212.10 – sample attached

15.3 REQUIRED: Non-collusion affidavit. The apparent low Bidder must submit a sworn statement, in the form required by Terrebonne Parish Consolidated Government, certifying that the Bidder has not, directly or indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this project. The sworn statement shall be in the form of an affidavit, executed and sworn to by the bidder before persons authorized by laws of the state to administer oaths.

15.4 REQUIRED: If Bid Bond is submitted electronically, the hard copy of the bid bond must be submitted by the apparent low bidder.

15.5 It is the intention of OWNER to award Contracts to Bidders competent to perform and to complete the Work in a satisfactory manner. OWNER and ENGINEER reserve the right to request additional information and documentation not set out below or set out below but not currently required. The apparent low Bidder must be prepared to submit the following within ten days of the date bids are opened:

15.5.1 REQUIRED: Preliminary Progress Schedule, as follows:

15.5.1.1 The "Preliminary Progress Schedule" pertaining to Proposal Documents

for the Work designated under this Contract shall consist of three copies of a "Summary Bar Chart" and a "Narrative." Activities in the Summary Bar Charts, unless otherwise indicated, should show the order in which Bidder proposes to perform the Work pursuant to the specified Contract dates and sequencing conditions, and should indicate starting and completion dates of Work pertaining to each Division of the technical specifications. Bar chart activities should further identify significant fabrication, installation, testing, submittals and approvals, deliveries, OWNER's responsibilities and those of affected utilities and similarly involved third parties. Weekly or monthly rates of production for fabrication and installation should be shown for each activity on the Summary Bar Chart.

15.5.2 [NOT] REQUIRED: Bid Breakdown, as follows:

15.5.2.1 The "Bid Breakdown" should show the quantities, as required, unit prices, as required, a description of each unit, as required, and total costs for each item for the entire Work as contemplated in the Contract. The Bidder agrees that these separate Bid Breakdown Prices, where they are applicable and determined to be reasonable by OWNER and at OWNER'S discretion, a) may be utilized as Contract prices for the purposes of measurement and payment, b) may be utilized to add or deduct separate Bid Breakdown Items from the Contract, and c) may be used in Change Orders which add or deduct like Work.

15.5.3 [NOT] REQUIRED: Subcontractor "Qualifications Statement List," as follows:

15.5.3.1 The "Qualifications Statement List" for all proposed Subcontractors, proposed Suppliers, and other persons or organizations, including those who are to furnish the principal items of material and equipment, with a value in excess of \$100,000 or 10% of the maximum Base Bid Total Amount, whichever is lower. This list should include the name and address of the Subcontractor, Supplier, or other person or organization and a description of the services, materials or equipment to be supplied. Such list should be accompanied by an experience statement with pertinent information as to similar projects and other evidence of qualification for each Subcontractor, Supplier, or other person or organization if requested by OWNER. The list of principal items of equipment should include the name of the locations at which similar size and type of equipment, as that specified, is in service.

15.5.3.2 If OWNER or ENGINEER after due investigation has reasonable objection to the responsibility of any proposed Subcontractor, Supplier, or other person, organization, or equipment, OWNER may, before giving Notice of Award, request a Bidder to perform the associated parts of the Work or to submit an acceptable substitute, without an increase in Bid price. If a Bidder declines to make such substitution, the Contract may not be awarded to such Bidder.

15.5.3.3 The Contract, if awarded, will be on the basis that the total amount of the subcontracted Work shall not exceed 50% of the Bid price. Procedures for approval of

Subcontractors, Suppliers, and other persons or organizations, after execution of the Agreement, are described in Article 6.8.1 of the General Conditions.

15.5.4 [NOT] REQUIRED: information required on AIA Document A305.

If, upon receipt and evaluation of these submittals, Bidder does not pass the evaluation to OWNER's satisfaction, OWNER reserves the right to reject the Bid pursuant to Article 14 of the Instructions to Bidders.

15.6 REQUIRED: Where the apparent low bidder desires to submit a substitute material or equipment from those specified in the Bidding Documents:

15.5.1 A written proposal of an equivalent material or equipment from a potential supplier that is submitted to the ENGINEER should certify (and include drawings, specifications and other relevant information showing) that the proposed item (a) has the same essential characteristics of the item named or specified, (b) will equally perform the functions and achieve the results called for by the original design concept, (c) is suited to the same use as that item named or specified in the bid documents, (d) is at least of equal materials of construction, quality and necessary design features as that item named or specified in the Bidding Documents, (e) conforms substantially to the desired detailed requirements for the item named or specified, including, but not limited to, durability, strength, appearance and aesthetics (where aesthetics are significant), safety, service, life, reliability, economy of operation and ease of maintenance, and (f) offers a proven record of performance and service for at least three years before the date of Bid opening.

15.5.2 The proposal from a potential supplier should include (a) a list of installations that have been in service for at least three years before the date of Bid opening (including the name, address and telephone number of a person familiar with and at the installation), and (b) sufficient Shop Drawing data and other data as may be necessary to allow the ENGINEER to determine whether the naming or specification of that item may be used to denote the essential characteristics of the item desired.

15.5.3 The ENGINEER may consent to these proposals if, in the ENGINEER's judgment, the proposed item also may be used to denote the quality standard of the item desired, and to convey and establish the general style, type, character and quality of material or equipment desired. Lack of adequate information may be sufficient cause for rejecting a proposal.

15.5.4 The ENGINEER will furnish notice to the OWNER and the potential supplier of the ENGINEER's approval or denial to adding the brand, make, supplier, manufacturer or specification.

16.0 DUE WITHIN 10 DAYS OF RECEIPT OF NOTICE OF AWARD

Within ten (10) days of receipt of Notice of Award by the successful bidder, the following information and documentation will be required:

16.1 REQUIRED: PERFORMANCE AND PAYMENT BONDS - Paragraph 5.1 of the General Conditions and the Supplementary Conditions set forth OWNER's requirements as to performance and payment Bonds. When a Successful Bidder delivers the executed Agreement to OWNER, it shall be accompanied by the required performance and payment Bonds.

16.2 REQUIRED: A Notice of Award to a Successful Bidder will be accompanied by multiple unsigned counterparts of the corresponding Agreement with all other written Contract Documents attached. Within ten (10) days thereafter, that Successful Bidder shall sign and deliver to the OWNER the required number of counterparts of the Agreement and attached Contract Documents and the required Bonds.

16.3 REQUIRED: Following notice of award to the successful bidder, CONTRACTOR must comply with the provisions of the Louisiana First Hiring Act for the following types of contracts for public works:

any public work funded by monies received by OWNER from the Federal Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act of 2011, hereinafter referred to as "RESTORE", or as a result of any settlement related to the explosion on, and sinking of the mobile offshore drilling unit Deepwater Horizon or the Comprehensive Master Plan for Coastal Protection. The term "contract" shall include awards and notices of award; contracts of a fixed-price, cost, cost plus a fixed-fee, or incentive type contracts; contracts providing for the issuance of job or task orders; leases; letter contracts; and purchase orders; (LARS 39:2201(2))

Pursuant to LARS 39:2204, compliance requires the CONTRACTOR, within ten days of the contract having been awarded, to submit to the Louisiana Workforce Commission the following information:

- (1) The number and types of jobs anticipated for the project.
- (2) The skill level of the jobs anticipated for the project.
- (3) The wage or salary range for each job anticipated for the project.
- (4) Methods, if any, that the contractor will use to recruit unemployed persons or persons employed in low wage jobs to fill job openings for the project.

The Louisiana Workforce Commission shall provide the CONTRACTOR with a list of people eligible for employment. An eligible person shall be a resident of a parish within the coastal zone as defined by the Louisiana State and Local Coastal Resources Management Act.

Sample
Required of Apparent Low Bidder Only
AFFIDAVIT
VERIFICATION OF CITIZENSHIP

BEFORE ME, the undersigned Notary Public, duly qualified in and for the Parish and State aforesaid, personally came and appeared:

(name)

who after being first duly sworn, deposed and said that:

1. I am the _____ of _____.
(title) (company)

2. I swear that _____ is registered and participates in a status verification system
(company)
to verify that all new employees in the state of Louisiana are legal citizens of the United States or are legal aliens.

3. I verify that if _____ is awarded the contract, it shall continue, during the
(company)
term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.

4. I acknowledge that _____ shall require all subcontractors to
(company)
Submit to _____ a sworn affidavit verifying compliance with Paragraphs (2) and (3) of
(company)
the Affidavit.

Name:

Title:

Company:

Sworn to and subscribed before me at Houma, Louisiana,
on this _____ day of _____ 20____.

NOTARY PUBLIC

Sample
Required of Apparent Low Bidder Only
ATTESTATION
AFFIDAVIT AS TO LA. R.S. 38:2227

STATE OF LOUISIANA

PARISH OF _____

BEFORE ME, the undersigned authority, on this day personally came and appeared:

(print name of affiant signing affidavit)

who did depose and state:

PART I. TO BE COMPLETED BY SOLE PROPRIETOR

(Business Entities must complete Parts II and III.)

1. that he is a sole proprietor doing business under the name _____;
2. that his address is _____;
3. that on _____, he did submit a bid for a public contract with Terrebonne Parish Consolidated Government, for the construction of Parish Project No. _____, bearing the name: _____;
4. that since July 2, 2010, he has not been convicted of, or has not entered a plea of guilty or nolo contendere to any of the crimes or equivalent federal crimes listed in La. R.S. 38:2227(B)(1), as may be revised, which consists of the following non-exclusive list: *Public bribery, Corrupt influencing, Extortion, and/or Money laundering*; and
5. that since July 2, 2010, or for a period of five years prior to the date of his bid for said project, whichever is shorter, he has not been convicted of, or has not entered a plea of guilty or nolo contendere to any of the crimes or equivalent federal crimes listed in La. R.S. 38:2227(B)(2), as may be revised, as a result of an offense committed during the solicitation or execution of a contract or bid awarded pursuant to the provisions of Chapter 10 of Title 38 of the Louisiana Revised Statutes, said crimes consisting of the following non-exclusive list: *Theft, Identity theft, Theft of a business record, False accounting Issuing worthless checks, bank fraud, Forgery, Contractors; misapplication of payments, and/or Malfeasance in office.*

PART II. TO BE COMPLETED BY AUTHORIZED AGENT OF BUSINESS ENTITY

(Sole Proprietors must complete Parts I. and III.)

1. that he is _____, a duly authorized representative of _____ (hereinafter the "bidding entity"), who's address

is _____;

2. that on _____, the said bidding entity did submit a bid for a public contract with Terrebonne Parish Consolidated Government, for the construction of Parish Project No. _____, bearing the name: _____;
3. that since July 2, 2010, no individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity, has been convicted of, or has entered a plea of guilty or nolo contendere to any of the crimes or equivalent federal crimes listed in La. R.S. 38:2227(B)(1), as may be revised, which consists of the following non-exclusive list: *Public bribery, Corrupt influencing, Extortion, and/or Money laundering*; and
4. that since July 2, 2010, or for a period of five years prior to the date of said bidding entity's bid for said project, whichever is shorter, no individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity, has been convicted of, or has entered a plea of guilty or nolo contendere to any of the crimes or equivalent federal crimes listed in La. R.S. 38:2227(B)(2), as may be revised, as a result of an offense committed during the solicitation or execution of a contract or bid awarded pursuant to the provisions of Chapter 10 of Title 38 of the Louisiana Revised Statutes, said crimes consisting of the following non-exclusive list: *Theft, Identity theft, Theft of a business record, False accounting, Issuing worthless checks, bank fraud, Forgery, Contractors; misapplication of payments, and/or Malfeasance in office.*

PART III. ATTESTATION

Affiant Signature: _____

Affiant Name Printed: _____

Title of Affiant: _____

Bidding Entity or Company: _____

Sworn to and subscribed before me, in the Parish of _____, Louisiana this _____ day of _____, 20____.

NOTARY PUBLIC

SECTION F

STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

THIS AGREEMENT is dated as of the _____ day of _____ in the year 20__ by and between TERREBONNE PARISH RECREATION DISTRICT #10 (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR).

OWNER AND CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK

CONTRACTOR shall complete all work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Project Name: TPR DIST. 10 BALLFIELD IDA

Parish Project No. 82921TPRD10

The work consists of providing all equipment, labor and material necessary to replace the electrical service, distribution and sports lighting according to design specifications and plans.

Article 2. ENGINEER

The Project has been designed by Marrero, Couvillon & Associates, LLC, who is hereinafter called ENGINEER and who will assume all duties and responsibilities and will have rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIME

3.1 The work will be substantially completed within 244 calendar days after the date when the Contract Time commences to run as provided in paragraph 2.3 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.14 of the General Conditions within 45 days after the date of Substantial Completion.

3.2 LIQUIDATED DAMAGES. OWNER and CONTRACTOR recognize that time is of the essence in this Agreement and that OWNER will suffer financial loss if the Work is not substantially complete within the time specified in paragraph 3.1, above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof or notice of default, OWNER and CONTRACTOR agree that as

liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER for each day that expires after the time specified in paragraph 3.1 for substantial completion until the work is substantially complete in an amount of **250 dollars (\$250.00)** per day, and Contractor shall pay Owner for each day that expires after the time specified in paragraph 3.1 for final completion until the entire Work is finally complete and ready for final payment an amount of **250 dollars (\$250.00)** per day. Contractor agrees to allow Owner to deduct liquidated damages from progress payments and retention.

Article 4. CONTRACT PRICE

4.1 OWNER shall pay CONTRACTOR for performance of the Work in accordance with the Contract Documents and Specifications in current funds as follows: **SEE ATTACHED BID FORM.**

Article 5. PAYMENT PROCEDURE

Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided for in the General Conditions.

5.1 Progress Payments. OWNER shall make progress payments on the Contract Price on the basis of CONTRACTOR'S Applications for Payment as recommended by ENGINEER, on or about the 25th day of each month during construction as provided below. All progress payments will be on the basis of the work measured by the schedule of values provided for in paragraph 14.1 of the General Conditions.

5.1.1 Prior to Substantial Completion of any work order, progress payments will be in an amount equal to 90% of the Work completed, and 90% of materials and equipment not incorporated in the Work but delivered and suitably stored, less in each case the aggregate of payments previously made. On contracts of \$500,000 or more the payments will be in an amount equal to 95% of the work completed and 95% of materials and equipment not incorporated in the work, but delivered and suitably stored.

5.1.2 Upon Substantial Completion of any work order, OWNER shall pay an amount sufficient to increase total payments to CONTRACTOR to 90% of the Contract Price on contracts under \$500,000 and 95% of the Contract Price on contracts \$500,000 or more, less such amount as ENGINEER shall determine in accordance with paragraph 14.7 of the General Conditions.

5.2 Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 14.14 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.14.

5.3 OWNER may deduct from each progress payment and final payment any liquidated damages then due or that would become due based on OWNER's estimate of late completion of the Work, provided that CONTRACTOR fails to submit and implement a written schedule

recovery plan describing the cause of schedule slippage or delayed progress and the actions proposed and taken to recover schedule.

Article 6. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

6.1 CONTRACTOR has familiarized himself with the nature and extent of the Contract Documents, Work, Locality, and with all local conditions and federal, state and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.

6.2 CONTRACTOR has studied carefully all reports or investigations and tests of subsurface and latent physical conditions at the site or otherwise, affecting cost, progress or performance of the Work which were relied upon by ENGINEER in the preparation of the Drawings and Specifications and which have been identified in the Special Conditions.

6.3 CONTRACTOR has made or caused to be made examinations, investigations and tests and studies of such reports and related data in addition to those referred to in paragraph 7.2 as he deems necessary for the performance of the work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports and similar data are or will be required by CONTRACTOR for such purposes.

6.4 CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports and data within the terms and conditions of the Contract Documents.

6.5 CONTRACTOR has given ENGINEER written notice of all conflicts, errors and discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

Article 7. MISCELLANEOUS

7.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions shall have the meanings indicated in the General Conditions.

7.2 No assignment by a party hereto for any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, money that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge to assignor from any duty or responsibility under the Contract Documents.

7.3 OWNER and CONTRACTOR each binds himself, his partners, successors, assigns and

legal representatives to the other party hereto, his partners, successors, assigns and legal representatives is respect to all covenants, agreements, and obligations contained in the Contract Documents.

7.4 If any provision of the Contract Documents is invalid, illegal or unenforceable, all other provisions of the Contract Documents shall nevertheless remain in full force and effect. If any provision of the Contract Documents is inapplicable to any person or circumstance, that provision shall nevertheless remain applicable to all other persons and circumstances.

Article 8. CONTRACT DOCUMENTS

This Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post-bid documentation submitted), the bonds, the General Conditions, the Technical Provisions, the Drawings as the same are more specifically identified in this Agreement, together with all Modifications issued after the execution of this Agreement, and all documents contained in the booklet entitled "Project Manual" shall be part of the Contract Documents.

IN WITNESS WHEREOF, the parties hereto have signed this agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

This agreement will be effective on the _____ day of _____, 20__.

TERREBONNE PARISH
CONSOLIDATED GOVERNMENT

CONTRACTOR:

Parish President

BY:

(Corporate Seal)

WITNESS:

WITNESS:

WITNESS:

WITNESS:

Address for giving notices:
Post Office Box 2768
Houma, Louisiana 70361

ADDRESS for giving notices:

License Number: _____
Agent for service of Process:

SECTION G

CONTRACTOR'S AFFIDAVIT

STATE OF LOUISIANA

PARISH OF _____

BEFORE ME, the undersigned authority, on this day personally came and appeared:

1) That he is _____, and duly authorized representative of
_____, whose address is
_____.

2) That on _____, the said firm did enter into a public contract with Terrebonne Parish Recreation Dist. 10, for the construction of the **TPR DIST. 10 BALLFIELD IDA, Parish Project No. 82921TPRD10.**

3) That the firm has not employed any person, corporation, firm association or other organization, either directly or indirectly, to secure the said public contract under which he has or will receive payment, other than persons regularly employed by the firm and whose services in connection with the construction of said project or in securing the above said public contract were in regular course of their duties for the firm.

4) That no part of the contract price received by affiant was paid nor will be paid to any person, corporation, firm, association or other organization for soliciting the contract other than the payment of their normal compensation to persons regularly employed by the firm and whose services in connection with the construction of the public project were in regular course of their duties of the firm, so help him God.

CONTRACTOR

* * * * *

Sworn to and subscribed before me, this _____ day of _____, 20__.

NOTARY PUBLIC

SECTION H
PERFORMANCE BOND

STATE OF LOUISIANA
PARISH OF TERREBONNE

KNOW ALL MEN BY THESE PRESENTS: That as Principal, hereinafter called the CONTRACTOR, and as Surety, hereinafter called Surety, are held and firmly bound unto

THE TERREBONNE PARISH RECREATION DIST. 10
1330 DOCTOR BEATROUS ROAD
THERIOT, LOUISIANA 70397

as Obligee, hereinafter called the OWNER, in the amount of

for the payment whereof CONTRACTOR and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

CONTRACTOR has by written agreement dated the ____ of _____, 20__ entered into a contract with OWNER for, the construction of

**TPR DIST. 10 BALLFIELD IDA,
Parish Project 82921TPRD10**

in accordance with Drawings and Specifications prepared by Marrero, Couvillon & Associates, LLC, which Contract is by reference made a part thereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, the conditions of this obligation are such that, if CONTRACTOR shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the OWNER.

Whenever CONTRACTOR shall be, and declared by OWNER to be in default under the Contract, the OWNER having performed OWNER's obligations thereunder, the Surety may promptly

- 1) Complete the Contract in accordance with its terms and conditions or,
- 2) Obtain a bid or bids for completing the Contract in accordance with its terms and conditions and upon determination by Surety of the lowest responsible bidder, arrange for a Contract between such bidder and Owner, and make available as Work progresses (even though there should be a default or a succession of

defaults under the Contract or Contracts of Completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract", as used in this paragraph shall mean the total amount payable by Owner to Contractor under the Contract and any amendments thereto, less the amount properly paid by Owner and Contractor.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

No right or action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators or successors of the Owner.

SIGNED AND SEALED THIS _____ DAY OF _____, 20__.

(Principal) (Seal)

(Witness)

(Title) (Seal)

(Surety) (Seal)

(Witness)

(Title) (Seal)

PAYMENT BOND

STATE OF LOUISIANA
PARISH OF TERREBONNE

KNOW ALL MEN BY THESE PRESENTS: That as Principal, hereinafter called the CONTRACTOR, and as Surety, hereinafter called Surety, are held and firmly bound unto

THE TERREBONNE PARISH CONSOLIDATED GOVERNMENT
GOVERNMENT TOWER BUILDING - 8026 MAIN STREET
HOUMA, LOUISIANA 70361

as Obligee, hereinafter called the OWNER, in the amount of

for the payment whereof CONTRACTOR and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

CONTRACTOR has by written agreement dated the ____ of _____, 20__ entered into a Contract with OWNER for, the construction of the

**TPR DIST. 10 BALLFIELD IDA,
Parish Project 82921TPRD10**

in accordance with Drawings and Specifications prepared by the engineering firm of Marrero, Couvillon & Associates, LLC, ENGINEER, which Contract is by reference made a part thereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, the conditions of this obligation are such that, if CONTRACTOR shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract then this obligation shall be null and void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct contract with the Contractor or with a Subcontract or of the Contractor for labor, material, or both, used or reasonably required for use

in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.

2. The above named Contractor and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any cost or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

a) Unless claimant, other than one having a direct contract with the Contractor, shall have given written notice to any two of the following: the Contractor, the Owner or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postal prepaid in an envelope addressed to the Contractor, Owner or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

b) After the expiration of one (1) year following the date on which Contractor ceased Work on said Contract or after the expiration of one (1) year following the Date of Substantial Completion of the Project, whichever is later, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

c) Other than in a state court of competent jurisdiction in and for the parish or other political subdivision of the state in which the Project, or any part thereof, is situated, or in the United States District Court for the district in which the Project, or any part thereof, is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.

SIGNED AND SEALED THIS _____ DAY OF _____, 20____.

	_____ (Principal)	_____ (Seal)
_____ (Witness)		
	_____ (Title)	_____ (Seal)
	_____ (Surety)	_____ (Seal)
_____ (Witness)		_____

SECTION I

GENERAL CONDITIONS

ARTICLE 1 - Definitions

Wherever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

Acceptance, Final Acceptance - The formal action by ENGINEER accepting the Work, or a specified part of the work thereof, as being complete in all respects, or the action by ENGINEER to place the equipment/facilities in operation for continuous utilization for their intended purposes.

Agreement - Refers to the written document signed by the OWNER and CONTRACTOR that is the legal instrument binding the parties to the work. The terms "Agreement" and "Contract" are synonymous.

Application for Payment - The form furnished by CONTRACTOR and approved by ENGINEER for requesting progress payments and an affidavit of CONTRACTOR and its Subcontractors that progress payments theretofore received from OWNER on account of the work have been applied by CONTRACTOR and its Subcontractors to discharge in full all of CONTRACTOR'S and its Subcontractors' obligations stated in the prior Application for Payment, and that the accuracy of the progress reported in the Application for Payment to have been completed by CONTRACTOR or its Subcontractors has been verified by CONTRACTOR. The application for Payment should include all supporting documentation as required by the Contract Documents.

Bid - Refer to definition of Proposal Document in Instructions to Bidders.

Bonds - Bid, performance and payment bonds and other instruments of security.

Change Order - A written order to CONTRACTOR in accordance with the Louisiana Bid Law and approved by OWNER authorizing an alteration, deviation, addition, deletion, and/or revision in the Work, or an adjustment in the Contract Price and/or the Contract Time.

Contract Documents - Those documents itemized or designated in Article 8 of the Agreement as may be further itemized in the Supplementary Conditions

Contract Price - The moneys payable by OWNER to CONTRACTOR under the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.9.1 in the case of Unit Price Work).

Contract Time - The number of days (computed as provided in paragraph 17.2) or the date stated in the Agreement for the completion of the Work.

CONTRACTOR - A person, firm or corporation with whom OWNER has entered into the Agreement for the Work designated under the Contract Documents. The term "CONTRACTOR"

shall also mean CONTRACTOR or its authorized representative.

Correction Period - The time during which CONTRACTOR must repair defective work or remove defective work from the site and replace it with non-defective work, all at no cost to the OWNER, pursuant to Paragraph 13.12 of the General Conditions.

Day - A calendar day of twenty-four hours measured from midnight to the next midnight.

Defective - An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents or does not meet the requirements of any inspection, test, referenced standard or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER'S recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.8 or 14.10).

Drawings - The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by ENGINEER and are referred to in the Contract Documents. The terms "Drawing" and "Plan" are synonymous, and wherever used in the Contract Documents it should be interpreted according to the definition of "Drawings".

Effective date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

ENGINEER - The individual, firm or corporation named as ENGINEER in the Supplementary Conditions, who will have the rights and authority assigned to the ENGINEER in the Contract Documents. The term "ENGINEER" means the ENGINEER or its authorized representative. The terms "ENGINEER", "DESIGN ENGINEER", "ARCHITECT" and "ENGINEER/ARCHITECT" are synonymous, and wherever used in the Contract Documents they should be interpreted according to the definition of "ENGINEER".

Field Order - A written order issued by ENGINEER to CONTRACTOR on or after the effective date of the agreement requiring a minor change in work not requiring an adjustment in the Contract Price or Contract Time.

General Requirements - Division H of the Specifications.

Laws and Regulations; Laws or Regulations - Laws, rules, regulations, ordinances, codes and/or orders.

Notice of a Proposed Change - A written document issued on or after the effective date of the agreement initiated by a) OWNER requesting that CONTRACTOR figure the potential effect on Contract Price or time of the proposed change described in the Notice, if the proposed change is to be ordered, or b) CONTRACTOR to notify OWNER that in the CONTRACTOR'S opinion a change has been requested in a Field Order, or pursuant to ENGINEER'S approval of a shop drawings, or a written interpretation or clarification (pursuant to paragraph 9.4). A Notice of a

Proposed Change shall not constitute an order to change the work, as no change shall be considered ordered until an appropriate change order, or Work Directive Change is executed by OWNER.

Notice of Award - The written notice by OWNER to the apparent successful Bidder stating that upon compliance by the apparent successful Bidder with the conditions precedent enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.

Notice to Proceed - A written notice given by OWNER to CONTRACTOR (with a copy to ENGINEER) fixing the date on which the Contract Time will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR'S obligation under the Contract Documents.

OWNER - Terrebonne Parish Consolidated Government (TPCG) which includes all Parish Departments, its elected and appointed officials, Agencies, Councils, Boards and Commissions, Districts, their officers, agents, servants and employees, including volunteers.

Operation, Initiation of - A point in time when OWNER initiates use of the entire work under the project for the purposes that it was planned, designed and built, setting forth commencement of the correction period.

Partial Utilization - Placing a portion of the Work in service for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion for all the Work.

Project - The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

Resident Project Representative - The authorized representative of ENGINEER who is assigned to the site or any part thereof.

Shop Drawings - All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for CONTRACTOR to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted to CONTRACTOR to illustrate material or equipment for some portion of the Work.

Specifications - Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

Subcontractor - An individual, partnership, corporation, joint venture, or other combination thereof who has a contract with Contractor to perform any part of the work at the site. The term "Subcontractor" shall also mean any individual, partnership, corporation, joint venture, or other combination thereof who has a contract with another Subcontractor to perform any part of the work at the site.

Substantial Completion - The finishing of the Work, or a specified part of the Work, in accordance with the Contract Documents, to the extent that Owner can use or occupy all or the specified part of the Work for the use for which it is intended without any concurrent Work at the site except as required to complete Punch List items with cumulative value under one percent (1%) of the Contract Price. Prerequisites for Substantial Completion include: (a) all systems have been successfully tested and demonstrated by the CONTRACTOR for their intended use, and (b) the Owner receiving all occupancy certifications and approvals from those State and local Public Entities with jurisdiction.

Supplementary Conditions - Section within Division I which amends or supplements the General Conditions and is a part of the Contract Documents and is located in the Book of Contract Documents.

Supplier - A manufacturer, fabricator, supplier, distributor, material man or vendor.

Testing, Pre-operational - All field inspections, installation checks, water tests, performance tests, and necessary corrections required of CONTRACTOR to demonstrate that individual components of the work have been properly erected and found to operate in accordance with the Contract Documents, so that they can be utilized continuously for their intended purposes.

Testing, Start-up - A pre-defined trial period required for achieving Substantial Completion during which CONTRACTOR is to operate the work, or a part specified thereof, under actual and simulated operating conditions and performing as defined in the Contract Documents, for the purposes of a) making such minor adjustments and changes as may be found necessary to comply with the requirements of the Contract Documents, and b) to comply with the final test requirements outlined in the Contract Documents.

Underground Facilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials; electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

Unit Price Work - Work to be paid for on the basis of unit prices.

Work - Any and all obligations, duties, responsibilities, labor, materials, equipment, temporary facilities, and incidentals, and the furnishing thereof necessary to complete the construction assigned to, or undertaken by CONTRACTOR, pursuant to the Contract Documents. Also, the completed construction or parts thereof required to be provided under the Contract Documents, including all materials, equipment, and supplies incorporated or to be incorporated in the construction.

Work Directive Change - A written directive to CONTRACTOR, issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in paragraph 4.2 or 4.3 or to

emergencies under paragraph 6.20. A Work Directive Change may not change the Contract Price or the Contract Time, but is evidence that the parties expect that the change directed or documented by a Work Directive Change will be incorporated in a subsequently issued Change Order following successful negotiations by the parties as to its effect, if any, on the Contract Price or Contract Time as provided in paragraph 10.2.

ARTICLE 2 - Preliminary Matters

2.1 DELIVERY OF BONDS: When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish in accordance with paragraph 5.1.

2.2 COPIES OF DOCUMENTS: OWNER shall furnish to CONTRACTOR up to five copies (unless otherwise provided in the Supplementary Conditions) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

2.3 COMMENCEMENT OF CONTRACT TIME; NOTICE TO PROCEED: A Notice to Proceed may be given at any time within thirty days after the effective date of the agreement. However, upon mutual written consent by both parties, the notice to proceed may be extended. The Contract Time will commence at the time specified in such notice to proceed or, if no notice is given, thirty days following the Effective Date of the Agreement.

2.4 STARTING THE PROJECT: CONTRACTOR shall start to perform the Work on the date when the Contract Time commences to run, but no Work shall be done at the site prior to the date on which the Contract Time commences to run, except with the written consent of OWNER.

2.5 BEFORE STARTING CONSTRUCTION: Before undertaking each part of the Work, CONTRACTOR shall (a) study and compare the Contract Documents with each other and against manufacturers, representations, (b) verify dimensions and field measurements, (c) coordinate requirements of dependent Work (location, dimensions, access, fit, completeness, class, codes, etc.), and (d) notify ENGINEER in writing of any conflict, error, omission or deviation from manufacturers' recommendations discovered. CONTRACTOR shall be responsible for any delay and all costs resulting from performing any Work before obtaining a written clarification or interpretation from ENGINEER, if CONTRACTOR had actual knowledge, or should have reasonably known that any such Work (a) involves a conflict, error or omission, or (b) is subject to specific method of installation, performance or test procedure or result which is contrary to the recommendation of the corresponding manufacturer. **Contractor shall also be responsible for locating all property lines and right-of-way lines prior to beginning construction.**

2.6 SCHEDULE SUBMITTALS: Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit four copies of the following schedules to ENGINEER for review:

2.6.1 An estimated progress schedule indicating the starting and completion dates of the various stages of the Work in accordance with the Contract Documents.

2.6.2 A preliminary schedule of Shop Drawing submissions.

2.6.3 A preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work which will be confirmed in writing by CONTRACTOR at the time of submission. The Schedule of Values will be organized along the Divisions, and sub-divisions, of Section K, the Technical Specifications.

2.7 INSURANCE CERTIFICATES: Before any Work at the site is started, CONTRACTOR shall deliver to OWNER, with a copy of ENGINEER, certificates (and other evidence of insurance requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with paragraphs 5.4, 5.5, and 5.6. Certificates of Insurance must be accompanied by a letter from the Contractor's Insurance Agent certifying that the insurance being provided meets the limits and requirements of the specifications. An explanation of any abbreviations used on the certificates must also be provided.

2.8 PRE-CONSTRUCTION CONFERENCE: Within twenty days after the effective date of the Agreement, but before CONTRACTOR starts the Work at the site, a conference attended by CONTRACTOR, ENGINEER and others as appropriate will be held to discuss the schedules referred to in paragraph 2.6, to discuss procedures for handling Shop Drawings and other submittals and for processing Applications for Payment, and to establish a working understanding among the parties as to the Work.

2.9 FINALIZING SCHEDULES: At least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER and others as appropriate will be held to finalize the schedules submitted in accordance with paragraph 2.6. The finalized progress schedule will be acceptable to ENGINEER as providing an orderly progression of the Work to completion within the Contract Time, but such acceptance will neither impose on ENGINEER responsibility for the progress or scheduling of the Work nor relieve CONTRACTOR from full responsibility therefore. The finalized schedule of Shop Drawing submissions will be acceptable to ENGINEER as providing a workable arrangement for processing the submissions. The finalized schedule of values will be acceptable to ENGINEER as to form and substance.

ARTICLE 3 - Contract Documents; Intent, Amending, Re-use

3.1 INTENT: The Contract Documents comprise the entire Agreement between OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

3.2 FUNCTIONALLY COMPLETE PROJECT: It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well known technical or trade meaning are used to describe Work, materials or equipment such words shall be interpreted in accordance with such meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or be implication, shall mean the latest standard specifications, manual, code or Laws or Regulations in effect at the time of opening of Bids (or, on the effective date of the Agreement if there were no Bids), even though reference may be specifically made to an earlier standard. However, no provision of any referenced standard specifications, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR or ENGINEER, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to ENGINEER, or any of ENGINEER'S consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of subparagraph 9.13.3 or 9.13.4. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided for in paragraph 9.4. In the event of any conflict between any of these standard specifications, manuals, or codes and any Divisions of the Book of Technical Specifications, the latter requirements shall be binding on Contractor. In the event that two or more standard specifications, manuals, or codes conflict with one another, the requirement ultimately enforced shall be binding on CONTRACTOR. In this event it will be considered that the higher cost requirement has been considered in the CONTRACTOR'S Bid Proposal and the CONTRACTOR further agrees and acknowledges that compliance with this condition shall not warrant an increase in Contract Price nor Contract Time.

3.3 CONFLICT IN CONTRACT DOCUMENTS: If, during the performance of the Work, CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, CONTRACTOR shall so report to ENGINEER in writing at once and before proceeding with the Work affected thereby shall obtain a written interpretation or clarification from ENGINEER; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error or discrepancy in the Contract Documents unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof. Until interpretation, clarification or instruction is obtained from ENGINEER, any work done by CONTRACTOR (or Subcontractors) after the discovery of such a conflict, error, or discrepancy, which is directly or indirectly affected by same, will be at his own risk and he shall bear all cost arising therefrom.

3.4 AMENDING AND SUPPLEMENTING CONTRACT DOCUMENTS: The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

3.4.1 A Change Order (pursuant to paragraph 10.4), or

As indicated in paragraphs 11.2 and 12.1, Contract Price and Contract Time may only be changed by a Change Order.

3.5 WORK DIRECTIVE CHANGE: In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by a Work Directive Change required by one or more of the following actions:

3.5.1 A Field Order (pursuant to paragraph 9.5 and 10.7)

3.5.2 ENGINEER'S approval of a Shop Drawing or sample (pursuant to paragraphs 6.24), or

3.5.3 ENGINEER'S written interpretation or clarifications (pursuant to paragraph 9.4)

3.6 RE-USE OF DOCUMENTS: Neither CONTRACTOR nor any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER shall have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER; and they shall not re-use any of them on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaptation by ENGINEER.

3.7 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS:

3.7.1 All figures and dimensions on the drawings and specifications shall be carefully checked by CONTRACTOR, who shall note all conflicts, errors, or discrepancies. CONTRACTOR will be held responsible for any conflict, error, or discrepancy not discovered before the work is executed, unless contractor could not have reasonably known about the conflict, error, or discrepancy. CONTRACTOR shall promptly notify ENGINEER in writing of any discrepancies, errors, or omissions discovered in review of the Contract Documents. ENGINEER will promptly investigate the matter and respond to CONTRACTOR.

3.7.2 In all cases, figured dimensions shall govern over scaled dimensions, but work not dimensioned shall be as directed, and work not particularly shown, identified, sized, or located shall be the same as similar parts that are shown or specified. Further, detail drawings shall govern over general drawings, larger scale details take precedence over smaller scale drawings, change order drawings govern over contract drawings, and contract drawings over shop drawings. Specifications shall govern as to products, execution and workmanship, and drawings shall govern as to locations, dimensions, or quantities to be furnished. Further, in all cases where specifications, notes or details in two drawings conflict, the more restrictive requirement as to quantities, product, execution, workmanship, or performance shall be binding on CONTRACTOR, unless otherwise directed by OWNER.

3.7.3 After the Agreement date, CONTRACTOR shall be furnished with a maximum number of five (5) sets of Plans, Specifications and Addenda in addition to those CONTRACTORS purchased during the bid period. Additional Specifications or Drawings requested by

CONTRACTOR will be provided in complete sets and at the expense of CONTRACTOR.

ARTICLE 4 - Availability of Lands; Physical Conditions Reference Points

4.1 AVAILABILITY OF LANDS:

4.1.1 OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be done, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR.

4.1.2 Any land and access thereto not furnished by OWNER that CONTRACTOR deems necessary for the Contract work, for temporary construction facilities, access and egress, or for storage of materials shall be provided by CONTRACTOR at no cost to OWNER. CONTRACTOR shall confine its apparatus and storage to such additional areas as may be provided at its expense. CONTRACTOR shall obtain permits and written approvals from the appropriate jurisdictional agency and property owner(s) for use of premises not furnished by OWNER as described above, and of all off-site areas which include off-site borrow pits, waste and disposal areas, such permits and approvals must specify treatment of said areas during and at the completion of construction. Copies of all permits and approvals shall be filed with the ENGINEER before utilization of the areas.

4.2 PHYSICAL CONDITIONS-INVESTIGATIONS AND REPORTS:

4.2.1 Explorations and Reports: Reference is made to the Instructions to Bidders, paragraph 4.2, for identification of those reports of investigations and tests of subsurface conditions at the site that have been utilized by ENGINEER in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such reports, but not upon nontechnical data, interpretations or opinions contained therein or for the completeness thereof for the CONTRACTOR's purposes. Except as indicated in the immediately preceding sentence, CONTRACTOR shall have full responsibility with respect to subsurface conditions at the site.

4.2.2 Existing Structures: Reference is made to the drawings for identification of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities referred to in paragraph 4.3) which are at or contiguous to the site that have been utilized by ENGINEER in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings, but not for the completeness thereof for CONTRACTOR'S purposes. Except as indicated in the immediately preceding sentence, CONTRACTOR shall have full responsibility with respect to physical conditions in or relating to such structures.

4.2.3 Report of Differing Conditions: If CONTRACTOR believes that:

4.2.3.1 any technical data on which CONTRACTOR is entitled to rely as provided in paragraph 4.2.1 and 4.2.2 is inaccurate, or

4.2.3.2 any physical conditions uncovered or revealed at the site differs materially from that indicated, reflected or referred to in the Contract Documents, or not in conformity with soil reports and surveys.

CONTRACTOR shall promptly, and before such conditions are disturbed, notify ENGINEER in writing of any subsurface or latent physical conditions at the site or in an existing structure differing materially from those indicated or referred to in the contract documents. ENGINEER will promptly review those conditions and advise CONTRACTOR in writing if further investigation or tests are necessary. Promptly thereafter, ENGINEER shall obtain the necessary additional investigations and tests and furnish copies to CONTRACTOR. If ENGINEER finds that the results of such investigations or tests indicate that there are subsurface or latent physical conditions which differ materially from those intended in the Contract Documents, and which could not reasonably have been anticipated by CONTRACTOR, a Change Order shall be issued incorporating the necessary revisions, provided OWNER has not exercised its right to terminate under Paragraph 15.4.

4.2.4 Possible Price and Time Adjustments: In each such case, an increase or decrease in Contract Price will be allowable to the extent that it is attributable to any such inaccuracy or difference. Further, in each such case, a) an extension of the Contract Time and the associated increase in Contract Price, will be allowed only to the extent that the interval of time required to proceed with the part of the Work plus the increase in the time required to perform the part of the Work affected, whether or not changed by the Change Order or the Work Directive Change, exceed the time allowance set forth in the Contract, plus the float time available in the Official Schedule, provided that CONTRACTOR takes all reasonable steps to mitigate the schedule impact of the delays; b) A shortening of the Contract Time and the associated decrease in Contract Price, will be enforced only to the extent that the critical path of the Official Schedule is affected and the decrease in Contract Time will not result in a disproportionate reduction in float time in other portions of the Official Schedule. If OWNER and CONTRACTOR are unable to agree as to the amount or lengthening/reduction thereof, a claim may be made therefore as provided in Articles 11 and 12.

4.3 PHYSICAL CONDITIONS - UNDERGROUND FACILITIES:

4.3.1 Shown, Indicated or Located: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities or by others. Unless it is otherwise expressly provided in these General Conditions:

4.3.1.1 OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and,

4.3.1.2 CONTRACTOR shall have full responsibility a) for reviewing and checking all such information and data, b) for locating all water services, gas services, water mains, gas mains, cross drains, culverts, sewers, sewer laterals, electric conduits, etc., shown or

indicated in the contract documents as to depth and alignment in advance of laying, c) for coordination of the work with the owner of such existing underground facilities during construction, d) for the safety and protection thereof, and for repairing any damage done thereto resulting from the work. The cost of and the time required to perform the responsibilities outlined in this paragraph will be considered as having been included in the Contract Price and in CONTRACTOR'S schedule for the performance of the Work within the prescribed time.

4.3.1.3 CONTRACTOR shall excavate and uncover all Underground Facilities to be crossed or paralleled by the proposed Work a sufficient time in advance of construction to permit change in line and grade of the existing Underground Facility or the proposed work if the location of the existing Underground Facility should interfere with the proposed Work.

4.3.1.4 Where it is necessary to install pipelines proposed under the Work close to or between other existing pipelines for short distances, CONTRACTOR shall shore, block, and protect the other lines to the satisfaction of the Utility Agency or Municipality having ownership or jurisdiction over said pipelines.

4.3.1.5 Whenever existing Underground Facilities are encountered which obstruct the line or grade of a proposed part of the work, CONTRACTOR shall promptly notify OWNER and ENGINEER in writing about the inaccuracy or difference. ENGINEER will promptly review the Underground Facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the situation, and the Contract Documents will be amended or supplemented to the extent necessary. In each such a case, a Change Order (or Work Directive Change) will be issued in accordance with the Federal Contract Provisions, as amended, and/or Article 10 to reflect and document the consequences of the inaccuracy or difference, and an increase or decrease in the Contract Price will be allowed only to the extent that it is solely attributable to any such inaccuracy or difference.

4.3.1.6 In each such case, an extension in Contract Time, but without any increase in costs due to the extension, will be allowed only to the extent that the interval of time required to proceed with the part of the Work plus the increase in the time required to perform the part of the Work affected, whether or not changed by the Change Order or Work Directive Change, exceed the time allowance set forth in paragraph 4.3.1.7 plus the float time available in the Official Schedule, provided that CONTRACTOR takes all reasonable steps to mitigate the schedule impact of delays.

4.3.1.7 CONTRACTOR shall schedule excavation and uncovering work to begin in sufficient time in advance of construction to allow ENGINEER'S Review as described in paragraph 4.3.1.5, and OWNER'S issuance of a Work Directive Change or a Change Order as described in paragraph 4.3.1.5 and 4.3.1.6 in connection with a Report of obstructing existing Underground Facilities Shown or Indicated. Further, a reasonable interval of time, but not less than thirty days, will be allowed to ENGINEER and OWNER for those functions required to resolve the inaccuracy or difference.

4.3.1.8 Access to various municipal structures shall not be obstructed by CONTRACTOR to prohibit use of hydrants, valves, manholes, fire alarms, etc. CONTRACTOR is to make no connections to existing water mains or operate valves on existing mains or otherwise interfere with the operation of the existing water distribution system, without first given twenty-four (24) hours notice to the owners of such municipal structures and securing their approval of the proposed action.

4.3.2 Not Shown, Indicated or Located: If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents or which was not located by a notified utility owner and which CONTRACTOR could not reasonably have been expected to be aware of, CONTRACTOR shall, promptly after becoming aware thereof and before performing any work affected thereby (except in an emergency as permitted by paragraph 6.20), identify the owner of such Underground Facility and give written notice thereof to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary. During such time CONTRACTOR shall be responsible for the safety and protection of such Underground Facility as provided in paragraph 6.18.

4.3.2.1 Possible Document Change: If ENGINEER concludes that because of the newly discovered conditions a change in the Contract Documents is required, a Work Directive Change or a Change Order will be issued in accordance with Article 10 to reflect and document the consequences of the inaccuracy or difference, and provided that Owner has not exercised his right to terminate under paragraph 15.4.

4.3.2.2 Possible Price and Time Adjustments: In each such case, an increase or decrease in Contract Price will be allowed to the extent that it is attributable to any such inaccuracy or difference. Further, in each such case, a) an extension of the Contract Time and the associated increase in Contract Price, will be allowed only to the extent that the interval of time required to proceed with the part of the Work plus the increase in the time required to perform the part of the Work affected, whether or not changed by the Change Order or the Work Directive Change, exceed the time allowance set forth in paragraph 4.3.2.3, plus the float time available in the Official Schedule, provided that CONTRACTOR takes all reasonable steps to mitigate the schedule impact of the delays. b) A shortening of the Contract Time and the associated decrease in Contract Price, will be enforced only to the extent that the critical path of the Official Schedule is affected and the decrease in Contract Time will not result in a disproportionate reduction in float in other portions of the Official Schedule. If OWNER and CONTRACTOR are unable to agree as to the amount or lengthening/reduction thereof, a claim may be made therefore as provided in Articles 11 and 12.

4.3.2.3 CONTRACTOR shall schedule excavation and uncovering work to begin in sufficient time in advance of construction to allow ENGINEER'S Review as described in paragraph 4.3.2, and OWNER'S issuance of a Work Directive Change or a Change

Order as described in paragraph 4.3.2.2 in connection with a Report of an existing Underground Facility Not Shown or Indicated. Further, a reasonable interval of time, but not less than thirty days, will be allowed to ENGINEER and OWNER for those functions required to resolve the inaccuracy or difference.

4.4 REFERENCE POINTS: CONTRACTOR shall provide engineering surveys to establish reference points for construction which in CONTRACTOR'S judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for accurate replacement or relocation of such reference points by professionally qualified personnel.

ARTICLE 5 - Bonds and Insurance

5.0 TERREBONNE PARISH CONSOLIDATED GOVERNMENT, DEFINED

For the purposes of this Article, the terms "Terrebonne Parish Consolidated Government," "TPCG," and "OWNER" shall include, but may not be limited to, all of the following entities and persons: the Terrebonne Parish Consolidated Government (a political subdivision of the State of Louisiana); the Terrebonne Parish Council (the governing body of Terrebonne Parish); their elected and appointed officials, all parish departments, districts, agencies, councils, boards, and commissions, officers, agents, servants, employees and volunteers; and the elected and appointed officials, departments, officers, agents, servants, employees and volunteers of those departments, districts, agencies, councils, boards, and commissions.

5.1 PERFORMANCE AND OTHER BONDS

5.1.1 Unless otherwise provided for in the Louisiana Public Bid Law, CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR'S obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date of final payment, except as otherwise provided by Law or Regulation or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds when required by the Supplementary Conditions. All Bonds shall be in the forms prescribed by Law or Regulation or by the Contract Documents and be executed by such Sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority.

Any bond prescribed by the contract documents shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the federal Register, or by a Louisiana domiciled insurance company currently possessing a rating of no less than A- in the

latest printing of the A.M. Best's Key Rating Guide, to write individual bonds up to the percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide.

In addition, any surety bond written for a public works project shall be written by a surety or insurance company that is currently licensed and approved to do business in the state of Louisiana.

For any public works project, no surety or insurance company shall write a bond which is in excess of the amount indicated as approved by the U.S. Department of the Treasury Financial Management Service list or by a Louisiana domiciled insurance company with an A- rating by A.M. Best up to a limit of ten percent of policyholders' surplus as shown by A.M. Best; companies authorized by this Paragraph who are not on the treasury list shall not write a bond when the penalty exceeds fifteen percent of its capital and surplus, such capital and surplus in the amount by which the company's assets exceed its liabilities as reflected by the most recent financial statements filed by the company with the Department of Insurance.

5.1.2 If the Surety on any Bond or any insurance company providing any insurance overages furnished by CONTRACTOR is declared bankrupt, becomes insolvent, or its right to do business is terminated in any state where any part of the Project is located, or it ceases to meet the requirements of this Article, CONTRACTOR shall within five (5) days thereafter, substitute another Bond and Surety and/or insurance company, both of which shall be acceptable to OWNER. The OWNER reserves the right to mandate the cessation of all work on the Project until the receipt of evidence of acceptable replacement Bonds and/or insurance.

5.1.3 If, at any time during the Contract Period, the CONTRACTOR fails to provide satisfactory evidence of all Bond and insurance requirements or fails to take all corrective action required by the OWNER, the OWNER reserves the right to mandate the cessation of all work on the Project until receipt of acceptable evidence of Bonds and insurance and/or corrective action undertaken.

5.2 INDEMNIFICATION AGREEMENT

To the fullest extent permitted by law, the CONTRACTOR shall protect, defend, indemnify, save and hold harmless the OWNER from and against any and all claims, demands, expense, losses, suits, costs, actions, fines, penalties, and liability, whether actual or alleged, arising out of or resulting from injury, sickness, disease or death to any person or the damage, loss, expense or destruction of any property, including loss of use resulting therefrom, which may occur, be caused by, or in any way result from any actual or alleged act, omission, negligence, misconduct, or strict liability of CONTRACTOR, its agents, its sub-contractors, partners, servants, officers, employees, volunteers, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, related to the performance or non-performance of the contract herein entered into, including any and all costs, fines, penalties, expense and/or attorney fees, including but not limited to expert witness fees, incurred by the OWNER as a result of any such claims, demands, losses and/or causes of action including any costs associated with the enforcement of this indemnity provision except those arising out of the sole negligence of OWNER. This indemnification does not apply to any strict liability of the Terrebonne Parish Consolidated

Government. The CONTRACTOR shall investigate, adjust, settle, contest to resolution, resist claims, handle, respond to, provide defense for and defend any such claims, demands, proceedings, judgments, or suits at its sole expense related thereto, even if such claim, proceeding, judgment, demand or suit is groundless, false or fraudulent.

5.3 POLICIES AND CERTIFICATES

All policies and certificates of insurance of the Contractor/Subcontractor shall contain the following clauses:

5.3.1 The Contractor/ Subcontractor's insurer will have no right of recovery or subrogation against the OWNER, Terrebonne Parish Consolidated Government (TPCG), it being the intention of the parties that the insurance policies so affected shall protect both parties and shall be primary coverage for any and all losses covered by the below described insurance. Contractor's insurers shall waive all rights against Terrebonne Parish Consolidated Government.

5.3.2 The OWNER, Terrebonne Parish Consolidated Government, shall be named as an additional insured as respects to 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 Contractor. The Commercial General Liability Policy shall include ISO Forms CG 20 10 or its equivalent.

5.3.3 The insurance companies issuing the policy or policies shall have no recourse against the OWNER, TPCG, for payment of any premiums or for assessments under any form of policy.

5.3.4 Any and all deductibles and/or self insured retentions in the below described insurance policies shall be assumed and be for the account of, and shall be borne solely by the Contractor/Subcontractor and at his sole expense without any right of reimbursement from the OWNER, and shall not exceed \$10,000 per policy.

5.4 INSURANCE

The Contractor/Subcontractor, prior to commencing work, shall provide at his own expense, proof to the OWNER of the following insurance coverages required by the contract. Insurance is to be placed with insurance companies authorized to do business and approved in the State of Louisiana with an A.M. Best's rating of no less than A-VI. This requirement will be waived for workers' compensation coverage only for those contractors whose workers' compensation coverage is placed with companies who participate in the State of Louisiana Workers' Compensation Assigned Risk Pool or the Louisiana Workers' Compensation Corporation. Policies are to be on an Occurrence basis, Claims Made policies are not acceptable. Contractor shall provide an "All-Risk" Builder's Risk Insurance Policy covering all perils typically found and which shall include coverage for wind damage and flood.

5.4.1 All notices will name the Contractor/Subcontractor and identify the contract number. Insurance coverage specified in the GENERAL CONDITIONS (*AIA Document A 201, 1987 Edition*) is to be provided by the Contractor with the following minimum limits:

5.4.1.1 Workers' Compensation-Statutory in compliance with the Compensation Law of the State of Louisiana. Employer's liability to be \$1,000,000. Alternate Employer Endorsement in favor of OWNER; Waiver of Subrogation in favor of OWNER; and Thirty (30) days prior written notice of cancellation, non-renewal, and adverse material change to OWNER. Terrebonne Parish Consolidated Government and the Contractor mutually agree that it is their intention to recognize Terrebonne Parish Consolidated Government as the statutory employer of the contractor's employees (whether direct employees or statutory employees of the contractor) when any of the contractor's employees are doing work and/or providing service under this agreement.

5.4.1.2 USL&H Coverage – If the project or any work involves wharves, piers, docks, decking, floodwalls, levees, battures, other structures or construction near, over, contiguous to or alongside any body of water the policy shall also include USL&H coverage with minimum limits of \$1,000,000; and Maritime Employers' Liability insurance with minimum limits of \$1,000,000. The policy shall provide:

- a. Waiver of Subrogation to include any contract in favor of Terrebonne Parish Consolidated Government; and
- b. Thirty (30) days prior written notice of cancellation, non-renewal or adverse material changes to Terrebonne Parish Consolidated Government by specific endorsement to the applicable policy.

5.4.1.3 Commercial General Liability Insurance with a combined single limit of \$1,000,000 per occurrence and \$2,000,000 general aggregate for bodily injury and property damage. This insurance shall include products/completed operations, contractual liability, personal injury, and without written prior approval of the OWNER, the Commercial General Liability coverages shall not exclude any standardized coverage included in the basic form or limit any coverages for this project in any way that would prohibit or limit the reporting of any claim, suit and the subsequent defense and indemnity that would normally be provided by the policy. The Certificate of Insurance shall indicate which of the seven (7) coverage requirements below are not included in the policy, if any:

1. Premises - Operations;
2. Broad Form Contractual Liability;
3. Products and Completed Operations;
4. Use of Contractors and Subcontractors;
5. Personal Injury;
6. Broad Form Property Damage;
7. Explosion, Collapse, and Underground (XCU) Coverage

Note: On the certification of insurance, under the description of operations, the following wording is required: THE AGGREGATE LOSS LIMIT APPLIES TO EACH PROJECT, or a copy of ISO form CG2503 (Ed. 11-85) shall be submitted.

Waiver of Subrogation to cover both oral and written contracts in favor of the OWNER and Thirty (30) days notice of cancellation, non-renewal or material change. If unable to provide and grant 30 days notice of cancellation, this should be brought to the attention of the Risk Management Department for approval.

COMBINED SINGLE LIMIT (CSL)-AMOUNT OF INSURANCE REQUIRED

Type of Construction	Projects Up To \$1,000,000	Projects Over \$1,000,000
NEW BUILDING:		
Each Occurrence/Minimum Limit of	\$ 500,000	\$1,000,000
Aggregate (Applicable to this Contract ONLY)	\$500,000	\$1,000,000
RENOVATION:		
Each Occurrence/Minimum Limit of	\$ 500,000*** (Depends on Bldg. Value)	\$1,000,000*** (Depends on Bldg. Value)
Aggregate (Applicable to this Contract ONLY)	\$500,000*** (Depends on Bldg. Value)	\$1,000,000*** (Depends on Bldg. Value)

***While the minimum combined single limit of \$500,000 is required for all renovations, the value of a building shall be multiplied by 10% and insurance requirements will be increased at \$1,000,000 intervals and rounded to the nearest \$1,000,000. Example: Renovation on \$33,000,000 building would require \$3,000,000 minimum combined single limit of coverage.

The Contractor shall continue to maintain in its name Commercial General Liability and, if necessary, Commercial Umbrella Liability insurance that shall be written on ISO Occurrence Form CG 00 01 or an approved alternative, with a limit of not less than \$1,000,000 each occurrence/\$2,000,000 general aggregate and shall, at minimum, cover liability arising from products/completed operations and liability assumed under an insured contract, for at least three (3) years following substantial completion of Work.

5.4.1.4 Business Automobile Liability Insurance with a combined single limit of \$500,000 per occurrence for bodily injury and property damage. This insurance shall include for bodily injury and property damage the following coverages:

1. Any automobiles;
2. Owned automobiles;
3. Hired automobiles;
4. Non-owned automobiles.

5.4.1.5 An Umbrella Policy may be used to meet minimum requirements.

5.4.1.6 All property losses shall be made payable to and adjusted with OWNER, TPCG.

5.4.1.7 All policies of insurance shall be approved by contracting OWNER, TPCG prior to the inception of any work.

5.4.1.8 Other insurance required is as follows:

5.4.1.8.1 Owner's and Contractor's Protective Liability Insurance shall be furnished by the Contractor and shall name OWNER, Terrebonne Parish Consolidated Government and the Architect or ENGINEER as Named Insured.

	Project Up To <u>\$1,000,000</u>	Project Over <u>\$1,000,000</u>
CSL - Each Occurrence	\$ 500,000	\$1,000,000
General Aggregate	\$1,000,000	\$2,000,000

Designated Project or Premises Form CG 25 11 or equivalent shall be a part of the Policy. This coverage shall be primary and non-contributory from any other insurance available to TPCG, unless that insurance is provided by a different Contractor than the one on the declarations for the same operation and project location.

5.4.1.8.2 Except for those insurance policies which require a "per project" aggregate, all certificates of insurance for policies that contain an aggregate limit must be accompanied by a statement that the aggregate limit is not impaired, or, if the aggregate limit is impaired, to what extent. OWNER may require that any impaired aggregate(s) be replenished in its favor prior to commencement of work and/or during the progress of the work.

5.4.1.9 If, at any time any of the said policies shall be or become unsatisfactory to OWNER, as to form or substance, or if a company issuing any such policy shall be or become unsatisfactory to OWNER, the Contractor/Subcontractor shall promptly obtain a new policy, submit the same to OWNER for approval and submit a certificate thereof as herein above provided. Upon failure of the Contractor/Subcontractor to furnish, deliver and maintain such insurance as above provided, this contract, at the election of OWNER, may be forthwith declared suspended, discontinued or terminated. Failure of the Contractor/Subcontractor to take out and/or to maintain any required insurance shall not relieve the Contractor/Subcontractor from any liability under the contract, nor shall the insurance requirements be construed to conflict with obligations of the Contractor/Subcontractor concerning indemnification.

5.4.2 Thirty (30) days prior notice of cancellation shall be given to OWNER by registered

mail, return receipt requested, on all of the required coverage provided to OWNER in the event of cancellation, non-renewal and/or any changes by insurers with regard to limits, terms or conditions (material changes). All notices will name the Contractor/Subcontractor and identify the contract number.

5.5 INFORMATION TO BIDDERS

RISKS AND INDEMNIFICATIONS ASSUMED BY THE CONTRACTOR. Neither the acceptance the completed work nor payment therefore shall release the Contractor/Subcontractor from his obligations from the insurance requirements or indemnification agreement.

5.5.1 Additional insurance may be required on an individual basis for extra hazardous contracts and specific service agreements. If such additional insurance is required for a specific contract, that requirement will be described in the "Special Conditions" section of the contract specifications.

5.5.1.1 The contractor will acquire builders risk coverage for the full value of the project, or in the case of a renovation, for the full value of the renovation which provides all risk coverage for direct physical loss or damage to buildings/contents or structures during the course of construction. This coverage shall not have a deductible higher than a \$5,000 per occurrence. The deductible is the responsibility of the contractor, and should be taken into consideration when determining contract price.

5.5.2 If any of the insurance requirements are not complied with at their renewal dates, payments to the Contractor/Subcontractor will be withheld until those requirements have been met, or at the option of OWNER, OWNER may pay the Renewal Premium and withhold such payments from any monies due the Contractor/Subcontractor. However, under no circumstances shall OWNER be responsible for the payment or provision of fees to any Broker, Wholesaler, Agent or Producer involved in the placement or renewal of the policy(ies) in question.

5.5.2.1 The contractor shall purchase and maintain boiler and machinery insurance or additional property insurance as may be required by Laws and Regulations which will include the interest of OWNER, Contractor, Subcontractor, Architect and Architect's Consultants (or ENGINEER and Engineer's Consultants) in the work all of whom shall be listed as insured or additional insured parties.

5.5.3 All policies and certificates of insurance SHALL BE APPROVED BY OWNER PRIOR TO THE INITIATION OF ANY WORK. If OWNER has any objection to the coverage afforded by or any other provisions of the insurance required to be purchased and maintained by the Contractor in accordance with the insurance requirements for the work on the basis of non-conformance with the Contract Documents, OWNER shall notify the Contractor in writing within fifteen (15) days after receipt of the certificates. The Contractor shall provide a written response to OWNER with objections within ten (10) days from the date of the letter request.

5.5.4 Other coverage may be required by OWNER based on specific needs. If such other coverage is required for this contract, that coverage will be described in the "Special Conditions"

of the contract specifications.

5.5.6 Contractors Pollution coverage with minimum limits of \$1,000,000.00 naming TPCG as an Additional Insured due to the nature of work being performed.

5.5.7 SUBCONTRACTORS - Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein for the Contractor.

5.5.8 CERTIFICATE OF INSURANCE AND INDEMNIFICATION AGREEMENT - Contractor shall furnish OWNER with certificates of insurance effecting coverage required. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. THESE CERTIFICATES ARE TO BE RECEIVED AND APPROVED BY OWNER BEFORE WORK COMMENCES, AND THEREAFTER UPON RENEWAL OR REPLACEMENT OF EACH REQUIRED COVERAGE. OWNER reserves the right to require complete, certified copies of all required insurance policies at any time and upon request.

5.5.9 INSURANCE REQUIREMENTS FOR CONTRACTORS - Contractors shall procure and maintain 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, his agents, representatives, employees or subcontractors. The cost of such insurance shall be included in the bid.

5.6 MINIMUM SCOPE OF INSURANCE

Coverage shall be at least as broad as:

5.6.1 COVERAGE:

5.6.1.1 Insurance Services Office Commercial General Liability coverage ("occurrence form CG 00 01"). "Claims Made" form is unacceptable. The "occurrence form" shall not have "sunset clause".

5.6.1.2 Insurance Services Office form number CA0001 covering Automobile Liability. The policy shall provide coverage for any auto or owned, hired, and non-owned coverage. If an automobile is to be utilized in the execution of this contract, and the vendor/contractor does not own a vehicle, then proof of hired and non-owned coverage is sufficient.

5.6.1.3 Workers' Compensation insurance as required by the Labor Code of the State of Louisiana, including Employers Liability insurance.

5.6.2 MINIMUM LIMITS OF INSURANCE: Contractor shall maintain limits no less than:

5.6.2.1 Commercial General Liability: Minimum \$500,000 combined single limit per

occurrence for bodily injury, personal injury and property damage (or higher limits depending on size of contract).

5.6.2.2 Automobile Liability: \$500,000 combined single limit per accident, for bodily injury and property damage.

5.6.2.3 Workers' Compensation and Employers Liability: Workers' Compensation limits as required by the Labor Code of the State of Louisiana (Statutory Benefits). Employers Liability limit is to be \$1,000,000.

5.6.3 DEDUCTIBLES AND SELF-INSURED RETENTIONS - Any deductibles or self-insured retentions must be declared to and approved by OWNER, TERREBONNE PARISH CONSOLIDATED GOVERNMENT. At the option of the OWNER, Terrebonne Parish Consolidated Government, either: The insurer shall reduce or eliminate such deductibles or self-insured retentions as respects OWNER; or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

5.6.4 OTHER INSURANCE PROVISIONS: The policies are to contain, or be endorsed to contain, the following provisions:

5.6.4.1 General Liability and Automobile Liability Coverages

a) OWNER is to be added as "additional insured" 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. The coverage shall contain no special limitations on the scope of protection afforded to OWNER. It is understood that the business auto policy under "Who is an insured" automatically provides liability coverage in favor of OWNER.

b) Any failure to comply with reporting provisions of the policy shall not affect coverage provided to OWNER.

c) The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

5.6.4.2 Workers' compensation and Employer's Liability Coverage - The insurer shall agree to waive all rights of subrogation against OWNER for losses arising from work performed by the Contractor for OWNER.

5.6.4.3 All Coverages - Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, non-renewed, voided, canceled thirty (30) days prior written notice by certified mail, return receipt requested to OWNER.

5.6.5 ACCEPTABILITY OF INSURERS - Insurance is to be placed with insurers with A.M. BEST'S RATING OF NO LESS THAN A-:VI. This requirement will be waived for workers'

compensation coverage only for those contractors whose workers' compensation coverage is placed with companies who participate in the State of Louisiana Workers' Compensation Corporation Assigned Risk Pool or Louisiana Workers' Compensation Corporation.

5.7 PARTIAL UTILIZATION - PROPERTY INSURANCE

If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished in accordance with paragraph 14.10; provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected the changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or allowed to lapse on account of any such partial use of occupancy.

5.8 PRIMARY COVERAGE

OWNER and CONTRACTOR intend that any policies provided in response to paragraphs 5.4.1.3, 5.5.1.1, and 5.5.2.1 shall protect all of the parties insured and provide primary coverage for all losses and damages caused by the perils covered thereby. Accordingly, all such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurer shall have no rights of recovery against any of the parties named as insured or additional insured, and if the insurers require separate waiver forms to be signed by ENGINEER, engineer's consultant or subcontractor, CONTRACTOR will obtain the same.

ARTICLE 6 - Contractor's Responsibilities

6.1 SUPERVISION: CONTRACTOR shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design of construction which is indicated in and required by the Contract Documents. CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.

6.2 CONTRACTOR'S SUPERINTENDENT:

6.2.1 CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR'S representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications given to the superintendent shall be as binding as if given to CONTRACTOR. If OWNER, at any time objects to the superintendent, CONTRACTOR shall provide a replacement superintendent at no increase in Contract Price or Contract Time.

6.2.2 The Superintendent shall, as a minimum, be required to be present at a monthly meeting of the Owner in order to address any applicable questions which may arise during construction of the project and to submit request for consideration and approval of any and all applications for payment. It shall be the Contractor's responsibility to ascertain and verify the time, date and location of said meeting. In the event the Superintendent fails to attend the said meeting, Owner may at his option refrain from approving any outstanding applications for payment until the requirements of this provision are fully complied with.

6.3 WORK HOURS: CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site.

6.3.1 Except in connection with the safety or protection of persons or the work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work under the project site shall be performed during normal working hours, and CONTRACTOR will not permit overtime Work or the performance of Work on Saturday, Sunday, legal holidays observed by the OWNER, or December 25th through January 1st of each year, without OWNER'S written consent given after prior written notice to ENGINEER.

6.3.2 Normal working hours shall be defined as CONTRACTOR'S normal eight-hour working period occurring between the hours set forth at the pre-construction conference, or if none are set forth, beginning at 7:00 a.m. and ending at 5:00 p.m., exclusive of Saturdays, Sundays, or legal holidays. Work during other than normal working hours may be scheduled as a regular procedure by CONTRACTOR if he first obtains written permission from OWNER. OWNER shall be entitled to recover costs for overtime inspection related to work done during other than normal working hours.

6.3.3 If CONTRACTOR, after reviewing the Contract Documents, and for his convenience and at no increase in Contract Price, feels that scheduled work during other than normal work hours will be required to complete the work within the Contract Time, CONTRACTOR shall submit a proposed schedule for said work with the construction schedule as described in Paragraph 2.6 of the General Conditions. This schedule will be reviewed for acceptance by OWNER and discussed at the pre-construction conference as described in Paragraph 2.8 of the General Conditions. If the schedule is accepted by OWNER, OWNER will not seek to recover costs for overtime inspection. OWNER'S approval of CONTRACTOR'S schedule will not be considered a basis for a change in the Contract Price. Changes in Contract Price will be resolved in accordance with Article 11 of the General Conditions.

6.3.4 If at any time subsequent to the submission of the construction schedule, an event within the control of CONTRACTOR occurs which, in the opinion of CONTRACTOR, requires him to request approval to schedule Work during other than normal working hours, for his convenience and at no increase in Contract Price, he shall submit at least three (3) working days in advance of overtime period proposed a revised schedule to ENGINEER. If OWNER accepts the schedule, CONTRACTOR will be notified in writing.

6.3.5 If the work performed during other than normal working hours is not scheduled in

accordance with the procedures described above, or if CONTRACTOR'S schedule is not accepted by OWNER, OWNER will invoice CONTRACTOR for the costs of overtime inspection which will include but may not be limited to costs for engineering, resident project representatives, administrative expenses and other related costs. In the event CONTRACTOR fails to pay such costs within 30 days after receipt of an invoice from OWNER, the unpaid amount will be deducted from CONTRACTOR'S pay estimates and charged to the Contract.

6.3.6 CONTRACTOR shall light the parts of the work performed during other than normal working hours as required to comply with the Municipality or Agency with jurisdiction.

6.4 MATERIALS, EQUIPMENT AND LABOR: CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

6.5 MATERIALS AND EQUIPMENT:

6.5.1 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective to assign to ENGINEER, or any of engineer's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of subparagraphs 9.13.3 or 9.13.4.

6.5.1.1 Manufacturer's warranty for all material, products and equipment to be furnished by the CONTRACTOR and to be incorporated into the completed work shall be furnished to the OWNER through the CONTRACTOR.

6.5.1.2 The manufacturer of all materials, products and equipment shall furnish complete information as to any special conditions, or restriction to be applied in the use of these items. Should the manner or method of installation, specified performance or test results as set forth in these specifications be contrary to the manufacturer's recommendations for use of the product, the manufacturer shall at once notify the CONTRACTOR who shall forward same to the ENGINEER for appropriate action. Lack of such notification shall be certification by the CONTRACTOR that specification requirements will be met by the material, products and equipment under project conditions.

6.5.1.3 Data submitted on all equipment shall include complete maintenance instructions and parts lists in sufficient detail to facilitate ordering replacements.

6.5.2 Any equipment proposed for installation by the CONTRACTOR shall meet the intent and provisions of the specifications. All equipment shall be equal in performance to that specified.

Performance shall mean equal in quality of construction and materials, efficiency, ease of maintenance, reliability and ability to meet the design parameters on which the specifications are based. Service over the life of the equipment is another factor on which the specification is based and the CONTRACTOR shall provide a written assurance that local service and a manufacturers' representative are currently available to provide service.

6.5.3 It shall be the responsibility of the CONTRACTOR to make certain that any equipment included in his bid meets the above- listed requirements. The CONTRACTOR shall submit to the ENGINEER a list of similar installations by the manufacturer of all major items of equipment to enable ENGINEER to determine their compliance with these drawings and specifications in regard to performance, design, arrangement and capacity. ENGINEER's out-of- pocket expenses to investigate and inspect similar installations of major items of equipment shall be paid by the CONTRACTOR.

6.6 ADJUSTING PROGRESS SCHEDULE: CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.6.1) adjustments in the progress schedule to reflect the impact thereon of new developments; these will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

6.7 SUBSTITUTES OR "OR-EQUAL" ITEMS:

6.7.1 CONTRACTOR is to furnish only material and equipment named or specified in the Contract Documents except where the Contract specifically allows for substitutions after the Contract award. Provisions to submit proposals for substitute and "Or Equal" materials and equipment before Bid opening are included in the Instructions to Bidders.

6.7.2 If an item of material or equipment named or specified in the Contract Documents is unavailable after Contract award, CONTRACTOR shall provide prompt written notice to the ENGINEER, and with such notice propose a substitute item with sufficient data to allow ENGINEER's review to determine if the proposed substitute has the essential characteristics of the item named or specified and desired. Any such request for substitution shall be made in sufficient time (including time for ENGINEER's review of the request, OWNER's issuance of a Change Order or Work Directive Change, shop drawing submittal and review, fabrication and delivery of the item, etc.) in advance of the scheduled time for installation of the item to avoid delay to the work. Any cost savings resulting from such substitution shall be credited to the OWNER in a Change Order. Any increased costs resulting from the substitution shall be borne by the CONTRACTOR and the unavailability of the item shall not entitle the CONTRACTOR to an extension of Contract time, unless CONTRACTOR can establish that due to no fault of CONTRACTOR, CONTRACTOR's subcontractors or Suppliers, it was not possible to determine availability of the item before the Contract was awarded.

6.7.3 If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to ENGINEER, if CONTRACTOR submits sufficient information to allow ENGINEER to determine that the

substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in paragraph 6.7.1 as applied by ENGINEER.

6.7.4 ENGINEER will be allowed a reasonable time within which to evaluate each proposed substitute. ENGINEER will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without ENGINEER'S prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing.

6.8 CONCERNING SUBCONTRACTORS, SUPPLIERS AND OTHERS:

6.8.1 CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization (including those acceptable to OWNER and ENGINEER as indicated in paragraph 6.8.2), whether initially or as a substitute, against whom OWNER or ENGINEER may have reasonable objection as to their responsibility. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

6.8.2 A Subcontractor or other person or organization identified in CONTRACTOR'S Bid and not objected to in writing by OWNER prior to the execution of the Agreement will be deemed acceptable to OWNER. All other Subcontractors shall be deemed to have been accepted if OWNER does not deliver a written objection thereto within 45 days after CONTRACTOR'S written identification of such Subcontractors. However, if, in accordance with the Louisiana Public Bid Law, OWNER has reasonable objection as to the responsibility of any Subcontractor whether identified in the Bid or subsequently, CONTRACTOR shall submit an acceptable substitute without entitlement to any change in the Contract Price. After acceptance by OWNER of any particular Subcontractor, CONTRACTOR shall make no substitution without written approval of OWNER. No acceptance by OWNER of any such Subcontractor, supplier, or other person or organization shall constitute a waiver of any right of OWNER to reject defective work.

6.9 RESPONSIBILITY OF CONTRACTOR FOR SUBCONTRACTORS AND SUPPLIERS:

6.9.1 CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR'S own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

6.9.2 The CONTRACTOR shall coordinate the Work of Subcontractors to avoid conflicts and to assure clearances. Shop drawings of various trades shall be compared by CONTRACTOR before submittal to the ENGINEER for approval, to ascertain that the installation proposed does not conflict with the structured support or space requirement. The CONTRACTOR shall have full

responsibility for satisfactory coordination and completion of all subcontract items.

6.9.3 The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade. The Divisions of the Specifications are complementary, and anything mentioned or shown in a Division of the Specifications or in a Specific Trade Drawing shall be of like effect as if shown in all Divisions of the Specifications and in all Drawings.

6.9.4 All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER and contains waiver provisions as required by paragraph 5.8. CONTRACTOR shall pay each Subcontractor a just share of any insurance moneys received by CONTRACTOR on account of losses under policies issued pursuant to paragraphs 5.4.1.3 and 5.5.2.1.

6.10 PATENT FEES AND ROYALTIES: CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. CONTRACTOR shall indemnify and hold harmless OWNER and ENGINEER and any one directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorneys' fees and court and arbitration costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.

6.11 PERMITS: Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses including appropriate NPDES/LPDES permits. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or if there are no Bids on the Effective Date of the Agreement, CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

6.12 LAWS AND REGULATIONS:

6.12.1 CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work including appropriate NPDES/LDPES

regulations. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR'S compliance with any Laws or Regulations.

6.12.2 If CONTRACTOR observes that the Specifications or Drawings are at variance with any Laws or Regulations, CONTRACTOR shall give ENGINEER prompt written notice thereof, and any necessary changes will be authorized by one of the methods indicated in paragraph 3.4. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to such Laws or Regulations, and without such notice to ENGINEER, CONTRACTOR shall bear all costs arising therefrom; however, it shall not be CONTRACTOR'S primary responsibility to make certain that the Specifications and Drawings are in accordance with such Laws and Regulations.

6.13 TAXES: CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.14 USE OF PREMISES: CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Project site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against OWNER or ENGINEER by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or by law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER and ENGINEER harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against OWNER or ENGINEER to the extent based on a claim arising out of CONTRACTOR'S performance of the Work.

6.15 CLEANING PREMISES: During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the work CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by OWNER. CONTRACTOR shall restore to original condition all property not designated for alteration by the Contract Documents.

6.16 LOADING STRUCTURES: CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.17 RECORD DOCUMENTS: CONTRACTOR shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Directive Changes, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during the construction. These record documents together with all approved samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, samples and Shop Drawings will be delivered to ENGINEER for OWNER.

6.18 SAFETY AND PROTECTION: CONTRACTOR shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.18.1 All employees on the Work and other persons and organizations who may be affected thereby;

6.18.2 All the Work and materials and equipment to be incorporated whether in storage on or off the site.

6.18.3 Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.

CONTRACTOR shall comply with all applicable Laws and Regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph 6.18.2 or 6.18.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR). CONTRACTOR'S duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.13 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.19 SAFETY REPRESENTATIVE: CONTRACTOR shall designate a responsible representative at the site whose duty shall be the prevention of accidents. This person shall be CONTRACTOR'S superintendent unless otherwise designated in writing by CONTRACTOR to

OWNER.

6.20 EMERGENCIES: In emergencies affecting the safety or protection of persons, the Work, or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from ENGINEER or OWNER, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give ENGINEER prompt written notice if any significant changes in the Work or variations from the Contract Documents have been caused thereby. If ENGINEER determines that a change in the Contract Documents is required because of the action taken in response to an emergency, a Work Directive Change or Change Order will be issued to document the consequences of the changes or variations.

6.21 SHOP DRAWINGS: After checking and verifying all field measurements, CONTRACTOR shall submit to ENGINEER for review and approval in accordance with the accepted schedule of Shop Drawing submissions (see paragraph 2.9), five copies of all Shop Drawings, unless otherwise indicated in the Supplemental Conditions, which will bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submission. All submissions will be identified as ENGINEER may require. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specific performance and design criteria, materials and similar data to enable ENGINEER to review the information as required.

6.22 SAMPLES: CONTRACTOR shall also submit to ENGINEER for review and acceptance with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples will have been checked by and accompanied by a specific written indication that CONTRACTOR has satisfied CONTRACTOR'S responsibilities under the Contract Documents with respect to the review of the submission and will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended.

6.23 SHOP DRAWINGS AND SAMPLES SUBMISSION REQUIREMENTS:

6.23.1 Before submission of each Shop Drawing or sample, CONTRACTOR shall have determined and verified all quantities, dimensions, specific performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the Work and the Contract Documents.

6.23.2 At the time of each submission, CONTRACTOR shall give ENGINEER specific written notice of each variation that the Shop Drawings or samples may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each Shop Drawing submitted to ENGINEER for review and acceptance of each such variation.

6.24 ENGINEER'S REVIEW OF SHOP DRAWINGS AND SAMPLES:

6.24.1 ENGINEER will review and approve with reasonable promptness Shop Drawings and samples, but ENGINEER'S review and approval will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents

and shall not extend to means, methods, sequences, techniques or procedures of construction or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. CONTRACTOR shall make any corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit as required new samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.24.2 After his first review and comments on the Shop Drawings and samples the ENGINEER will either give his approval in accordance with the provisions of paragraphs 6.24.1, or request changes and corrections as noted. The CONTRACTOR shall then make changes and corrections noted and return them to the ENGINEER. If the Shop Drawings and samples are then acceptable, the ENGINEER will return them to the CONTRACTOR, as approved. However, if further revisions are required, ENGINEER'S cost and expenses of further review shall be paid by the CONTRACTOR.

6.24.3 ENGINEER's review and approval of Shop Drawings or samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER'S attention to such variation at the time of submission as required by paragraph 6.23.2 and ENGINEER has given written approval of each such variation by a specific written notation thereof incorporated in or accompanying the Shop Drawing or sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for errors or omissions in the Shop Drawings or from responsibility for having complied with the provisions of paragraph 6.23.1 and 6.23.2.

6.24.4 Where a Shop Drawing or sample is required by the Specifications, any related Work performed prior to ENGINEER'S review and approval of the pertinent submission will be the sole expense and responsibility of CONTRACTOR.

6.25 CONTINUING THE WORK: CONTRACTOR shall carry on the work and adhere to the progress schedule during all disputes or disagreements with OWNER. No work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.5 or as CONTRACTOR and OWNER may otherwise agree in writing.

6.26 INDEMNIFICATION:

6.26.1 To the fullest extent permitted by law, the CONTRACTOR shall protect, defend, indemnify, save and hold harmless the OWNER, Terrebonne Parish Consolidated Government, including all Parish Departments, its elected and appointed officials, Agencies, Councils, Boards and Commissions, Districts, their officers, agents, servants and employees, including volunteers, from and against any and all claims, demands, expense, losses, suits, costs, actions, fines, penalties, actions, and liability, whether actual or alleged, arising out of or resulting from injury, sickness, disease or death to any person or the damage, loss, expense or destruction of any property, including loss of use resulting therefrom, which may occur, be caused by, or in any way resulting from any actual or alleged act, omission, negligence, misconduct, or strict liability of CONTRACTOR, its agents, its sub-contractors, partners, servants, officers employees,

volunteers, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, related to the performance or non-performance of the contract herein entered into, including any and all costs, fines, penalties, expense and/or attorney fees, including but not limited to expert witness fees, incurred by the Terrebonne Parish Consolidated Government, all Parish Departments, its elected and appointed officials, Agencies, Councils, Districts, Boards and Commissions, their officers, agents, servants and employees, including volunteers, as a result of any such claims, demands and/or causes of action except those arising out of the sole negligence of Terrebonne Parish Consolidated Government, all Parish Departments, its elected and appointed officials, Districts, Agencies, Councils Boards and Commissions, their officers, agents servants and employees, including volunteers. The CONTRACTOR shall investigate, adjust, settle, contest to resolution, resist claims, handle, respond to, provide defense for and defend any such claims, demands, proceedings, judgments, or suits at its sole expense related thereto, even if such claim, proceeding, judgment, demand or suite is groundless, false or fraudulent.

6.26.2 In any and all claims against OWNER or ENGINEER or any of their consultants, agents or employees by any employee of CONTRACTOR, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the indemnification obligation under this paragraph 6.26 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor or other person or organization under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

6.26.3 The obligations of CONTRACTOR under this paragraph 6.26 shall not extend to the liability of ENGINEER, his agents or employees arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or Specifications.

6.27 PROJECT MEETINGS: CONTRACTOR, along with appropriate Subcontractors, shall attend project meetings requested by OWNER for the purpose of discussing and resolving matters concerning the various elements of the work.

6.28 CONTRACTOR shall perform all work under this Agreement as an independent contractor and shall not be considered as an agent, employee, or servant of OWNER, nor shall CONTRACTOR'S subcontractors, employee's agents or servants, be considered to be agents, employees, or servants of OWNER.

6.29 QUALITY CONTROL:

6.29.1 CONTRACTOR shall establish a quality control system, narrative in style, to perform sufficient supervision, inspection and testing of all items of work including that of his Subcontractors to insure conformance to applicable Specifications and Drawings with respect to the material, workmanship, construction, finish, functional performance and identification. CONTRACTOR'S quality control system will specifically include the surveillance of the tests required in the technical provisions of the Specifications. A person shall be placed in charge of the CONTRACTOR'S quality control system and that person shall be other than the CONTRACTOR'S superintendent.

6.29.2 CONTRACTOR'S quality control will specifically include the checking, approval and coordination of all Shop Drawings, the ascertaining of the compliance of all items with specification requirements and the tests required in the technical provisions of the specifications, a procedure for preparing non-conformance reports, and completing a Daily Quality Control Report.

6.29.3 CONTRACTOR has the sole responsibility for compliance of the construction with the requirements of the Drawings and Specifications and the quality control system shall be such that this compliance is assured.

6.29.4 The quality control person shall, in the presence of the OWNER'S or ENGINEER'S Project Representative, check all contractor established elevations, the location of all underground pipelines and electrical conduits before covering begins, all reinforcing steel before pouring concrete, and any other item which cannot be located and inspected when work is complete. Data obtained shall be recorded by the quality control person on the record documents.

6.29.5 Within ten days after the date of the Agreement, CONTRACTOR shall furnish ENGINEER a quality control plan which shall include the name and experience record of the person in charge, procedures, instructions and reports to be used.

6.29.6 The form of Quality Control Daily Report is shown in Exhibit "B". This form shall be completed by the CONTRACTOR and each sub-contractor. This daily report shall include complete information as to personnel and equipment being utilized on the project along with a summary of work activities, (i.e., footage of various pipe laid, piles driven, equipment installed etc.) for each days work. These daily reports shall be included with CONTRACTOR'S monthly application for payment. The application for payment will be considered incomplete and will not be processed without inclusion of the Quality Control Daily Reports.

ARTICLE 7 - Other Work

7.1 RELATED WORK AT SITE: OWNER may perform other work related to the Project at the site by OWNER'S own forces, have other work performed by utility owners or let other direct contracts which shall contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to CONTRACTOR prior to starting any such other work.

7.2 ACCESS TO THE SITE: CONTRACTOR shall afford each utility owner and other contractor who is a party to such a direct contract (or OWNER, if OWNER is performing the additional work with OWNER'S employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with theirs. CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be

affected.

7.3 ACCEPTANCE OF THE WORK OF OTHERS: If any part of CONTRACTOR'S Work depends for proper execution or results upon the work of any such other CONTRACTOR or utility owner (or OWNER), CONTRACTOR shall inspect and promptly report to ENGINEER in writing any delays, defects or deficiencies in such work that render it unsuitable for such proper execution and results. CONTRACTOR'S failure so to report shall constitute an acceptance of the other work as fit and proper for integration with CONTRACTOR'S Work except for latent or non-apparent defects and deficiencies in the other work.

7.4 COORDINATION:

7.4.1 Whenever Work to be performed by CONTRACTOR is dependent upon the work of other parties, CONTRACTOR shall coordinate that Work with the dependent work to the same extent that CONTRACTOR is required to coordinate dependent Subcontractor Work. Installation of Work by CONTRACTOR, directly or through a Subcontractor, in any given area, shall constitute acceptance by CONTRACTOR (including the Subcontractor) of all previously placed dependent work.

7.4.2 If OWNER contracts with other parties for other work, ENGINEER will have the authority and responsibility for coordinating activities of CONTRACTOR and those parties, unless another person or organization with specific authority and responsibility for coordination of the CONTRACTOR and those other parties is expressly designated in the Supplementary Conditions or at the pre-construction conference.

7.4.3 If OWNER contracts with other parties for other work, CONTRACTOR shall be responsible for cooperating with ENGINEER fully in the coordination of CONTRACTOR's Submittals with dependent Submittals of those other parties whose work in any way relates or depends upon the Work, or visa versa. When submitted to ENGINEER any such coordinated Submittal of CONTRACTOR shall identify by specific notation, within or attached to that Submittal, each and every item of interface with the other work.

7.5 MUTUAL DUTIES AND RESPONSIBILITIES:

7.5.1 If CONTRACTOR causes damage to the work or property of others, or if a claim arising out of CONTRACTOR's execution of Work is made by another party against CONTRACTOR, OWNER, or ENGINEER, CONTRACTOR shall promptly attempt to settle with that party by agreement or otherwise resolve the claim. CONTRACTOR shall defend, indemnify and hold harmless OWNER, ENGINEER and others as provided in paragraph 5.2, from and against all claims arising out of or resulting from damage by CONTRACTOR to the work or property of others or from CONTRACTOR's execution of the Work.

7.5.2 If another party causes damage to Work or property of CONTRACTOR, or if the performance of other work results in any claim by CONTRACTOR, CONTRACTOR shall promptly attempt to settle with that party by agreement or otherwise resolve the claim.

CONTRACTOR shall not begin any action against OWNER or ENGINEER, their consultants, agents or any of their directors, officers, shareholders, agents or employees, or others indemnified as provided in paragraph 5.2, or permit any action against them to be maintained in CONTRACTOR's name or for CONTRACTOR's benefit before any court or tribunal, which action seeks to impose any liability or recover any damages from OWNER or ENGINEER for such claim.

7.5.3 Except as excluded in paragraph 7.5.4, if any party performing other work causes suspension of Work resulting in unreasonable delay under the circumstances, and if, upon a request from CONTRACTOR, OWNER concludes that any such delay requires a change in Contract Price or Contract Time, OWNER shall, pursuant to Articles 10 through 12, authorize such a change in Contract Price or Contract Time, or both.

7.5.4 If a party performing other work is granted an extension in a contract time only (based on unreasonable delay under circumstances not caused in whole or in part by acts or omissions of that party, OWNER, ENGINEER or OWNER's representative on that other work), and if, upon a request from CONTRACTOR, OWNER concludes that the extension granted to the other work requires a change in a coterminous Contract Time in the Contract Documents, OWNER shall authorize the necessary change in Contract Time only.

7.6 CONTRACTOR'S RESPONSIBILITY FOR OWNER COSTS: If CONTRACTOR becomes involved in settling or otherwise resolving claims with other persons performing other work arising out of events covered under paragraphs 7.5.1 or 7.5.2, or because of any other similar controversy, including damage to the Work or other work or a dispute about responsibility for clean-up or any other issue, neither OWNER, ENGINEER, nor any of their consultants, agents nor any of their directors, officers, stockholders nor employees will be involved in any way in such actions (except if subpoenaed). If OWNER incurs costs contrary to the provisions of this Article, CONTRACTOR shall reimburse those costs to the OWNER.

ARTICLE 8 - Owner's Responsibilities

8.1 Written communications from OWNER to CONTRACTOR will generally be issued through ENGINEER. If the need arises to issue written communication directly, a copy will be issued concurrently to ENGINEER. Written communications from CONTRACTOR to OWNER shall be issued to ENGINEER (and include two (2) copies for OWNER); from Subcontractor or Suppliers shall be issued through CONTRACTOR.

8.2 In case of termination of the employment of ENGINEER, OWNER shall appoint another ENGINEER whose status under the Contract Documents shall be that of the former ENGINEER. Any dispute in connection with such appointment shall be subject to the provisions of Article 16.

8.3 OWNER shall furnish the data required of OWNER under the Contract Documents promptly and shall make payments to CONTRACTOR promptly after they are due as provided in paragraphs 14.4 and 14.13.

8.4 OWNER'S duties in respect to providing lands and easements and providing engineering

surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to OWNER'S identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions at the site and in existing structures which have been utilized by ENGINEER in preparing the Drawings and Specifications.

8.5 OWNER is obligated to execute Change Orders, either unilateral or negotiated, in OWNER's sole discretion, covering necessary changes in the work.

8.6 OWNER'S responsibility in respect to certain inspections, tests and approvals is set forth in paragraph 13.4.

8.7 In connection with OWNER'S right to stop Work or suspend Work, see paragraphs 13.10 and 15.1. Paragraph 15.2 deals with OWNER'S right to terminate services of CONTRACTOR under certain circumstances.

ARTICLE 9 - Engineer's Status during Construction

9.1 OWNER'S REPRESENTATIVE: The OWNER will provide an OWNER'S representative during the construction period. The duties and responsibilities and the limitations of authority of OWNER'S representative during construction are set forth in the Contract Documents and shall not be extended without written consent of OWNER.

9.2 VISITS TO SITE: In addition to the OWNER's representative, ENGINEER will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. Neither the OWNER's representative nor the ENGINEER will be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. ENGINEER'S efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform to the Contract Documents. On the basis of such visits and on-site observations as an experienced and qualified design professional, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defects and deficiencies in the Work.

9.3 PROJECT REPRESENTATION: OWNER may furnish a Resident Project Representative to assist ENGINEER in observing the performance of the Work.

9.4 CLARIFICATIONS AND INTERPRETATIONS: ENGINEER will issue with reasonable promptness such written clarification of interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. If CONTRACTOR believes that a written clarification or interpretation justifies an increase in the Contract Price or Contract Time, CONTRACTOR may make a claim therefore as provided in Article 11 or Article 12 of the General Conditions.

9.5 AUTHORIZED VARIATIONS IN WORK:

9.5.1 ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER, and also on CONTRACTOR who shall perform the Work involved promptly. If CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a claim therefore as provided in Article 11 or 12.

9.5.2 ENGINEER shall prepare change orders at OWNER'S request, and when required by the contract documents, ENGINEER shall set the price and/or time adjustments he deems reasonable.

9.6 REJECTING DEFECTIVE WORK: ENGINEER, based on its observations, reports of resident engineer(s) and/or reports of Resident Project Representative(s) will have authority to disapprove or reject Work at any time during the construction of the Work, which does not conform to the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the work as provided in Paragraph 13.9, whether or not the Work is fabricated, installed, or completed. When CONTRACTOR has been notified by ENGINEER of disapproval or rejection of non-conforming Work, CONTRACTOR shall take immediate action to correct same.

9.7 SHOP DRAWINGS: In connection with ENGINEER'S responsibility for Shop Drawings and samples, see paragraphs 6.21 through 6.25, inclusive.

9.8 CHANGE ORDERS: In connection with ENGINEER'S responsibilities for Change Orders, see Articles 10, 11 and 12.

9.9 PAYMENTS: In connection with ENGINEER'S responsibilities in respect of Applications for Payment, etc., see Article 14.

9.10 DETERMINATIONS FOR UNIT PRICES: ENGINEER will determine the actual quantities and classifications of unit price work performed by CONTRACTOR. Engineer will review with CONTRACTOR ENGINEER's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application of Payment or otherwise). ENGINEER's written decision will be final and binding on CONTRACTOR, unless within ten days after the date of any such decision, CONTRACTOR delivers to the ENGINEER and OWNER written notice of intention to appeal the ENGINEER's decision.

9.11 DECISIONS ON DISPUTES: ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and claims under Articles 11 and 12 in respect of changes in the Contract Price or Contract Time will be referred initially to ENGINEER in writing with a request for a formal decision in accordance with this paragraph, which ENGINEER will render in writing within a reasonable

time. Written notice of each such claim, dispute and other matter shall be delivered by the claimant to ENGINEER and the other party to the Agreement promptly (but in no event later than thirty days) after the occurrence of the event giving rise thereto, and written supporting data will be submitted to ENGINEER and the other party within sixty days of after such occurrence unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim.

9.12 When functioning as interpreter and judge under paragraphs 9.10 and 9.11, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to paragraph 9.10 and 9.11 with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.16) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such claim, dispute or other matter.

9.13 LIMITATIONS ON ENGINEER'S RESPONSIBILITIES:

9.13.1 Neither ENGINEER'S authority to act under this Article 9 or elsewhere in the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization performing any of the Work, or to any surety for any of them.

9.13.2 Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved", or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of like effect or import are used to describe requirement, direction, review or judgment of ENGINEER as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.13.3 or 9.13.4.

9.13.3 ENGINEER will not be responsible for CONTRACTOR'S means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and ENGINEER will not be responsible for CONTRACTOR'S failure to perform or furnish the Work in accordance with the Contract Documents.

9.13.4 ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

ARTICLE 10 - Changes in the Work

Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by a Change Order, Field Order, or a Work Directive Change. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

10.1 CHANGE ORDERS: Change orders may be issued by OWNER in one of the following manners:

10.1.1 Bilateral change order: Type of order issued to CONTRACTOR when OWNER and CONTRACTOR have agreed on the price and time adjustment made necessary by the particular change order.

10.1.2 Unilateral change order: Type of order issued to CONTRACTOR when OWNER and CONTRACTOR cannot agree on the price and/or time adjustment necessitated by the particular change order, within the scope of the project. The OWNER will issue the unilateral change order setting forth such price and/or time adjustments that ENGINEER shall deem reasonable. Any dispute in connection with the issuance of a unilateral change order shall be subject to the provisions of paragraph 9.11 and Article 16.

10.2 CHANGE ORDER CLAIM: If OWNER and CONTRACTOR are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Work Directive Change or Change Order, a claim may be made therefore as provided in Article 11 or Article 12.

10.3 CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraphs 3.4 and 3.5, except in the case of an emergency as provided in paragraph 6.20 and except in the case of uncovering Work as provided in paragraph 13.9.

10.4 OWNER and CONTRACTOR shall execute appropriate Change Orders covering:

10.4.1 Changes in the Work which are ordered by OWNER pursuant to Article 10, are required because of acceptance of defective Work under paragraph 13.13 or correcting defective Work under paragraph 13.14 or are agreed to by the parties;

10.4.2 Changes in the Contract Price or Contract Time which are agreed to by the parties; and

10.4.3 Changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 9.11; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as

provided in paragraph 6.25.

10.5 If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Time) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR'S responsibility, and the amount of each applicable Bond will be adjusted accordingly.

10.6 WRITTEN PROPOSALS: At any time ENGINEER may request a quotation from CONTRACTOR for a proposed change in the Work. Within 15 calendar days after receipt of a Notice of a Proposed Change, unless otherwise indicated in the Notice, CONTRACTOR shall submit a written and detailed proposal for an increase or decrease in the Contract Price or Contract Time corresponding to the proposed change. The proposal shall include an itemized estimate of all costs and time for performance that will result directly or indirectly from the proposed change. Unless otherwise directed, itemized estimates shall be in accordance with the requirements of Articles 11 and 12 and in sufficient detail to reasonably permit an analysis by ENGINEER of all material, labor, equipment, subcontract, and overhead costs and fees and shall cover all aspects of the work involved in the change, whether such was deleted, added, changed, or impacted. Any amount claimed for subcontracts shall be similarly supported. Itemized schedule adjustments shall be in sufficient detail to permit an analysis of impact. Notwithstanding the request for quotation, CONTRACTOR shall carry on the Work and maintain the progress schedule. Delays in the submittal of the written and detailed quotation will not constitute a basis for an increase in contract time.

10.7 FIELD ORDER: ENGINEER may authorize minor changes in the Work not involving an adjustment in the Contract Price or the Contract Time, which are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order or in the approval of a shop drawing or sample, and shall be binding on CONTRACTOR. CONTRACTOR shall proceed with the performance of the changes in the Work so authorized by ENGINEER unless CONTRACTOR believes that such Field Order or approved shop drawing or sample entitles him to a change in the Contract Price or Time, or both, in which case CONTRACTOR shall give ENGINEER a written Notice of a Proposed Change thereof along with supporting documentation within 3 days of receipt of the Field Order or the approved shop drawing or sample and prior to commencing work. CONTRACTOR shall document the basis for the change in Contract Price or Time in accordance with paragraph 10.6 and the requirements of Article 11 and Article 12. Request for a Change Order to adjust Contract Price or Time arising out of a Field Order or an approved shop drawing will not be considered without the attachment thereto of a copy of the referenced Field Order or approved shop drawing. No claim by CONTRACTOR will be allowed if The Notice of a Proposed Change is submitted after Work on the Field Order or the approved shop drawing or sample has commenced, or after Final Payment under this Agreement.

10.8 CONTRACTOR'S ACCEPTANCE OF A CHANGE ORDER: The increase or decrease in Contract Price or Contract Time, or both stated in a Change Order signed by CONTRACTOR shall unequivocally comprise the total price and/or time adjustment due or owed for the Work or changes defined in the Change Order. By executing a Change Order, CONTRACTOR

acknowledges and agrees that the stipulated increases or decreases in Contract Price and/or time represent full compensation for all increases or decreases in the cost of or the time required to perform the entire Work under the contract arising directly or indirectly from the change, including the costs and delays associated with the interruption of schedules, extended overheads, delay, loss of momentum, acceleration to overcome delays and loss of momentum, and cumulative impacts or ripple effect on all other non-affected work under this contract. Such signing of a Change Order constitutes full and mutual accord and satisfaction for the adjustment in Contract Price or time as a result of increases or decreases in costs and time of performance caused directly and indirectly from the change, subject to the current scope of the Work as set forth in the Contract Documents. Acceptance of this waiver constitutes an agreement between OWNER and CONTRACTOR that the Change Order represents an equitable adjustment to the Contract, and that CONTRACTOR will waive all rights to file a claim on the Change Order after it is properly executed by OWNER and CONTRACTOR

10.9 If upon the review of any proposal or claim submitted by CONTRACTOR, ENGINEER or OWNER determines that an adjustment or that no adjustment in Contract Price or Contract Time is justified under the Contract documents, that determination shall be final and binding on CONTRACTOR unless CONTRACTOR files a subsequent written notice of claim in the form of a Notice of Proposed Change in accordance with Articles 11 and 12, referencing the disputed determination, and CONTRACTOR furnishes any additional supporting data requested by ENGINEER or OWNER.

ARTICLE 11 - Change of Contract Price

11.1 The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at his expense without change in the Contract Price.

11.2 The Contract Price may only be changed by a Change Order CONTRACTOR shall notify ENGINEER by means of a Written Notice of a Proposed Change within fifteen days, or earlier if so required elsewhere in the Contract Documents, of the occurrence of an event which CONTRACTOR believes entitles him to a change in the Contract Price. Supporting data shall be delivered within fifteen days of such notice or within thirty days of such occurrence, whichever is later, unless OWNER allows an additional period of time to ascertain accurate cost data. CONTRACTOR must prove that additional costs were necessarily incurred which meet the criteria set forth in Paragraph 10.4, despite CONTRACTOR'S reasonable, prudent, and diligent efforts to prevent such costs. Failure of CONTRACTOR to comply with the time requirements for written Notice of a Proposed Change or for submittal of supporting data shall be considered to be a waiver by CONTRACTOR of any claim for an addition to the Contract Price.

11.3 The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

11.3.1 LUMP SUM PRICES INCLUDED IN THE CONTRACT: Where the Work involved is covered by lump sum prices included in the Proposal Documents, Schedule of Contract Items

and Unit Price; the Contract Price shall be adjusted by the lump sum prices.

11.3.2 UNIT PRICES INCLUDED IN THE CONTRACT: Where the Work involved is covered by unit prices included in the Proposal Documents, Schedule of Contract Items and Unit Price, and the actual quantities required differ from that shown on the Proposal Documents, or those indicated in the Contract Documents, the Contract Price shall be adjusted by application of unit prices to the actual quantities of the items involved.

11.3.3 NEGOTIATED UNIT PRICES: If the Work involved is not covered by unit prices contained in the Contract Documents, unit prices may be negotiated on the basis of costs estimated in accordance with this Article 11.

11.3.4 NEGOTIATED LUMP SUM: If the Contract Price is adjusted on the basis of an agreed to Lump Sum, and the costs are estimated in accordance with this Article 11.

11.3.5 COST OF THE WORK: If OWNER and CONTRACTOR cannot agree that any of the methods described in 11.3.1, 11.3.2, 11.3.3 or 11.3.4 above are appropriate for the proposed work, OWNER may direct CONTRACTOR to proceed on the basis of actual costs in accordance with Article 11.

11.3.6 UNILATERAL CHANGE ORDER: If OWNER and CONTRACTOR cannot agree on the price and/or time adjustment necessitated by the particular proposed change order, the OWNER may issue a unilateral change order setting forth such price and/or time adjustments that ENGINEER shall deem reasonable.

11.4 COST OF THE WORK: The term Cost of the Work means the sum of all costs necessarily incurred and paid by the CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5:

11.4.1 The Cost of the Work involved includes payroll costs for CONTRACTOR's craft labor, including foremen, assigned to the site and engaged in furnishing and incorporating materials or equipment in the Work involved. Labor work hours shall not exceed current "Means open Shop Building Construction Cost data" applicable to the work involved. Payroll costs shall include wages and may include those labor burdens expressly certified in advance by a duly authorized financial representative of CONTRACTOR and so approved by OWNER, Examples of labor burdens include social security, unemployment taxes, worker's compensation, health and retirement benefits, vacation and holiday pay. When determining actual payroll costs under paragraph 11.3.5: (a) contemporaneously, daily time sheets certified by CONTRACTOR and verified by ENGINEER along with certified payroll records shall be valid records; (b) after-the-fact daily time sheets shall be valid only if they expressly correlate to the Work involved, and if recorded at that time and used for payroll.

11.4.2 The Cost of the Work involved includes payments by CONTRACTOR to Suppliers for material and equipment used in the Work involved, including transportation, storage and

necessary Suppliers' field services. All trade discounts, rebates and refunds and all returns from sale of surplus items shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained. If required by OWNER, CONTRACTOR shall obtain bids for designated materials or equipment and nominate at least two (2) Suppliers for selection by OWNER. When determining actual Supplier costs, invoices segregating items associated with the Work involved shall be the record upon which to base actual costs.

11.4.3 The Cost of the work involved includes payments made by the CONTRACTOR to Subcontractor for the Work involved performed by the Subcontractor. The methods for calculating Subcontractors' costs shall be the same as for CONTRACTOR costs, except that the term Subcontractor shall replace the term "CONTRACTOR", context permitting. If OWNER requires, CONTRACTOR shall obtain detailed competitive sub-bids and nominate at least two (2) Subcontractors for the performance of any work involved for selection by OWNER.

11.4.3.1 All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

11.4.4 Construction Equipment Costs: The Cost of the work involved includes costs for individual construction equipment with replacement value in excess of \$1,000,000. Transportation, loading and unloading, installation, dismantling and removal costs shall be allowed only if prior consent is obtained from ENGINEER, and if equipment is, or was, transported to the site solely for the Work involved. Shipping costs will be allowed if the equipment requires the use of a carrier, and provided the travel distance does not exceed that for equipment in Terrebonne Parish. When multiple attachments are used, only the highest cost attachment shall be recoverable. Equipment costs shall cease when the equipment is no longer needed for the Work involved. Payroll costs for labor operating the equipment are as specified in paragraph 11.4.1. Equipment costs shall be computed using the same accounting and estimating rules and prices, whether related to added or deleted Work.

11.4.4.1 When determining actual construction equipment costs under paragraph 11.3.5: (a) contemporaneously, daily logs of the equipment, operators and actual usage, verified by ENGINEER, shall be the valid records; (b) after-the-fact, such daily records shall be valid only if developed when the Work involved was performed and used for accounting purposes.

11.4.4.2 Rented or owned equipment at the site, idled solely by actions of OWNER or ENGINEER, shall be paid at the rates for rented equipment, or based on fifty percent (50%) of the rates for owned equipment, respectively, provided that the idle period exceeds that normally experienced for such equipment and occurs during normal working hours.

11.4.4.3 Rented or Leased Construction Equipment: Construction equipment rented or leased from third parties shall be priced using either the specific rates negotiated between OWNER and CONTRACTOR (based on the actual rental or lease agreements), or in the event that no agreement is reached, using those rates listed in the Rental Rate "Blue Book" published by Dataquest, Inc. for the region covering the New Orleans

metropolitan area and applicable to the equipment (model number and year), but in no event shall the rate exceed those issued by local equipment rental companies within Terrebonne Parish. The equipment rate for second or third shift Work shall not exceed fifty percent (50%) of the base rate. Operating costs shall not exceed the hourly operation rate in the Blue Book. Hourly rates for equipment previously in use on the work for at least a month shall be based on the monthly rate divided by 176 hours. Equipment previously in use for only one week or not previously in use at the site shall not be invoiced to OWNER at rates higher than the following schedule of equipment use and payment category: applicable to equipment listed in the Rental Rate "Blue Book"

Less than 8 hours	Hourly Rate
1 day but less than 7 days	Daily Rate
1 week but less than 30 days	Weekly Rate
30 days or more (when in use)	Monthly Rate

11.4.4.4 Owned Construction Equipment: Construction equipment Owned by CONTRACTOR, or rented or leased from lessors associated with or owned by CONTRACTOR, shall be priced using either the specific rates negotiated between OWNER and CONTRACTOR (based on rates consistent with CONTRACTOR's normal accounting practices), or in the event that no agreement is reached, using the rates listed in the "Contractor's Equipment Cost Guide" published by Dataquest, Inc. for the region covering the New Orleans metropolitan area, but in no event shall the equipment ownership costs exceed rental rates of local equipment rental companies within Terrebonne Parish and operating costs shall not exceed the hourly operation rate in the Blue Book. For multiple shifts, rates shall not exceed the shift Work adjustments recommended in the "Contractor's Equipment Cost Guide".

11.4.5 Supplemental costs including the following:

11.4.5.1 The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR'S employees incurred in discharge of duties connected with the Work.

11.4.5.2 Costs of field supplies and purchase costs (less market value if not consumed) of tools individually valued at less than \$1,000 that are not owned by the workers, if CONTRACTOR provides an itemized list of the field supplies and tools required for the performance of the Work involved; however, no such costs shall be allowed over 4% of the labor costs under paragraph 11.4.1, excluding burdens, unless CONTRACTOR furnishes detailed data sufficient to allow verification that a higher percentage is appropriate for the work involved.

11.4.5.3 Sales, consumer, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

11.4.5.4 Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

11.4.5.5 Losses and damages (and related expenses), not compensated by insurance or otherwise, to the Work or otherwise sustained by CONTRACTOR in connection with the performance and furnishing of the Work, provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's Fee. If, however, any such loss or damage requires reconstruction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid for services a fee proportionate to that stated in paragraph 11.6.2.

11.4.5.6 The costs of utilities, fuel and sanitary facilities at the site.

11.4.5.7 Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

11.4.5.8 Cost of premiums for additional Bonds and insurance required because of changes in the Work.

11.5 The term Cost of the Work shall not include any of the following:

11.5.1 Payroll costs and other compensation of CONTRACTOR'S officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, lawyers, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in his principal or a branch office for general administration of the Work, all of which are to be considered administrative costs covered by the Contractor's Fee.

11.5.2 Expenses of CONTRACTOR'S principal and branch offices other than CONTRACTOR'S office at the site.

11.5.3 Any part of CONTRACTOR'S capital expenses, including interest on CONTRACTOR'S capital employed for the Work and charges against CONTRACTOR for delinquent payments.

11.5.4 Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by subparagraph 11.4.5.8 above).

11.5.5 Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

11.5.6 Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.4.

11.5.7 Attorney's Fees and/or Court Costs.

11.5.8 Costs or fees of consultants retained or utilized by CONTRACTOR, or his agents, for the purpose of making or filing a claim against OWNER, pursuing litigation or defending any claim and/or dispute.

11.5.9 CONTRACTOR shall not be allowed to include as part of the Cost of the Work involved any construction equipment or supplemental costs that cannot be shown to increase on account of, or are not directly attributable to, the performance of the Work involved. Payroll costs for the full time resident superintendent included within the requirements of paragraph 6.2.1 are but one example of such costs.

11.6 CONTRACTOR'S FEE: The CONTRACTOR'S fee allowed to CONTRACTOR for overhead and profit shall be determined by negotiations. The objective of negotiations shall be the exercise of sound business judgment including a fair and reasonable profit based on assumptions of risk, exposure to weather, size of the change, percent of subcontracted work, equipment requirements, and time of performance. In no case, however, shall the fee for overhead and profit exceed the following percentages of the various portions of the Cost of the Work:

11.6.1 For costs incurred under paragraphs 11.4.1 and 11.4.2, the CONTRACTOR'S fee shall not exceed 15%;

11.6.2 For costs incurred under paragraph 11.4.3, and for work performed by a CONTRACTOR'S Subcontractor, the CONTRACTOR'S fee shall not exceed 10% and the Subcontractor's fee shall not exceed 15%; for costs incurred under paragraph 11.4.3, and Work performed by a Subcontractor's Subcontractor, the CONTRACTOR'S and the Subcontractor's fee shall not exceed 5% and 5%, and the Subcontractor's fee shall not exceed 15%.

11.6.3 No fee shall be payable on the basis of costs itemized under paragraphs 11.4.4 and 11.5.

11.6.4 The amount of credit to be allowed by CONTRACTOR to OWNER for any such a change which results in a net decrease in cost will be the amount of the actual net decrease plus a deduction in CONTRACTOR'S fee in accordance with the following:

11.6.5 When both additions and credits are involved in one change, and the additions exceed the credits, the adjustment in CONTRACTOR'S fee shall be computed on the amount by which the additions exceed the credits, except that no adjustments shall be allowed on the costs developed in accordance with paragraph 11.3.1;

11.6.6 When both additions and credits are involved in one change, and the credits exceed the additions, CONTRACTOR will be allowed to retain fee on the amount by which the credits exceed the additions, except that no adjustment shall be allowed on the costs developed in accordance with paragraph 11.3.1 or 11.3.2.

11.7 Whenever the cost of any Work is to be determined pursuant to paragraph 11.4 or 11.5, CONTRACTOR will submit in form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.8 RESERVED

11.9 UNIT PRICE WORK:

11.9.1 Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit prices for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER in accordance with Paragraph 9.10.

11.9.2 Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR'S overhead and profit for each separately identified item.

11.9.3 Unit Prices contained in the initial Contract shall not be changed under any circumstances. (Reference Louisiana Public Bid Law).

11.9.4 If CONTRACTOR believes a variation from estimated quantities of Unit Price Work is such as to require an increase in the Contract Time, CONTRACTOR shall within seven days of knowledge of the variation in quantities, submit a written Notice of a Proposed Change to ENGINEER, and proceed to substantiate his claim within fifteen days of the delivery of the notice with the analysis and documentation required in this Section of the General Requirements.

ARTICLE 12: Change of Contract Time

12.1 The Contract Time may only be changed by a Change Order. Any claim or request for an extension in the Contract Time shall be based on a written Notice of a Proposed Change delivered to ENGINEER within seven days, or earlier if so required in the Contract Documents, of the occurrence of the event giving rise to the request or claim. Supporting data as to the extent of the request or claim shall be delivered within fifteen days of such Notice, or within twenty-two days of the event giving rise to the occurrence, whichever is later, unless ENGINEER allows an additional period of time to ascertain more accurate data. CONTRACTOR must prove that extensions to the Contract Time have materialized which meet the combined criteria set forth in paragraph 12.2 below and Official Progress Schedules of the General Requirements, despite CONTRACTOR'S reasonable, prudent, and diligent efforts to prevent or overcome such delays. Failure of CONTRACTOR to comply with the time requirements for written Notice or for submittal of supporting data shall be considered to be a waiver by CONTRACTOR of any claim for an extension in the Contract Time.

12.2 The Contract Time will be extended in an amount equal to the time lost due to delays

beyond the control and without the fault of CONTRACTOR, and which CONTRACTOR could not have guarded against, if a claim is made therefore as provided in Paragraph 12.1 and is substantiated to the satisfaction of OWNER. Such delays may include, but not limited too, unusually severe weather, sink holes, archaeological finds, acts of God, acts of the public enemy, acts of OWNER in either its sovereign or contractual capacity, furnishing of lands, right-of-way or easements by OWNER, acts of another CONTRACTOR in the performance of a Contract with OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or delays of Subcontractors of Suppliers at any tier arising from causes other than normal weather beyond the control and without the fault or negligence of both CONTRACTOR and such Subcontractors and Suppliers; and further provided that

12.2.1 The Contract Time is extended only to the extent that the delay is unreasonable under the Contract, which is the extent the delays set forth in paragraph 12.2 above exceed the Total Float Time available in the Official Schedule and extend completion of the Work, or specified part of the work, beyond the corresponding Contract Time.

12.3 If upon evaluation of CONTRACTOR's analysis, OWNER justifies an extension in Contract Time under paragraph 12.1 through 12.3 for delay not caused in whole or in part by acts or omissions within the control of OWNER or ENGINEER, the OWNER shall authorize the necessary change in Contract Time only.

12.4 COMPENSABLE DELAY:

12.4.1 Unless otherwise excluded in the Contract Documents, an extension in Contract Time may be combined with an increase in Contract Price to the extent the delay was not concurrent with CONTRACTOR delay, was caused in whole or in part by acts or omissions within the control of OWNER or ENGINEER and is due to one of the following: Underground Facilities that are not shown (i.e., previously unknown); an emergency; objection, for OWNER's convince, to a Subcontractor, historic resources, uncovering of work not found to be defective under paragraph 13.9; delay under paragraph 7.5.3 or any other suspension of Work; changes in the Work; differing site conditions; and variation in quantities.

12.4.2 Changes in Contract Price for extensions in Contract Time may include increase in the Cost of the Work, as provided in Article 11, related to the extension in Contract Time, but shall exclude costs that are unaffected or do not relate to the extension in Contract Time, such as: (a) operating costs of construction equipment assigned to the Work on a continuous basis but primarily used in the furnishing and incorporating of materials/equipment into the Work, (b) operating costs and owned/rental costs of construction equipment used solely in the furnishing and incorporating of materials/equipment into the Work (crane used for specific lifts, concrete pump used for specific pours, etc.), and fully paid site facilities, tools, etc.

12.4.3 If a delay meeting the conditions of paragraph 12.4.1 delays Substantial completion of the Work beyond the Contract Time for Substantial Completion, OWNER shall negotiate with CONTRACTOR the reimbursement of an amount to cover administrative costs (under paragraphs 11.5.1 through 11.5.4) that will be or were unabsorbed prior to the expiration date of that contract Time. Reimbursement shall be based on the lesser of (a) five percent (5%) times

that portion of the Contract Price remaining un-billed, less retainage, prior to the expiration of that Contract Time, or (b) the product of that un-billed portion of the Contract Price times the (company wide) ratio of CONTRACTOR's administrative costs to billings, or (c) that amount derived by an application of the Eichleay formula.

12.4.4 CONTRACTOR shall not recover from OWNER (a) acceleration costs incurred to overcome delays which warrant extensions in Contract Time but exclude changes in Contract Price, (b) escalation costs for any part of the Work not delayed beyond the Late Dates in the Official Schedule, or (c) delay costs not expressly allowed in this Article.

ARTICLE 13 - Warranty and Guarantee; Tests and Inspections: Correction, Removal or Acceptance of Defective Work

13.1 WARRANTY AND GUARANTEE: CONTRACTOR warrants and guarantees to OWNER and ENGINEER that all Work will be in accordance with the Contract Documents and will not be defective. Prompt notice of observed defects shall be given to CONTRACTOR. All defective Work, whether or not in place, may be rejected, corrected or accepted as provided in this Article 13.

13.1.1 The obligations of CONTRACTOR under this Paragraph 13.1 shall be in addition to and not in limitation of any obligation imposed upon him by special guarantees required by the Contract Documents or otherwise prescribed by law.

13.1.2 In special circumstances where a particular item of equipment or part of the Work reaches Substantial Completion upon successful performance of Pre-operational Testing, and notwithstanding anything in the Contract Documents to the contrary, CONTRACTOR shall maintain the particular item of equipment or part of the Work in good order and in proper working condition during the period between Substantial Completion and Initiation of Operation, and for such maintenance CONTRACTOR shall receive no adjustment to the Contract Price.

13.1.3 The warranty or guarantee provided by CONTRACTOR under Paragraph 13.1 of the General Conditions shall remain in full effect throughout the period from the date of Initiation of Operation of the entire work to the end of the Correction Period (as that term is defined in these General Conditions.

13.2 ACCESS TO WORK: ENGINEER and ENGINEER's representatives, other representatives of OWNER, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspection and testing. CONTRACTOR shall provide proper and safe conditions for such access.

13.3 NOTICE OF TESTS AND INSPECTIONS: CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests or approvals.

13.4 TESTS AND INSPECTIONS: If any laws or regulations of any public body having jurisdiction requires any Work (or part thereof) to specifically be inspected, tested or approved, CONTRACTOR shall assume full responsibility therefore, pay all costs in connection therewith

and furnish ENGINEER the required certificates of inspection, testing or approval. CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with OWNER'S or ENGINEER's acceptance of a Supplier of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for approval to CONTRACTOR'S purchase thereof for incorporation in the work.

13.4.1 All construction testing and certifications required under the Specifications shall be performed by Certified Technicians from an Independent Testing Laboratory. The CONTRACTOR shall propose a private testing laboratory in writing to the ENGINEER, together with a copy of the instruction provisions of his proposed sub-agreement, so that the ENGINEER may determine the proper instructions are included in compliance with the specification. Upon approval by the ENGINEER, the CONTRACTOR shall cooperate the with testing laboratory by furnishing material for testing, space for storage and transportation of the samples as necessary. Compensation for testing and certification shall be included within price bid for associated items of work. No separated measurement or additional compensation shall be allowed.

13.4.2 The Testing Laboratory shall submit to the ENGINEER three (3) typed copies and to the CONTRACTOR one (1) typed copy, of all applicable test data, certifications and reports as required. All required test data and material certifications for each respective item of work must be submitted to the ENGINEER prior to application for payment. Any applications not accompanied by required test data and/or certifications shall be recommended for payment at an amount not to exceed 50% of contract until cost of required test data and certifications are submitted and subsequently approved.

13.4.3 Upon completion of the project and prior to substantial completion, the testing laboratory shall address a letter to the OWNER in which the laboratory shall certify that all testing and certification requirements of the specification have been satisfactorily met.

13.4.4 The CONTRACTOR is cautioned to provide termination provisions in its sub-agreement with the testing laboratory. In the event that the testing services prove not up to recognized standards, the ENGINEER reserves the right to withdraw his approval and require another laboratory be furnished by the CONTRACTOR at no increase in Contract Price.

13.5 All inspections, tests or approvals other than those required by laws or regulations of any public body having jurisdiction shall be performed by organizations acceptable to OWNER and CONTRACTOR (or by ENGINEER if so specified).

13.6 If any Work (including the work of others) that is to be inspected, tested or approved is covered without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation. Such uncovering shall be at CONTRACTOR'S expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR'S intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

13.7 Neither observations by ENGINEER nor inspections, tests or approvals by others shall

relieve CONTRACTOR from CONTRACTOR'S obligations to perform the Work in accordance with the Contract Documents.

13.8 UNCOVERING WORK: If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER'S observation and replaced at CONTRACTOR'S expense.

13.9 PAYMENT FOR UNCOVERING WORK: If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER'S request, shall uncover, expose or otherwise make available for observation, inspection or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such work is defective, CONTRACTOR shall bear all direct, indirect and consequential costs of such uncovering, exposure, observation, inspection and testing, and of satisfactory reconstruction, (including but not limited to fees and charges of Engineers, Architects, Attorneys and other professionals), and OWNER shall be entitled to an appropriate decrease in the Contract Price, if the parties are unable to agree as to the amount thereof, may make a claim therefore as provided in Article 11. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price of an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a claim therefore as provided in Articles 11 and 12.

13.10 OWNER MAY STOP THE WORK: If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workmen or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR or any other party. In the event the OWNER stops the work pursuant to this paragraph 13.10, CONTRACTOR shall not be entitled to delay damages, including without limitation, demands for extended job site overhead, home office overhead, cumulative impacts, loss of productivity and efficiency, learning curve impacts, equipment down time and/or interest penalties, occasioned directly or indirectly by the stop work order.

13.11 CORRECTION OR REMOVAL OF DEFECTIVE WORK: If required by ENGINEER, CONTRACTOR shall promptly, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by ENGINEER, remove it from the site and replace it with non-defective Work. CONTRACTOR shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals, and court costs) made necessary thereby. CONTRACTOR shall not be entitled to time extension of the Contract Time for correction or removal of defective work.

13.12 ONE YEAR CORRECTION PERIOD: If within the period from the date of Substantial Completion of a particular item of equipment or a designated part of the work to one year after

the date of Initiation of Operation for the Project, the particular item of equipment or designated part of the work is found to be defective, CONTRACTOR shall promptly, without an adjustment in Contract Price and in accordance with ENGINEER'S written instructions, either correct such defective Work, or if it has been rejected by ENGINEER, remove it from the site and replace it with non-defective work. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement, (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) will be paid by CONTRACTOR.

13.12.1 Subject to the conditions set forth in paragraphs 13.1.2 and 13.1.3 and the adjustments described in Subparagraphs 13.12.2, below, the Correction Period shall be one year.

13.12.2 Unless another date is indicated in the Contract Documents the date the Work is Substantially Complete shall be the date for Initiation of Operation to occur. However, OWNER may at its sole option advance or delay the date for Initiation of Operation, and CONTRACTOR'S obligations to extend warranties and guarantees in accordance with paragraph 13.1.2 and 13.1.3 or to maintain the Work in accordance with paragraph 13.1.2 until then shall remain absolute. Applicable Change Orders shall be executed by the parties to adjust the Contract Price, as appropriate.

13.12.3 CONTRACTOR'S responsibilities under the paragraph 13.12, including sub-paragraphs, are in addition to, not in lieu of, all other obligations imposed by these contract documents, or imposed by applicable State laws.

13.13 ACCEPTANCE OF DEFECTIVE WORK: If, instead of requiring correction or removal and replacement of defective Work, OWNER (and, prior to ENGINEER'S recommendations of final payment, also ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall bear all direct, indirect and consequential costs attributable to OWNER'S evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness and to include but not be limited to fees and charges of engineers, architects, attorneys and other professionals). If any such acceptance occurs prior to ENGINEER'S recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefore as provided in Article 11. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

13.14 OWNER MAY CORRECT DEFECTIVE WORK: If CONTRACTOR fails within a reasonable time after written notice of ENGINEER to proceed to correct and to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.11, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days' written notice to CONTRACTOR, correct

and remedy any such deficiency. In exercising the rights and remedies under this paragraph OWNER shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend CONTRACTOR'S services related thereto, take possession of CONTRACTOR'S tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER'S representatives, agents and employees such access to the site as may be necessary to enable OWNER to exercise the rights and remedies under this paragraph. All direct, indirect and consequential costs of OWNER in exercising such rights and remedies shall be charged against CONTRACTOR in an amount approved as to reasonableness by ENGINEER, and a Change Order shall be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefore as provided in Article 11. Such direct, indirect and consequential costs will include but not be limited to fees and charges of engineers, architects, attorneys and other professionals, all court and arbitration costs and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR'S defective Work. CONTRACTOR shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by OWNER of OWNER'S rights and remedies hereunder.

ARTICLE 14 - Payments to Contractor and Completion

14.1 SCHEDULE OF VALUES: The schedule of values established as provided in paragraph 2.9 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.2 APPLICATION FOR PROGRESS PAYMENT: At least fifty-five days before each progress payment falls due (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents and also as ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by such data, satisfactory to OWNER, as will establish OWNER'S title to the material and equipment and protect OWNER'S interest therein, including applicable insurance. Only major items of material and equipment to be incorporated in the project will be eligible for payment. These items must be easily accountable by the ENGINEER. Payment for these materials will be invoice prices for the material, submitted with the request for payment, which price shall not exceed the appropriate portion of the contract items in which such materials are to be incorporated. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

14.2.1 Notwithstanding any other provisions of these contract documents to the contrary, OWNER is under no duty or obligation whatsoever to any Subcontractor, laborer or other party to ensure that payments due and owing by CONTRACTOR to any of them are or will be made. Such parties shall rely only on CONTRACTOR'S surety bonds for remedy of nonpayment by CONTRACTOR.

14.3 CONTRACTOR'S WARRANTY OF TITLE: CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

14.4 REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT: ENGINEER will, within ten days after receipt of each application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER, or return the Application to CONTRACTOR indicating in writing ENGINEER'S reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and re-submit the Application. Forty-five (45) days after presentation of the Application for Payment with ENGINEER'S recommendation, the amount recommended will (subject to the provisions of the last sentence of paragraph 14.7) become due and when due will be paid by OWNER to CONTRACTOR.

14.5 ENGINEER'S recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER'S on-site observations of the Work in progress as an experienced and qualified design professional and on ENGINEER'S review of the Application for Payment and the accompanying data and schedules that the Work has progressed to the point indicated; that, to the best of ENGINEER'S knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.10, and to any other qualifications stated in the recommendation); and that CONTRACTOR is entitled to payment of the amount recommended. However, by recommending any such payment ENGINEER will not thereby be deemed to have represented that exhaustive or continuous on-site inspections have been made to check the quality or quantity of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents or that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or OWNER to withhold payment to CONTRACTOR.

14.6 ENGINEER'S recommendation of final payment will constitute an additional representation by ENGINEER to OWNER that the conditions precedent to CONTRACTOR'S being entitled to final payment as set forth in paragraph 14.13 have been fulfilled.

14.7 ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER'S opinion, it would be incorrect to make such representations to OWNER. ENGINEER may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify and such payment

previously recommended, to such extent as may be necessary in ENGINEER'S opinion to protect OWNER from loss because:

14.7.1 the Work is defective, or completed Work has been damaged requiring correction or replacement,

14.7.2 the Contract Price has been reduced by Change Order,

14.7.3 OWNER has been required to correct defective Work or complete Work in accordance with paragraph 13.14, or

14.7.4 of ENGINEER'S actual knowledge of the occurrence of any of the events enumerated in paragraphs 15.2.1 through 15.2.9 inclusive.

14.7.5 OWNER may refuse to make payment of the full amount recommended by ENGINEER because claims have been made against OWNER, or OWNER has claims against CONTRACTOR including but not limited to liquidated damages for anticipated or actual late completion, on account of CONTRACTOR'S performance or furnishing of the Work, or Liens have been filed in connection with the Work or there are other items entitling OWNER to a set-off against the amount recommended, but OWNER must give CONTRACTOR prompt written notice (with a copy to ENGINEER) stating the reasons for such action.

14.8 SUBSTANTIAL COMPLETION: When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Within a reasonable time thereafter, OWNER, CONTRACTOR and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reason therefore. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion, which shall fix the date of substantial completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which he may make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within twenty-eight days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating his reasons. If after consideration of OWNER'S objections, ENGINEER considers the WORK substantially complete, ENGINEER will within said twenty-eight days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be complete or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion, ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities, insurance and warranties.

Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER prior to ENGINEER'S issuing the definitive certificate of Substantial Completion ENGINEER'S aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

14.9 EXCLUSION OF CONTRACTOR FROM SITE: OWNER shall have the right to exclude CONTRACTOR from the Work after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.10 PARTIAL UTILIZATION: Use by OWNER of any finished part of the Work, which has specifically been identified in the Contract Documents, or which OWNER, ENGINEER and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER without significant interference with CONTRACTOR'S performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

14.10.1 OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees, CONTRACTOR will certify to OWNER and ENGINEER that said part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefore. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraphs 14.8 and 14.9 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

14.10.2 OWNER may at any time request CONTRACTOR in writing to permit OWNER to take over operation of any such part of the Work although it is not substantially complete. A copy of such request will be sent to ENGINEER and within a reasonable time thereafter OWNER, CONTRACTOR and ENGINEER shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If CONTRACTOR does not object in writing to OWNER and ENGINEER that such part of the Work is not ready for separate operation by OWNER, ENGINEER will finalize the list of items to be completed or corrected and will deliver such list to OWNER and CONTRACTOR together with a written recommendation as to the division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, utilities, insurance, warranties and guarantees for that part of the Work which will become binding upon OWNER and CONTRACTOR at the time when OWNER takes over such operation (unless they shall have otherwise agreed in writing and so informed ENGINEER). During such operation and prior to Substantial Completion of such part of the Work OWNER, shall allow CONTRACTOR

reasonable access to complete or correct items on said list and to complete other related Work.

14.10.3 No occupancy or separate operation of part of the Work will be accomplished prior to compliance with the requirements of paragraph 5.7 in respect of property insurance.

14.11 LIEN PERIOD: Within twenty-one (21) days of the receipt of the definitive Certificate of Substantial Completion from ENGINEER, OWNER shall adopt and record a Resolution of Acceptance with the Recorder of Mortgages of the Parish in which the Agreement has been recorded. The recording of this Resolution of Acceptance shall commence a lien period of not less than forty-five (45) consecutive calendar days, during which period the retainage stated in the Supplementary Conditions will be withheld by OWNER. After the said lien period, CONTRACTOR shall be responsible for obtaining from the Recorder of Mortgages a Certificate that the Agreement at the end of said forty-five day period, is clear of all liens, privileges, judgments or encumbrances of any nature whatsoever, which certificate he shall submit with his application for final payment to ENGINEER.

14.12 FINAL INSPECTION: Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of the particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to remedy such deficiencies.

14.13 FINAL APPLICATION FOR PAYMENT: After CONTRACTOR has completed all such corrections to the satisfaction of the ENGINEER, and delivered four (4) sets of all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents (as provided in paragraph 6.17) and other documents, all as required by the Contract Documents, and after ENGINEER has indicated that the Work is acceptable (subject to the provisions of paragraph 14.17), CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to OWNER) of all Liens arising out of or filed in connection with the Work. In lieu thereof and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full; an affidavit of CONTRACTOR that the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER'S property might in any way be responsible, have been paid or otherwise satisfied; and consent of the surety, if any, to final payment. If any Subcontractor or Supplier fails to furnish a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

14.13.1 Notwithstanding any provision of the Contract Documents to the contrary, OWNER shall not be deemed to have accepted the work or to have waived claims against CONTRACTOR as provided in Paragraph 14.16 until (i) Initiation of Operation and (ii) payment of all remaining amount of the Contract Price.

14.13.2 As a condition to payment of all remaining portions of the Contract Price of the Unit

Price Agreement, CONTRACTOR shall perform all Startup Testing and shall notify ENGINEER that the work is ready for final inspection. Such Startup Testing and notice to ENGINEER may be accomplished only after CONTRACTOR delivers written notice of the expected date of Initiation of Operation.

14.13.3 The requirements and provisions of Paragraphs 14.11, 14.12, and 14.13 of the General Conditions shall apply to payment of the remaining Contract Price pursuant to the *Unit Price Agreement, as well to final payment under the Unit Price Agreement.*

14.14 FINAL PAYMENT AND ACCEPTANCE: If, on the basis of ENGINEER'S observation of the Work during construction and final inspection, and ENGINEER'S review of the final Application for Payment and accompanying documentation - all as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR'S other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the Final Application for Payment, indicate in writing ENGINEER'S recommendation of payment and present the Application to OWNER for payment. Thereupon ENGINEER will give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.17. Otherwise, ENGINEER will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and re-submit the Application. Thirty days after presentation to OWNER of the Application and accompanying documentation, in appropriate form and substance, and with ENGINEER'S recommendation and notice of acceptability, the amount recommended by ENGINEER will become due and will be paid by OWNER to CONTRACTOR.

14.15 If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR'S final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

14.16 CONTRACTOR'S CONTINUING OBLIGATION: CONTRACTOR'S obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by ENGINEER, nor the issuance of a certificate of Substantial Completion, nor any payment by OWNER to CONTRACTOR under the Contract Documents, nor any use or occupancy of the Work or any part thereof by OWNER, nor any act of acceptance by OWNER nor any failure to do so, nor any review and approval of Shop Drawing or sample submission, nor the issuance of a notice of acceptability by ENGINEER pursuant to paragraph 14.14, nor any correction of defective Work by OWNER will constitute an acceptance of Work not in accordance with the Contract Documents or a release of

CONTRACTOR'S obligation to perform the Work in accordance with the Contract Documents (except as provided in paragraph 14.17).

14.17 WAIVER OF CLAIMS: The making and acceptance of any final payment will constitute:

14.17.1 A waiver of all claims by OWNER against CONTRACTOR, except claims previously made in writing and still unsettled, or claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.12 or from failure to comply with the Contract Documents or the terms of any special guarantees specified herein; however, it will not constitute a waiver by OWNER of any rights in respect of CONTRACTOR'S continuing obligations under the Contract Documents; and

14.17.2 a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

ARTICLE 15 - Suspension of Work and Termination

15.1 OWNER MAY SUSPEND WORK: OWNER may, at any time and without cause, suspend the Work or any portion thereof by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work shall be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if CONTRACTOR makes an approved claim therefore as provided in Articles 11 and 12. If OWNER stops work under Paragraph 13.10 or suspends CONTRACTOR'S services under paragraph 13.14, or suspends the work or any portion thereof because of CONTRACTOR'S failure to prosecute the Work without endangering persons and property, CONTRACTOR shall be entitled to no extension of Contract Time or increase in Contract Price.

15.2 OWNER MAY TERMINATE: OWNER may terminate CONTRACTOR's services for cause upon the occurrence of any one or more of the following events:

15.2.1 If CONTRACTOR commences a voluntary case under any chapter of the Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect, or if CONTRACTOR takes any equivalent or similar action by filing a petition otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency;

15.2.2 If a petition is filed against CONTRACTOR under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against CONTRACTOR under any other federal or state law in effect at the time relating to bankruptcy or insolvency;

15.2.3 If CONTRACTOR makes a general assignment for the benefit of creditors;

15.2.4 If a trustee, receiver, custodian or agent of CONTRACTOR is appointed under applicable law or under contract, whose appointment or authority to take charge of property of CONTRACTOR is for the purpose of enforcing a Lien against such property or for the purpose

of general administration of such property for the benefit of CONTRACTOR'S creditors;

15.2.5 If CONTRACTOR admits in writing an inability to pay its debts generally as they become due;

15.2.6 If CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.9 as revised from time to time);

15.2.7 If CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;

15.2.8 If CONTRACTOR disregards the authority of ENGINEER; or

15.2.9 If CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents;

In such case, CONTRACTOR shall not be entitled to receive any further payment beyond an amount equal to the value of the Work actually completed and the value of materials and equipment not incorporated in the Work but delivered and suitably stored, less the aggregate of payments previously made. If the direct and indirect costs of completing the Work exceed the unpaid balance of the Contract Price, CONTRACTOR shall pay the difference to OWNER. Such costs incurred by OWNER shall be incorporated in a Change Order, but in finishing the Work, OWNER shall not be required to obtain the lowest figure for the work performed. CONTRACTOR'S obligations to pay the difference between such costs and such unpaid balance shall survive termination of the Agreement.

15.3 Where CONTRACTOR'S services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.4 TERMINATION FOR CONVENIENCE: Upon seven days' written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement.

15.4.1 In any termination for convenience, CONTRACTOR shall be paid for (a) Work completed, in accordance with the Contract Documents, before receipt of the notice of termination, and (b) reasonable termination settlement costs for commitments that have become firm before the termination. CONTRACTOR shall not be paid any anticipated and unrealized supplemental costs, administrative expenses and profit for uncompleted Work. If no agreement can be reached as to reasonable termination costs, OWNER and CONTRACTOR shall follow the provisions in federal regulation FAR 52.249-2, found in 48 CFR Part 52.

15.4.2 Upon termination for convenience, OWNER shall have full power and authority to take

possession of the Work, assume any sub-agreements with Subcontractors and Suppliers that OWNER selects, and prosecute the Work to completion by contract or as OWNER may deem expedient.

15.4.3 If after notice of termination of the services of CONTRACTOR for cause, it is determined that CONTRACTOR was not in default, the termination shall be deemed to have been for the convenience of OWNER. In such event, CONTRACTOR may recover from OWNER payment for Work completed and reasonable termination costs as provided in paragraph 15.4.1.

15.5 CONTRACTOR MAY STOP WORK OR TERMINATE: If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety days by OWNER or ENGINEER fails to act on any Application for Payment within sixty days after it is submitted, or OWNER fails for sixty days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days' written notice to OWNER and ENGINEER, terminate the Agreement and recover from OWNER payment for all Work executed and any expense sustained plus reasonable termination expenses. In addition and in lieu of terminating the Agreement, if ENGINEER has failed to act on an Application for Payment or OWNER has failed to make any payment as aforesaid, CONTRACTOR may upon seven days' written notice to OWNER and ENGINEER stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve CONTRACTOR of his obligations under paragraph 6.29 to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with OWNER.

ARTICLE 16 - DISPUTE RESOLUTION

16.1 Subject to the conditions set forth in subparagraphs 16.2, 16.2.1 and 16.2.2 hereof, all claims, disputes and other matters and questions arising out of or relating to the Contract Documents or the breach thereof, except claims waived by the making and accepting of final payment as provided in Section 14.17, shall be decided by arbitration between the parties. This agreement to arbitrate shall be specifically enforceable under the Louisiana Arbitration Act and the award rendered by the arbitrators shall be final and a judgment may be entered thereon in the State District Court for the Parish of Terrebonne, State of Louisiana.

16.2 Any arbitration provided for hereunder will be conducted in accordance with the Construction Arbitration Rules of the American Arbitration Association (AAA), subject to the following:

16.2.1 OWNER shall not be compelled to arbitrate any dispute without its express consent given in writing after demand is made for arbitration.

16.2.2 Arbitration shall be conducted in Terrebonne Parish, Louisiana and the laws of the State of Louisiana shall be controlling as to matters of law.

16.3 Subject to any recognized privilege, discovery shall be available to each party to the arbitration as it would be available in the District Court for the Parish of Terrebonne under the provisions of the LA Code of Civil Procedure in effect at the time of demand for arbitration.

Notices, time periods and other procedural matters shall be governed by the rules that apply in Louisiana District Courts which shall be enforced by the AAA in the same manner as in the Louisiana District Court.

16.4 A pre-hearing conference shall be held not sooner than sixty (60) days after the filing of the answer, at which time a pre-hearing summary shall be filed by each party, setting forth all claims and counterclaims with specificity, all witnesses expected to be called at the hearing, all documents proposed to be introduced, and all items of claimed damages including dollar amounts therefore.

16.5 All discovery and amendments to the pre-hearing summary shall be concluded thirty (30) days prior to the arbitration date. Failure on the part of the CONTRACTOR to provide the foregoing discovery and disclosure shall render any claim supported by witnesses or documents not so disclosed null, void and waived.

16.6 In the event of any arbitration demanded and agreed to by the OWNER, each party shall select an arbitrator and the two so selected shall select a third from a panel proposed by the AAA. In the event that the two cannot agree upon a neutral arbitrator from the AAA list within thirty (30) days, then the third arbitrator shall be designated by the AAA.

16.7 In the event OWNER so elects, CONTRACTOR shall be required to participate in a consolidated arbitration to include the ENGINEER.

16.8 The arbitrators shall render a written decision, with conclusions of law and findings of fact, breaking down the items of any award on the claim or counterclaim in sufficient detail to enable OWNER to seek any grant reimbursement as may be available.

16.9 Notwithstanding anything else in the Contract Documents to the contrary, the CONTRACTOR shall carry on the work and maintain its progress during litigation or any arbitration proceedings, and OWNER shall continue to perform and pay as otherwise required by the Contract Documents.

16.10 In the event OWNER elects not to arbitrate one or more disputes, the dispute or disputes which the OWNER elects not to arbitrate shall be decided under the laws of the State of Louisiana in the 32nd Judicial District Court in and for the Parish of Terrebonne, State of Louisiana.

16.11 In the event OWNER is required to defend itself against any claim for delay, the OWNER shall be entitled to recover costs, including without limitation, administrative costs, attorneys' fees and court costs, from the party causing the delay.

ARTICLE 17 - Miscellaneous

17.1 GIVING NOTICE: Whenever any provisions of the Contract Documents requires the giving of written notice, it shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is

intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.2 COMPUTATION OF TIME:

17.2.1 When any period of time is referred to in the Contract Documents by days, it shall be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.2.2 A calendar day of twenty-four hours measured from midnight to the next midnight shall constitute a day.

17.3 UTILIZATION OF LOCAL LABOR (STATE RESIDENTS): Contractor shall make every effort to use local labor to the fullest extent possible.

17.4 GENERAL: Should OWNER or CONTRACTOR suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 17.3 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

17.5 DUTIES AND OBLIGATIONS: The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon CONTRACTOR by paragraphs 6.26, 13.1, 13.12, 13.14, 14.3 and 15.2 and all of the rights and remedies available to OWNER and ENGINEER thereunder, are in addition to, and shall not be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph shall be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply. All representations, warranties and guarantees made in the Contract Documents will survive final payment and termination or completion of this Agreement. Also, the obligation of CONTRACTOR to maintain the Work until Initiation of Operation shall survive final payment and termination and completion of this Agreement.

REPORT NO. _____
DATE:

PAGE 1 OF 3

EXHIBIT "B"

TERREBONNE PARISH RECREATION DISTRICT #10
1330 Doctor Beatrous Road
Theriot La. 70397

DAILY SAFETY AND CONSTRUCTION QUALITY CONTROL REPORT
(See Paragraph 6.29 of Section "I" for Instructions)

NAME:

PARISH PROJECT NO.

CONTRACTOR/SUBCONTRACTOR AND AREA OF RESPONSIBILITY

CONTRACTOR

SUBCONTRACTOR

1. WEATHER

TIDE: _____ feet SKIES: (Clear) (Partly Cloudy) (Cloudy)

RAIN: _____ inches TEMPERATURE:

2. DAILY TOTALS OF WORK PERFORMED

ITEM NO.	DESCRIPTION	PREVIOUS	TODAY	TOTAL	NO.	HRS.
----------	-------------	----------	-------	-------	-----	------

REPORT NO. _____
DATE:

PAGE 2 OF 3

EXHIBIT "B"

TERREBONNE PARISH RECREATION DISTRICT #10

DAILY SAFETY AND CONSTRUCTION QUALITY CONTROL REPORT

3. MAJOR EQUIPMENT USED

4. MANPOWER

DESCRIPTION

HOURS

MAN/JOB

DESCRIPTION/HRS

5. WORK PERFORMED TODAY INCLUDING STATION TO STATION LIMITS

6. RESULTS OF QUALITY CONTROL INSPECTIONS

REPORT NO. _____
DATE:

PAGE 3 OF 3

EXHIBIT "B"

TERREBONNE PARISH RECREATION DISTRICT #10

DAILY SAFETY AND CONSTRUCTION QUALITY CONTROL REPORT

7. INSTRUCTIONS RECEIVED

8. REMARKS (Cover any conflicts in plans or specification)

9. DAILY SAFETY INSPECTIONS

CONTRACTOR'S CERTIFICATION: I CERTIFY THAT THIS REPORT IS COMPLETE AND CORRECT AND ALL MATERIAL, EQUIPMENT AND WORK DURING THIS REPORTING PERIOD WERE IN STRICT COMPLIANCE WITH THE PLANS AND SPECIFICATIONS EXCEPT AS OTHERWISE NOTED

CONTRACTOR'S AUTHORIZED REPRESENTATIVE

SECTION 01 00 00

SUMMARY OF WORK

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. Work covers construction and all related items required for:

Project Name: TPR Dist. 10 Ballfield IDA

Project No: 82921TPR10

Project Description: Replace the electrical service, distribution and sports lighting

- B. Related requirements specified elsewhere:

- | | |
|--|----------|
| 1. Special Project Procedures : | 01 10 40 |
| 2. Project Administration: | 01 20 00 |
| 3. Temporary Facilities, Utilities and Operations: | 01 50 00 |

1.2 CONTRACTS

- A. Construct Work under a "Lump-Sum" Contract.

- B. As used in this Contract, the following term applies:

Owner: Terrebonne Parish Recreation District #10

Engineer of Record: Marrero, Couvillon & Associates, LLC

1.3 EXECUTION, CORRELATION, INTENT AND INTERPRETATIONS

- A. Extra payments will not be authorized for relocation, removal and/or replacement of any in-place construction made necessary by untimely or improperly sequenced work, where proper time and sequence could have been determined by examination of the Contract Documents. Any work required to complete the scope of work as defined by the Contract Documents shall be performed by the Contractor or his subcontractors at no additional cost to the Owner.
- B. Should there be any discrepancy between scale and dimensions, figured dimensions shall override scale dimensions. Although plans are drawn to scale, as indicated, and dimensions are given, the Contractor shall work to measurements of in-place construction.
- C. Should there be any discrepancy between information given on the Drawings, either written or drawn, and information written in the Specifications, the more stringent or detailed requirements shall govern.

- D. Should there be any discrepancy between written requirements of the General or Supplementary Conditions of the Contract for Construction and the Specifications, or between certain portions of the Specifications, the more stringent or detailed requirements shall govern.
- E. Any reference to standards (such as ASTM - American Society for Testing and Materials), where the date is not specified, shall mean the latest edition of such standards published prior to the date of the Specifications, in accordance with the abbreviation referred to in the Technical Provisions. Where such a reference is made, the applicable standard is hereby made part of the Specification which refers to it, as if written out in that Specification in full, to the extent called for by the reference.

1.4 SUPERVISION AND CONSTRUCTION PROCEDURES

- A. The Engineer, the Engineer's employees and consultants, and the Project Representative will not assume any duty or obligation to provide supervision of construction methods or processes. In accordance with the General Conditions, the Contractor is solely responsible for construction means and methods, for compliance with laws and regulations, and for protection of persons and property. Reference in the Contract Documents to any rule or regulation is for the Contractor's information and does not imply assumption of responsibility by the Engineer.
- B. No provision of any standard specification, manual or code incorporated by reference shall be effective to change the duties and responsibilities of Owner, Contractor and Engineer, or any of their consultants, agents and employees from those set forth in the Contract Documents, nor shall it be effective to assign to Engineer or any of the Engineer's consultants, agents and employees any duty or authority to supervise and direct the furnishing and performance of the work, or to undertake any responsibility contrary to General Conditions Articles 4.2.3 and 4.2.4.
- C. The Contractor shall be solely responsible for all grades, lines, and levels and be responsible for the Work being within the permissible limits.

- 1.5 The Contractor shall secure all written warranties required in the Specifications, and shall deliver them to the Engineer for transmittal to the Owner.

1.6 EXAMINATION OF SITE

- A. By executing the Contract, the Contractor represents that he has:

- 1. Visited the site.

2. Made due allowances for difficulties and contingencies to be encountered.
 3. Informed himself of existing conditions and work being performed by others.
 4. Notified the Engineer of ambiguities, inconsistencies, and errors discovered in the Contract Documents, or between the Contract Documents and existing conditions prior to bid.
- B. Each Subcontractor shall similarly represent that he has fulfilled the same responsibilities to the Contractor.
- C. Failure to visit the site and perform attendant responsibilities shall not relieve the Contractor or any Subcontractor from their obligations, and no extra payment will be authorized for work related to conditions which can be determined by examination of the site and the Contract Documents.

1.7 SCOPE OF WORK

- A. Base Bid shall include the following
1. Furnishing and installing a new 120/240 volt, 3 phase, 4 wire service, including coordinating with the local utility company and including all associated costs in bids.
 2. Furnishing and installing new distribution equipment including service entrance disconnect switch, power panels and associated conduit and wiring to re-connect existing building panels and existing branch circuits.
 3. Furnishing and installing power for ballfields 1, 2, 3, 4 & 5 press boxes.
 4. Furnishing and installing new ballfield lighting and lighting controls for ballfields 1,2, 3, 4 & 5, including new poles and lights and new security lights.
 5. Furnishing and installing new foundations for ballfields 2, 3 & 4 lighting poles.
 6. Installing ballfield scoreboards, scoreboard foundations and underground conduit and wiring for power.
 7. Furnishing and installing new underground conduit and wiring for new lighting for ballfields 2, 3 & 4.
 8. Furnishing and installing new platforms for the service entrance switch and distribution equipment.
 9. Installation of temporary construction power as required during the construction period.

B. Alternate 1 shall include the following

1. Furnishing and installing a new 120/240 volt, 3 phase, 4 wire service, including coordinating with the local utility company and including all associated costs in bids.
2. Furnishing and installing new distribution equipment including service entrance disconnect switch, power panels and associated conduit and wiring to re-connect existing building panels and existing branch circuits.
3. Furnishing and installing power for ballfields 1, 2, 3, 4 & 5 press boxes.
4. Furnishing and installing new ballfield lighting and lighting controls for ballfields 2, 3 & 4, including new poles and lights and new security lights.
5. Furnishing and installing conduits with pull strings for future lighting for ballfields 1 & 5.
6. Furnishing and installing new foundations for ballfields 1, 2, 3, 4 & 5 lighting poles.
7. Installing ballfield scoreboards, scoreboard foundations and underground conduit and wiring for power.
8. Furnishing and installing new underground conduit and wiring for new lighting for ballfields 2, 3 & 4.
9. Furnishing and installing new platforms for the service entrance switch and distribution equipment.
10. Installation of temporary construction power as required during the construction period.

B. Alternate 2 shall include the following

1. Furnishing and installing a new 120/240 volt, 3 phase, 4 wire service, including coordinating with the local utility company and including all associated costs in bids.
2. Furnishing and installing new distribution equipment including service entrance disconnect switch, power panels and associated conduit and wiring to re-connect existing building panels and existing branch circuits.
3. Furnishing and installing power for ballfields 1, 2, 3, 4 & 5 press boxes.
4. Furnishing and installing new ballfield lighting and lighting controls for ballfields 2, 3 & 4, including new poles and lights and new security lights.
5. Furnishing and installing new foundations for ballfields 2, 3, & 4 lighting poles.

6. Installing ballfield scoreboards, scoreboard foundations and underground conduit and wiring for power.
7. Furnishing and installing new underground conduit and wiring for new lighting for ballfields 2, 3 & 4
8. Furnishing and installing conduits with pull strings for future lighting for ballfields 1 & 5.
9. Furnishing and installing new platforms for the service entrance switch and distribution equipment.
10. Installation of temporary construction power as required during the construction period.

-END OF SECTION-

SECTION 01 10 40 - SPECIAL PROJECT PROCEDURES

1.1 GENERAL

- A. The requirements specified herein establish procedures that shall be followed by the Contractor during the course of construction. The particular location of the work requires constant vigilance on the part of the Contractor to properly protect not only the construction area, but to adequately preserve security and integrity of the adjacent school playground.

1.2 PROCEDURES

- A. The Contractor shall cooperate with the Owner to the fullest extent..
- B. Work such as pile driving, electrical interruptions to the existing building power distribution system and any other work as described by the Owner during the Pre-Construction Meeting shall only be scheduled for Weekends, Holidays or Non-Office (working) hours.
- C. Contractor's Duties:
 - 1. Perform work and store materials and equipment without restricting access required by code, law or regulation.
 - 2. Restrict working force, vehicles, storage, loading and staging areas to locations, which do not conflict with adjacent school facility's operations.
 - 3. Keep all necessary plans and specifications for this project on the jobsite at all times. The Contractor is also responsible for the same if he has any subcontractors.
- D. Confine loose materials, papers, trash, and debris to prevent scattering. Transport in covered carts or receptacles to prevent the spread of dust and dropping of materials.
- E. Use canvas or rubber blankets to eliminate spread of sparks while welding.
- F. Have adequate fire extinguishers available and readily accessible

at work areas at all times.

- G. Requirements and practices shall not be limited to items described herein. Compliance with these items shall not relieve the Contractor of responsibility for providing additional safety or warning devices as job conditions or construction phasing may require.
- H. Follow all security measures rules and requirements established for the for this project. All Contractor personnel will be required to submit personal information to allow a background check to be performed by the Owner. Individual personnel allowed to work on this site will be solely at the discretion of the Owner.

1.3 WORK SCHEDULE

- A. Prior to starting work at the site, the Contractor shall submit a Progress Schedule in accordance with Section 01 20 00, indicating intended sequence of operations and planned starting and completion times for each operation. Progress Schedule shall be revised and resubmitted as necessary to reflect changes in progress and sequence.
- B. Contractor shall expedite work to minimize interference with existing electrical system.
- C. Work at other than normal hours and days (whether for Contractor's convenience, to meet schedule requirements, or due to Owner's requirements) shall be arranged for and scheduled in advance with Owner's approval. No extension of time and no additional compensation will be allowed for additional costs due to work at other than normal times.

1.4 SECURITY DURING CONSTRUCTION

- A. Cooperate with the Owner's staff in maintaining security throughout the construction period.
- B. The Contractor shall be solely responsible for security of his temporary facilities, storage areas, equipment and other construction means.
- C. The Contractor shall construct and maintain temporary fences and

gates, if necessary, for construction as required.

- 1.5 Follow all security measures, rules, regulations and requirements established for this project. All Contractor personnel will be required to submit personal information to allow a background check to be performed by the Owner. Individual personnel allowed to work on this site will be solely at the discretion of the Owner.
- 1.6 EMERGENCY CONTACT
 - A. Throughout the construction period, the Contractor shall have on call, 24 hours a day and 7 days a week, a responsible representative with authority to act immediately in emergencies involving life safety. Name and telephone number of this representative shall be kept on file with the Owner.

- END OF SECTION –

SECTION 01 20 00 - PROJECT ADMINISTRATION

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Summary of Work: 01 00 00
- B. Special Project Procedures: 01 10 40
- C. Submittals: 01 30 00
- D. Schedule of Values: 01 37 00
- E. Temporary Facilities, Utilities and Operations: 01 50 00
- F. Material and Equipment: 01 60 00
- G. Project Closeout: 01 70 00
- H. Clean-Up: 01 70 10

1.2 PRE-CONSTRUCTION MEETING

- A. After notification that the contract has been executed, the Engineer will arrange with the Owner and Contractor to conduct a pre-construction conference to be held at the project site. The Contractor shall require attendance by his major subcontractors and shall furnish to the Engineer, and Owner at the pre-construction conference the following information.
 - 1. Schedule of Values
 - 2. List of Subcontractors and Material Suppliers
 - 3. Product List as specified in 01 60 00
 - 4. Construction Schedule.
- B. Engineer shall prepare and distribute meeting minutes afterwards.

1.3 CONSTRUCTION MEETINGS

- A. Construction Project/Progress Meetings: Contractor shall schedule and administer Construction Project Meetings for proper and timely completion of the Project. The Contractor shall:
 - 1. Notify those necessary subcontractors to attend and advise the Owner and Engineer of the date and times of the meeting.
 - 2. Prepare Meeting Agenda.
 - 3. Record proceedings, distribute to Owner, Engineer, all

attendees, and other interested parties as Meeting Minutes afterwards.

4. Representatives of the Engineer or Owner may attend Project meetings to familiarize themselves generally with the progress of the Work and to receive requests for interpretations necessary for the execution and the progress of the Work.
5. Contractor shall prepare minutes of all project meetings attended.

- B. Construction Meetings shall be held bi-weekly, and at least one week prior to submitting each Request for Payment.

Meetings shall be held at the Project Site and shall be attended by the Engineer, Owner, Contractor's field and office representatives responsible for the Project, and by representatives of the subcontractors and major materials suppliers as warranted by the current status of the Work. Purposes of these Meetings shall be to:

1. Review work progress since the previous meeting.
2. Resolve field problems and conflicts.
3. Review off-site fabrication and materials delivery schedules.
4. Review and update the Construction Schedule.
5. Review status of outstanding submittals, change proposals, and other administrative matters affecting progress of the work.
6. Plan and schedule operations during the succeeding work period.
7. Expedite and coordinate activities necessary to maintain planned progress.

- C. In addition to these Meetings, the Contractor may hold other meetings as circumstances warrant, in order to resolve specific problems and maintain progress.

1.3 ADMINISTRATION OF THE CONTRACT

- A. The Engineer's normal working hours are from 7:30 A.M. to 5:00 P.M. Monday through Thursday and from 7:30 A.M. to 11:30 A.M. on Friday.
- B. The Contractor will be responsible for the cost of reproduction of all Project Drawings and the project Manual. Engineer will make these documents available for electronic download from the Internet.
- C. Contract duration shall be based on calendar days. A calendar day is one of twenty- four (24) hours beginning at 12:00 midnight.
- D. Reasonably anticipated days of adverse weather, as set forth in the Supplemental Conditions, shall not be cause for an extension of the Contract time unless such extension is agreed to in writing between Contractor and Owner.
- E. The Contractor shall ask for total adverse weather days; the Contractor's request shall be considered only for days over the allowable number of days set forth in the Supplemental Conditions.
- F. The Contractor shall include verification of all necessary permits to the Engineer with the first payment request.
- G. Payments will be made on account of materials or equipment not incorporated in the work but delivered and suitably stored at the site, but payments will not be made on account of materials stored off-site.

1.4 CONSTRUCTION SCHEDULES - GENERAL

- A. Provide projected construction schedules for entire work; revise periodically.
- B. Prepare schedule in form of horizontal bar chart, with horizontal bars representing Project breakdown by various units of work. Superimpose on bar chart, vertical lines representing months of year and weeks of each month.
- C. Minimum sheet size: As required to fit all information rendered in a legible manner on one (1) sheet.
- D. Provide complete sequence of construction by activity.
- E. Provide sub schedules to define critical portions of entire

schedule.

- F. Update Schedule as required. Show all changes since previous submission of updated schedule.
- G. Indicate progress of each activity; show start and completion dates. Revise with each update.

1.5 SUBMITTALS AND DISTRIBUTION OF SCHEDULES

- A. Submit initial schedule within fifteen (15) days after Notice to Proceed.
 - 1. Engineer will review schedule and return reviewed copy within ten (10) days after receipt.
 - 2. If required, resubmit within seven (7) days after return of reviewed copy.
 - 3. Submit, monthly, updated schedules at Progress Meetings, accurately depicting progress to first day of each month.

1.6 PROJECT RECORD DOCUMENTS

- A. Contractor shall maintain Project Documents at the site, as specified. Store record documents apart from documents used for construction.
- B. Provide files and racks for storage of documents.
- C. File documents in accordance with Table of Contents of Specifications.
- D. Maintain documents in clean, dry, legible condition.
- E. Do not use record documents for construction purposes.
- F. Make documents available at all times for inspection by Engineer and Owner.
- G. Provide legible, indelible marking instruments for marking.
- H. Label each document "PROJECT RECORD" in 2" high printed letters.
- I. Specifications and Addenda: Legibly markup each Section to record:
 - 1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 - 2. Changes made by Addendum, Change Order and Field Order.

3. Incorporate Addendum Drawing information into Contract Drawings.
- J. Drawings: Maintain one (1) complete set of prints of Contract Drawings. Do not use this set for purposes other than record purposes. Legibly mark to record actual construction.
 1. Field change of dimension and detail.
 2. Changes made by Addendum, Field Order and Change Order.
 3. Details not on original Contract Drawings.
- K. Prior to acceptance of the Project as complete, Contractor shall transmit project record drawings and project record specifications, addenda and shop drawings to the Engineer for preparation of permanent record drawings. The Contractor shall review and approve the permanent record drawings prepared by the Engineer.

1.7 PROJECT INSPECTIONS

- A. Where inspections of in-place work are specified, and Engineer's approval is required before further work can take place, or where records of procedures are specified; schedule inspection:
 1. With Engineer.
 2. Give no less than forty-eight (48) hours' notice.
- B. Where daylight or installed Project lighting at areas to be inspected is less than 30 foot-candles, provide this same level by artificial illumination with portable lighting.
- C. Where inspection reveals project non-compliance, reschedule inspection giving a further forty-eight (48) hours notice.

1.8 CONTRACT ADMINISTRATION FORMS

The following forms are to be used in this project and will be provided to the Contractor after Bid Award: 1) Change Order and 2) Recommendation of Acceptance

-END OF SECTION-

SECTION 01 30 00 - SUBMITTALS

1.1 GENERAL

- A. Submit to the Engineer, Shop Drawings, Product Data and Samples required by Specification Sections.
- B. Related requirements specified elsewhere:
 - 1. Project Meetings, Construction Schedules, Record Documents and Project Administration: 01 20 00
 - 2. Project Close-Out: 01 70 00
 - 3. Various Technical Sections which state specific submittal requirements.
- C. Prepare and submit with Construction Schedule, a separate schedule listing:
 - 1. Dates for submission of Shop Drawings, Samples and Product Data.
 - 2. Dates when approved Shop Drawings, Samples and Product Data will be needed for each portion of Project.

1.2 SHOP DRAWINGS

- A. Submit original drawings, prepared by Contractor, subcontractor, supplier or distributor, which illustrate some portion of the Work; showing fabrication, layout, setting or erection details:
 - 1. Prepared by a qualified detailer.
 - 2. Identify details by reference to sheet and detail numbers shown on Contract Drawings.
 - 3. Reproducible prints made from Contract Drawings shall not be acceptable.

1.3 PRODUCT DATA

- A. Submit, where specified, manufacturer's standard schematic drawings:
 - 1. Modify drawings to delete information, which is not applicable to Project.
 - 2. Supplement standard information to provide additional

information applicable to Project.

- B. Submit, where specified, manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
 - 1. Clearly mark each copy to identify pertinent materials, products or models.
 - 2. Show dimensions and clearances required.
 - 3. Show performance characteristics and capacities.
 - 4. Show wiring diagrams and controls.

1.4 SAMPLES

- A. Submit, where specified, physical examples to illustrate materials, equipment or workmanship and to establish standards against which completed work will be judged.
- B. Office Samples: Where size and quantity is not specified, submit sufficient to clearly illustrate:
 - 1. Functional characteristics of product or material, complete with integrally related parts and attachment devices.

1.5 CONTRACTOR'S RESPONSIBILITIES

- A. Review Shop Drawings, Product Data and Samples prior to submission. Stamp and initial Shop Drawings, Product Data and Samples to show Contractor's review prior to submission to Engineer for review.
- B. Verify:
 - 1. Field Measurements.
 - 2. Field construction criteria.
 - 3. Catalog numbers and similar data.
- C. Coordinate each submittal with requirements of work and of Contract Documents.
- D. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Engineer's review of submittals, unless Engineer gives written acceptance of specific deviations.
- E. Notify Engineer in writing at time of submission of deviations in

submittals from requirements of Contract Documents.

- F. Deliver all submittals to and collect all reviewed submittals from, the Engineer's Office.
- G. Begin no work which requires submittals, until submittals are approved.
- H. After Engineer's review, distribute copies.

1.6 SUBMISSION REQUIREMENTS

- A. Where earlier date is not specified, schedule submissions and each resubmission to allow at least ten (10) days for Engineer's review.
- B. Where Specifications require submittals "for record purposes", "for information only", or similar wording, submit three (3) copies of each item. Such submittals will not be stamped and returned by the Engineer.
- C. Unless specified "for record purposes", "for information only", or similar wording, submittals shall be for Engineer's review and shall be submitted as follows:
 - 1. Submit one (1) reproducible transparency and three (3) opaque prints of Shop Drawings. Prints will be retained by the Engineer. Prints made by Contractor from reviewed and stamped sepias shall be used for distribution copies.
 - 2. Submit six (6) copies of Product Data; one (1) copy will be retained by Engineer and five (5) copies will be returned to the Contractor.
 - 3. Submit Samples in number and size specified in each Specification Section.
- D. Unless previously agreed by Engineer and Contractor, each submission shall be complete and shall include all Shop Drawings, Product Data and Samples necessary to fully describe each portion of the Project. Partial and incomplete submissions will not be considered.

- E. Accompany submittals with transmittal letter, in duplicate, containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. The number of each Shop Drawing, Product Datum and Sample submitted.
 - 5. Notification of deviations from Contract Documents.
 - 6. Other pertinent data.

- F. Submittals shall include:
 - 1. Date of first submittal and subsequent revision dates.
 - 2. Project title and number.
 - 3. The names of:
 - a. Engineer
 - b. Contractor
 - c. Subcontractor
 - d. Supplier
 - e. Manufacturer
 - f. Separate detailer, when pertinent
 - 4. Identification of product or material.
 - 5. Relation to adjacent structure or materials.
 - 6. Field dimensions clearly identified as such.
 - 7. Specification Section Number.
 - 8. Applicable Standards, such as ASTM Number or Federal Specification.
 - 9. A blank space, 4" x 5" for Engineer's stamp.
 - 10. Identification of deviation from Contract Documents, (if any).
 - 11. Contractor's stamp, initialed, certifying to review of submittal in accordance with 1:5A.

1.7 RE-SUBMITTAL REQUIREMENTS

- A. Shop Drawings:
 - 1. Revise initial Drawings as required and resubmit as specified for initial submittal.

2. Indicate in transmittal letter writing any changes which have been made other than those requested by Engineer.
- B. Product Data and Samples: Submit new and revised Data and Samples as specified for initial submission.

1.8 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

- A. Run required number of distribution prints from stamped and reviewed sepia's. Distribute copies of Shop Drawings and Product Data which carry Engineer's stamps to:
 1. Contractor's file
 2. Job site file
 3. Record Documents file
 4. Subcontractors
 5. Supplier/Fabricator
- B. Distribute Samples as directed.

1.9 ENGINEER'S DUTIES

- A. Submittals will be reviewed with reasonable promptness.
- B. Engineer will review for:
 1. Design concept of Project
 2. Information given in Contract Documents
- B. The Engineer's review will not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique or procedure of construction is indicated or required by the Contract Documents) and will not extend to safety precautions or programs incident thereto.
- C. Review of a separate item shall not constitute review of an assembly in which item functions.
- E. Engineer will affix stamp and initials verifying his review of submittal.
- F. Engineer will return submittals to Contractor for distribution.
- G. Engineer will not stamp and return submittals required "for record purpose", "for information only", or similar wording. Failure of the Engineer to respond to such submittals which may not conform to Contract requirements shall not be construed as approval of deviations from the Contract and will not relieve the Contractor from responsibility for compliance with Contract requirements.

- END OF SECTION-

SECTION 01 37 00 - SCHEDULE OF VALUES

1.1 GENERAL

- A. Related requirements specified in Section 01 20 00
 - 1. Progress Meetings.
 - 2. Job Site Administration.
 - 3. Construction Schedules.
- B. Submit the Schedule of Values to the Engineer at the pre-construction conference.
- C. Upon Engineer's request, support values given with data that will substantiate their correctness.
- D. Use Schedule of Values as basis for Contractor's "Application for Payment".

1.2 FORM OF SUBMITTAL

- A. Submit double-spaced, typewritten Schedule of Values on AIA Form G703 "Continuation Sheet" to Form G702.
- B. Use Table of Contents of this Specification as basis for format for listing costs of work for Sections under Divisions 2-33, with at least one line item for each Section.

1.3 SCHEDULE OF VALUES

- A. Itemize separate line item cost for each of following general cost items :
 - 1. Performance and Payment Bonds
 - 2. Field Supervision and Layout
 - 3. Temporary Facilities and Controls
 - 4. Insurance
 - 5. Permits and Fees
- B. Break down costs for each line item into:
 - 1. Delivered cost of product, with taxes paid.
 - 2. Total installation cost, with overhead and profit.

- C. For each line item which has installed value over \$20,000, break down costs to list major products and operations under each item.
- D. Round off figures to nearest \$10.00.
- E. Make sum of total costs of all items listed in schedule equal to total Contract Sum.
- F.

1.4 REVIEW AND SUBMITTAL

- A. After review by Engineer, revise and resubmit Schedule of Values as required.
- B. Resubmit revised Schedule(s) in same manner as original Schedule.

- END OF SECTION -

SECTION 01 50 00 - TEMPORARY FACILITIES, UTILITIES AND OPERATIONS

PART 1- GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- | | | |
|----|-----------------------------|----------|
| A. | Summary of Work: | 01 00 00 |
| B. | Special Project Procedures: | 01 10 40 |
| C. | Electrical: | various |

1.2 LOCATIONS

- A. Locate temporary facilities and signs in designated areas to avoid interfering with construction operations and traffic on the adjacent roadways.

1.3 ACCESS AND STAGING AREA

- A. In accordance with Section 01 00 00, and Section 01 10 40, it is understood that prior to bidding, the Contractor became familiar with the conditions existing at the site and accepts the site and conditions there upon as they are.
- B. Staging Area: The Contractor and subcontractors shall locate materials storage and staging, equipment storage and maintenance areas, and similar major facilities in a staging area which does not interfere with operations required under the Contract. The Contractor shall perform clearing, grading, grubbing, surfacing and other improvements within the staging area which are necessary for construction purposes.
- C. Access routes to the construction site shall be as described in Section 01 10 40 and the Project Civil drawings.
- D. Existing Roads: Contractor shall promptly repair existing roads damaged by his use. These roads shall be maintained at all times in condition at least as good as at start of the construction period.

1.4 SIGNS AND TEMPORARY GRAPHICS

- A. Signs as necessary for safety and to meet insurance requirements will be permitted.
- B. Signs, other than those specified, will not be permitted on site without specific approval.

1.5 FENCING, BARRICADING AND SAFETY EQUIPMENT

- A. Contractor shall construct and maintain until construction is completed and accepted, fences, barricades and other necessary construction required to prevent injury to persons on or about Project site, damage to property and intrusion of unauthorized persons. Provide locks for openings large enough for entry of persons.
- B. Provide personal safety equipment for authorized visitors.
- C. Protect structures, utilities, sidewalks, pavements, and other facilities immediately adjacent to excavations from damage or displacement.

1.6 SCAFFOLDING AND HOISTING

- A. Erect and maintain scaffolds, runways, ramps and ladders as necessary for reaching all portions of work conveniently and safely.
- B. Provide equipment, hoists, lifts, cranes and towers as necessary to expedite construction operations and handling of materials.

1.7 TOILETS

The Contractor shall provide toilet facilities for all workers on-site for the duration of the project.

1.8 ELECTRICITY

- A. It shall be the responsibility of the Contractor to determine a source for electric power to be used for construction purposes. The Contractor shall be allowed to obtain construction power from the closest source to the individual work areas. Actual connection to obtain construction power shall only be performed with the approval and coordination of the Owner. Meet applicable safety requirements.

1.9 WATER

- A. It shall be the responsibility of the Contractor to determine a source of water service to be used for construction purposes and to make arrangements, and furnish and install equipment, piping, valves, outlets and hoses to provide construction water during construction period. The Contractor shall be allowed to obtain construction water from the closest source to the individual work areas.
- B. Provide cold water and paper cups for drinking by workers.

1.10 TRUCKING

- A. Load all trucks bringing materials to site or removing debris from site in a manner to prevent dropping materials, debris on public streets, roads and highways.
- B. Maintain an installation at all points where and when trucks enter or leave site to remove materials, mud or debris immediately from streets, roads and highways.
- C. Conform to all local regulations regarding load limits.

1.11 FIRE PROTECTION

- A. Provide general temporary fire protection during construction period.
- B. Have immediately available suitable fire extinguishers in areas where welding, flame cutting, and other hazardous

operations are underway.

- C. The Contractor shall be responsible for maintaining all building egress for the use of building occupants. Coordinate with the Owner regarding building egress.

1.12 CLEAN-UP

- A. Remove temporary structures, fencing, etc. when the need for its use has passed.
- B. Clean area that was occupied above.
- C. Remove debris, rubbish and excess materials from site.
- C. Repair damages caused by installation or use of temporary facilities.

- END OF SECTION -

SECTION 01 60 00 - MATERIAL AND EQUIPMENT

1.1 GENERAL

- A. Related Requirements Specified in Other Sections:
 - 1. Submittals: 01 30 00
- B. Material and equipment incorporated into the work:
 - 1. Conform to applicable specifications and standards.
 - 2. Comply with size, make, type and quality specified, or as specifically approved in writing by the Engineer.
 - 3. Manufactured and Fabricated Products:
 - a. Design, fabricate and assemble in accordance with the engineering and shop practices accepted as standard by the industry.
 - b. Component parts of multiple items shall be interchangeable.
 - c. Two or more items of the same kind shall be identical, by the same manufacturer.
 - d. Product shall be suitable for service conditions in which they will be used.
 - e. Provide equipment capacities, Sizes and dimensions shown or specified unless variations are specifically approved in writing.
 - 4. Do not use material or equipment for any purpose other than that for which designed or specified.

1.2 MANUFACTURER'S INSTRUCTIONS

- A. Install work in compliance with manufacturer's printed instructions unless conflicting requirements are specified. Obtain and distribute copies of such instructions to parties involved in the installation, including two (2) copies to Engineer for information only.
 - 1. Maintain one (1) set of complete instructions at the job site during installation and until completion.
- B. Handle, install, connect, clean, condition and adjust products in strict accord with such instructions and in conformity with specified requirements.

1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Engineer for further instructions.
 2. Do not proceed with work without clear instructions.
- C. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.3 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of Products in accord with construction schedules. Coordinate to avoid conflict with work and conditions at the site.
1. Deliver Products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that Products are properly protected and undamaged.
- B. Provide equipment and personnel to handle Products by methods to prevent soiling and damage to Products, packaging, and work in place.
- C. Provide transportation and handling to install Owner provided products.

1.4 STORAGE AND PROTECTION

- A. Store Products in accord with manufacturer's instructions, with seals and labels intact and legible.
1. Store products subject to damage by the elements in weather tight enclosures.
 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
 3. Prevent soiling and staining.
- B. Exterior Storage
1. Store fabricated products above the ground, on blocking or skids. Cover products which are subject to deterioration with impervious sheet coverings, with adequate ventilation

to avoid condensation.

2. Coordinate with Owner regarding the location of storage and security issues prior to storing any material on the outside.
- C. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored Products to assure that Products are maintained under specified conditions, and free from damage or deterioration.
- D. Store Products in manner to prevent damage to in-place work.
- E. Protection after Installation: Provide substantial coverings as necessary to protect installed Products from damage from traffic and subsequent construction operations. Remove when no longer needed.

1.5 SUBSTITUTIONS AND PRODUCT OPTIONS

- A. Products List.
 1. At the pre-construction conference, submit a complete list of major products approved in Pre-Bid, with the name of the manufacturer and the installing subcontractor.
- B. Contractor's Options.
 1. For Products specified by description or reference standard, select any product meeting the Specifications.
 2. For Products specified by naming several products or manufacturers, select any one of the products or manufacturers named, which complies with the specifications.
- C. Substitutions: Provide pre-bid approval of proposed substitutions seven (7) days prior to bid date.
- D. Contractor shall provide, without additional cost to the Owner, any revisions and modifications to products and services indicated on the Drawings which are necessary to suit the products actually furnished by the Contractor under permitted options and substitutions.

1.6 REPLACEMENT AND REPAIR

- A. Promptly remove damaged, defective and non-conforming material and equipment and acceptably replace with new material and equipment.

- B. Subject to Engineer's approval, damaged and defective material and equipment may be repaired to condition equivalent to acceptable new condition. Material and equipment that cannot be satisfactorily repaired shall be removed and replaced.
- C. Replacement and repairs shall be made by the party responsible for the original installation of the materials and equipment involved, without additional cost to the Owner.

- END OF SECTION -

SECTION 01 70 00 - PROJECT CLOSE-OUT

1.1 SUBSTANTIAL COMPLETION AND FINAL ACCEPTANCE

- A. See General Conditions and Supplementary Conditions for requirements of Substantial Completion and Final Acceptance.

1.2 PUNCH LIST

- A. When Project nears completion, prepare a list of items to be completed or corrected. This list shall be submitted to the Engineer for his review, verification and amendment. Incorporate all uncorrected items included on observation reports made by Engineer's representative. Submit certificates of inspection from all responsible Regulatory Agencies concurrently with Punch List.
- B. All Punch List items shall be completed prior to release of Special Retainage. No intermediate request for payment will be considered by the Engineer for Punch List items.

1.3 GUARANTEES, WARRANTIES AND BONDS

- A. Provide Guarantees, Warranties and Bonds for all work and for all operating equipment as called for in various Sections of the Specifications.
- B. Guarantee, Warranty and Bond Period shall begin on the date appearing on the Beneficial Occupancy or Acceptance forms.

1.4 TOOLS AND OTHER MAINTENANCE ITEMS

- A. Provide special and non-standard operation and maintenance tools, loose removable items such as handles, levers, wrenches, spare parts, and all other such items furnished with equipment, or as called for in the Specifications.

1.5 MANUALS AND INSTRUCTIONS

- A. Provide Maintenance Manuals and Instructions for all operating equipment as called for in various Sections of the Specifications, or as required for maintenance. Unless additional copies are called for, provide two (2) copies of each manual.

- B. Manuals shall be substantially bound and identified on the cover with the item involved and its location. Include the following as applicable:
 - I. Name, address and phone number of manufacturer, installer and local service representative.
 - 2. Manufacturer's instructions for operation, maintenance, and cleaning.
 - 3. Spare parts lists, with stock numbers and source of supply.
 - 4. Trouble shooting procedures.
 - 5. Wiring diagrams.
- C. The Contractor shall arrange, at a time convenient to all parties, an instruction tour of the operating facilities in the presence of the Engineer and the Owner's maintenance personnel to acquaint them with the operation and maintenance of the various pieces of equipment and systems.

1.6 PROJECT RECORD DOCUMENTS

- A. Submit upon completion of Punch List; see Section 01 20 00.

- END OF SECTION -

SECTION 01 70 10 – CLEAN UP

PART 1- GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Cleaning-up required for specific work is specified in Sections pertaining to that work.

1.2 REQUIREMENTS

- A. Fire Protection: Store volatile waste in covered metal containers, and remove from premises daily.
- B. Pollution Control: Conduct clean-up and disposal operations to comply with local ordinances and anti-pollution laws.
- C. Disposal of volatile fluid wastes (such as mineral spirits, oil or paint thinner) in sanitary or storm system is not permitted.

1.3 CLEANING MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

1.4 DURING CONSTRUCTION

- A. Execute periodic cleaning of Project site to ensure that grounds and adjacent properties are maintained free from accumulation of waste material and rubbish caused by Project construction operations.
- B. Sprinkle dusty debris with water.
- C. At reasonable intervals during progress of work, clean-up site and dispose of waste materials, rubbish, and debris.
- D. Provide for collection of waste materials, rubbish and debris.
- E. Do not allow waste materials, rubbish, debris and garbage to accumulate and become unsightly, unhealthy or hazardous.
- F. Remove waste materials, rubbish and debris from the site and legally dispose of same at public or private dumping areas away from Project site.

- END OF SECTION -

SECTION 02 41 19 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Demolition and removal of selected portions of existing sidewalks to allow for new conduit installation as shown on the drawings.
 - 2. Demolition and removal of all existing scoreboard foundations.

- B. Related Requirements:

- 3. Section 260543 "Underground ducts and Raceways for Electrical Systems" for the conduit routing from ballfields to electrical equipment.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage.
- C. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.
- D. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.4 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.

- 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structure.
 - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.

4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.5 INFORMATIONAL SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate the following:
 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's building manager's and other tenants' on-site operations are uninterrupted.
 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 3. Coordination for shutoff, capping, and continuation of utility services.
 4. Coordination of Owner's continuing occupancy of portions of existing buildings and fields, and of Owner's partial occupancy of completed Work.
- B. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations.

1.6 FIELD CONDITIONS

- A. Owner will occupy the site and buildings immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the WORK.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 1. Maintain fire-protection facilities in service during selective demolition operations.

1.7 COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. The plans reflect existing conditions as shown on the building construction documents. Owner and Engineer do not guarantee that existing conditions are exactly the same as those indicated on the plans.
- C. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video.
 - 1. Before selective demolition or removal of existing elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

3.3 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.

3. Protect walls, and other existing finish work that are to remain or that are exposed during selective demolition operations.
- B. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Do not perform demolition until necessary for construction. Use methods required to complete the Work within limitations of governing regulations and as follows:
 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 3. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 4. Dispose of demolished items and materials promptly.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
 1. Clean and repair items to functional condition adequate for intended reuse.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Engineer, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.
- B. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn demolished materials.

3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.8 SELECTIVE DEMOLITION SCHEDULE

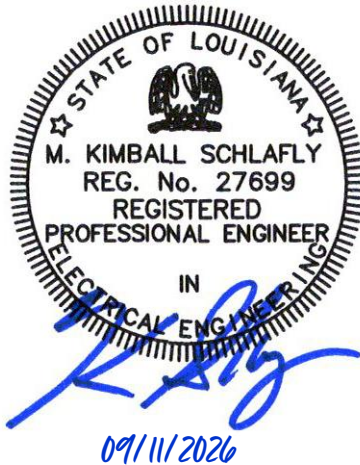
- A. Remove: Trees, bushes, grass, sidewalks, curbs, concrete paving, concrete floor, stone bedding and signs as shown. All items removed shall become the property of the Contractor and shall be promptly removed from the site, unless noted otherwise.

END OF SECTION 024119

PROFESSIONAL SEALS

1.1 DESIGN PROFESSIONALS OF RECORD

B. ELECTRICAL ENGINEER



Marrero, Couvillon, & Associates, LLC
M. Kimball Schlafly
License # 27699

DIVISION 26 ELECTRICAL

26 00 50	BASIC ELECTRICAL REQUIREMENTS
26 05 19	LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
26 05 26	GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
26 05 29	HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
26 05 33	RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
26 05 43	UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS
26 05 53	IDENTIFICATION FOR ELECTRICAL SYSTEMS
26 24 16	PANELBOARDS
26 28 13	FUSES
26 28 16	ENCLOSED SWITCHES AND CIRCUIT BREAKERS
26 43 13	SURGE PROTECTION FOR LOW-VOLTAGE ELECTRICAL POWER CIRCUITS
26 55 13	ATHLETIC FIELD LIGHTING
26 56 13	LIGHTING POLES AND STANDARDS
26 56 19	LED EXTERIOR LIGHTING

SECTION 26 01 00

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 SCOPE

- A. The work to be performed under these specifications shall include the furnishing of all labor, materials, equipment and services required for a complete electrical system as specified herein and as shown by the Drawings. A state of Louisiana licensed Electrical Contractor shall perform the work specified herein. The work includes but is not limited to:
1. Furnishing and installing a new 120/240 Volt, 3-phase, 4-wire service, including coordinating with the local utility company and including all associated costs in bids.
 2. Furnishing and installing new distribution equipment including service entrance disconnection switch, power panels and associated conduit wiring for existing building panels, existing branch circuits.
 3. Furnishing and installing new ballfield lighting and lighting controls for 4 ballfields, including new poles and luminaires and new security luminaires
 4. Furnishing and installing new underground conduit and wiring for new lighting.
 5. Furnishing and installing new platforms for the service entrance switch and distribution equipment.
 6. Installation of temporary construction power as required during the construction period.

1.2 GENERAL CONDITIONS

- A. The General Conditions and Supplementary General Conditions are a part of this section of these Specifications. The Contractor is cautioned to read and be thoroughly familiar with all provisions of the General Conditions. These conditions shall be complied with in every aspect. The word "shall" where used, is to be understood, as mandatory and the word "should" as advisory. "May" is used in the permissive sense.

1.3 GENERAL REQUIREMENTS

- A. The Contractor is referred to all the Drawings for building construction as well as the electrical Drawings
- B. The Contractor shall examine the site and shall verify to his own satisfaction the location of all utilities and shall adequately inform himself as to their relation to his work before entering a Contract and he shall base his bid on any conditions, which may be encountered during the progress of the work.
- C. The Contractor shall furnish and install properly all materials, devices, equipment, supports, controls, appurtenances, etc., mentioned or required to make complete or satisfactory installations in working order whether shown or not. All electrical equipment shall be connected

in accordance with the manufacturer's instructions. All work shall be executed in a workmanlike manner and shall present a neat and mechanical appearance when completed.

1.4 MINIMUM STANDARDS

- A. Applicable rules of the National Electrical Code apply as a minimum standard for this contract, but do not replace or reduce any specific requirement herein.

1.5 DRAWINGS

- A. Plans and detail sketches are submitted to limit, explain, and define structural conditions, specified requirements, conduit sizes, and manner of erecting work. The Contractor is cautioned to field check and verify all existing conditions before bidding, as no extra compensation will be allowed for conditions found different than represented in the construction drawings and/or specifications. Written approval of the Architect shall be obtained prior to any alterations or additions to specified work.
- B. Structural or other conditions may require certain modifications from the manner of installation shown, and such deviations are permissible and shall be made as required, but specified sizes and requirements necessary for satisfactory operations shall remain unchanged.
- C. The drawings and these specifications are complementary to each other and what is called for by one shall be binding as if called for by both.
- D. General arrangement of work is indicated on plans. Due to the small scale of the drawings, offsets, fittings, and boxes required are not all indicated; provide fittings, boxes, etc., as needed in accordance with codes and accepted practices.

1.6 SUPERVISION

- A. The Contractor shall personally or through an authorized and competent representative, constantly supervise the work from beginning to completion and final acceptance. So far as possible, he shall keep the same foreman and workmen throughout the project duration.
- B. During its progress, the work shall be subject to inspection by representatives of the Architect, at which times the Contractor shall furnish the required information.
- C. It is not the Architect's or Engineer's duty to direct or guarantee the work of the Contractor, but to assist the Owner in obtaining a complete building in accordance with plans, specifications and addenda and to furnish engineering services in accordance with recognized practices.

1.7 PRIOR APPROVALS

- A. The Contractor shall base his proposal on materials as specified herein. Any references to a specific manufacturer or trade name is made to establish a standard of quality and to define a type of product and in no way is intended to indicate a preference for a particular manufacturer. It is the intent of these specifications to allow all manufacturers of equipment, products, etc., judged equal to the specified product to bid on a competitive basis.

1.8 MEASUREMENTS

- A. The Contractor shall verify all measurements and shall be responsible for the correctness of same, before ordering any materials or doing any work. No extra charge or compensation will be allowed for any differences between the actual measurements and those indicated on the drawings.

1.9 LAWS, PERMITS AND FEES

- A. The entire electrical work shall comply with the rules and regulations of the City, Parish, and State, including the State Fire Marshal and State Board of Health, whether so shown on plans or not. The Contractor shall pay fees for permits, inspections, etc., and shall arrange with the inspecting authorities all required inspections.

1.10 SITE INSPECTION

- A. The Contractor shall visit the site and familiarize himself with difficulties attendant to the successful execution of the work before bidding. Failure to visit the site shall not relieve the Contractor of the extent or conditions of the work required of him.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- A. All materials, equipment, and accessories installed under this Contract, whether approved or not, shall be new and shall conform to all rules, codes, etc., as recommended or adopted by the National Association(s) governing the manufacture, rating and testing of such materials, equipment, and accessories.

2.2 SHOP DRAWINGS

- A. The Contractor shall submit to the Architect complete descriptive and dimensional data on the following items for review and approval:
 - 1. Panelboards
 - 2. Service Entrance Disconnect Switch
 - 3. Disconnect Switches
 - 5. Lighting Fixtures
 - 6. Lighting Controls, including Lighting Control Panel
 - 8. Surge Protection Devices
 - 9. Conduit, Fittings, and Bushings
 - 10. Conductors
 - 11. Ground rods

PART 3 - METHODS AND INSTALLATION

3.1 CONTRACTOR COORDINATION

- A. The Drawings are diagrammatic in nature. Cooperate and coordinate with other trades so the interferences of facilities and equipment will be avoided.

3.2 OPENINGS, CUTTING AND PATCHING

- A. Cut all openings as required for the electrical work. Patching will be done by the various crafts whose work is involved. Furnish and install all necessary sleeves, thimbles, hangers, inserts, etc., at such times and in such a manner as not to delay or interfere with the work of other Contractors. Caulk, flash or otherwise make weatherproof all penetrations through the roof and exterior walls.
- B. Where conduit, cable or other items that are provided for under this contract penetrate fire rated walls or floors, the Contractor is to seal around the item to maintain the integrity of the rated system.
- C. Contractor shall coordinate with the General Contractor for all areas which require patching as a result of electrical work.

3.3 PAINTING

- A. Painting shall be performed as described in the painting specifications. No painting will be required by the Contractor except for touch-up of factory finishes on equipment furnished under this contract. Contractor shall coordinate with General Contractor for all areas which require painting.

3.4 APPLICABLE GENERAL CODES AND REGULATIONS

- A. All electrical work and equipment, as a whole or in part, shall conform to the applicable portions of the following specifications, codes and regulations in effect on that date of invitation for bids, and shall form a part of this specification.
 - 1. National Electrical Code, Latest Edition as accepted by the State Fire Marshal
 - 2. National Electrical Manufacturers Association Standards
 - 3. National Fire Protection Association Recommended Practices
 - 4. Local, City and State Codes and Ordinances
 - 5. National Board of Fire Underwriter's Recommended Practices
 - 6. Life Safety Code, 2015 Edition
 - 7. International Building Codes
 - 8. International Energy Conservation Code, 2021 Edition as accepted by the State Fire Marshal
- B. Equipment that has been inspected and approved by the Underwriter's Laboratory shall bear its label or appear on its list of approved apparatus.

3.5 TESTS AND INSPECTIONS

- A. The Contractor shall assist in making periodic inspections or tests required by the Architect or Engineer. When requested, the Contractor shall provide the assistance of foremen and qualified craftsmen for reasonable duration of each test, etc.

3.6 SAFETY PRECAUTIONS DURING CONSTRUCTION

- A. It shall be the Contractor's responsibility to furnish and install proper guards and instruction signs for the prevention of accidents and to provide and maintain for the duration of construction any installations needed for safety of life and property.

3.7 ASSOCIATED WORK FOR OTHER DIVISIONS

- A. This Contractor shall be responsible for coordinating with general contractor for installation of ballfield lighting, scoreboards, metal framed platforms, etc.

3.8 EQUIPMENT NAMEPLATE

- A. Each item of electrical equipment installed by the Contractor shall be provided with an engraved nameplate noting the equipment's function or designation. Nameplates shall be engraved laminated plastic with black letters on a white background. Letters shall be 1/4" high, all caps.

3.9 PANELBOARD SCHEDULES

- A. The Contractor shall provide and affix typed panelboard schedules for each panelboard. Schedule will accurately list equipment served by each branch circuit, and not simply indicate "LIGHTING" or "RECEPTACLES", etc. Schedules shall indicate rooms served and device or devices connected to the circuit.

3.10 COMPLETION

- A. The Contractor shall furnish one (1) complete set of drawings on which any changes in the work shall be shown. These drawings must be turned over to the Architect prior to final acceptance of the work.
- B. No installation will be considered complete until the proper operation of all electrical equipment has been demonstrated to the satisfaction of the owner or it's authorized representative.

3.11 RECORD DRAWINGS

- A. Provide a complete set of drawings used strictly for markups which include all revisions, sketches, etc. required during construction. Contractor shall insure that all circuitry is shown asj wired in the field and has accurate homerun designations. The contractor shall mark these drawings in red for additions and green for deletions to indicate exact, installed conditions.

3.12 GUARANTEE

- A. The Contractor shall guarantee to keep the entire electrical system as installed by him or his subcontractors in repair and in perfect working order for one (1) year from the date of the final Certification of Final Acceptance, and shall furnish free of cost to the Owner, all material and labor necessary to comply with the above guarantee; said guarantee shall be based upon defective material and workmanship. In any case where equipment has a factory warranty exceeding this one-year limit, the full extent of the warranty shall apply.

3.13 CLEANING

- A. When all work has been finally tested, the Contractor shall clean all fixtures, equipment, conduits, ducts, and all exposed work. All cover plates and other finished products shall be thoroughly cleaned.

3.14 INSTRUCTION MANUALS

- A. The Contractor shall provide three (3) operating and maintenance instruction manuals on all systems and equipment installed in the electrical work.

3.15 CONTRACTOR SPECIAL NOTE

- A. The Contractor is again cautioned to refer to all parts of these Specifications and all Drawings, not just electrical sections, and the individual cross references made to other standard specifications or details describing any electrical work, which may be required under these other sections. The Contractor is cautioned to note carefully any other sections which may reference electrical work in order for this Contractor to fully understand the wiring requirements and electrical work that is required. Any conflicts found between the electrical sections of these Specifications or Drawings shall be immediately directed to the General Contractor for clarification. If no clarification is provided prior to bidding, the most stringent shall apply.
- B. The Contractor shall be required to install electrical services underground. Existing underground utilities should be disconnected. Refer to the electrical drawings for demolition plans.

END OF SECTION 260100

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Copper building wire rated 600 V or less.
 - 2. Aluminum building wire rated 600 V or less.
 - 3. Metal-clad cable, Type MC, rated 600 V or less.
 - 4. Connectors, splices, and terminations rated 600 V and less.

1.3 DEFINITIONS

- A. PV: Photovoltaic.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificate: For each type of product.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Member company of NETA.

PART 2 - PRODUCTS

2.1 COPPER BUILDING WIRE

- A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.

B. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. RoHS compliant.
3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

C. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 or ASTM B 496 for stranded conductors.

D. Conductor Insulation:

1. Type THHN and Type THWN-2: Comply with UL 83.
2. Type XHHW-2: Comply with UL 44.

2.2 ALUMINUM BUILDING WIRE

A. Description: Flexible, insulated and uninsulated, drawn aluminum current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.

B. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. RoHS compliant.
3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

C. Conductors: Aluminum, complying with ASTM B 800 and ASTM B 801.

D. Conductor Insulation:

1. Type THHN and Type THWN-2: Comply with UL 83.
2. Type XHHW-2: Comply with UL 44.

2.3 METAL-CLAD CABLE, TYPE MC

A. Description: A factory assembly of one or more current-carrying insulated conductors in an overall metallic sheath.

B. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. Comply with UL 1569.
3. RoHS compliant.
4. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

C. Circuits:

1. Single circuit and multi-circuit with color-coded conductors.
 2. Power-Limited Fire-Alarm Circuits: Comply with UL 1424.
- D. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.
- E. Ground Conductor: Insulated.
- F. Conductor Insulation:
1. Type TFN/THHN/THWN-2: Comply with UL 83.
 2. Type XHHW-2: Comply with UL 44.
- G. Armor: Aluminum, interlocked.
- H. Jacket: PVC applied over armor.

2.4 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors, splices, and lugs of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
- B. Jacketed Cable Connectors: For steel and aluminum jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.
- C. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.
1. Material: rated for aluminum and copper conductors.
 2. Type: One or Two hole with long barrels.
 3. Termination: Compression.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper for feeders smaller than No. 4 AWG; copper or aluminum for feeders No. 4 AWG and larger. Conductors shall be solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- C. All conductor sizes shown on the drawings are calculated using copper ampacities. Where aluminum conductors are allowed, contractor shall upsize conductor size to match ampacity and voltage drop as calculated for copper.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway.
- B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- C. Exposed Branch Circuits Type THHN/THWN-2, single conductors in raceway. Metal-clad cable, Type MC is allowed within buildings.
- D. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type XHHW-2, single conductors in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- D. Install exposed conductors in conduit parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- E. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material.
 - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.

3.5 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

3.8 FIELD QUALITY CONTROL

- A. Perform the tests and inspections listed below.
 - 1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for continuity.
 - 2. Perform each of the following visual and electrical tests:
 - a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.
 - b. Test bolted connections for high resistance using one of the following:
 - 1) A low-resistance ohmmeter.
 - 2) Calibrated torque wrench.
 - 3) Thermographic survey.
 - c. Inspect compression-applied connectors for correct cable match and indentation.
 - d. Inspect for correct identification.
 - e. Inspect cable jacket and condition.
 - f. Insulation-resistance test on each conductor for ground and adjacent conductors. Apply a potential of 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable for a one-minute duration.
 - g. Continuity test on each conductor and cable.
 - h.
- B. Cables will be considered defective if they do not pass tests and inspections. Contractor shall take corrective action to fix any defective components.

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes grounding and bonding systems and equipment.
- B. Section includes grounding and bonding systems and equipment, plus the following special applications:
 - 1. Underground distribution grounding.
 - 2. Ground bonding
 - 3. Foundation steel electrodes.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Certified by NETA.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

2.2 CONDUCTORS

- A. Insulated Conductors: Copper or tinned-copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.

- C. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 4 inches (6.3 by 100 mm) in cross section, with 9/32-inch (7.14-mm) holes spaced 1-1/8 inches (28 mm) apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V and shall be Lexan or PVC, impulse tested at 5000 V.

2.3 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
- C. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.
- D. Bus-Bar Connectors: Compression type, copper or copper alloy, with two wire terminals.
- E. Beam Clamps: Mechanical type, terminal, ground wire access from four directions, with dual, tin-plated or silicon bronze bolts.
- F. Cable-to-Cable Connectors: Compression type, copper or copper alloy.
- G. Conduit Hubs: Mechanical type, terminal with threaded hub.
- H. Ground Rod Clamps: Mechanical type, copper or copper alloy, terminal with hex head bolt.
- I. Ground Rod Clamps: Mechanical type, copper or copper alloy, terminal with hex head bolt.
- J. Lay-in Lug Connector: Mechanical type, aluminum terminal with set screw.
- K. Service Post Connectors: Mechanical type, bronze alloy terminal, in short- and long-stud lengths, capable of single and double conductor connections.
- L. Signal Reference Grid Clamp: Mechanical type, stamped-steel terminal with hex head screw.

- M. Straps: Solid copper, cast-bronze clamp. Rated for 600 A.
- N. U-Bolt Clamps: Mechanical type, copper or copper alloy, terminal listed for direct burial.
- O. Water Pipe Clamps:
 - 1. Mechanical type, two pieces with zinc-plated bolts.
 - a. Material: Die-cast zinc alloy.
 - b. Listed for direct burial.
 - 2. U-bolt type with malleable-iron clamp and copper ground connector rated for direct burial.

2.4 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet (19 mm by 3 m).

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.
 - 1. Bury at least 24 inches (600 mm) below grade.
- C. Grounding Bus: Install in electrical equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
 - 1. Install bus horizontally, on insulated spacers 2 inches (50 mm) minimum from wall, 6 inches (150 mm) above finished floor unless otherwise indicated.
 - 2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down; connect to horizontal bus.
- D. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
 - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
 - 4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING AT THE SERVICE

- A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.3 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.
- B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:
 - 1. Feeders and branch circuits.
 - 2. Lighting circuits.
 - 3. Receptacle circuits.
 - 4. Flexible raceway runs.
 - 5. Armored and metal-clad cable runs.
 - 6. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.

3.4 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 2 inches (50 mm) below finished floor or final grade unless otherwise indicated.
 - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
 - 2. Use exothermic welds for all below-grade connections.
 - 3. For grounding electrode system, install at least 2 rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.
- C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
 - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
 - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
 - 3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

- D. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.
 - 1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
 - 2. Make connections with clean, bare metal at points of contact.
 - 3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
 - 4. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
 - 5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

3.5 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
 - 1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 - 2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
- C. Grounding system will be considered defective if it does not pass tests and inspections.
- D. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Steel slotted support systems.
- 2. Aluminum slotted support systems.
- 3. Nonmetallic slotted support systems.
- 4. Conduit and cable support devices.
- 5. Support for conductors in vertical conduit.
- 6. Structural steel for fabricated supports and restraints.
- 7. Mounting, anchoring, and attachment components, including powder-actuated fasteners, mechanical expansion anchors, concrete inserts, clamps, through bolts, toggle bolts, and hanger rods.
- 8. Fabricated metal equipment support assemblies.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
 - a. Slotted support systems, hardware, and accessories.
 - b. Clamps.
 - c. Hangers.
 - d. Sockets.
 - e. Eye nuts.
 - f. Fasteners.
 - g. Anchors.
 - h. Saddles.
 - i. Brackets.
- 2. Include rated capacities and furnished specialties and accessories.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Preformed steel channels and angles with minimum 13/32-inch- (10-mm-) diameter holes at a maximum of 8 inches (200 mm) o.c. in at least one surface.
 - 1. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
 - 2. Material for Channel, Fittings, and Accessories: Plain steel.
 - 3. Channel Width: Selected for applicable load criteria.
- B. Aluminum Slotted Support Systems: Extruded-aluminum channels and angles with minimum 13/32-inch- (10-mm-) diameter holes at a maximum of 8 inches (200 mm) o.c. in at least one surface.
 - 1. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
 - 2. Channel Material: 6063-T5 aluminum alloy.
 - 3. Fittings and Accessories Material: 5052-H32 aluminum alloy.
 - 4. Channel Width: Selected for applicable load criteria.
- C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be made of malleable iron.
- E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M steel plates, shapes, and bars; black and galvanized.
- F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - 2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - 3. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.
 - 4. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.
 - 5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
 - 6. Toggle Bolts: All-steel springhead type.
 - 7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with the following standards for application and installation requirements of hangers and supports, except where requirements on Drawings or in this Section are stricter:
 - 1. NECA 1.
 - 2. NECA 101
 - 3. NECA 102.
 - 4. NECA 105.
 - 5. NECA 111.
- B. Comply with requirements in Section 078413 "Penetration Firestopping" for firestopping materials and installation for penetrations through fire-rated walls, ceilings, and assemblies.
- C. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."
- D. Maximum Support Spacing and Minimum Hanger Rod Size for Raceways: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- E. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 - 1. Secure raceways and cables to these supports with single-bolt conduit clamps.
- F. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch (38-mm) and smaller raceways serving branch circuits and communication systems above suspended ceilings, and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.

- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, according to NFPA 70.
- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. To Existing Concrete: Expansion anchor fasteners.
 - 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
 - 6. To Steel: Beam clamps (MSS SP-58, Type 19, 21, 23, 25, or 27), complying with MSS SP-69, or Spring-tension clamps.
 - 7. To Light Steel: Sheet metal screws.
 - 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Metal conduits and fittings.
2. Nonmetallic conduits and fittings.
3. Metal wireways and auxiliary gutters.
4. Nonmetal wireways and auxiliary gutters.
5. Surface raceways.
6. Boxes, enclosures, and cabinets.
7. Handholes and boxes for exterior underground cabling.

- B. Related Requirements:

1. Section 078413 "Penetration Firestopping" for firestopping at conduit and box entrances.

1.3 DEFINITIONS

- A. ARC: Aluminum rigid conduit.
- B. GRC or GRS: Galvanized rigid steel conduit.
- C. IMC: Intermediate metal conduit.

1.4 ACTION SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

PART 2 - PRODUCTS

2.1 METAL CONDUITS AND FITTINGS

- A. Metal Conduit:
1. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. GRC: Comply with ANSI C80.1 and UL 6.
 3. ARC: Comply with ANSI C80.5 and UL 6A.
 4. IMC: Comply with ANSI C80.6 and UL 1242.
 5. PVC-Coated Steel Conduit: PVC-coated [rigid steel conduit] [IMC].
 - a. Comply with NEMA RN 1.
 - b. Coating Thickness: 0.040 inch (1 mm), minimum.
 6. EMT: Comply with ANSI C80.3 and UL 797.
 7. FMC: Comply with UL 1; zinc-coated steel or aluminum.
 8. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- B. Metal Fittings:
1. Comply with NEMA FB 1 and UL 514B.
 2. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 3. Fittings, General: Listed and labeled for type of conduit, location, and use.
 4. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 1203 and NFPA 70.
 5. Fittings for EMT:
 - a. Material: Steel or die cast.
 - b. Type: Setscrew or compression.
 6. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
 7. Coating for Fittings for PVC-Coated Conduit: Minimum thickness of 0.040 inch (1 mm), with overlapping sleeves protecting threaded joints.
- C. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS AND FITTINGS

- A. Nonmetallic Conduit:
1. Listing and Labeling: Nonmetallic conduit shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. Fiberglass:
 - a. Comply with NEMA TC 14.
 - b. Comply with UL 2515 for aboveground raceways.
 - c. Comply with UL 2420 for belowground raceways.
 3. ENT: Comply with NEMA TC 13 and UL 1653.

4. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.
5. LFNC: Comply with UL 1660.
6. Rigid HDPE: Comply with UL 651A.
7. Continuous HDPE: Comply with UL 651A.
8. Coilable HDPE: Preassembled with conductors or cables, and complying with ASTM D 3485.
9. RTRC: Comply with UL 2515A and NEMA TC 14.

B. Nonmetallic Fittings:

1. Fittings, General: Listed and labeled for type of conduit, location, and use.
2. Fittings for ENT and RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.
 - a. Fittings for LFNC: Comply with UL 514B.
3. Solvents and Adhesives: As recommended by conduit manufacturer.

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

- A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 or Type 3R unless otherwise indicated, and sized according to NFPA 70.
 1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
- C. Wireway Covers: Hinged type unless otherwise indicated.
- D. Finish: Manufacturer's standard enamel finish.

2.4 NONMETALLIC WIREWAYS AND AUXILIARY GUTTERS

- A. Listing and Labeling: Nonmetallic wireways and auxiliary gutters shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Description: Fiberglass polyester, extruded and fabricated to required size and shape, without holes or knockouts. Cover shall be gasketed with oil-resistant gasket material and fastened with captive screws treated for corrosion resistance. Connections shall be flanged and have stainless-steel screws and oil-resistant gaskets.
- C. Description: PVC, extruded and fabricated to required size and shape, and having snap-on cover, mechanically coupled connections, and plastic fasteners.
- D. Fittings and Accessories: Couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings shall match and mate with wireways as required for complete system.

- E. Solvents and Adhesives: As recommended by conduit manufacturer.

2.5 SURFACE RACEWAYS

- A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5. Manufacturer's standard enamel finish in color selected by Architect.
- C. Surface Nonmetallic Raceways: Two- or three-piece construction, complying with UL 5A, and manufactured of rigid PVC with texture and color selected by Architect from manufacturer's standard colors. Product shall comply with UL 94 V-0 requirements for self-extinguishing characteristics.
- D. Tele-Power Poles:
 - 1. Material: Galvanized steel with ivory baked-enamel finish.
 - 2. Fittings and Accessories: Dividers, end caps, covers, cutouts, wiring harnesses, devices, mounting materials, and other fittings shall match and mate with tele-power pole as required for complete system.

2.6 BOXES, ENCLOSURES, AND CABINETS

- A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.
- C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.
- D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.
- E. Metal Floor Boxes:
 - 1. Material: Cast metal.
 - 2. Type: Fully adjustable.
 - 3. Shape: Rectangular.
 - 4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.7 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

- A. General Requirements for Handholes and Boxes:

1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
 2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.
1. Standard: Comply with SCTE 77.
 2. Configuration: Designed for flush burial with closed bottom unless otherwise indicated.
 3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
 4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
 5. Cover Legend: Molded lettering, "ELECTRIC".
 6. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
 7. Handholes 12 Inches Wide by 24 Inches Long (300 mm Wide by 600 mm Long) and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.
- C. Concrete Boxes: polymer concrete boxes, with frame and covers of polymer concrete.
1. Standard: Comply with SCTE 77.
 2. Color of Frame and Cover: Gray.
 3. Configuration: Designed for flush burial with closed bottom unless otherwise indicated.
 4. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
 5. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
 6. Cover Legend: Molded lettering, "ELECTRIC".
 7. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
1. Exposed Conduit: GRC.
 2. Concealed Conduit, Aboveground: GRC.
 3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried.
 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated:
1. Exposed in ground floor mechanical/electrical room: EMT.
 2. Exposed in dedicated electrical rooms: EMT or type MC cable.
 3. Installed in underground tunnels: PVC

4. Installed exposed on roof: PVC
 5. Interior PVC
 6. Damp or Wet Locations: PVC.
 7. Boxes and Enclosures: NEMA 250, Type 3, and NEMA 250, Type 4 stainless as indicated on drawings
- C. Minimum Raceway Size: 1/2-inch (16-mm) trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
 2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
 3. EMT: Use compression fittings. Comply with NEMA FB 2.10.
 4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- E. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.
- F. Install surface raceways only where indicated on Drawings.
- G. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F (49 deg C).

3.2 INSTALLATION

- A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.
- B. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- C. Do not install raceways or electrical items on any "explosion-relief" walls or rotating equipment.
- D. Do not fasten conduits onto the bottom side of a metal deck roof.
- E. Keep raceways at least 12 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- F. Complete raceway installation before starting conductor installation.
- G. Arrange stub-ups so curved portions of bends are not visible above finished slab.

- H. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches (300 mm) of changes in direction.
- I. Make bends in raceway using large-radius preformed ells. Field bending shall be according to NFPA 70 minimum radii requirements. Use only equipment specifically designed for material and size involved.
- J. Conceal conduit within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
- K. Support conduit within 12 inches (300 mm) of enclosures to which attached.
- L. Stub-Ups to Above Recessed Ceilings:
 - 1. Use EMT, IMC, or RMC for raceways.
 - 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
- M. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- N. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.
- O. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- P. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch (35mm) trade size and insulated throat metal bushings on 1-1/2-inch (41-mm) trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- Q. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
- R. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.
- S. Cut conduit perpendicular to the length. For conduits 2-inch (53-mm) trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
- T. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- U. Surface Raceways:
 - 1. Install surface raceway with a minimum 2-inch (50-mm) radius control at bend points.

2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches (1200 mm) and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.
- V. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.
- W. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
 1. Where an underground service raceway enters a building or structure.
 2. Conduit extending from interior to exterior of building.
 3. Where otherwise required by NFPA 70.
- X. Comply with manufacturer's written instructions for solvent welding RNC and fittings.
- Y. Expansion-Joint Fittings:
 1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F (17 deg C) and that has straight-run length that exceeds 25 feet (7.6 m). Install in each run of aboveground RMC and EMT conduit that is located where environmental temperature change may exceed 100 deg F (55 deg C) and that has straight-run length that exceeds 100 feet (30 m).
 2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:
 - a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F (70 deg C) temperature change.
 - b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F (86 deg C) temperature change.
 - c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F (70 deg C) temperature change.
 - d. Attics: 135 deg F (75 deg C) temperature change.
 3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F (0.06 mm per meter of length of straight run per deg C) of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.00078 inch per foot of length of straight run per deg F (0.0115 mm per meter of length of straight run per deg C) of temperature change for metal conduits.
 4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
 5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.

- Z. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches (1830 mm) of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
 - 1. Use LFMC in damp or wet locations subject to severe physical damage.
 - 2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.
- AA. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to bottom of box unless otherwise indicated.
- BB. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.
- CC. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.
- DD. Locate boxes so that cover or plate will not span different building finishes.
- EE. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- FF. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.
- GG. Set metal floor boxes level and flush with finished floor surface.
- HH. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

- A. Direct-Buried Conduit:
 - 1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Section 312000 "Earth Moving" for pipe less than 6 inches (150 mm) in nominal diameter.
 - 2. Install backfill as specified in Section 312000 "Earth Moving."
 - 3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches (300 mm) of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Section 312000 "Earth Moving."
 - 4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
 - 5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.

- a. Couple steel conduits to ducts with adapters designed for this purpose and encase coupling with 3 inches (75 mm) of concrete for a minimum of 12 inches (300 mm) on each side of the coupling.
 - b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches (1500 mm) from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.
6. Warning Planks: Bury warning planks approximately 12 inches (300 mm) above direct-buried conduits but a minimum of 6 inches (150 mm) below grade. Align planks along centerline of conduit.
 7. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical Systems."

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch (12.5-mm) sieve to No. 4 (4.75-mm) sieve and compacted to same density as adjacent undisturbed earth.
- C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch (25 mm) above finished grade.
- D. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables but short enough to preserve adequate working clearances in enclosure.
- E. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.5 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.6 FIRESTOPPING

- A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.7 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
 - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 - 2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

SECTION 260543 - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Metal conduits and fittings, including GRC and PVC-coated steel conduit.
 - 2. Rigid nonmetallic duct.
 - 3. Flexible nonmetallic duct.
 - 4. Duct accessories.
 - 5. Polymer concrete handholes and boxes with polymer concrete cover.

1.3 DEFINITIONS

- A. Direct Buried: Duct or a duct bank that is buried in the ground, without any additional casing materials such as concrete.
- B. Duct: A single duct or multiple ducts. Duct may be either installed singly or as component of a duct bank.
- C. Duct Bank:
 - 1. Two or more ducts installed in parallel, with or without additional casing materials.
 - 2. Multiple duct banks.
- D. GRC: Galvanized rigid (steel) conduit.
- E. Trafficways: Locations where vehicular or pedestrian traffic is a normal course of events.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include duct-bank materials, including spacers and miscellaneous components.
 - 2. Include duct, conduits, and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
 - 3. Include accessories for handholes, boxes.
 - 4. Include underground-line warning tape.
 - 5. Include warning planks.

B. Shop Drawings:

1. Precast or Factory-Fabricated Underground Utility Structures:
 - a. Include plans, elevations, sections, details, attachments to other work, and accessories.
 - b. Include duct entry provisions, including locations and duct sizes.
 - c. Include reinforcement details.
 - d. Include frame and cover design and manhole chimneys.
 - e. Include grounding details.
 - f. Include dimensioned locations of cable rack inserts, pulling-in and lifting irons, and sumps.
 - g. Include joint details.
2. Factory-Fabricated Handholes and Boxes Other Than Precast Concrete:
 - a. Include dimensioned plans, sections, and elevations, and fabrication and installation details.
 - b. Include duct entry provisions, including locations and duct sizes.
 - c. Include cover design.
 - d. Include grounding details.
 - e. Include dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: For duct and duct bank. Show duct profiles and coordination with other utilities and underground structures.
 1. Include plans and sections, drawn to scale, and show bends and locations of expansion fittings.
- B. Product Certificates: For concrete and steel used in precast concrete manholes and handholes, as required by ASTM C 858.
- C. Source quality-control reports.
- D. Field quality-control reports.

1.6 FIELD CONDITIONS

- A. Ground Water: Assume ground-water level is at grade level unless a lower water table is noted on Drawings.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND FITTINGS

- A. Coated Steel Conduit: PVC-coated GRC.
 - 1. Comply with NEMA RN 1.
 - 2. Coating Thickness: 0.040 inch (1 mm), minimum.
- B. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.

2.2 RIGID NONMETALLIC DUCT

- A. Underground Plastic Utilities Duct: Type EPC-80-PVC RNC, complying with NEMA TC 2 and UL 651, with matching fittings complying with NEMA TC 3 by same manufacturer as duct.
- B. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.
- C. Solvents and Adhesives: As recommended by conduit manufacturer.

2.3 DUCT ACCESSORIES

- A. Duct Spacers: Factory-fabricated, rigid, PVC interlocking spacers; sized for type and size of duct with which used, and selected to provide minimum duct spacing indicated while supporting duct during concreting or backfilling.
- B. Underground-Line Warning Tape: Comply with requirements for underground-line warning tape specified in Section 260553 "Identification for Electrical Systems."

2.4 PRECAST CONCRETE HANDHOLES AND BOXES

- A. Description: Factory-fabricated, reinforced-concrete, monolithically poured walls and bottom unless open-bottom enclosures are indicated. Frame and cover shall form top of enclosure and shall have load rating consistent with that of handhole or box.
- B. Comply with ASTM C 858 for design and manufacturing processes.
- C. Frame and Cover: Weatherproof cast-iron frame, with cast-iron cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing bolts.
- D. Frame and Cover: Weatherproof steel frame, with steel cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing bolts.
- E. Frame and Cover: Weatherproof steel frame, with hinged steel access door assembly with tamper-resistant, captive, cover-securing bolts.

1. Cover Hinges: Concealed, with hold-open ratchet assembly.
 2. Cover Handle: Recessed.
- F. Frame and Cover: Weatherproof aluminum frame with hinged aluminum access door assembly with tamper-resistant, captive, cover-securing bolts.
1. Cover Hinges: Concealed, with hold-open ratchet assembly.
 2. Cover Handle: Recessed.
- G. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
- H. Cover Legend: Molded lettering, "ELECTRIC" or as indicated for each service.
- I. Configuration: Units shall be designed for flush burial and have open bottom unless otherwise indicated.
- J. Extensions and Slabs: Designed to mate with bottom of enclosure. Same material as enclosure.
1. Extension shall provide increased depth of 12 inches (300 mm).
 2. Slab: Same dimensions as bottom of enclosure, and arranged to provide closure.
- K. Joint Sealant: Asphaltic-butyl material with adhesion, cohesion, flexibility, and durability properties necessary to withstand maximum hydrostatic pressures at the installation location with the ground-water level at grade.
- L. Knockout Panels: Precast openings in walls, arranged to match dimensions and elevations of approaching duct, plus an additional 12 inches (300 mm) vertically and horizontally to accommodate alignment variations.
1. Center window location.
 2. Knockout panels shall be located no less than 6 inches (150 mm) from interior surfaces of walls, floors, or frames and covers of handholes, but close enough to corners to facilitate racking of cables on walls.
 3. Knockout panel opening shall have cast-in-place, welded-wire fabric reinforcement for field cutting and bending to tie in to concrete envelopes of duct.
 4. Knockout panels shall be framed with at least two additional No. 3 steel reinforcing bars in concrete around each opening.
 5. Knockout panels shall be 1-1/2 to 2 inches (38 to 50 mm) thick.
- M. Duct Entrances in Handhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.
1. Type and size shall match fittings to duct to be terminated.
 2. Fittings shall align with elevations of approaching duct and be located near interior corners of handholes to facilitate racking of cable.
- N. Handholes 12 inches wide by 24 inches long (300 mm wide by 600 mm long) and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.5 POLYMER CONCRETE HANDHOLES AND BOXES WITH POLYMER CONCRETE COVER

- A. Description: Molded of sand and aggregate, bound together with a polymer resin, and reinforced with steel or fiberglass or a combination of the two.
- B. Standard: Comply with SCTE 77. Comply with tier requirements in "Underground Enclosure Application" Article.
- C. Color: Gray.
- D. Configuration: Units shall be designed for flush burial and have integral closed bottom unless otherwise indicated.
- E. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.
- F. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
- G. Cover Legend: Molded lettering, "ELECTRIC."
- H. Direct-Buried Wiring Entrance Provisions: Knockouts equipped with insulated bushings or end-bell fittings, selected to suit box material, sized for wiring indicated, and arranged for secure, fixed installation in enclosure wall.
- I. Handholes 12 inches wide by 24 inches long (300 mm wide by 600 mm long) and larger shall have factory-installed inserts for cable racks and pulling-in irons.

2.6 SOURCE QUALITY CONTROL

- A. Test and inspect precast concrete utility structures according to ASTM C 1037.
- B. Nonconcrete Handhole and Pull-Box Prototype Test: Test prototypes of manholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.
 - 1. Tests of materials shall be performed by an independent testing agency.
 - 2. Strength tests of complete boxes and covers shall be by an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
 - 3. Testing machine pressure gages shall have current calibration certification, complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate layout and installation of duct, duct bank, manholes, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in the field.

Notify Architect if there is a conflict between areas of excavation and existing structures or archaeological sites to remain.

- B. Coordinate elevations of duct and duct-bank entrances into manholes, handholes, and boxes with final locations and profiles of duct and duct banks, as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations as required to suit field conditions and to ensure that duct and duct bank will drain to manholes and handholes, and as approved by Architect.
- C. Clear and grub vegetation to be removed and protect vegetation to remain according to Section 311000 "Site Clearing." Remove and stockpile topsoil for reapplication according to Section 311000 "Site Clearing."

3.2 UNDERGROUND DUCT APPLICATION

- A. Duct for Electrical Feeders 600 V and Less: Type pvc schedule 40 direct-buried unless otherwise indicated.
- B. Duct for Electrical Branch Circuits: type pvc schedule 40, direct-buried unless otherwise indicated.
- C. Stub-ups: Type EPC-80-PVC.

3.3 UNDERGROUND ENCLOSURE APPLICATION

- A. Handholes and Boxes for 600 V and Less:
 - 1. Units in Roadways and Other Deliberate Traffic Paths: Precast concrete. AASHTO HB 17, H-20 structural load rating.
 - 2. Units in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Polymer concrete, SCTE 77, Tier 15 structural load rating.
 - 3. Cover design load shall not exceed the design load of the handhole or box.

3.4 EARTHWORK

- A. Excavation and Backfill: Excavate to required depth with minimum required width. Backfill with same material scrubbed of any incompatible debris.
- B. Restoration: Replace area immediately after backfilling is completed.
- C. Restore surface features at areas disturbed by excavation and re-establish original grades unless otherwise indicated. Replace removed sod immediately after backfilling is completed.
- D. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching.

- E. Cut and patch existing pavement in the path of underground duct, duct bank, and underground structures. Restore pavement upon completion with identical concrete and steel re-inforcing.

3.5 DUCT INSTALLATION

- A. Where indicated on Drawings, install duct, spacers, and accessories into the duct-bank configuration shown. Duct installation requirements in this Section also apply to duct bank.
- B. Install duct according to NEMA TCB 2.
- C. Slope: Pitch duct a minimum slope of 1:300 down toward handholes and away from buildings and equipment.
- D. Manufactured sweep bends in "Curves and Bends" Paragraph below are available in various radii up to 25 feet (7.5 m) for 4- and 5-inch (100- and 125-mm) duct, although a 48-inch (1200-mm) radius is the largest regularly stocked. To minimize pulling tensions, specify the largest radius possible, consistent with other Project requirements. See the Evaluations. Coordinate with Drawings.
- E. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 36 inches (1200 mm), both horizontally and vertically, at other locations unless otherwise indicated.
 - 1. Duct shall have maximum of two 90 degree bends or the total of all bends shall be no more 180 degrees between pull points.
- F. Joints: Use solvent-cemented joints in duct and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent duct do not lie in same plane.
- G. End Bell Entrances to Concrete and Polymer Concrete Handholes: Use end bells, spaced approximately 10 inches (250 mm) o.c. for 5-inch (125-mm) duct, and vary proportionately for other duct sizes.
 - 1. Begin change from regular spacing to end-bell spacing 10 feet (3 m) from the end bell, without reducing duct slope and without forming a trap in the line.
 - 2. Expansion and Deflection Fittings: Install an expansion and deflection fitting in each duct in the area of disturbed earth adjacent to manhole or handhole. Install an expansion fitting near the center of all straight line direct-buried duct with calculated expansion of more than 3/4 inch (19 mm).
 - 3. Grout end bells into structure walls from both sides to provide watertight entrances.
- H. Terminator Entrances to Concrete and Polymer Concrete Handholes: Use manufactured, cast-in-place duct terminators, with entrances into structure spaced approximately 6 inches (150 mm) o.c. for 4-inch (100-mm) duct, and vary proportionately for other duct sizes.
 - 1. Begin change from regular spacing to terminator spacing 10 feet (3 m) from the terminator, without reducing duct line slope and without forming a trap in the line.

I. Direct-Buried Duct:

1. Excavate trench bottom to provide firm and uniform support for duct.
2. Width: Excavate trench 3 inches (75 mm) wider than duct on each side.
3. Depth: Install top of duct at least 24 inches below finished grade unless otherwise indicated.
4. Install duct with a minimum of 3 inches (75 mm) between ducts for like services and 6 inches (150 mm) between power and communications duct.
5. Elbows: Install manufactured duct elbows for stub-ups, at building entrances, and at changes of direction in duct direction unless otherwise indicated.
6. Install manufactured SCH 80 PVC elbows for stub-ups.

- J. Underground-Line Warning Tape: Bury conducting underground line specified in Section 260553 "Identification for Electrical Systems" no less than 12 inches (300 mm) above all duct banks and approximately 12 inches (300 mm) below grade. Align tape parallel to and within 3 inches (75 mm) of centerline of conduits..

3.6 INSTALLATION OF CONCRETE HANDHOLES, AND BOXES

A. Precast Concrete Handhole and Manhole Installation:

1. Comply with ASTM C 891 unless otherwise indicated.
2. Install units level and plumb and with orientation and depth coordinated with connecting duct, to minimize bends and deflections required for proper entrances.
3. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1-inch (25-mm) sieve to No. 4 (4.75-mm) sieve and compacted to same density as adjacent undisturbed earth.

B. Elevations:

1. Handhole Covers: In paved areas and trafficways, set surface flush with finished grade. Set covers of other handholes 1 inch (25 mm) above finished grade.
2. Where indicated, cast handhole cover frame integrally with handhole structure.

- C. Hardware: Install removable hardware, including pulling eyes, cable stanchions, and cable arms, and insulators, as required for installation and support of cables and conductors and as indicated.

- D. Field-Installed Bolting Anchors in Concrete Handholes: Do not drill deeper than 2 inches (50 mm) for handholes, for anchor bolts installed in the field. Use a minimum of two anchors for each cable stanchion.

3.7 INSTALLATION OF HANDHOLES AND BOXES OTHER THAN PRECAST CONCRETE

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting duct, to minimize bends and deflections required for proper entrances. Use box extension if required to match depths of duct, and seal joint between box and extension as recommended by manufacturer.

- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch (12.5-mm) sieve to No. 4 (4.75-mm) sieve and compacted to same density as adjacent undisturbed earth.
- C. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables, but short enough to preserve adequate working clearances in enclosure.
- D. Field cut openings for duct according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.8 GROUNDING

- A. Ground underground ducts according to Section 260526 "Grounding and Bonding for Electrical Systems."

3.9 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Demonstrate capability and compliance with requirements on completion of installation of underground duct, duct bank, and utility structures.
 - 2. Pull solid aluminum or wood test mandrel through duct to prove joint integrity and adequate bend radii, and test for out-of-round duct. Provide a minimum 12-inch- (300-mm-) long mandrel equal to duct size minus 1/4 inch (6 mm). If obstructions are indicated, remove obstructions and retest.
 - 3. Test manhole and handhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Section 260526 "Grounding and Bonding for Electrical Systems."
- B. Correct deficiencies and retest as specified above to demonstrate compliance.
- C. Prepare test and inspection reports.

3.10 CLEANING

- A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of duct until duct cleaner indicates that duct is clear of dirt and debris. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

END OF SECTION 260543

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Color and legend requirements for raceways, conductors, and warning labels and signs.
- 2. Labels.
- 3. Bands and tubes.
- 4. Tapes and stencils.
- 5. Tags.
- 6. Signs.
- 7. Cable ties.
- 8. Paint for identification.
- 9. Fasteners for labels and signs.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for electrical identification products.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Comply with NFPA 70.
- B. Comply with ANSI Z535.4 for safety signs and labels.
- C. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

2.2 COLOR AND LEGEND REQUIREMENTS

- A. Raceways and Cables Carrying Circuits at 600 V or Less:

1. Black letters on an orange field.
 2. Legend: Indicate voltage.
- B. Color-Coding for Phase- and Voltage-Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.
1. Color shall be factory applied or field applied for sizes larger than No. 8 AWG if authorities having jurisdiction permit.
 2. Colors for 208/120-V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
 3. Colors for 240-V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.
 4. Colors for 480/277-V Circuits:
 - a. Phase A: Brown.
 - b. Phase B: Orange.
 - c. Phase C: Yellow.
 5. Color for Neutral: White or gray.
 6. Color for Equipment Grounds: Bare copper, Green, Green with a yellow stripe.
 7. Colors for Isolated Grounds: Green with white stripe.
- C. Raceways and Cables Carrying Circuits at More Than 600 V:
1. Black letters on an orange field.
 2. Legend: "DANGER - CONCEALED HIGH VOLTAGE WIRING."
- D. Warning Label Colors:
1. Identify system voltage with black letters on an orange background.
- E. Warning labels and signs shall include, but are not limited to, the following legends:
1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
 2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES (915 MM)."
- F. Equipment Identification Labels:
1. Black letters on a white field.

2.3 LABELS

- A. Vinyl Wraparound Labels: Preprinted, flexible labels laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing label ends.
- B. Snap-around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeves, with diameters sized to suit diameters and that stay in place by gripping action.
- C. Self-Adhesive Wraparound Labels: Preprinted, 3-mil- (0.08-mm-) thick, polyester flexible label with acrylic pressure-sensitive adhesive.
 - 1. Self-Lamination: Clear; UV-, weather- and chemical-resistant; self-laminating, protective shield over the legend. Labels sized such that the clear shield overlaps the entire printed legend.
 - 2. Marker for Labels: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - 3. Marker for Labels: Machine-printed, permanent, waterproof, black ink recommended by printer manufacturer.
- D. Self-Adhesive Labels: Polyester, thermal, transfer-printed, 3-mil- (0.08-mm-) thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for intended use and location.
 - 1. Minimum Nominal Size:
 - a. 1-1/2 by 6 inches (37 by 150 mm) for raceway and conductors.
 - b. 3-1/2 by 5 inches (76 by 127 mm) for equipment.
 - c. As required by authorities having jurisdiction.

2.4 BANDS AND TUBES

- A. Snap-around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeves, 2 inches (50 mm) long, with diameters sized to suit diameters and that stay in place by gripping action.
- B. Heat-Shrink Preprinted Tubes: Flame-retardant polyolefin tubes with machine-printed identification labels, sized to suit diameter and shrunk to fit firmly. Full shrink recovery occurs at a maximum of 200 deg F (93 deg C). Comply with UL 224.

2.5 TAPES AND STENCILS

- A. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.
- B. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; not less than 3 mils (0.08 mm) thick by 1 to 2 inches (25 to 50 mm) wide; compounded for outdoor use.
- C. Tape and Stencil: 4-inch- (100-mm-) wide black stripes on 10-inch (250-mm) centers placed diagonally over orange background and are 12 inches (300 mm) wide. Stop stripes at legends.

- D. Floor Marking Tape: 2-inch- (50-mm-) wide, 5-mil (0.125-mm) pressure-sensitive vinyl tape, with yellow and black stripes and clear vinyl overlay.
- E. Underground-Line Warning Tape:
 - 1. Tape:
 - a. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
 - b. Printing on tape shall be permanent and shall not be damaged by burial operations.
 - c. Tape material and ink shall be chemically inert and not subject to degradation when exposed to acids, alkalis, and other destructive substances commonly found in soils.
 - 2. Color and Printing:
 - a. Comply with ANSI Z535.1, ANSI Z535.2, ANSI Z535.3, ANSI Z535.4, and ANSI Z535.5.
 - b. Inscriptions for Red-Colored Tapes: "ELECTRIC LINE, HIGH VOLTAGE".
 - c. Inscriptions for Orange-Colored Tapes: "TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE".
- F. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 1 inch (25 mm).

2.6 TAGS

- A. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch (50 by 50 by 1.3 mm), with stamped legend, punched for use with self-locking cable tie fastener.
- B. Nonmetallic Preprinted Tags: Polyethylene tags, 0.023 inch (0.58 mm) thick, color-coded for phase and voltage level, with factory printed permanent designations; punched for use with self-locking cable tie fastener.
- C. Write-on Tags:
 - 1. Polyester Tags: 0.015 inch (0.38 mm) thick, with corrosion-resistant grommet and cable tie for attachment.
 - 2. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - 3. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.7 SIGNS

- A. Baked-Enamel Signs:
 - 1. Preprinted aluminum signs, high-intensity reflective, punched or drilled for fasteners, with colors, legend, and size required for application.
 - 2. 1/4-inch (6.4-mm) grommets in corners for mounting.
 - 3. Nominal Size: 7 by 10 inches (180 by 250 mm).
- B. Metal-Backed Butyrate Signs:

1. Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs, with 0.0396-inch (1-mm) galvanized-steel backing, punched and drilled for fasteners, and with colors, legend, and size required for application.
 2. 1/4-inch (6.4-mm) grommets in corners for mounting.
 3. Nominal Size: 10 by 14 inches (250 by 360 mm).
- C. Laminated Acrylic or Melamine Plastic Signs:
1. Engraved legend.
 2. Thickness:
 - a. For signs up to 20 sq. in. (129 sq. cm), minimum 1/16 inch (1.6 mm) thick.
 - b. For signs larger than 20 sq. in. (129 sq. cm), 1/8 inch (3.2 mm) thick.
 - c. Engraved legend with black letters on white face.
 - d. Self-adhesive.
 - e. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

2.8 CABLE TIES

- A. General-Purpose Cable Ties: Fungus inert, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.
1. Minimum Width: 3/16 inch (5 mm).
 2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D 638: 12,000 psi (82.7 MPa).
 3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
 4. Color: Black, except where used for color-coding.
- B. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.
1. Minimum Width: 3/16 inch (5 mm).
 2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D 638: 12,000 psi (82.7 MPa).
 3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
 4. Color: Black.
- C. Plenum-Rated Cable Ties: Self-extinguishing, UV stabilized, one piece, and self-locking.
1. Minimum Width: 3/16 inch (5 mm).
 2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D 638: 7000 psi (48.2 MPa).
 3. UL 94 Flame Rating: 94V-0.
 4. Temperature Range: Minus 50 to plus 284 deg F (Minus 46 to plus 140 deg C).
 5. Color: Black.

2.9 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Retain paint system applicable for surface material and location (exterior or interior).
- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

3.2 INSTALLATION

- A. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.
- B. Install identifying devices before installing acoustical ceilings and similar concealment.
- C. Verify identity of each item before installing identification products.
- D. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.
- E. Apply identification devices to surfaces that require finish after completing finish work.
- F. Install signs with approved legend to facilitate proper identification, operation, and maintenance of electrical systems and connected items.
- G. System Identification for Raceways and Cables under 600 V: Identification shall completely encircle cable or conduit. Place identification of two-color markings in contact, side by side.
 - 1. Secure tight to surface of conductor, cable, or raceway.
- H. System Identification for Raceways and Cables over 600 V: Identification shall completely encircle cable or conduit. Place adjacent identification of two-color markings in contact, side by side.
 - 1. Secure tight to surface of conductor, cable, or raceway.
- I. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

- J. Elevated Components: Increase sizes of labels, signs, and letters to those appropriate for viewing from the floor.
- K. Accessible Fittings for Raceways: Identify the covers of each junction and pull box of the following systems with the wiring system legend and system voltage. System legends shall be as follows:
 - 1. "EMERGENCY POWER."
 - 2. "POWER."
 - 3. "UPS."
- L. Vinyl Wraparound Labels:
 - 1. Secure tight to surface of raceway or cable at a location with high visibility and accessibility.
 - 2. Attach labels that are not self-adhesive type with clear vinyl tape, with adhesive appropriate to the location and substrate.
- M. Snap-around Labels: Secure tight to surface at a location with high visibility and accessibility.
- N. Self-Adhesive Wraparound Labels: Secure tight to surface at a location with high visibility and accessibility.
- O. Self-Adhesive Labels:
 - 1. On each item, install unique designation label that is consistent with wiring diagrams, schedules, and operation and maintenance manual.
 - 2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high.
- P. Snap-around Color-Coding Bands: Secure tight to surface at a location with high visibility and accessibility.
- Q. Heat-Shrink, Preprinted Tubes: Secure tight to surface at a location with high visibility and accessibility.
- R. Marker Tapes: Secure tight to surface at a location with high visibility and accessibility.
- S. Self-Adhesive Vinyl Tape: Secure tight to surface at a location with high visibility and accessibility.
 - 1. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches (150 mm) where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding.
- T. Tape and Stencil: Comply with requirements in painting Sections for surface preparation and paint application.
- U. Floor Marking Tape: Apply stripes to finished surfaces following manufacturer's written instructions.

V. Underground Line Warning Tape:

1. During backfilling of trenches, install continuous underground-line warning tape directly above cable or raceway at 6 to 8 inches (150 to 200 mm) below finished grade. Use multiple tapes where width of multiple lines installed in a common trench exceeds 16 inches (400 mm) overall.
2. Limit use of underground-line warning tape to direct-buried cables.
3. Install underground-line warning tape for direct-buried cables and cables in raceways.

W. Metal Tags:

1. Place in a location with high visibility and accessibility.
2. Secure using UV-stabilized cable ties.

X. Nonmetallic Preprinted Tags:

1. Place in a location with high visibility and accessibility.
2. Secure using UV-stabilized cable ties.

Y. Write-on Tags:

1. Place in a location with high visibility and accessibility.
2. Secure using UV-stabilized cable ties.

Z. Baked-Enamel Signs:

1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on minimum 1-1/2-inch- (38-mm-) high sign; where two lines of text are required, use signs minimum 2 inches (50 mm) high.

AA. Metal-Backed Butyrate Signs:

1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high sign; where two lines of text are required, use labels 2 inches (50 mm) high.

BB. Laminated Acrylic or Melamine Plastic Signs:

1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high sign; where two lines of text are required, use labels 2 inches (50 mm) high.

CC. Cable Ties: General purpose, for attaching tags, except as listed below:

1. Outdoors: UV-stabilized nylon.

2. In Spaces Handling Environmental Air: Plenum rated.

3.3 IDENTIFICATION SCHEDULE

- A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.
- B. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.
- C. Concealed Raceways, Duct Banks, more Than 600 V, within Buildings: Tape and stencil. Stencil legend "DANGER - CONCEALED HIGH-VOLTAGE WIRING" with 3-inch- (75-mm-) high, black letters on 20-inch (500-mm) centers.
 1. Locate identification at changes in direction, at penetrations of walls and floors, and at 30-foot (10-m) maximum intervals.
- D. Accessible Raceways, Armored and Metal-Clad Cables, More Than 600 V: Vinyl wraparound labels.
 1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
- E. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits, More Than 30 A and 120 V to Ground: Identify with self-adhesive raceway labels.
 1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
- F. Accessible Fittings for Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive labels containing the wiring system legend and system voltage. System legends shall be as follows:
 1. "EMERGENCY POWER."
 2. "POWER."
 3. "UPS."
- G. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use self-adhesive vinyl tape to identify the phase.
 1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
- H. Power-Circuit Conductor Identification, More Than 600 V: For conductors in vaults, pull and junction boxes, manholes, and handholes, use nonmetallic preprinted tags colored and marked to indicate phase, and a separate tag with the circuit designation.

- I. Locations of Underground Lines: Underground-line warning tape for power, lighting, communication, and control wiring and optical-fiber cable.
- J. Concealed Raceways and Duct Banks, More Than 600 V, within Buildings: Apply floor marking tape to the following finished surfaces:
 - 1. Floor surface directly above conduits running beneath and within 12 inches (300 mm) of a floor that is in contact with earth or is framed above unexcavated space.
 - 2. Wall surfaces directly external to raceways concealed within wall.
 - 3. Accessible surfaces of concrete envelope around raceways in vertical shafts, exposed in the building, or concealed above suspended ceilings.
- K. Instructional Signs: Self-adhesive labels, including the color code for grounded and ungrounded conductors.
- L. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive labels.
 - 1. Apply to exterior of door, cover, or other access.
 - 2. For equipment with multiple power or control sources, apply to door or cover of equipment, including, but not limited to, the following:
 - a. Power-transfer switches.
 - b. Controls with external control power connections.
- M. Arc Flash Warning Labeling: Self-adhesive labels.
- N. Operating Instruction Signs: Self-adhesive labels.
- O. Emergency Operating Instruction Signs: Self-adhesive labels with white legend on a red background with minimum 3/8-inch- (10-mm-) high letters for emergency instructions at equipment used for power transfer.
- P. Equipment Identification Labels:
 - 1. Indoor Equipment: Self-adhesive label.
 - 2. Outdoor Equipment: Laminated acrylic or melamine sign.
 - 3. Equipment to Be Labeled:
 - a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be in the form of a engraved, laminated acrylic or melamine label.
 - b. Enclosures and electrical cabinets.
 - c. Access doors and panels for concealed electrical items.
 - d. Switchgear.
 - e. Switchboards.
 - f. Transformers: Label that includes tag designation indicated on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.
 - g. Substations.
 - h. Emergency system boxes and enclosures.
 - i. Motor-control centers.

- j. Enclosed switches.
- k. Enclosed circuit breakers.
- l. Enclosed controllers.
- m. Variable-speed controllers.
- n. Push-button stations.
- o. Power-transfer equipment.
- p. Contactors.
- q. Remote-controlled switches, dimmer modules, and control devices.
- r. Battery-inverter units.
- s. Battery racks.
- t. Power-generating units.
- u. Monitoring and control equipment.
- v. UPS equipment.

END OF SECTION 260553

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Distribution panelboards.
 - 2. Lighting and appliance branch-circuit panelboards.
 - 3. Load centers.

1.3 DEFINITIONS

- A. ATS: Acceptance testing specification.
- B. GFCI: Ground-fault circuit interrupter.
- C. GFEP: Ground-fault equipment protection.
- D. HID: High-intensity discharge.
- E. MCCB: Molded-case circuit breaker.
- F. SPD: Surge protective device.
- G. VPR: Voltage protection rating.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of panelboard.
 - 1. Include materials, switching and overcurrent protective devices, SPDs, accessories, and components indicated.
 - 2. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
- B. Shop Drawings: For each panelboard and related equipment.
 - 1. Include dimensioned plans, elevations, sections, and details.

2. Show tabulations of installed devices with nameplates, conductor termination sizes, equipment features, and ratings.
3. Detail enclosure types including mounting and anchorage, environmental protection, knockouts, corner treatments, covers and doors, gaskets, hinges, and locks.
4. Detail bus configuration, current, and voltage ratings.
5. Short-circuit current rating of panelboards and overcurrent protective devices.
6. Include evidence of NRTL listing for SPD as installed in panelboard.
7. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
 1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
 2. Time-current curves, including selectable ranges for each type of overcurrent protective device that allows adjustments.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Keys: Two spares for each type of panelboard cabinet lock.
 2. Circuit Breakers Including GFCI and GFEP Types: Two spares for each panelboard.
 3. Fuses for Fused Switches: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.
 4. Fuses for Fused Power-Circuit Devices: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: ISO 9001 or 9002 certified.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Remove loose packing and flammable materials from inside panelboards; install temporary electric heating (250 W per panelboard) to prevent condensation.
- B. Handle and prepare panelboards for installation according to NEMA PB 1.

1.10 FIELD CONDITIONS

- A. Environmental Limitations:
 - 1. Do not deliver or install panelboards until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above panelboards is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
 - 2. Rate equipment for continuous operation under the following conditions unless otherwise indicated:
 - a. Ambient Temperature: Not exceeding minus 22 deg F (minus 30 deg C) to plus 104 deg F (plus 40 deg C).
 - b. Altitude: Not exceeding 6600 feet (2000 m).
- B. Service Conditions: NEMA PB 1, usual service conditions, as follows:
 - 1. Ambient temperatures within limits specified.
 - 2. Altitude not exceeding 6600 feet (2000 m).
- C. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
 - 1. Notify Architect no fewer than 7 days in advance of proposed interruption of electric service.
 - 2. Do not proceed with interruption of electric service without Architect's written permission.
 - 3. Comply with NFPA 70E.

1.11 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace panelboards that fail in materials or workmanship within specified warranty period.
 - 1. Panelboard Warranty Period: 12 months from date of Substantial Completion.
- B. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace SPD that fails in materials or workmanship within specified warranty period.
 - 1. SPD Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANELBOARDS AND LOAD CENTERS COMMON REQUIREMENTS

- A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Section 260548.16 "Seismic Controls for Electrical Systems."
- B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for panelboards including clearances between panelboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- D. Comply with NEMA PB 1.
- E. Comply with NFPA 70.
- F. Enclosures: Flush and Surface-mounted, dead-front cabinets.
 - 1. Rated for environmental conditions at installed location.
 - a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
 - b. Outdoor Locations: NEMA 250, Type 3R.
 - c. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.
 - d. Indoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: NEMA 250, Type 12.
 - 2. Height: 84 inches (2.13 m) maximum.
 - 3. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box. Trims shall cover all live parts and shall have no exposed hardware.
 - 4. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover. Trims shall cover all live parts and shall have no exposed hardware.
 - 5. Skirt for Surface-Mounted Panelboards: Same gage and finish as panelboard front with flanges for attachment to panelboard, wall, and ceiling or floor.
 - 6. Gutter Extension and Barrier: Same gage and finish as panelboard enclosure; integral with enclosure body. Arrange to isolate individual panel sections.
 - 7. Finishes:
 - a. Panels and Trim: Steel and galvanized steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
 - b. Back Boxes: Same finish as panels and trim.
 - c. Fungus Proofing: Permanent fungicidal treatment for overcurrent protective devices and other components.
- G. Incoming Mains:

1. Location: As required.
2. Main Breaker: Main lug interiors up to 400 amperes shall be field convertible to main breaker.

H. Phase, Neutral, and Ground Buses:

1. Material: Tin-plated aluminum.
 - a. Plating shall run entire length of bus.
 - b. Bus shall be fully rated the entire length.
2. Interiors shall be factory assembled into a unit. Replacing switching and protective devices shall not disturb adjacent units or require removing the main bus connectors.
3. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.
4. Isolated Ground Bus: Adequate for branch-circuit isolated ground conductors; insulated from box.
5. Full-Sized Neutral: Equipped with full-capacity bonding strap for service entrance applications. Mount electrically isolated from enclosure. Do not mount neutral bus in gutter.
6. Extra-Capacity Neutral Bus: Neutral bus rated 200 percent of phase bus and listed and labeled by an NRTL acceptable to authority having jurisdiction, as suitable for nonlinear loads in electronic-grade panelboards and others designated on Drawings. Connectors shall be sized for double-sized or parallel conductors as indicated on Drawings. Do not mount neutral bus in gutter.
7. Split Bus: Vertical buses divided into individual vertical sections.

I. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Tin-plated aluminum.
2. Terminations shall allow use of 75 deg C rated conductors without derating.
3. Size: Lugs suitable for indicated conductor sizes, with additional gutter space, if required, for larger conductors.
4. Main and Neutral Lugs: Mechanical type, with a lug on the neutral bar for each pole in the panelboard.
5. Ground Lugs and Bus-Configured Terminators: Mechanical type, with a lug on the bar for each pole in the panelboard.
6. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
7. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
8. Gutter-Tap Lugs: Mechanical type suitable for use with conductor material and with matching insulating covers. Locate at same end of bus as incoming lugs or main device.
9. Extra-Capacity Neutral Lugs: Rated 200 percent of phase lugs mounted on extra-capacity neutral bus.

J. Future Devices: Panelboards or load centers shall have mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

1. Percentage of Future Space Capacity: Ten percent.

- K. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals. Assembly listed by an NRTL for 100 percent interrupting capacity.
 - 1. Panelboards and overcurrent protective devices rated 240 V or less shall have short-circuit ratings as shown on Drawings, but not less than 10,000 A rms symmetrical.
 - 2. Panelboards and overcurrent protective devices rated above 240 V and less than 600 V shall have short-circuit ratings as shown on Drawings, but not less than 14,000 A rms symmetrical.

2.2 PERFORMANCE REQUIREMENTS

- A. Surge Suppression: Factory installed as an integral part of indicated panelboards, complying with UL 1449 SPD Type 2.

2.3 POWER PANELBOARDS

- A. Panelboards: NEMA PB 1, distribution type.
- B. Doors: Secured with vault-type latch with tumbler lock; keyed alike.
 - 1. For doors more than 36 inches (914 mm) high, provide two latches, keyed alike.
- C. Mains: Circuit breaker.
- D. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.
- E. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers.

2.4 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

- A. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.
- B. Mains: Circuit breaker or lugs only.
- C. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.
- D. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.
- E. Doors: Door-in-door construction with concealed hinges; secured with multipoint latch with tumbler lock; keyed alike. Outer door shall permit full access to the panel interior. Inner door shall permit access to breaker operating handles and labeling, but current carrying terminals and bus shall remain concealed.

2.5 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. MCCB: Comply with UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers:
 - a. Inverse time-current element for low-level overloads.
 - b. Instantaneous magnetic trip element for short circuits.
 - c. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
3. Electronic Trip Circuit Breakers:
 - a. RMS sensing.
 - b. Field-replaceable rating plug or electronic trip.
 - c. Digital display of settings, trip targets, and indicated metering displays.
 - d. Multi-button keypad to access programmable functions and monitored data.
 - e. Ten-event, trip-history log. Each trip event shall be recorded with type, phase, and magnitude of fault that caused the trip.
 - f. Integral test jack for connection to portable test set or laptop computer.
 - g. Field-Adjustable Settings:
 - 1) Instantaneous trip.
 - 2) Long- and short-time pickup levels.
 - 3) Long and short time adjustments.
 - 4) Where indicated on schedules, ground-fault pickup level, time delay, and I squared T response.
4. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
5. GFCI Circuit Breakers: Single- and double-pole configurations with Class A ground-fault protection (6-mA trip).
6. GFEP Circuit Breakers: Class B ground-fault protection (30-mA trip).
7. Arc-Fault Circuit Interrupter Circuit Breakers: Comply with UL 1699; 120/240-V, single-pole configuration.
8. Subfeed Circuit Breakers: Vertically mounted.
9. MCCB Features and Accessories:
 - a. Standard frame sizes, trip ratings, and number of poles.
 - b. Breaker handle indicates tripped status.
 - c. UL listed for reverse connection without restrictive line or load ratings.
 - d. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
 - e. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and HID lighting circuits.
 - f. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.

- g. Rating Plugs: Three-pole breakers with ampere ratings greater than 150 amperes or as indicated on schedules shall have interchangeable rating plugs or electronic adjustable trip units.
 - h. Multipole units enclosed in a single housing with a single handle.
 - i. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in off position.
 - j. Handle Clamp: Loose attachment, for holding circuit-breaker handle in on position.
- B. Fused Switch: NEMA KS 1, Type HD; clips to accommodate specified fuses; lockable handle.
 - 1. Fuses and Spare-Fuse Cabinet: Comply with requirements specified in Section 262813 "Fuses."
 - 2. Fused Switch Features and Accessories:
 - a. Standard ampere ratings and number of poles.
 - b. Mechanical cover interlock with a manual interlock override, to prevent the opening of the cover when the switch is in the on position. The interlock shall prevent the switch from being turned on with the cover open. The operating handle shall have lock-off means with provisions for three padlocks.
 - c. Auxiliary Contacts for elevator disconnecting means: One normally open and normally closed contact(s) that operate with switch handle operation.

2.6 IDENTIFICATION

- A. Panelboard Label: Manufacturer's name and trademark, voltage, amperage, number of phases, and number of poles shall be located on the interior of the panelboard door.
- B. Breaker Labels: Faceplate shall list current rating, UL and IEC certification standards, and AIC rating.
- C. Circuit Directory: Directory card inside panelboard door, mounted in transparent card holder.
 - 1. Circuit directory shall identify specific purpose with detail sufficient to distinguish it from all other circuits.
- D. Circuit Directory: Computer-generated circuit directory mounted inside panelboard door with transparent plastic protective cover.
 - 1. Circuit directory shall identify specific purpose with detail sufficient to distinguish it from all other circuits.

2.7 ACCESSORY COMPONENTS AND FEATURES

- A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify actual conditions with field measurements prior to ordering panelboards to verify that equipment fits in allocated space in, and comply with, minimum required clearances specified in NFPA 70.
- B. Receive, inspect, handle, and store panelboards according to NEMA PB 1.1.
- C. Examine panelboards before installation. Reject panelboards that are damaged, rusted, or have been subjected to water saturation.
- D. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Comply with NECA 1.
- C. Install panelboards and accessories according to NEMA PB 1.1.
- D. Equipment Mounting:
 - 1. Attach panelboard to the vertical finished or structural surface behind the panelboard.
- E. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from panelboards.
- F. Mount panelboard cabinet plumb and rigid without distortion of box.
- G. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.
- H. Mount surface-mounted panelboards to steel slotted supports 5/8 inch (16 mm) in depth. Orient steel slotted supports vertically.
- I. Install overcurrent protective devices and controllers not already factory installed.
 - 1. Set field-adjustable, circuit-breaker trip ranges.

2. Tighten bolted connections and circuit breaker connections using calibrated torque wrench or torque screwdriver per manufacturer's written instructions.
- J. Make grounding connections and bond neutral for services and separately derived systems to ground. Make connections to grounding electrodes, separate grounds for isolated ground bars, and connections to separate ground bars.
- K. Install filler plates in unused spaces.
- L. Stub four 1-inch (25 mm) empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch (25 mm) empty conduits into raised floor space or below slab not on grade.
- M. Arrange conductors in gutters into groups and bundle and wrap with wire ties.
- N. Mount spare fuse cabinet in accessible location.

3.3 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; install warning signs complying with requirements in Section 260553 "Identification for Electrical Systems."
- B. Create a directory to indicate installed circuit loads; incorporate Owner's final room designations. Obtain approval before installing. Handwritten directories are not acceptable. Install directory inside panelboard door.
- C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- D. Device Nameplates: Label each branch circuit device in power panelboards with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- E. Install warning signs complying with requirements in Section 260553 "Identification for Electrical Systems" identifying source of remote circuit.

3.4 FIELD QUALITY CONTROL

- A. Acceptance Testing Preparation:
 1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
 2. Test continuity of each circuit.
- B. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test for low-voltage air circuit breakers stated in NETA ATS, Paragraph 7.6 Circuit Breakers. Do not perform optional tests. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
3. Perform the following infrared scan tests and inspections and prepare reports:
 - a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each panelboard. Remove front panels so joints and connections are accessible to portable scanner.
 - b. Instruments and Equipment:
 - 1) Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
- C. Panelboards will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results, with comparisons of the two scans. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

- A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.
- B. Set field-adjustable circuit-breaker trip ranges per requirements of engineer.

END OF SECTION 262416

SECTION 262813 - FUSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Cartridge fuses rated 600 V ac and less for use in the following:
 - a. Enclosed switches.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for spare-fuse cabinets. Include the following for each fuse type indicated:
 1. Ambient Temperature Adjustment Information: If ratings of fuses have been adjusted to accommodate ambient temperatures, provide list of fuses with adjusted ratings.
 - a. For each fuse having adjusted ratings, include location of fuse, original fuse rating, local ambient temperature, and adjusted fuse rating.
 - b. Provide manufacturer's technical data on which ambient temperature adjustment calculations are based.
 2. Dimensions and manufacturer's technical data on features, performance, electrical characteristics, and ratings.
 3. Current-limitation curves for fuses with current-limiting characteristics.
 4. Time-current coordination curves (average melt) and current-limitation curves (instantaneous peak let-through current) for each type and rating of fuse. Submit in electronic format suitable for use in coordination software and in PDF format.
 5. Coordination charts and tables and related data.
 6. Fuse sizes for elevator feeders and elevator disconnect switches.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For fuses to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 017700 "Closeout Procedures," Section 017823 "Operation and Maintenance Data," include the following:

1. Ambient temperature adjustment information.
2. Current-limitation curves for fuses with current-limiting characteristics.
3. Time-current coordination curves (average melt) and current-limitation curves (instantaneous peak let-through current) for each type and rating of fuse used on the Project. Submit in electronic format suitable for use in coordination software and in PDF format.
4. Coordination charts and tables and related data.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Fuses: Equal to 10 percent of quantity installed for each size and type, but no fewer than three 6 of each size and type.

1.6 FIELD CONDITIONS

- A. Where ambient temperature to which fuses are directly exposed is less than 40 deg F (5 deg C) or more than 100 deg F (38 deg C), apply manufacturer's ambient temperature adjustment factors to fuse ratings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain fuses, for use within a specific product or circuit, from single source from single manufacturer.

2.2 CARTRIDGE FUSES

- A. Characteristics: NEMA FU 1, current-limiting, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.
 1. Type RK-1: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
 2. Type RK-5: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
 3. Type CC: 600-V, zero- to 30-A rating, 200 kAIC, fast acting, time delay.
 4. Type CD: 600-V, 31- to 60-A rating, 200 kAIC, fast acting, time delay.
 5. Type J: 600-V, zero- to 600-A rating, 200 kAIC, time delay.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Comply with NEMA FU 1 for cartridge fuses.
- D. Comply with NFPA 70.

- E. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with system short-circuit current levels.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine fuses before installation. Reject fuses that are moisture damaged or physically damaged.
- B. Examine holders to receive fuses for compliance with installation tolerances and other conditions affecting performance, such as rejection features.
- C. Examine utilization equipment nameplates and installation instructions. Install fuses of sizes and with characteristics appropriate for each piece of equipment.
- D. Evaluate ambient temperatures to determine if fuse rating adjustment factors must be applied to fuse ratings.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 FUSE APPLICATIONS

- A. Cartridge Fuses:
 - 1. Motor Branch Circuits: Class RK1, time delay.
 - 2. Large Motor Branch (601-4000 A): Class L, time delay.
 - 3. Power Electronics Circuits: Class J, high speed.
 - 4. Other Branch Circuits: Class RK1, time delay.
 - 5. Control Transformer Circuits: Class CC, time delay, control transformer duty.
 - 6. Provide open-fuse indicator fuses or fuse covers with open fuse indication.

3.3 INSTALLATION

- A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.
- B. Install spare-fuse cabinet(s) in location shown on the Drawings or as indicated in the field by Owner.

3.4 IDENTIFICATION

- A. Install labels complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems" and indicating fuse replacement information inside of door of each fused switch and adjacent to each fuse block, socket, and holder.

END OF SECTION 262813

SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Fusible switches.
 - 2. Molded-case circuit breakers (MCCBs).
 - 3. Enclosures.

1.3 DEFINITIONS

- A. NC: Normally closed.
- B. NO: Normally open.
- C. SPDT: Single pole, double throw.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include nameplate ratings, dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.
 - 1. Enclosure types and details for types other than NEMA 250, Type 1.
 - 2. Current and voltage ratings.
 - 3. Short-circuit current ratings (interrupting and withstand, as appropriate).
 - 4. Include evidence of a nationally recognized testing laboratory (NRTL) listing for series rating of installed devices.
 - 5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.
 - 6. Include time-current coordination curves (average melt) for each type and rating of overcurrent protective device; include selectable ranges for each type of overcurrent protective device. Provide in PDF electronic format.
- B. Shop Drawings: For enclosed switches and circuit breakers.
 - 1. Include plans, elevations, sections, details, and attachments to other work.

2. Include wiring diagrams for power, signal, and control wiring.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For enclosed switches and circuit breakers to include in emergency, operation, and maintenance manuals.
 1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
 - a. Manufacturer's written instructions for testing and adjusting enclosed switches and circuit breakers.
 - b. Time-current coordination curves (average melt) for each type and rating of overcurrent protective device; include selectable ranges for each type of overcurrent protective device. Provide in PDF electronic format.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Fuses: Equal to 10 percent of quantity installed for each size and type, but no fewer than six of each size and type.
 2. Fuse Pullers: Two for each size and type.

1.7 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Accredited by NETA.
 1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Rate equipment for continuous operation under the following conditions unless otherwise indicated:
 1. Ambient Temperature: Not less than minus 22 deg F (minus 30 deg C) and not exceeding 104 deg F (40 deg C).
 2. Altitude: Not exceeding 6600 feet (2010 m).

1.9 WARRANTY

- A. Manufacturer's Warranty: Manufacturer and Installer agree to repair or replace components that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

- A. Source Limitations: Obtain enclosed switches and circuit breakers, overcurrent protective devices, components, and accessories, within same product category, from single manufacturer.
- B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for enclosed switches and circuit breakers, including clearances between enclosures, and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.
- D. Comply with NFPA 70.

2.2 FUSIBLE SWITCHES

- A. Type HD, Heavy Duty:
 - 1. Single throw.
 - 2. Three pole.
 - 3. 240 or 600-V ac as required.
 - 4. 1200 A and smaller.
 - 5. UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate specified fuses.
 - 6. Lockable handle with capability to accept three padlocks and interlocked with cover in closed position.
- B. Accessories:
 - 1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
 - 2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
 - 3. Isolated Ground Kit: Internally mounted; insulated, labeled for copper and aluminum neutral conductors.
 - 4. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
 - 5. Hookstick Handle: Allows use of a hookstick to operate the handle.
 - 6. Lugs: Mechanical type, suitable for number, size, and conductor material.
 - 7. Service-Rated Switches: Labeled for use as service equipment.

2.3 NONFUSIBLE SWITCHES

- A. Type HD, Heavy Duty, Three Pole, Single Throw, 240 or 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

B. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
4. Hookstick Handle: Allows use of a hookstick to operate the handle.
5. Lugs: Mechanical type, suitable for number, size, and conductor material.
6. Service-Rated Switches: Labeled for use as service equipment.

2.4 ENCLOSURES

- A. Enclosed Switches and Circuit Breakers: UL 489, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.
- B. Enclosure Finish: The enclosure shall be finished with gray baked enamel paint, electrodeposited on cleaned, phosphatized steel (NEMA 250 Type 1).
- C. Conduit Entry: NEMA 250 Types 4, 4X, and 12 enclosures shall contain no knockouts. NEMA 250 Types 7 and 9 enclosures shall be provided with threaded conduit openings in both endwalls.
- D. Operating Mechanism: The circuit-breaker operating handle shall be externally operable with the operating mechanism being an integral part of the box, not the cover. The cover interlock mechanism shall have an externally operated override. The override shall not permanently disable the interlock mechanism, which shall return to the locked position once the override is released. The tool used to override the cover interlock mechanism shall not be required to enter the enclosure in order to override the interlock.
- E. Enclosures designated as NEMA 250 Type 4, 4X stainless steel, 12, or 12K shall have a dual cover interlock mechanism to prevent unintentional opening of the enclosure cover when the circuit breaker is ON and to prevent turning the circuit breaker ON when the enclosure cover is open.
- F. NEMA 250 Type 7/9 enclosures shall be furnished with a breather and drain kit to allow their use in outdoor and wet location applications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

1. Commencement of work shall indicate Installer's acceptance of the areas and conditions as satisfactory.

3.2 PREPARATION

- A. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
 1. Notify Architect no fewer than seven days in advance of proposed interruption of electric service.
 2. Indicate method of providing temporary electric service.
 3. Do not proceed with interruption of electric service without Architect's written permission.
 4. Comply with NFPA 70E.

3.3 ENCLOSURE ENVIRONMENTAL RATING APPLICATIONS

- A. Enclosed Switches and Circuit Breakers: Provide enclosures at installed locations with the following environmental ratings.
 1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
 2. Outdoor Locations: NEMA 250, Type 3R.
 3. Other Wet or Damp, Indoor Locations: NEMA 250, Type 4.
 4. Indoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: NEMA 250, Type 12.

3.4 INSTALLATION

- A. Coordinate layout and installation of switches, circuit breakers, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.
- C. Comply with mounting and anchoring requirements specified in Section 260548.16 "Seismic Controls for Electrical Systems."
- D. Temporary Lifting Provisions: Remove temporary lifting of eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
- E. Install fuses in fusible devices.
- F. Comply with NFPA 70 and NECA 1.

3.5 IDENTIFICATION

- A. Comply with requirements in Section 260553 "Identification for Electrical Systems."
 - 1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
 - 2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- C. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- D. Perform tests and inspections.
- E. Tests and Inspections for Switches:
 - 1. Visual and Mechanical Inspection:
 - a. Inspect physical and mechanical condition.
 - b. Inspect anchorage, alignment, grounding, and clearances.
 - c. Verify that the unit is clean.
 - d. Verify blade alignment, blade penetration, travel stops, and mechanical operation.
 - e. Verify that fuse sizes and types match the Specifications and Drawings.
 - f. Verify that each fuse has adequate mechanical support and contact integrity.
 - g. Inspect bolted electrical connections for high resistance using one of the two following methods:
 - 1) Use a low-resistance ohmmeter.
 - a) Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of the lowest value.
 - 2) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS Table 100.12.
 - a) Bolt-torque levels shall be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use NETA ATS Table 100.12.
 - h. Verify that operation and sequencing of interlocking systems is as described in the Specifications and shown on the Drawings.
 - i. Verify correct phase barrier installation.

- j. Verify lubrication of moving current-carrying parts and moving and sliding surfaces.
2. Electrical Tests:
- a. Perform resistance measurements through bolted connections with a low-resistance ohmmeter. Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
 - b. Measure contact resistance across each switchblade fuseholder. Drop values shall not exceed the high level of the manufacturer's published data. If manufacturer's published data are not available, investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
 - c. Perform insulation-resistance tests for one minute on each pole, phase-to-phase and phase-to-ground with switch closed, and across each open pole. Apply voltage in accordance with manufacturer's published data. In the absence of manufacturer's published data, use Table 100.1 from the NETA ATS. Investigate values of insulation resistance less than those published in Table 100.1 or as recommended in manufacturer's published data.
 - d. Measure fuse resistance. Investigate fuse-resistance values that deviate from each other by more than 15 percent.
 - e. Perform ground fault test according to NETA ATS 7.14 "Ground Fault Protection Systems, Low-Voltage."
- F. Tests and Inspections for Molded Case Circuit Breakers:
1. Visual and Mechanical Inspection:
- a. Verify that equipment nameplate data are as described in the Specifications and shown on the Drawings.
 - b. Inspect physical and mechanical condition.
 - c. Inspect anchorage, alignment, grounding, and clearances.
 - d. Verify that the unit is clean.
 - e. Operate the circuit breaker to ensure smooth operation.
 - f. Inspect bolted electrical connections for high resistance using one of the two following methods:
 - 1) Use a low-resistance ohmmeter.
 - a) Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of the lowest value.
 - 2) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS Table 100.12.
 - a) Bolt-torque levels shall be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use NETA ATS Table 100.12.

- g. Inspect operating mechanism, contacts, and chutes in unsealed units.
- h. Perform adjustments for final protective device settings in accordance with the coordination study.

2. Electrical Tests:

- a. Perform resistance measurements through bolted connections with a low-resistance ohmmeter. Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
- b. Perform insulation-resistance tests for one minute on each pole, phase-to-phase and phase-to-ground with circuit breaker closed, and across each open pole. Apply voltage in accordance with manufacturer's published data. In the absence of manufacturer's published data, use Table 100.1 from the NETA ATS. Investigate values of insulation resistance less than those published in Table 100.1 or as recommended in manufacturer's published data.
- c. Perform a contact/pole resistance test. Drop values shall not exceed the high level of the manufacturer's published data. If manufacturer's published data are not available, investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
- d. Perform insulation resistance tests on all control wiring with respect to ground. Applied potential shall be 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable. Test duration shall be one minute. For units with solid state components, follow manufacturer's recommendation. Insulation resistance values shall be no less than two megohms.
- e. Determine the following by primary current injection:
 - 1) Long-time pickup and delay. Pickup values shall be as specified. Trip characteristics shall not exceed manufacturer's published time-current characteristic tolerance band, including adjustment factors.
 - 2) Short-time pickup and delay. Short-time pickup values shall be as specified. Trip characteristics shall not exceed manufacturer's published time-current characteristic tolerance band, including adjustment factors.
 - 3) Ground-fault pickup and time delay. Ground-fault pickup values shall be as specified. Trip characteristics shall not exceed manufacturer's published time-current characteristic tolerance band, including adjustment factors.
 - 4) Instantaneous pickup. Instantaneous pickup values shall be as specified and within manufacturer's published tolerances.
- f. Test functionality of the trip unit by means of primary current injection. Pickup values and trip characteristics shall be as specified and within manufacturer's published tolerances.
- g. Perform minimum pickup voltage tests on shunt trip and close coils in accordance with manufacturer's published data. Minimum pickup voltage of the shunt trip and close coils shall be as indicated by manufacturer.
- h. Verify correct operation of auxiliary features such as trip and pickup indicators; zone interlocking; electrical close and trip operation; trip-free, anti-pump function; and trip unit battery condition. Reset all trip logs and indicators. Investigate units that do not function as designed.
- i. Verify operation of charging mechanism. Investigate units that do not function as designed.

3. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
 4. Perform the following infrared scan tests and inspections and prepare reports:
 - a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each enclosed switch and circuit breaker. Remove front panels so joints and connections are accessible to portable scanner.
 - b. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each enclosed switch and circuit breaker 11 months after date of Substantial Completion.
 - c. Instruments and Equipment: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 5. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.
- G. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.
- H. Prepare test and inspection reports.
1. Test procedures used.
 2. Include identification of each enclosed switch and circuit breaker tested and describe test results.
 3. List deficiencies detected, remedial action taken, and observations after remedial action.

3.7 ADJUSTING

- A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.
- B. Set field-adjustable circuit-breaker trip ranges per direction of engineer.

END OF SECTION 262816

SECTION 264313 - SURGE PROTECTION FOR LOW-VOLTAGE ELECTRICAL POWER
CIRCUITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes field-mounted SPDs for low-voltage (120 to 600 V) power distribution and control equipment.
- B. Related Requirements:
 - 1. Section 262416 "Panelboards" for factory-installed SPDs.

1.3 DEFINITIONS

- A. Inominal: Nominal discharge current.
- B. MCOV: Maximum continuous operating voltage.
- C. Mode(s), also Modes of Protection: The pair of electrical connections where the VPR applies.
- D. MOV: Metal-oxide varistor; an electronic component with a significant non-ohmic current-voltage characteristic.
- E. OCPD: Overcurrent protective device.
- F. SCCR: Short-circuit current rating.
- G. SPD: Surge protective device.
- H. VPR: Voltage protection rating.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

2. Copy of UL Category Code VZCA certification, as a minimum, listing the tested values for VPRs, Inominal ratings, MCOVs, type designations, OCPD requirements, model numbers, system voltages, and modes of protection.

1.5 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For SPDs to include in maintenance manuals.

1.7 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to replace or replace SPDs that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL SPD REQUIREMENTS

- A. SPD with Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.
- C. Comply with UL 1449.
- D. MCOV of the SPD shall be the nominal system voltage.

2.2 PANEL SUPPRESSORS

- A. SPDs: Comply with UL 1449, Type 2.
 1. Include LED indicator lights for power and protection status.
 2. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.
 3. Include Form-C contacts rated at 5 A and 250-V ac, one normally open and one normally closed, for remote monitoring of protection status.
- B. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 100 kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.

- C. Comply with UL 1283.
- D. Protection modes and UL 1449 VPR for grounded wye circuits with 480Y/277 V and 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:
 - 1. Line to Neutral: 1200 V for 480Y/277 V, 700 V for 208Y/120 V.
 - 2. Line to Ground: 1200 V for 480Y/277 V, 700 V for 208Y/120 V.
 - 3. Neutral to Ground: 1200 V for 480Y/277 V, 700 V for 208Y/120 V.
 - 4. Line to Line: 2000 V for 480Y/277 V, 1200 V for 208Y/120 V
- E. Protection modes and UL 1449 VPR for 240/120-V, single-phase, three-wire circuits shall not exceed the following:
 - 1. Line to Neutral: 700 V.
 - 2. Line to Ground: 700 V.
 - 3. Neutral to Ground: 700 V.
 - 4. Line to Line: 1200 V.
- F. SCCR: Equal or exceed 100 kA.
- G. Inominal Rating: 20 kA.

2.3 ENCLOSURES

- A. Indoor Enclosures: NEMA 250, Type 1.
- B. Outdoor Enclosures: NEMA 250, Type 3R.

2.4 CONDUCTORS AND CABLES

- A. Power Wiring: Same size as SPD leads, complying with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with NECA 1.
- B. Install an OCPD or disconnect as required to comply with the UL listing of the SPD.
- C. Install SPDs with conductors between suppressor and points of attachment as short and straight as possible, and adjust circuit-breaker positions to achieve shortest and straightest leads. Do not splice and extend SPD leads unless specifically permitted by manufacturer. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.
- D. Use crimped connectors and splices only. Wire nuts are unacceptable.

E. Wiring:

1. Power Wiring: Comply with wiring methods in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
2. Controls: Comply with wiring methods in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.2 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections with the assistance of a factory-authorized service representative.
1. Compare equipment nameplate data for compliance with Drawings and Specifications.
 2. Inspect anchorage, alignment, grounding, and clearances.
 3. Verify that electrical wiring installation complies with manufacturer's written installation requirements.
- B. An SPD will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

3.3 STARTUP SERVICE

- A. Complete startup checks according to manufacturer's written instructions.
- B. Do not perform insulation-resistance tests of the distribution wiring equipment with SPDs installed. Disconnect SPDs before conducting insulation-resistance tests, and reconnect them immediately after the testing is over.
- C. Energize SPDs after power system has been energized, stabilized, and tested.

3.4 DEMONSTRATION

- A. Train Owner's maintenance personnel to operate and maintain SPDs.

END OF SECTION 264313

SECTION 265568 - ATHLETIC FIELD LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

- A. A. Work covered by this section of the specifications shall conform to contract documents, engineering plans as well as state and local codes.
- B. The purpose of these specifications is to define the lighting system performance and design standards for IES tournament levels. The manufacturer / contractor shall supply the lighting systems to meet or exceed the standards set forth in these specifications.
- C. The primary goals of this lighting project are:
 - 1. Environmental Light Control: Minimize spill light to adjoining properties and glare to the players, spectators and neighbors.
 - 2. Life-cycle Cost: To reduce operating costs, the preferred lighting system shall be energy efficient and cost effective to operate.
 - 3. Controls: To reduce system and labor costs and allow for optimal operational flexibility of the lighting system, the customer requires a wireless control system. The system shall be capable of instant on/off control to reduce energy consumption. The system must be accessible by all of the following: Wi-Fi, cellular and future LAN connectivity, and permit multiple user, on site/remote control and scheduling. Cellular connectivity with Cloud-Based hosting must be included for a minimum of 10 years.
 - 4.
- D. Related Requirements:
 - 1. Section 260100 "Basic Requirements for Electrical" for additional abbreviations, definitions, submittals, qualifications, testing agencies, and other Project requirements applicable to Work specified in this Section.
 - 2. Section 265613 "Lighting Poles and Standards" for poles and standards used to support lighting equipment.
 - 3. Section 265619 "LED Exterior Lighting" for exterior LED luminaires and photoelectric relays.

1.2 LIGHTING PERFORMANCE

- A. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting calculations shall be developed, and field measurements taken on the grid spacing with the minimum number of grid points specified herein. A 0.80 light loss factor shall be applied and submitted for the basis of design.
 - 1. Horizontal Illuminance: Measurement in fc, on a horizontal surface 36 inch above ground unless otherwise indicated.
 - 2. Target Illuminance: Average maintained illuminance level, calculated by multiplying initial illuminance by LLF.

3. Vertical Illuminance: Measurement in fc, in two directions on a vertical surface, at an elevation coinciding with plane height of horizontal measurements.
 - 4.
- B. Average illumination level shall be measured in accordance with the latest IESNA Sports and Recreational Area Lighting requirements.
- .
- C. Illumination levels shall not drop below desired target values in accordance with latest IESNA Sports and Recreational Area Lighting - Maintained Average Illumination standards and shall be guaranteed for the full warranty period as specified herein.

Area of Lighting	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Baseball Fields 1-4 Infield	50 fc	2.0	25	30' x 30'
Baseball Fields 1-4 Outfield	30 fc	2.0	93	30' x 30'
Football	50 fc	2.0	96	30' x 30'

- D. . Color Temperature: The lighting systems shall have a color temperature of 5700K and a CRI of 70.
- E. Mounting Heights and Locations: To ensure proper aiming angles for reduced glare and to provide better playability, minimum mounting heights shall be 60' and 70' above grade for poles as indicated on plans.

1.3 ENVIRONMENTAL LIGHT CONTROL

- A. Light Control for Luminaires: All luminaires shall utilize optics designed to minimize glare and spill light while maintaining quality light above the poles for aerial play.
- B. Spill Control: To minimize impact on adjacent properties, maximum horizontal spill shall be no more than 0.75 fc from the edge of the field to the property line as shown on the drawings (Spill Line).
- C. Light levels shall be taken at 30-foot intervals along the Spill Line; and illumination level shall be measured in accordance with IESNA LM-5-04 after 1 hour warm up. These spill readings must be submitted to the Owner's Representative.
- D. Light levels shall be taken at 30-foot intervals along the Spill Line; and illumination level shall be measured in accordance with IESNA LM-5-04 after 1 hour warm up. These spill readings must be submitted to the Owner's Representative.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project Site.
- B. Preinstallation Coordination Meeting(s): For sports lighting. Conduct meeting(s) at Project Site.
 - 1. Attendees: Installers, fabricators, representatives of manufacturers, and administrators for field tests and inspections. Notify the Engineer and Owner's representative of scheduled meeting dates.

1.5 ACTION SUBMITTALS

- A. Product Data:
 - 1. For luminaires, lamps, and ballasts.
 - a. Arrange in order of luminaire designation.
 - b. Data on features, accessories, and finishes.
 - c. Physical description and dimensions of luminaires.
 - d. Ballast, including BF, UL listing and recognition, ANSI certification, and Energy Independence and Security Act of 2007 compliance.
 - e. Lamps, including life, output (lumens, CCT, and CRI), and energy-efficiency data.
 - f. Photometric data and adjustment factors based on laboratory tests by, or under supervision of, qualified luminaire photometric testing laboratory, for each lighting luminaire type. Adjustment factors must be for lamps, ballasts, and accessories identical to those indicated for the luminaire as applied in this Project.
 - g. Photoelectric relays.
 - h. Means of attaching luminaires to supports and indication that attachment is suitable for components involved.
- B. Shop Drawings:
 - 1. For nonstandard or custom luminaires.
 - a. Plans, elevations, sections, and mounting and attachment details.
 - b. Remote Driver Enclosures with heat load calculations
 - c. Details of luminaire assemblies drivers, Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - d. Diagrams for power, signal, and control wiring.
- C. Product Schedule: For luminaires and lamps as indicated on drawings.
- D. Field Quality-Control Submittals:
 - 1. Field quality-control reports.

1.6 INFORMATIONAL SUBMITTALS

- A. Product Certificates:
 - 1. For each type of driver and controlled luminaire from manufacturer
 - 2. For support structures, including brackets, arms, appurtenances, bases, anchorages and foundations from manufacturer.
- B. Sample warranty.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Spare Parts: Furnish to Owner the following spare parts necessary for repairing sports lighting that are packaged with protective covering for storage and identified with labels describing contents:
 - 1. Fixture lens cover Furnish at least one of each type.
 - 2. Fuses: Ten for every hundred

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.9 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of luminaires, lamps, and luminaire alignment products and to correct misalignment that occurs subsequent to successful acceptance tests. Manufacturer may exclude lightning damage, hail damage, vandalism, abuse, and unauthorized repairs and alterations from special warranty coverage.
 - 1. Luminaire Warranty: Luminaire and luminaire assembly (excluding fuses and lamps) must be free from defects in materials and workmanship for a period of five years from date of Substantial Completion.
 - 2. Lamp Warranty:
 - a. Replace lamps and fuses that fail within 12 months from date of Substantial Completion.
 - b. Provide replacement lamps for lamps that fail within months 13 through 24 from date of Substantial Completion.
 - 3. Alignment Warranty: Accuracy of alignment of luminaires must remain within specified illuminance uniformity ratios for a period of five years from date of successful completion of acceptance tests.
 - a. Realign luminaires that become misaligned during the warranty period.
 - b. Replace alignment products that fail within the warranty period.
 - c. Verify successful realignment of luminaires by retesting as specified in "Field Quality Control" Article.

4. Warranty Period: 10 year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Pole structure, luminaires, controls and integral driver system shall be provided from the below approved manufacturer. All substitutions must provide a complete submittal package and be pre-approved at least 10 days prior to bid.

1. Konlite VEGA Premium Series

2.2 SPORTS LIGHTING SYSTEM

- A. The entire sports lighting system (poles, crossarms and fixtures) must be supplied by a single entity that underwrites the warranty. The complete lighting system shall consist of the listed equipment and features as follows:
 1. Factory assembled luminaires: LED Luminaire must have an integral driver connected directly to the luminaire. Entire fixture must be factory assembled and sealed to at least an IP66 rating.
 2. Poles: The sports lighting pole system shall be direct embedment and consist of concrete encased concrete poles. Refer to drawings.
 - a. Hot dip galvanized steel per ASTM A123
 - b. Crossarms
 - c. Laser aiming capability for field alignment/realignment of the luminaires
 - d. A minimum of NEMA 3X rated wireless control system enclosure
 - e. All system components shall be UL listed for the appropriate application.
 - f. Manufacturers to provide 1.5" coupling with handhole for mounting of owner provided equipment as shown on drawings, if applicable.

2.3 LUMINAIRES

- A. The luminaires shall meet the following specifications:
 1. Operating temperature range: -40°F to +122°F
 2. IP Rating: IP66
 3. Certified to UL 844
 4. Correlated Color Temperature (CCT): 5700K
 5. Color Rendering Index (CRI): 70
 6. L70 lumen depreciation rating: >100,000 hours
 7. Weight: <52 lbs, including driver, visor and bracket
 8. Driver: Remote Refer to drawings
 9. Driver input voltage range: 200VAC to 480VAC
 10. Efficacy a minimum of 157 lumens/watt
 11. Power factor >0.9 @max load

12. Each Luminaire must be installed with an internal glare control visor.
13. Luminaire to have a maximum Effective Projected Area (EPA) of 2.1 square feet.

2.4 CROSSARM ASSEMBLY

- A. All crossarms shall be galvanized steel per ASTM A123

2.5 REMOTE DRIVER ENCLSOURE

- A. Remote driver enclosure shall be NEMA 4x housing for LED constant current drivers. The enclosure shall be side hinged with lockable door. The completed remote driver enclosure shall be fabricated, inspected, and labeled as a UL 508A Industrial Control Panel. The listing requirement applies to the assembly as a whole.
- B. The enclosure shall be sized and configured to maintain internal ambient temperature within the driver rated range (0 degrees C to +50 degrees C). The enclosure shall be sized for the number of drivers of each pole with 2 spares. The minimum size of the enclosure shall be 18" W x 24"H

2.6 CONTROL SYSTEM

- A. The control and monitoring system shall provide instant on/off capabilities and meet the following specifications:
 1. Wireless control
 2. Must include the ability to schedule/control system via all of the following means of connectivity: Wi-Fi, Cellular, and LAN connectivity for remote operation, with cellular connectivity and Cloud-Based hosing for a minimum of 10 years.
 3. IOS and Android compatible wireless control for multiple users
 4. Allow multiple user accounts with ability to assign various system permission levels
 5. Ability to schedule recurring events at fixed times
 6. Capable of in-field firmware/software upgrades
 7. Onsite and/or remote commissioning
 8. Ability to organize and manage different "zones" of luminaires
 9. Map-based interface to adjust lights, activate scenes, or create schedules

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for luminaire electrical and communications conduit to verify actual locations of connections before pole or luminaire installation.

- C. Examine foundations for suitable conditions where luminaires will be installed.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Wiring Method: Install cables in raceways, except when cables are installed within boxes and poles. Conceal raceways and cables as indicated on plans.
 - 1. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" and Section 260533 "Raceways and Boxes for Electrical Systems" for wiring connections and wiring methods.
- B. Coordination layout and installation of luminaires with other construction.
- C. Use web fabric slings (not chain or cable) to raise and set structural members. Protect equipment during installation to prevent corrosion.
- D. Install poles and other structural units level, plumb, and square.
- E. Install luminaires at height and aiming angle as indicated on Drawings.
- F. Except for embedded structural members, grout void between pole base and foundation. Use nonshrinking or expanding concrete grout firmly packed in entire void space. Use a short piece of 1/2 inch diameter pipe to make a drain hole through grout. Arrange to drain condensation from interior of pole. Nonshrink grout is specified in Section 055000 "Metal Fabrications."
- G. Install pole pads at all poles inside playing field boundaries.

3.3 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals.

3.4 FIELD QUALITY CONTROL

- A. Field tests and inspections must be witnessed by Engineer and Owner's representative.
- B. Tests and Inspections:
 - 1. After installing sports lighting system and after electrical circuits have been energized, perform proof-of-performance field measurements and analysis for compliance with requirements.
 - 2. Playing and Other Designated Areas: Make field measurements at intersections of grids, dimensioned and located as specified in "Performance Requirements".
 - 3. Make field measurements at established test points in areas of concern for spill light and glare.

4. Perform analysis to demonstrate correlation of field measurements with specified illumination quality and quantity values and corresponding computer-generated values that were submitted with engineered design documents. Submit a report of the analysis. For computer-generated values, use manufacturer's lamp lumens that are adjusted to lamp age at time of field testing.
5. Report results in writing.

C. Nonconforming Work:

1. Sports lighting will be considered defective if it does not pass tests and inspections.
2. Remove and replace defective units and retest.
3. Correction of Illumination Deficiencies for Playing Areas: Make corrections to illumination quality or quantity, measured in field quality-control tests, that varies from specified illumination criteria by plus or minus 10 percent.
 - a. Add or replace luminaires; change mounting height and aiming; or install louvers, shields, or baffles.
 - b. If luminaires are added or mounting height is changed, revise aiming and recalculate and modify or replace support structures if indicated.
 - c. Do not replace luminaires with units of higher or lower wattage without Architect's approval.
 - d. Retest as specified above after repairs, adjustments, or replacements are made.
 - e. Report results in writing.

D. Correction of Excessive Illumination in Spill-Light-Critical Areas: If measurements indicate that specified limits for spill light are exceeded, make corrections to illumination quantity, measured in field quality-control tests, that reduce levels to within specified maximum values.

1. Replace luminaires; change mounting heights and revise aiming; or install louvers, shields, or baffles.
2. Obtain Architect's approval to replace luminaires with units of higher or lower wattage.
3. If mounting height is changed, revise aiming and recalculate and modify or replace support structures if indicated.
4. Retest as specified above after repairs, adjustments, or replacements are made.

E. Assemble and submit test and inspection reports.

3.5 ADJUSTING

- A. Adjust luminaires and supports to maintain orientation and aiming as recommended by manufacturer.

END OF SECTION 265568

SECTION 265613 - LIGHTING POLES AND STANDARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Poles and accessories for support of luminaires and terminal boxes.

1.3 DEFINITIONS

- A. EPA: Equivalent projected area.
- B. Luminaire: Complete luminaire.
- C. Pole: Luminaire-supporting structure, including tower used for large-area illumination.
- D. Standard: See "Pole."

1.4 ACTION SUBMITTALS

- A. Product Data: For each pole, accessory, and luminaire-support, arranged as indicated.
 - 1. Include data on construction details, profiles, EPA, cable entrances, materials, dimensions, weight, rated design load, and ultimate strength of individual components.
 - 2. Include finishes for lighting poles and luminaire-supporting devices.
 - 3. All brackets and fasteners.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, and mounting and attachment details.
 - 2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Detail fabrication and assembly of poles and pole accessories.
 - 4. Method and procedure of pole installation. Include manufacturer's written installations.

1.5 INFORMATIONAL SUBMITTALS

- A. Pole and Support Component Certificates: Signed by manufacturers of poles, certifying that products are designed for indicated load requirements according to AASHTO LTS-6-M and that load imposed by luminaire and attachments has been included in design. The certification shall be based on design calculations signed and sealed by a professional engineer.
- B. Qualification Data: For Installer.
- C. Material Test Reports:
 - 1. For each foundation component, by a qualified testing agency.
 - 2. For each pole, by a qualified testing agency.
- D. Source quality-control reports.
- E. Field quality-control reports.
- F. Sample Warranty: Manufacturer's standard warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For poles to include in emergency, operation, and maintenance manuals.
 - 1. Include pole inspection and repair procedures.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Pole repair materials.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store poles on decay-resistant skids at least 12 inches above grade and vegetation. Support poles to prevent distortion and arrange to provide free air circulation.

1.9 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of pole(s) that fail in materials or workmanship; that corrode; or that fade, stain, perforate, erode, or chalk due to effects of weather or solar radiation within a specified warranty period. Manufacturer may exclude lightning damage, hail damage, vandalism, abuse, or unauthorized repairs from special warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Characteristics: Comply with AASHTO LTS-6-M.
- B. Dead Load: Weight of luminaire and its horizontal and vertical supports, lowering devices, and supporting structure, enclosures, applied according to AASHTO LTS-6-M.
- C. Live Load: Single load of 500 lbf distributed according to AASHTO LTS-6-M.
- D. Ice Load: Load of 3 lbf/sq. ft., applied according to AASHTO LTS-6-M for applicable areas on the Ice Load Map.
- E. Wind Load: Pressure of wind on pole and luminaire, calculated and applied according to AASHTO LTS-6-M.
 - 1. Basic wind speed for calculating wind load for poles exceeding 50 feet in height is 130 mph.
 - a. Wind Importance Factor: 1
 - b. Minimum Design Life: 50
 - c. Velocity Conversion Factor: 1
- F. Strength Analysis: For each pole, multiply the actual EPA of luminaires and brackets by a factor of 1 to obtain the EPA to be used in pole selection strength analysis.
- G. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements. Use stainless-steel fasteners and mounting bolts unless otherwise indicated.

2.2 PRESTRESSED CONCRETE POLES

- A. Poles: Comply with ASTM C1089
 - 1. Shape: Dodecagonal Butt width of 26.56" and Pole taper 18 in/ft
 - 2. Mounting Provisions: Embedded
 - 3. Finishing: Capped at top and plugged at bottom. Seat each reinforcing strand with epoxy adhesive.
 - 4. Grounding: Continuous copper ground wire cast into pole. Terminate at top of pole and lightning rod
 - 5. Raceway: Smooth, internal, and not less than 3 inches in diameter.
- B. Concrete: Minimum 28-day compressive strength of 3000 psi.
- C. Cured with wet steam and aged for a minimum of 15 days prior to installation.
- D. Surface Treatment: Hard, nonporous, and resistant to water, frost, and road and soil chemicals; and shall have a maximum water-absorption rate of 3 percent.
- E. Finish Texture: Standard form

- F. Fasteners: Galvanized Steel size and type as determined by manufacturer. Compatible with poles and standards as well as the substrates to which poles and standards are fastened and shall not cause galvanic action at contact points.
- G. Nameplate: Aluminum cast into pole wall at approximately 5 feet above ground line, listing name of manufacturer, Project identifier, overall height, and approximate weight.
- H. Pole Brackets: Comply with ANSI C136.31.

2.3 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine poles, luminaire-mounting devices, lowering devices, and pole accessories before installation. Components that are scratched, dented, marred, wet, moisture damaged, or visibly damaged are considered defective.
- C. Examine roughing-in for foundation and conduit to verify actual locations of installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 POLE INSTALLATION

- A. Alignment: Align pole foundations and poles for optimum directional alignment of luminaires and their mounting provisions on pole.
- B. Clearances: Maintain the following minimum horizontal distances of poles from surface and underground features unless otherwise indicated on drawing.
 - 1. Fire Hydrants and Water Piping: 60 inches.
 - 2. Water, Gas, Electric, Communications, and Sewer Lines: 10 feet.
 - 3. Trees: 15 feet from tree trunk.
- C. Raise and set pole using web fabric slings (not chain or cable) at locations indicated by manufacturer.

3.3 GROUNDING

- A. Ground Nonmetallic Poles and Support Structures: Comply with requirements in Section 260526 "Grounding and Bonding for Electrical Systems."
 - 1. Install grounding electrode for each pole.
 - 2. Install grounding conductor and conductor protector.
 - 3. Ground metallic components of pole accessories and foundation.

3.4 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Engage a qualified special inspector to perform the following special inspections:
 - 1. Inspect poles for nicks, mars, dents, scratches, and other damage.
 - 2. System function tests.
 - 3. Complete installation of luminaire supports, with all fasteners torqued in accordance with manufacturer instructions.
 - 4. All electrical connections completed and tested.
 - 5. All handholes and cable entrances properly closed and sealed.

END OF SECTION 265613

SECTION 265619 – LED EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Exterior solid-state luminaires that are designed for and exclusively use LED lamp technology.
 - 2. Luminaire supports.

1.3 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color rendering index.
- C. Fixture: See "Luminaire."
- D. IP: International Protection or Ingress Protection Rating.
- E. Lumen: Measured output of lamp and luminaire, or both.
- F. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of luminaire.
 - 1. Arrange in order of luminaire designation.
 - 2. Include data on features, accessories, and finishes.
 - 3. Include physical description and dimensions of luminaire.
 - 4. Lamps, include life, output (lumens, CCT, and CRI), and energy-efficiency data.
 - 5. Photometric data and adjustment factors based on laboratory tests, complying with IES Lighting Measurements Testing and Calculation Guides, of each luminaire type. The adjustment factors shall be for lamps and accessories identical to those indicated for the luminaire as applied in this Project.

- a. Manufacturer's Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the NVLAP for Energy Efficient Lighting Products.
 - b. Testing Agency Certified Data: For indicated luminaires, photometric data certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.
6. Wiring diagrams for power, control, and signal wiring.
7. Photoelectric relays.
8. Means of attaching luminaires to supports and indication that the attachment is suitable for components involved.
- B. Shop Drawings: For nonstandard or custom luminaires.
 1. Include plans, elevations, sections, and mounting and attachment details.
 2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 3. Include diagrams for power, signal, and control wiring.
- C. Product Schedule: For luminaires and lamps. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 1. Luminaires.
 2. Building features.
 3. Vertical and horizontal information.
- B. Qualification Data: For testing laboratory providing photometric data for luminaires.
- C. Product Certificates: For each type of the following:
 1. Luminaire.
- D. Product Test Reports: For each luminaire, for tests performed by manufacturer and witnessed by a qualified testing agency.
- E. Source quality-control reports.
- F. Sample warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For luminaires to include in operation and maintenance manuals.

1. Provide a list of all lamp types used on Project. Use ANSI and manufacturers' codes.

1.7 QUALITY ASSURANCE

- A. Luminaire Photometric Data Testing Laboratory Qualifications: Luminaire manufacturers' laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.
- B. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7, accredited under the NVLAP for Energy Efficient Lighting Products and complying with applicable IES testing standards.
- C. Provide luminaires from a single manufacturer for each luminaire type.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering prior to shipping.

1.9 FIELD CONDITIONS

- A. Verify existing and proposed utility structures prior to the start of work associated with luminaire installation.
- B. Mark locations of exterior luminaires for approval by Architect prior to the start of luminaire installation.

1.10 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Structural failures, including luminaire support components.
 - b. Faulty operation of luminaires and accessories.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 2. Warranty Period: 1 year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 LUMINAIRE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. NRTL Compliance: Luminaires shall be listed and labeled for indicated class and division of hazard by an NRTL.
- C. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.
- D. UL Compliance: Comply with UL 1598 and listed for wet location.
- E. Lamp base complying with ANSI C81.61.
- F. Bulb shape complying with ANSI C79.1.
- G. CRI of minimum 80. CCT as scheduled on drawings
- H. L70 lamp life of 50,000 hours.
- I. Internal driver.
- J. Nominal Operating Voltage: as scheduled on drawings.
- K. Lamp Rating: Lamp marked for outdoor use and in enclosed locations.
- L. Source Limitations: Obtain luminaires from single source from a single manufacturer.
- M. Source Limitations: For luminaires, obtain each color, grade, finish, type, and variety of luminaire from single source with resources to provide products of consistent quality in appearance and physical properties.

2.2 MATERIALS

- A. Metal Parts: Free of burrs and sharp corners and edges.
- B. Sheet Metal Components: Corrosion-resistant aluminum. Form and support to prevent warping and sagging.
- C. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position. Doors shall be removable for cleaning or replacing lenses.
- D. Diffusers and Globes:

1. Polycarbonate.
- E. Lens and Refractor Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.
- F. Reflecting surfaces shall have minimum reflectance as follows unless otherwise indicated:
 1. White Surfaces: 85 percent.
 2. Specular Surfaces: 83 percent.
 3. Diffusing Specular Surfaces: 75 percent.
- G. Housings:
 1. Rigidly formed, weather- and light-tight enclosure that will not warp, sag, or deform in use.
 2. Provide filter/breather for enclosed luminaires.
- H. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.
 1. Label shall include the following lamp characteristics:
 - a. "USE ONLY" and include specific lamp type.
 - b. Lamp diameter, shape, size, wattage and coating.
 - c. CCT and CRI for all luminaires.

2.3 FINISHES

- A. Variations in Finishes: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- B. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping. Where indicated, match finish process and color of pole or support materials.

2.4 LUMINAIRE SUPPORT COMPONENTS

- A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

- B. Examine roughing-in for luminaire electrical conduit to verify actual locations of conduit connections before luminaire installation.
- C. Examine walls, roofs, and canopy ceilings and overhang ceilings for suitable conditions where luminaires will be installed.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 GENERAL INSTALLATION REQUIREMENTS

- A. Comply with NECA 1.
- B. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.
- C. Install lamps in each luminaire.
- D. Fasten luminaire to structural support.
- E. Supports:
 - 1. Sized and rated for luminaire weight.
 - 2. Able to maintain luminaire position after cleaning and relamping.
 - 3. Support luminaires without causing deflection of finished surface.
 - 4. Luminaire-mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and a vertical force of 400 percent of luminaire weight.
- F. Wiring Method: Install cables in raceways. Conceal raceways and cables.
- G. Coordinate layout and installation of luminaires with other construction.
- H. Adjust luminaires that require field adjustment or aiming.
- I. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" and Section 260533 "Raceways and Boxes for Electrical Systems" for wiring connections and wiring methods.

3.3 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.4 FIELD QUALITY CONTROL

- A. Inspect each installed luminaire for damage. Replace damaged luminaires and components.
- B. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
 2. Verify operation of relay based controls.
- C. Luminaire will be considered defective if it does not pass tests and inspections.
- D. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

END OF SECTION 265619