SPECIFICATIONS AND CONTRACT DOCUMENTS

FOR

WOODVILLE ELEMENTARY WWTP UPGRADE

PREPARED FOR:

LEON COUNTY SCHOOLS

September 22, 2014

PREPARED BY:

PREBLE-RISH, INC.

315 BEARD STREET, TALLAHASSEE, FL 32303 P (850) 523-0062

PORT ST. JOE • BLOUNTSTOWN • SANTA ROSA BEACH• PANAMA CITY
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ADVERTISEMENT

SCHOOL BOARD OF LEON COUNTY, FLORIDA
Woodville Elementary School – Waste Water Treatment Plant Upgrade Project

Leon County School Board, Tallahassee, Florida will receive bids ONLY from Leon County School Board Pre-Qualified (January 1, 2014 through December 31, 2014) State Certified General Contractors at the Leon County Schools, Purchasing Department located at 3397 West Tharpe Street, Tallahassee, Florida 32303. In accordance with the Contract Documents, all bids must be a lump sum basis; segregated bids will not be accepted. Each Bid shall be addressed to:

PROJECT:	Woodville Elementary School WWTP Upgrade Project
BID NO:	3287-2015
BID DATE/TIME:	October 15, 2014 at 2pm local time
PLACE:	3397 W. Tharpe Street, Tallahassee, FL 32303

Drawings and Specifications may be obtained at the offices of Seminole Blueprint 2915-1 East Park Avenue, Tallahassee, FL 32304 (850) 671.2714 bidder will pay Seminole Blueprint for their copy of Drawing and Specifications. All materials furnished and all work performed shall be in accordance with Drawings and Specifications.

Bid security in the amount of five (5) percent of the Bid must accompany each Bid in accordance with the Instruction to Bidders. In the event the Contract is awarded to the Bidder, Bidder shall, within eight (8) Owner business days after the award by the Owner of the Contract, furnish the required Performance and Payment Bonds; failing to do such, Bidder shall forfeit their bid guarantee as liquidated damages.

The Performance and Payment Bonds shall be secured from any agency of a surety or insurance company, which agency shall have an established place of business in the State of Florida and be duly licensed to conduct business there. Furnished as prescribed in Section 255.05 and 1013.47, Florida Statutes.

The Owner reserves the right to waive irregularities and/or informalities in any Bid and to reject any or all Bids in whole or part, with or without cause, and/or accept the Bid that in its judgment will be for the best interest of the School Board of Leon County, Florida.

A Pre-Bid Conference will be held on October 7, 2014 at 9:30 am at Woodville Elementary located at 9373 Woodville Hwy, Tallahassee, FL 32305. Please check in at the office before going to the pre-bid in Building 6, Room 800All bidders or their representatives are encouraged to be in attendance.

THE SCHOOL BOARD OF LEON COUNTY, FLORIDA

BY: Forrest Van Camp,
Chairperson

Jackie Pons,
Superintendent of Schools

June Kail,
Director of Purchasing
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INSTRUCTION TO BIDDERS

PROCUREMENT OF BID DOCUMENTS

Contractors bidding the project may secure Bidding Documents at: Seminole Blueprint 2915-1 East Park Avenue, Tallahassee, FL 32304 (850) 671.2714

1. DEFINITIONS:

1.01 All definitions set forth in the General Conditions of the Contract for Construction, The School Board of Leon County, Florida, are applicable to these Instructions to Bidders.

1.02 Bidding Documents include the Advertisement to Bid, Notice to Prospective Bidders, Instructions to Bidders, Policies of the School Board, Contract, General Conditions, Supplementary General Conditions, Special Conditions, Bid Bond, Performance and Payment Bond, Proposal Form, and the proposed Contract Documents including any Addenda issued prior to receipt of bids.

1.03 Addenda are written or graphic instruments issued prior to the execution of the Contract which modify or interpret the bidding documents, clarifications or corrections. Addenda will become part of the Contract Documents when the Construction Contract is executed.

2. BIDDER'S REPRESENTATION:

2.01 Each bidder, by making his bid, represents that he has read and understands the bidding documents.

2.02 Each bidder, by making his bid, represents that he has visited the site and familiarized himself with the local conditions under which the Work is to be performed.

2.03.1 (NEW) Criminal Background Checks/I.D. Badges: --- **Jessica Lunsford Act** LCSB Policy 8475 – Criminal Background Checks …. Background screening requirements pursuant to Florida law for certain non-instructional school district employees and contractors states in part-"Non-instructional school district employees or contractual personnel who are permitted access on school grounds when students are present, who have direct contact with students or who have access to or control of school funds must meet level 2 screening requirements as described in s.1012.32."

2.03.2 **Reciprocity of Florida School I.D. Badges**: If a contractor has registered with another Florida school district, they may be able to obtain a Leon County School I.D. Check with our Safety and Security Dept. at http://www.leonschools.net/newLCShomeFiles/Safety_Security/Safety_Security.html Once the individual has been cleared, he/she will need to report to Fingerprint Services to pick up a picture id badge. Contact the office for cost of this process (850)487-7293.

3. BIDDING PROCEDURES:
Coordinate with LCSB Policy 6325 SMALL BUSINESS DEVELOPMENT PROGRAM

3.01 All bids must be prepared using the forms contained in these specifications and submitted in accordance with the Instruction to Bidders.

3.02 A Bid is invalid if it has not been deposited at the designated location prior to the time and date for receipt of bids indicated in the advertisement or invitation to bid, or prior to any extension thereof

issued to the bidders.

3.03 Unless otherwise provided in any supplement to these Instructions to Bidders, no bidder shall modify, withdraw or cancel his bid or any part thereof for 60 days after the time designated for the receipt of bids in the advertisement or invitation to bid.

3.04 Prior to the receipt of bids, Addenda will be mailed or delivered to each qualified General Contractor recorded by the Architect as having received the bidding documents, and will be available for inspection wherever the bidding documents are kept available for this purpose.

(a) The Prospective Bidder (General Contractor or Construction Manager) must submit a Small Business Participation Plan that shall identify the Small Business Enterprises (SBE) to be utilized, their percentage of utilization, and the commercial services they are providing, consistent with the commodities or services for which they are certified and/or qualified to provide.

The term "Small Business Enterprise" (SBE) is defined as Small Business Enterprise and firms certified by Leon County School Board, which is provided at the current link: http://sharepoint.leon.k12.fl.us/sbd/Important%20Documents/Program%20Overview.aspx . For more information please contact **Dexter Martin, Director of Small Business Enterprise, Leon County Schools, Tallahassee, Florida. Telephone: 850-617-1821.**

(b) **SBE Targets**: All prime bidders (general contractor or construction manager) including SBE's shall either meet the Aspirational Target(s) and if applicable, demonstrate in their bid that a good faith effort was made to meet the Aspirational Target(s). All prime bidders will make contact with the Leon County School SBE Division for a listing of available SBEs who provide the services needed for the bid or proposal.

(c) **Good Faith Effort** The following are examples of good faith efforts that prime bidders can use if they are not meeting the Aspirational Target:

1. Advertising for participation by SBEs in local publications within the Market Area, including a copy of the advertisement and proof of date(s) it appeared; or by sending correspondence, no less than ten (10) days prior to the submission deadline, to all SBEs referred to the Bidder by the SBE Division for the goods and services to be subcontracted and/or supplied.
2. Documentation indicating that the bidding Prime Contractor provided ample time for potential SBE Subcontractors to respond to bid opportunities, including a chart outlining the schedule/time frame used to obtain bids from SBE Vendors as applicable to the Aspirational Target.
3. Contacting SBE Vendors who provide the services needed for the bid or proposal. Include a list of all SBEs that were contacted and the method of contact.
4. Document follow-up telephone calls with potential SBE Subcontractors encouraging their participation.
5. Allowing potential SBE Subcontractors to review bid specifications, blueprints and all other bid/RFP related items at no charge to the SBEs.
6. Contacting the SBE Division, no less than five (5) business days prior to the Bid/RFP deadline, regarding problems they are having in reaching the Aspirational Targets.
7. Other documentation indicating their Good Faith Efforts to meet the Aspirational Targets.

3.05 Preparation and Submission of Bid Proposal Form:

(a) Each bidder shall copy the Proposal Form on Bidder's own letterhead and indicate their bid prices

thereon in the proper spaces for the entire work and for the alternates on which they bid. Any erasures or other corrections in the bid must be explained or noted over the signature of the Bidder. Bids containing any conditions or irregularities of any kind may be rejected by the Owner.

(b) Each Bid shall specify a unit price written in ink in both words and figures, for each of the separate items, as called for, except when the bid is called for on a lump sum basis. Lump sum bids shall be shown in both words and figures; where there is a variation between the written amount and figures, the low one will be taken as the bid price.

(c) Each bid must give the full business address of the bidder, and state whether he is an individual, corporation or partnership. Proposals by a corporation must be signed with the legal name and seal of the corporation followed by the name of the state of its incorporation and by the manual signature and designation of an officer, agent, or other person, authorized to bind the corporation. Proposals by partnerships shall show the names of all partners and must be signed in the partnership name by one of the partners or by an authorized representative. In either case, the partnership signature shall be followed by the manual signature and designation of the person signing.

In every case, the name of the person signing, and his designation, shall be typed or printed below his signature. A bid by a person who affixes to his signature the word "President," "Secretary," "Agent," or other designation without disclosing his principal may be held to be the bid of the individual so signing. Satisfactory evidence of the authority of an officer, agent, attorney, or other person signing for a corporation and for an agent, attorney, etc., signing for a partnership or an individual shall be furnished.

(d) The Owner reserves the right to waive informality in any bid, to reject any and all bids in whole or in part, with or without cause, and/or to accept the bid that in its judgment will be in the best interest of the Leon County School Board.

(**e**) **Section D** - List of Major Subcontractors shall be enclosed with Bid Documents (see 6.02).

3.06 BASIS OF BID: The Bidder shall include with their Bid all unit cost items, quantity estimates and alternates indicated on the Bid Form. Failure to comply may be cause for rejection. If the Owner wishes to learn the relative or additional construction cost of alternate use of material, or an increase or decrease in scope of the project, these items will be defined as alternates and will be specifically described by the Drawings and/or the Specifications. Alternates will be listed in the Bid Form in such a manner that the Bidder shall be able to clearly indicate what sums will add to (or deduct from) their Base Bid. The Owner reserves the right to accept or reject any or all bids or combinations there-of as deemed in the best interest of the Owner. All required premiums shall be paid for by the successful bidder and the amount of the premium shall be included in his bid proposal.

No segregated Bids or assignments shall be considered.

3.06.1 Each Bidder shall, if so requested by the Owner, present further evidence of Bidder's experience, qualifications and ability to carry out the terms of the Contract, including a financial statement.

3.07 Modification of Bids: Bid Modifications will be accepted from Bidders if addressed to the Owner at the place where Bids are to be received (marked "Modification of Bid") and if received prior to the opening of the Bids. Modifications may be in written or telegraphic form. Modifications will be acknowledged by the Owner or the Architect before opening of formal Bids. Bid modifications written on the outside of the sealed Proposal envelope are acceptable when such notations are made and signed and dated by the Bidder prior to submittal for the bid. No notations may be made and signed by the Bidder after submittal of the bid. Modifications will be read by the Owner prior to opening of formal bids. It is the full responsibility of the Bidder to bring any Bid Modification to the attention of the person opening the bids at the time of opening of the affected bid.

3.08 Withdrawal of Bids: Bids may be withdrawn on written request received from bidders prior to the

time fixed for opening. Such request shall be properly signed in accordance with the requirements pertaining to signatures contained on Page B-3, Paragraph 3.05(c). Negligence on the part of the bidder in preparing the bid confers no right for withdrawal of the bid after it has been opened.

3.09 Bid Guarantee - 5% (Total Bid - Base Bid Plus All Alternates) Bids shall be accompanied by a bid guarantee which shall be a Bid Bond (Signed or countersigned by a Florida Resident Insurance Agent); Cashier's Check; Certified Check (Certified Checks offered as Bid Guarantees must have Florida Documentary Stamps attached); or bank Draft; made payable to the SCHOOL BOARD OF LEON COUNTY, FLORIDA**.** Such check or bond shall be submitted with the understanding that it shall guarantee that the Bidder will not withdraw their bid for a period of 60 consecutive calendar days after the scheduled closing time for the receipt of Bids. That, if this Bid is accepted, the Bidder will enter into a formal contract with the Owner in accordance with the form of agreement included as part of the Contract Documents and that the required Performance Bond and Payment Bond will be given. In the event of the withdrawal of Bid within said period, or failure to enter into said Contract and give said bond within eight (8) owner business days after Bidder has received notice of acceptance of their Bid; the Bidder shall be liable to the Owner for the full amount of the Bid guarantee as representing the damage to the Owner on account of the default of the Bidder in any particular thereof.

The Bid Bonds and checks shall be returned by mail to all except the three (3) lowest Bidders within fifteen (15) days after the formal opening of the Bids. The Owner reserves the right to hold the Bid Guarantee of the lowest three Bidders until after they have executed the Contract with the accepted Bidder and the Performance Bond and Payment and Material Bonds have been approved by the Owner.

If required Contract and Bonds have not been executed within sixty 60 consecutive calendar days after the date of the opening of the bids, then the Bid Bond or check of any Bidder will be returned upon his request, provided Bidder has not been notified of the acceptance of their bid prior to the date of such request.

4. EXAMINATION OF DOCUMENTS AND SITE:

4.01 Each Bidder shall examine the Bidding Documents carefully; and, fourteen (14) days prior to the date for receipt of bids, Bidders shall make a written request to the Architect for interpretation or correction of any ambiguity, inconsistency or error which may be discovered. Any interpretations or corrections will be issued as addenda. The Architect and/or Owner shall not be responsible for oral clarifications. No Addenda shall be issued after seven (7) calendar days prior to Bid.

4.02 Bidders shall carefully examine the Bidding Documents and the construction site to obtain first-hand knowledge of the existing conditions. Contractors shall not be given extra payment for conditions which can be determined by examining the site and Bidding Documents.

4.03 The submission of a bid by a Bidder shall be an acknowledgment that Bidder has thoroughly examined the Contract, site, specifications, and drawings and completely understands their obligations and those of the Owner under the documents. Failure to mention any work, materials, appurtenances, or safety methods in these specifications or plans which are required for the satisfactory and safe completion of an efficient, safe, complete, and working system as implied by these specifications and drawings shall not relieve the Contractor of any responsibility to provide such for the completion of such a system.

4.04 The Owner assumes no responsibility for any understanding or representations made by any of its officers or agents during or prior to the execution of the Contract, unless (1) such understanding or representation are expressly stated in the contract and (2) the Contract expressly provides that the responsibility therefore is assumed by the Owner.

5. SUBSTITUTIONS:

5.01 Each Bidder represents that his bid is based upon the materials and equipment described in Bidding Documents.

5.02 No substitutions for other material and equipment will be considered unless a written request has been submitted to the Architect for approval at least fourteen 14 days prior to the date for receipt of bids. Each such request shall include a complete description of the proposed substitute, the name of the material or equipment for which it is to be substituted, drawings, cuts, performance and test data and any other data or information necessary for a complete evaluation.

5.03 If the Architect approves any proposed substitution, such approval will be set forth in an addendum.

5.04 If any bidder is unable to procure written approval of any substitution from the Architect prior to the opening of bids, then he shall base his bid on the exact items specified.

5.05 Substitutions which have not been approved in writing by the Architect prior to the opening of bids, may be listed on the Bid Proposal form along with the amount the bidder will add to or deduct from the Base Bid if such substitution is approved. Substitutions so submitted shall include any and all adjustments of that work or any other affected thereby. Substitutions listed on the Bid Proposal Form which are approved will be incorporated into the contract with the successful bidder.

5.06 Requests for any substitutions not submitted in accordance with the above instructions will be denied by the Architect.

5.07 Requests for any substitution(s) of subcontractors will need to be in compliance with 255.0515, F.S.:

> 255.0515, F.S.: Bid for state contracts; substitution of subcontractors. With respect to state contracts let pursuant to competitive bidding, whether under Chapter **1013**, relating to educational facilities, or this chapter, relating to public buildings, the contractor shall not remove or replace subcontractors listed in the bid subsequent to the lists being made public at the bid opening, except upon good cause shown.
>
> History. -s. 1, ch. 78-389. s. 928,ch 2007-387.

6. LIST OF SUBCONTRACTORS AND MATERIALS SUPPLIERS:

6.01 The Contractor shall within twenty-four (24) hours after the Bid is opened, submit to the Owner (at 3420 West Tharpe Street, Suite 100, Tallahassee, FL 32303) a list of subcontractors and materials suppliers. This list, if requested, shall include each company name, the character of its work or the materials it supplies, the address and telephone number and the name of the person with whom the Contractor is dealing. Submit in accordance with Section P.

6.02 When the Contractor submits his bid, he shall include his listing of Major Subcontractors. Submit in accordance with Section D.

7. REJECTION OF BIDS:

7.01 The Bidder acknowledges the right of the Owner to reject any or all bids and to waive any informality or irregularity in any bid received. In addition, the bidder recognizes the right of the Owner to reject a bid if the bidder failed to furnish any required bid security, or to submit the data required by the bidding documents, or if the bid is in any way incomplete or irregular; to reject the bid of a bidder who is not in a position to perform the contract; and to re-advertise for other or further bid proposals.

7.02 The Owner reserves the right to reject any or all bids when such rejection is in the interest of the Owner, and to reject the Bid of a Bidder who is not in a position to perform the Contract, or whose List of Subcontractors is improperly prepared, or not included in the Bid proposal.

8. SUBMISSION OF POST-BID INFORMATION:

8.01 The selected bidder shall within eight (8) Owner Business days after Notification of Board Award submit the following:

1. Executed Performance Bond and Payment Bond with local agent's name, address, and phone number. In accordance with 255.05, F.S.,Performance and Payment Bonds are to be recorded prior to the date of commencement of project. The address is: Leon County Clerk of Circuit Court, **313 South Calhoun Street**, Tallahassee, Florida 32301, **(850) 577-4030**. Please request a copy of the recorded document to be submitted along with other Post Bid documentation to the Contract Administrator. You'll also receive a receipt from the clerk for your records.

2. **Criminal Background Checks** **Refer to 2.03 – has website and phone info. (Updated 2/13/2013.** The notice to proceed will be held until the LCS Construction Department receives an acceptance on the background checks provided by the General Contractor. The Notice to Proceed will be held until the LCS Construction Department receives an acceptance on the background checks or by submitted copies if the LCS I.D. Badges of GC or CM personnel who will be working on project site.

3. A progress schedule and all data as required under Article 3.10.4 Supplementary General Conditions.

4. Evidence of Insurance as required under Article 11 Supplementary General Conditions in the Contract Documents with a "Hold Harmless Rider," and a statement of the School Board of Leon County, Florida being listed as "primary additional insured."

5. A letter certifying twenty percent (20%) of work performed by contractor as required under Article 3.4.1 Supplementary General Conditions.

6. Photocopies of General Contractor's registration and either State registrations or Leon County certificate of competency of all subcontractors.

7. Resume of General Contractor's construction superintendent.

8. List of Toxic Substances per 442.102, F.S..

9.01 The successful bidder shall be required to furnish a Performance Bond and Payment Bond in the amount of one-hundred percent (100%) of the contract amount.

10. AWARD OF CONTRACT:

10.01 The Contract, if awarded by the Owner, will be awarded within sixty (60) calendar days of receipt of the bids to the lowest responsible Bidder, provided Bidder's bid is reasonable and it is in the best interest of the Owner to accept. The Owner reserves the right to waive any informality in bids received when such waiver is in the best interest of the Owner.

10.02 The method of determining the lowest responsible bid from bidders shall be the Base Bid Price plus or minus Alternate Prices listed on the Bid Proposal Form which are accepted by the Owner. Alternates will be considered for acceptance by the Owner as set forth in the Alternate section of the specifications, referenced SECTION B, 15.01 Alternates and SECTION C - Bid Form.

11. BID PROTEST PROCEDURES – Board Policy 6320.02 **- http://www.neola.com/leon-fl/**

12. FAMILIARITY WITH LAWS:

12.01 The Bidder shall be familiar with and shall perform work in accordance with all Federal, State and local laws, ordinances, rules and regulations affecting the work. Special attention is called to, but not limited to, the Local Environmental Ordinances.

Ignorance of them on the part of the bidder shall in no way relieve Bidder from responsibility of compliance with all said laws, ordinances, rules and regulations.

1013.371, F.S. Conformity to Codes. – (1) CONFORMITY TO FLORIDA BUILDING CODE AND FIRE PREVENTION CODE REQUIRED FOR APPROVAL. –

(a) Except as otherwise provided in paragraph (b), all public educational and ancillary plants constructed by a board must conform to the Florida Building Code and the Florida Fire Prevention Code, and the plants are exempt from all other state building codes; county, municipal, or other local amendments to the Florida Building Code and local amendments to the Florida Fire Prevention Code; building permits, and assessments of fees for building permits, except as provided in s.553.80; ordinances; road closures; and impact fees or service availability fees. Any inspection by local or state government must be based on the Florida Building Code and the Florida Fire Prevention Code. Each board shall provide for periodic inspection of the proposed educational plant during each phase of construction to determine compliance with the state requirements for educational facilities.

12.02 **LCS District Building Permit:** Upon acknowledgement of award of contract, the General contractor will receive a Leon County School District – Permit Application Packet along with his/her contracts. This Permit Application is to be completed and submitted with **three (3)** complete sets of 100% Construction Plans, signed and sealed by the Architect /Engineer; and, **three (3)** sets of Construction Specifications.

12.03 Chapter 1013.45(4) F.S. states that "The services of a registered architect are not required for minor renovation project for which the construction cost is less than $50,000.00, or for the placement or hookup of relocatable educational facilities that conform to the standards adopted under Chapter 1013.37, F.S."

For minor projects meeting the requirements of Chapter 1013.45(4) Educational facilities contracting and construction techniques plans will be required. However an architect seal will not be required. For projects with a construction cost exceeding $300,000.00, plan review will be done by the Department of Education. The School Board Inspection Department will issue **ALL** permits and Certificates of Occupancy, regardless of the project costs.

1013.45(4), F.S. Except as otherwise provided in this section and s. 481.229, the services of a registered architect must be used for the development of plans for the erection, enlargement, or alteration of any educational facility. The services of a registered architect are not required for a minor renovation project for which the construction cost is less than $50,000 or for the placement or hookup of relocatable educational facilities that conform with standards adopted under s.1013.37. However, boards must provide compliance with building code requirements and ensure that these structures are adequately anchored for wind resistance as required by law. A district school board shall reuse existing construction documents or design criteria packages if such reuse is feasible and practical. If a school district's 5-year educational facilities work plan includes the construction of two or more new schools for students in the same grade group and program, such as elementary , middle, or high school, the district school board shall require that prototype design and construction be used for construction of these schools. Notwithstanding s.287.055, a board may purchase the architectural services for the design of educational or ancillary facilities under an existing contract agreement for professional services held by a district school board in the State of Florida, provided that the purchase is to the economic advantage of the purchasing board, the services conform to the standards prescribed by rules of the State Board of Education, and such reuse is not without notice to, and permission from, the architect of record whose plans or design criteria are being reused. Plans shall be reviewed for compliance

with the State Requirements for Educational Facilities. Rules adopted under this section must establish uniform prequalification, selection, bidding, and negotiation procedures applicable to construction management contracts and the design-build process. This section does not supersede any small, woman-owned or minority-owned business enterprise preference program adopted by a board. Except as otherwise provided in this section, the negotiation procedures applicable to construction management contracts and the design-build process must conform to the requirements of s.287.055. A board may not modify any rules regarding construction management contracts or the design-build process.

History.--s. 844, ch. 2002-387, s. 15, ch. 2008-142; s. 3, ch. 2008-213; s. 5, ch. 2009-227; s. 131, ch. 2010-5.

Procedures for Application for a Building Permit are available through Leon County School District's Facilities/Construction Department by Building Permit Officer, (850)617-1837 or (850)617-1838.

13. ASSESSMENTS AND TAXES:

13.01 Although the Owner is not subject to the Florida Sales Tax, any contractor who purchases materials which will be used in the construction of a public works facility **will not** be exempt from the sales tax on those materials, The Owner is exempt from all Federal excise taxes on materials, appliances, etc., which are incorporated into and become a part of the finished improvements. The Owner is not required to pay for any municipal building permit. The Bidder shall take this information into consideration in preparing their proposal.

14. FLORIDA PRODUCTS AND LABOR

14.01 The Bidder's attention is called to Section 255.04, Florida Statutes, which requires that on public building contracts, Florida products and labor shall be used whenever price and quality are equal.

14.02 LCSB Purchasing Policies – Local Preference Part III
It shall be the policy of the Leon County School Board to afford local preference to the lowest responsive Leon County vendors and Florida vendors in accordance with the terms set forth in Board Policy 6450 Local Purchasing - . http://www.neola.com/leon-fl/

15. ALTERNATES:

15.01 Alternates may be included in the specifications, and where included, the Bidder shall indicate the sum Bidder will deduct from, or add to, their Base Bid. Such Alternates may or may not be accepted.

16. BIDDER'S QUALIFICATIONS: The Bidder and all Subcontractors for this project shall be fully qualified by experience to perform the work and install the type of equipment and systems which are included in this project. The Contractor and each major Subcontractor, including particularly mechanical, electrical and plumbing shall each have successfully completed a minimum of three projects of equal or larger scope and size.

If the price of the mechanical part of the project exceeds $200,000.00, a full time mechanical foreman shall be assigned. The person assigned shall have a minimum of five (5) years experience installing equipment and systems similar to those to be installed on this project. The mechanical foremen shall be on the site at all times when any mechanical work is being done, and shall be available to the Engineer and Owner's representative to examine work in progress and answer questions about schedule and installations.

17. LICENSE:

17.1 The Contractor and his subcontractors shall meet all requirements of the State of Florida, county and city license regulations. The Bidder shall complete the portion of the Bid Form dealing with licenses; should Bidder fail to complete the license information, the bid may be rejected.

18. DISQUALIFICATION OF BIDDER:

18.1 More than one Bid from an individual, firm, partnership, corporation or association under the same or different names will not be considered. Reasonable grounds for believing that a Bidder is interested in more than one Bid for the same work will cause the rejection of all bids in which such Bidder is believed to be interested. Bids will be rejected if there is reason to believe that collusion exists between Bidders. Bids in which the prices obviously are unbalanced may be rejected.

19. HAZARDOUS MATERIALS AND WASTE:

19.01 Toxic Substances: Each Contractor and their designated subcontractor shall submit a written list of all toxic substances, pursuant to Chapter 1013.49 Educational Facilities, to be used on said project. Said list must be sent to the Director of Construction (if it is a construction project) or the Director of Maintenance (if it is a maintenance project) of the School Board of Leon County at least three (3) working days prior to the commencement of construction.

Said notification shall contain the following:

A. The name of the substance to be used;
B. Where the substance is to be used; and
C. When the substance will be used.

The Contractor must also attach to the notification a copy of a Material Safety Data Sheet for each toxic substance to be used. A copy of this list is to be kept at the site during duration of construction project.

19.02. Hazardous Waste: Each Contractor and his designated Subcontractor is responsible for the proper storage, handling, and disposal of hazardous wastes generated at a school site during construction or maintenance activities.

Contractors must notify the Industrial Hygienist, **Carl Green, (850-617-1777**), of their intent to generate, store, and remove hazardous waste from a site. Any costs including, but not limited to, fines, disposal, and clean up incurred by the School District to comply with the proper storage and disposal of hazardous waste shall be withheld from Final Payment to the Contractor.

19.03 Asbestos: Any maintenance, construction, renovation, demolition, or other alteration of an educational facility must be cleared by the Industrial Hygienist to preclude disturbance of asbestos containing materials. Failure to obtain proper clearance will subject the Contractor to all expenses incurred in decontaminating the facility.

Architect should denote in plans any known hazardous materials on site, and if it (hazardous materials) impacts construction in any way, then it should be included in scope of work of contractor.

Neither Contractors nor their designated Subcontractors shall use or substitute building materials which contain asbestos for any component of an educational facility. Contractors will be held liable for the cost of removing any asbestos containing building materials (A.C.B.M.) and re-installation of non-asbestos building materials should subsequent sampling of materials reveal the presence of more than 1% asbestos.

No asbestos containing building materials are to be specified or substituted for specified materials.

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Leon County School Board Policy 6320.02 - BID PROTESTS – http://www.neola.com/leon-fl/

Purpose and Scope

These rules provide for the speedy resolution of protests arising from the contract bidding and award process. Contracts not subject to competitive bidding or any contract awarded pursuant to an emergency or sole source declaration are not subject to these rules.

Notice of Bid Solicitation

The Purchasing Department shall provide notice of bid solicitations:

A. by advertising in a newspaper having a general circulation in the county, or

B. by U.S. mail or electronically(http://www.leon.k12.fl.us/Public/Busines/Purchasing/Current%20News.htm) to all qualified contractors who have requested notice of bid solicitation.

Notice of Intended Decision

Unless otherwise specified herein all notices referred to in this policy shall be issued by the Purchasing Department.

A. Notice of intent to award a contract shall be given all bidders by posting the bid tabulations reflecting the lowest responsible bidder on the date specified in the bid proposal. Such posting will remain on display for no less than three (3) work days. The bid tabulations shall be posted at the Purchasing Department Office located at 3397 West Tharpe Street in Tallahassee, Florida 32303.

B. If because of unforeseen circumstances the bid tabulations cannot be posted on the date specified in the bid proposal, all bidders shall be notified by certified mail, return receipt. The notification letter shall also advise all bidders of the new date on which the bid tabulations will be posted, which date shall be at least three (3) days subsequent to the date the notification letter is mailed. Thereafter, notice of intent to award the contract shall be provided by posting the bid tabulations on the date specified in the notification letter. If because of unforeseen circumstances the bid tabulations cannot be posted on the date specified in the notification letter, all bidders shall be so notified by certified mail, return receipt. Thereafter, notice of intent to award the contract shall be provided all bidders by certified mail, return receipt.

C. If all bids are to be rejected, all bidders shall be so notified by certified mail, return receipt.

D. All notices of intent to award a bid or to reject all bids shall contain the following statement: "Failure to file a protest within the time prescribed in F.S. 120.57(3), shall constitute a waiver of proceedings under F.S. Chapter 120."

Action Differing from Notice

A. Each action on bids taken by the School Board is preceded by a recommendation from the Superintendent. If the Superintendent's recommendation differs from the notice of intended decision as set forth in this policy all bidders must be notified by certified mail, return receipt requested, or by hand delivery, at least four (4) days prior to the intended date of Board action.

B. In the event the Board takes action to award a bid in a manner which differs from the notice of intended decision (or last notice of intended decision if more than one was provided) such award does not become final until seven (7) calendar days after Board action. Within one (1) work day of such Board action all bidders shall be notified of the action by certified mail, return receipt requested, or by hand delivery. A written protest filed by a bidder within seventy-two (72) hours after receipt of this letter shall void the Board award and invoke the procedures of section (5) of this policy.

Protest

A. Any person adversely affected by project plans/specifications or the decision to solicit bids or the intended decision to award a contract shall file a notice of protest, in writing, within seventy-two (72) hours after receipt of project plans/specifications or the notice of bid solicitation or the notice of intent to award or to reject all bids. In addition, such persons shall file a formal written protest, in petition form, specifically stating the grounds for the protest and identifying all disputed issues of material fact. The formal written protest shall be filed within ten (10) days of the notice of protest. All protests shall be filed with the Purchasing Department at 3397 West Tharpe Street in Tallahassee, Florida 32303.

Any person who files an action protesting an intended award shall post with the Purchasing Department, at the time of filing the formal written protest, a bond payable to the Board in an amount equal to: (1) $25,000 or two percent (2%) of the lowest accepted bid, whichever is greater, for projects valued over $500,000; and (2) five percent (5%) of the lowest accepted bid for all other projects, which bond shall be conditioned upon the payment of all costs which may be adjudged against him/her in the administrative hearing in which the action is brought and any subsequent appellate court proceeding. If, after completion of the administrative hearing process and any appellate court proceedings, the Department prevails, it shall recover all costs and charges which shall be included in the final order or judgment, excluding attorney's fees. Upon payment of such costs and charges by the person protesting the award, the bond shall be returned to him/her. If the person protesting the award prevails, s/he shall recover from the Department all costs and charges which shall be included in the final order or judgment, including attorney's fees.

B. A protest is filed when it is delivered to and received at the Purchasing Department. Accordingly, a protest is not timely filed unless it is received by the Department within the times specified above.

C. A written notice of protest filed by 4:30 p.m. on the day on which the seventy-two (72) hours runs shall be timely.

D. In computing the time in which to file a notice of protest or formal protest, the day of the event from which the designated period of time begins to run shall not be included. The last day of the period so computed shall be included unless it is a Saturday, Sunday, or a holiday when the Purchasing Department office is closed, in which event the period shall run until the end of the next day that is neither a Saturday, Sunday, nor holiday.

Suspension of Bidding Process

A. Upon receipt of a timely written notice of protest, the bid solicitation or contract award process shall be stayed until the subject of the protest is resolved by final agency action unless the Superintendent sets forth, in writing, particular facts and circumstances which require the continuance of the bid solicitation or contract award process without delay to avoid an immediate and serious danger to the public health, safety, or welfare.

B. Notice that a protest of a bid solicitation has been filed shall be given by U.S. mail or hand delivery to all bidders to whom bid proposals have been supplied and to all other timely protestants. Notice that a protest of the intent to award a contract has been filed shall be given by U.S. mail or hand delivery to all companies which submitted a bid. Notice that a protest of the intent to reject all bids has been filed shall be given by U.S. mail or hand delivery to all bidders.

Resolution of Protests

A. The Purchasing Department, on its own initiative, or upon the request of the protestor, shall provide an opportunity to meet with the Superintendent or his/her designee to resolve the protest by mutual agreement between the parties within fourteen (14) days of receipt of a formal written protest.

B. If the subject of a protest is not resolved by mutual agreement within fourteen (14) days of receipt of the formal written protest, and if there is a disputed issue of material fact, the protest shall be referred to the Division of Administrative Hearings for proceedings under F.S. 120.57(3).

C. This Board is not obligated to accept a recommendation placed before it nor is it bound by a notice of intended decision. At its sole discretion it may decide to reject all bids submitted. Such action terminates all procedures invoked or invocable under this policy.

F.S. 120.53(5), 225.0516, 1001.01, 1001.91, 1010.01, 1010.04

END of SECTION B

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Educational Facilities. The *State Requirements for Educational Facilities* (SREF) is applicable to all public educational facilities and paints: pre-kindergarten (pre-K) through grade 12, including conversion charter schools; area vocational educational schools; area vocational technical centers; adult education; Florida colleges and universities; the Florida School for the Deaf and the Blind (FSDB), where referenced; ancillary plants; relocatables; factory-built structures, reconstructable facilities, modular buildings, and manufactured buildings; lease and lease-purchase; and new construction, remodeling, renovation, improvements, and site-development projects. It shall be the responsibility of each school board, each Florida college board of trustees, and each university board of trustees to ensure that all facilities constructed from any fund source meet the standards set forth in SREF where applicable.

(1) Authority. The Office of Educational Facilities (the "Office") shall review, update, and revise SREF and make recommendations for any modification to the State Board of Education (SBE). SREF shall not be changed, amended, interpreted, or modified by any other individual, agency, or entity.

(2) Capital Outlay Funds. Financial programs for Capital Outlay funds, including Public Education Capital Outlay (PECO) and Capital Outlay and Debt Service (CO&DS) funds, are administered under SREF.

(3) Scope of SREF Requirements. SREF establishes the requirements for public educational facilities under the Florida K-20 Education Code and Chapter 1013, F.S., in particular.

(4) Rules. Public educational facilities shall comply with the following rules, as applicable:

(a) FDOT-AASHTO. Rule 14-15.002, FAC, (effective June 2012) and the following manuals incorporated therein are incorporated by reference in Rule SA-2.0010, FAC.: For on-site transportation improvements, including roads, sidewalks, bridges, and drainage structures, districts shall comply with the Florida Department of Transportation, *Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways, May 2011Edition,* and the American Association of State Highway and Transportation Officials, *AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications 5ttEdition (2010),* as modified by the Department of Transportation Office of Maintenance, *Bridge Load Rating Manual,* and Department of Transportation *Drainage Manual,* as required by the structure type.

(b) OSHA. Chapter XVII – Occupational Safety and Health Administration, Department of Labor, 29 CFR Parts 1910 and 1926, (7-1-11 Edition), which is incorporated by reference in Rule SA-2.0010, FAC, for district employees.

(5) Exception. Facilities projects for universities are administered under Board of Governors' Regulation, Chapter 14 (http://www.flboo.org/about/regulations/regulations.php?chapter=14&status=) and facilities projects for the FSDB are administered under, Section 1013.38(3), F.S., except where specifically required in SREF.

See Rule SA-2.0010, FAC, and Sections 120.542, 1013.02, 1013.12, 1013.32, 1013.37, 1013.40, 1013.45, F.S.

November 2012

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Professional Services and Construction Techniques. The Board shall consider appropriate design and construction techniques that will deliver facilities in a timely and economical manner. Boards shall provide the Office a brief description of the facilities procurement process for each project over $300,000, prior to implementation. The description shall include the names of the architects and engineers of record for design, the plan review entity, the contractor/construction manager/design-build or program management entity, building inspector, and threshold inspector using the Project Implementation Information form (OEF Form 110A). Upon completion, the Board shall provide the Office with a signed Certificate of Occupancy (OEF Form 11OB) and a signed Certificate of Final Inspection (OEF Form 209) for all projects over $300,000. The Project Implementation Information form (OEF Form 110A), Certificate of Occupancy (OEF Form 110B), and Certificate of Final Inspection (OEF Form 209) shall be electronically transmitted to the Office through EFIS.

(1) **Prequalification of Contractors for Educational Facilities Construction.** A Board shall prequalify contractors for a one year period or for a s pacific project. This section prescribes uniform and consistent requirements for prequalification of all construction services contractors. This section is applicable to bids, construction management, design-build, and any other construction services application.

(a) Criteria. Contractors shall be prequalified by a Board on the basis of the following criteria and such other criteria as the local Board adopts:

1. Proof that the contractor holds a valid contractor's license that authorizes the contractor to supervise the work within the scope of the construction project, including the license classification.

2. Evidence that the contractor has financial resources to start up and follow through on projects and to respond to damages in case of default as shown by written verification of bonding capacity equal to or exceeding the amount of any project for which the contractor seeks prequalification. The written verification must be submitted by a licensed surety company rated excellent ("A" or better) in the current A.M. Best Guide and qualified to do business within the State. In the absence of such written verification, the Board may require the contractor to submit any audited financial information necessary to evaluate the contractor's financial ability to perform the project and to respond to damages in the event of default.

3. Evidence of experience with construction techniques, trade standards, quality workmanship, project scheduling, cost control, management of projects, and building codes for similar or lower cost or scope projects as shown by the successful completion within the past five years of at least two other projects of similar size.

4. Evidence of satisfactory resolution of claims filed by or against the contractor asserted on projects of the same or similar size within the five years preceding the submission of the application. Any claim against a contractor shall be deemed to have been satisfactorily resolved if final judgment is rendered in favor of the contractor or any final judgment rendered against the contractor is satisfied within 90 days of the date the judgment becomes final.

(b) Procedures. A Board shall comply with the following:

1. Hold a public hearing to discuss its intent to prequalify contractors and the proposed policy, procedures, and rules. Publish two notices of hearings in a local newspaper having general circulation throughout the district at least 30 days prior to the hearing and again seven days prior to the hearing. The notice shall contain the purpose, date, time, and place of the hearing, at a minimum.

2. Adopt procedures, pursuant to Chapter 120, F.S., and in compliance with this section, for prequalification of contractors.

a. Prescribe procedures that will not restrict competition, prevent the submission of a bid, or

prohibit the consideration of a bid submitted by a prequalified contractor.

b. Prescribe procedures that will allow prequalification of any responsible contractor who meets the uniform criteria established in this section, whether resident or nonresident within the geographic area served by the Board.

c. Prescribe procedures governing the submission of financial information by contractors.

d. Prescribe procedures for reviewing and evaluating applications and making recommendations for type of project, dollar volume, and limns allowed within the scope of the prequalification.

e. Prescribe procedures that will not supersede any small business, woman-owned, or minority-owned business-enterprise preference program adopted by the Board.

f. Prescribe procedures by which the Board may reject applications that contain inaccurate information, declare a contractor delinquent, and suspend or revoke a prequalification certificate.

3. Receive applications and either approve or reject each application for prequalification within 60 days after receipt by the Board's administrator. Approval shall be based upon the criteria established in this section.

{c} Application. In order to allow the Board to apply the uniform criteria in subsection (a), a Board shall require each contractor, firm, or person requesting prequalification to submit separate applications that include the following:

1. Detailed information on Board prescribed forms setting forth the applicant's competence, past performance, experience, financial resources, and capability, including a Public Entity Crime statement and references.

2. Audited financial information current within the past 12 months, such as a balance sheet and statement of operations, and bonding capacity. The requirement for financial information may be satisfied by the contractor providing written verification of the contractor's bonding capacity.

3. General information about the contractor company, its principals, and its history including state and date of incorporation.

4. Contractor trade categories and information regarding the state and local licenses and license numbers held by the applicant.

5. A list of projects completed within the past five years, including dates, clients, approximate dollar values, and project scopes.

6. Certificates of insurance confirming current workers' compensation, public liability, and property damage insurance as required by law.

7. A list of all pending litigation and all litigation within the past five years, including an explanation of each. Litigation initiated by the contractor to protect the contractor's legal rights shall not be used as a basis for rejecting prequalification.

8. Signed by an authorized officer of the company, the owner, or sole proprietor, as appropriate, attesting to the completeness and correctness of the application and financial information.

9. Exception: When two or more prequalified contractors wish to combine their assets for a specific project, they may do so by filing an affidavit of joint venture on Board prescribed forms. Such affidavit shall be valid only for that specific project.

(d) Issuance of Certificate. The Board shall issue a certificate valid for one year or the duration of the specific project. The certificate shall include:

1. A statement indicating that the contractor is authorized to bid for projects during the time period specified.
2. A statement establishing the total dollar volume of work the contractor will be permitted to have under contract at any one time as determined by the contractor's bonding capacity or 10 times the net quick assets.
3. A statement establishing the maximum dollar value of each individual project the contractor will be permitted to have under contract with the Board at any one time. The maximum value of each project may be up to twice the value of the largest project previously completed but shall not exceed the contractor's bonding capacity or 10 times the net quick assets.
4. A statement establishing the type of work the contractor will be permitted to provide.
5. The expiration date of the certificate.

(e) Renewal of Certificate. Certificates not for a specific project shall be renewed annually.

1. Financial statements or written verification of bonding capacity on file with the Board shall be updated annually. Failure to submit a new statement or verification of bonding capacity, after at least 30 days written notice by the Board, shall automatically revoke a prequalification certificate.
2. The Board may allow prequalified contractors to request a revision of their prequalification status at any time they believe the dollar volume of work under contract or the size and complexity of projects should be increased if experience, staff size, staff qualifications, and other pertinent data justify the action.

(f) Delinquency. The decision to declare a contractor delinquent may only be made by the superintendent or president and must be ratified by the Board at its next regular meeting following such decision by the superintendent or president. If a contractor is determined to be delinquent, after notice and an opportunity for a fair hearing, the Board shall notify the contractor and his surety, in writing, that the contractor is disqualified from bidding work with the Board as long as the delinquent status exists. A delinquent condition may be determined to be in effect when one or more of the following conditions occur without justifiable cause:

1. A substantial or repeated failure to comply with contract documents after written notice of such noncompliance.
2. A substantial or repeated failure to provide supervision and coordination of subcontractor's work after written notice of such failure.
3. Substantial deviation from project time schedules after written notice of noncompliance.
4. Substantial or repeated failure to pay subcontractors after the Board has paid the contractor for the work performed by the subcontractors and in accordance with approved requisitions for payment.
5. Substantial or repeated failure to provide the quality of workmanship compatible with the trade standards for the community after written notice of such failure.
6. Substantial or repeated failure to comply with the warranty requirements of previous contracts after written notice of such failure.
7. Failure to maintain the required insurance coverage after written notice of such failure.

(g) Suspension or Revocation. The Board may, for good cause, suspend a contractor for a specified period of time or revoke the prequalification certificate. Causes for suspension or revocation shall include, but not be limited to, one or more of the following:

1. Contractor found to have provided inaccurate or misleading statements included in the contractor's application.
2. Contractor declared in default by a Board.
3. Contractor adjudged to be bankrupt.
4. Contractor's performance in connection with contract work, becomes unsatisfactory to a Board based on the Board asserting and recovering liquidated damages in an action against the contractor.
5. Contractor's payment record, in connection with the contract work, becomes unsatisfactory to the Board based on the contractor's failure to comply with the Construction Prompt Pay Law (Section 715.12, F.S.).
6. Contractor becomes delinquent on a construction project pursuant to (above.
7. Contractor's license becomes suspended or is revoked.
8. Contractor no longer meets the uniform prequalification criteria established in this section.

(h) Appeal. A contractor whose application has been rejected or whose certificate has been suspended or revoked by a Board shall be given the benefit of reconsideration and appeal as follows:

1. The aggrieved contractor may, within 10 days after receiving notification of such action, request reconsideration in writing. The contractor may submit additional information at the time of the appeal.
2. A Board shall act upon a contractor's request within 30 calendar days after the filing and shall notify the contractor of its action to adhere to, modify, or reverse its original action. The Board may require additional information to justify the reconsideration.

See Rule SA-2.0010, FAC, and Sections 255.20, 1013.02, 1013.03, 1013.12, 1013.37, 1013.40, 1013.45, 1013.46, F.S.

November 2012.

End of Section B – Instructions to Bidders

SECTION C

BID FORM

SUBMIT IN DUPLICATE ON CONTRACTOR'S LETTERHEAD

SCHOOL BOARD OF LEON COUNTY, FLORIDA
DIVISION OF FACILITIES
3420 W. THARPE STREET, Suite 100
TALLAHASSEE, FLORIDA 32303

DATE:
TIME:

OWNER'S BID NO.

REFERENCE:

I (We), the undersigned, hereby declare that the only persons, firm or corporation interested in this Proposal or the Contract to be entered into, as principals, are named herein, and that this Proposal is made without collusion with any person, firm or corporation, and that it is in all respects fair and in good faith.

The undersigned, hereinafter called "Bidder", having visited the site of the proposed project and become familiar with the local conditions, nature and extent of the work, and having examined carefully the drawings, specifications, the Form of Agreement, and other Contract Documents, with the bond requirements therein, proposes to furnish all labor, materials, equipment and other items, facilities, and services for the proposed execution and completion of the Woodville Elementary WWTP Upgrade in full accordance with the drawings and specifications prepared by Preble Rish, Inc. 315 Beard Street, Tallahassee, FL 32301, in full accordance with the Advertisement for Bids, Instruction to Bidders, Agreement and all other Contract Documents; and if awarded the Contract, I (We) will contract with the SCHOOL BOARD OF LEON COUNTY, FLORIDA to furnish all necessary labor, equipment, materials, and incidental costs, and that I (We) will substantially complete all necessary work in accordance with the Specifications and Drawings, and the requirements under them within 60 consecutive calendar days after receipt of Notice-to-Proceed:

BASE BID _____ Dollars($_____).

With the foregoing as a Base Bid, the following Alternate Prices are submitted in accordance with the Drawings and Specifications.

Alternate No. 1: **Removal of Existing Drainfield** Dollars ($_____).

Alternate No. 2: _____ Dollars ($_____).

The undersigned further agree(s) to bear the full cost of maintaining all work until the final acceptance, as provided in the Contract Documents.

The above amount, if accepted by the Owner shall form a Contract to be entered into. The undersigned agree(s) to furnish a sufficient and satisfactory bond in the sum of not less than 100 percent (100%) of the Contract Price of the work awarded.

It is further agreed that in the case of failure on the part of the undersigned to execute said Contract and Bond under the conditions of this Proposal within eight (8) "Owner Business Days" after the award of the Contract, the accompanying Proposal Guaranty, made payable to the SCHOOL BOARD OF LEON COUNTY, FLORIDA of not less than five percent (5%) of the total actual bid (Base Bid plus all Alternates), shall be forfeited as liquidated damages; otherwise, said Guaranty is to be returned to the undersigned upon the delivery of the executed Contract, a satisfactory bond and other specified documents.

Name of Bonding Company: _____
Local Agent's Address: _____ _____ Phone No. _____

Attached hereto, is the said Proposal Guaranty in the form of a Bid Bond, Certified Check, Cashier's Check in the amount of _____ Dollars ($), according to the provisions contained herein and to the conditions and provisions of the Contract Documents.

Section D: Major Subcontractors is to be completed and included with this bid form package.

I (We) hereby acknowledge receipt of the following Addendum, if any, issued during the bidding period:
(List Addendum No. and Date)

It is understood by the Bidder that the Owner shall post its intent to award or reject this Bid. The intent shall remain posted for a period of three (3) working days. Failure to file a protest within the time prescribed in Section 120.57(3), Florida Statutes, shall constitute a waiver of proceedings under Chapter 120, Florida Statutes.

I (We), the undersigned, hereby certify that I (We) have carefully examined the foregoing Proposal after the same was completed and have verified each item placed thereon; and I (We) agree to indemnify, defend and save harmless, the SCHOOL BOARD OF LEON COUNTY, FLORIDA and their agents, against any cost, damage or expense which it may incur or be caused by an error in my (our) preparation of same.

In witness whereof, the Bidder has hereunto set his signature and affixed his seal this _____ day of , A.D., 20__.

_____(SEAL)

By:
Title:
The following license is current and the Bidder agrees to maintain it in effect throughout the project duration:
Florida Construction Industries Licensing Board Certification (State Certified of County Registered).

_____
(Name of Holder)
END OF SECTION C

SECTION D

LISTING OF MAJOR SUBCONTRACTORS

(To be submitted in a separate envelope marked, "LISTING OF MAJOR SUBCONTRACTORS," along with Bidder's Bid Form)

TO: School Board of Leon County, Florida
3420 West Tharpe Street, Suite 100
Tallahassee, FL 32303

ATTENTION: Director of Construction

NOTE: To be executed as part of the Bidders Proposal. If, due to Alternate bids, more than one subcontractor must be considered, Contractor shall list each and state which is to be considered for Base Bid work and which is to be considered for alternate work if a specific alternate is to be taken.

Bidder agrees that, if they are apparent low bidder or if so requested by the Owner, they will submit to the Owner a full list of subcontractors and suppliers within 24 hours of bid opening (contained in Section P) to the Contract Administrator for the School Board of Leon County, Florida, 3420 West Tharpe Street, Suite 100, Tallahassee, FL 32303.

All subcontractors and suppliers are subject to approval of the Owner. The following are the subcontractors and suppliers proposed to be used if the undersigned is awarded the contract for Woodville Elementary WWTP Upgrade.

DIVISION OF WORK	CORPORATE NAME AND ADDRESS	PRINCIPAL OR OFFICER'S NAME

The undersigned declares that they have fully investigated each subcontractor listed and have determined to their own complete satisfaction that such contractor maintains a fully-equipped organization capable technically and financially of performing the pertinent work, and has made similar installations in a satisfactory manner.

Name of Firm: _____

Signed By: _____

Title: _____

Address/Zip: _____

Telephone No._____ Contractor's Certificate No. _____

END OF SECTION D

SECTION E

BID BOND

GENERAL:

A. I. A. BID BOND:

The "Bid Bond" American Institute of Architects Form, Latest Edition, is referenced herein and shall be used on this project.

Forms shall be obtained by the Contractor from the Florida Association of the American Institute of Architects, located at 104 East Jefferson Street, Tallahassee, Florida 32301, (850) 222-7590

END OF SECTION E

SECTION F

ACCEPTABLE SURETY COMPANIES

GENERAL:

To be acceptable as Surety on the Performance Bond and Materials and Payment Bond, a surety company shall comply with the following provisions:

The Surety Company must be admitted to do business in the State of Florida.

The Surety Company shall have been in business and have a record of successful and continuous operations for at least five (5) years.

Provide bonds as stipulated herein and in Section 1013.47, Florida Statutes.

The Surety Company shall have at least the following minimum ratings:

CONTRACT AMOUNT	REQUIRED FINANCIAL RATING 1*
$1 to 1,000,000	A & A-
$1,000,000 OR MORE	A+

*Best's Financial Rating.

The Surety Company shall not expose itself to any loss of any one risk in an amount exceeding ten percent (10%) of its surplus to policy holders, provided:

Any risk or portion of any risk which shall have reinsured (in which case these minimum requirements contained herein also apply to the reinsuring carrier) in an assuming insurer authorized or approved by the insurance commissioner to do such business in this State shall be deducted in determining the limitation of risk prescribed in this Division.

In the case of a surety insurance company, there shall be deducted, in addition to the deduction for reinsurance, the amount assumed by any co-surety, the value of any surety deposited, pledged or held subject to the consent of the surety and for the protection of the surety.

END OF SECTION F

SECTION G

CONTRACT BONDS

GENERAL:

PERFORMANCE BOND and PAYMENT BONDS:

The Performance and Payment Bonds, American Institute of Architect's Form, Latest Edition, shall be used on this project.

Forms shall be obtained by the Contractor from the Florida Association of the American Institute of Architects, located at 104 East Jefferson Street, Tallahassee, Florida 32301, (850) 222-7590

SECTION H

CONTRACT AGREEMENT

GENERAL:

The "Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment Is a Stipulated Sum", American Institute of Architects, Document A-101, Latest Edition shall be used on this project.

FORMS SHALL be obtained by the Contractor from the Florida Association of the American Institute of Architects located at 104 Jefferson Street, Tallahassee, Florida 32301, (850) 222-7590.

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The following information is Supplementary Conditions to the Contract to be amended where indicated.

Article 2

PROJECT: Woodville Elementary WWTP Upgrade

PROJECT NO: 3287-2015

Article 3

3.1 The Date of Commencement will be defined in a Notice-to-Proceed.

3.2 Substantial Completion shall be within 60 consecutive calendar days following Notice-to-Proceed; Final Completion shall be within **30** consecutive calendar days following Substantial Completion.

Liquidated damages shall be in accordance with Section K, 8.4.1 Supplementary General Conditions of the Contract Documents. Liquidated Damages: **$500.00** per day.

Article 4

4.2 List Base Bid, and all alternates accepted (if any) for the project. Total Base Bid plus alternates.

Article 5

5.2 See Attached Article 5, Progress Payments, made as Exhibit 'B' to the contract documents as if repeated herein.

END OF SECTION H

SECTION I

ARTICLE 5

Exhibit 'B' PROGRESS PAYMENTS

Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect and approved by the Owner, the Owner shall make progress payments against the account of the Contract Sum to the Contractor in accordance with the following:

(1) The Construction Manager or if applicable, the General Contractor's fees only, will be held and distributed in the following manner:

Within thirty (30) Owner business days after the Owner's receipt of a Certificate of Payment issued by the Architect, the Owner shall pay ninety percent (90%) of the Contract Sum properly allocable to labor, materials and equipment incorporated in the Work and ninety percent (90%) of the portion of the Contract Sum allocable to materials and equipment suitably stored at the site or at some other location agreed upon in writing, for the period covered by the Application for Payment, less the aggregate of previous payments made by the Owner; and upon Substantial Completion of the entire Work, a sum sufficient to increase the total payments to ninety percent (90%) of the Contract Sum, less such amounts as the Architect and Owner shall determine for all incomplete Work and unsettled claims as provided in the Contract Documents.

The unpaid balance of the Contract Sum will be held until the project is accepted by the School Board. At the time of acceptance by the School Board, three (3) times the value as determined by the Architect of any remaining items will be withheld until the specific items have been completed. If three (3) times the estimated cost of completing remaining items exceeds the unpaid balance of the Contract Sum, the Architect will issue a Change Order for the difference to be payable to the Owner by the Contractor.

Notwithstanding the contractor's compliance with the claim or dispute resolution terms of this contract, the contractor shall not be entitled to any interest on payments which may be due and unpaid by the owner, nor shall the contractor be entitled to any prejudgments interest on any damages awarded to the contractor in any civil action or on any arbitration award, even if the owner is found to have breached the contract.

5.6.1 Ten percent (10%).
5.6.2 Ten percent (10%).
5.7.1 Ninety percent (90).
5.8 Retainage will only be released upon recommendation of the Architect and by action by the Board of Education with all documents properly forwarded to the Office of Educational Facilities (D.O.E.).

Article 7
7.2 N/A

7.3 Other Provisions:
7.3.1 For the sum of one hundred dollars ($100.00) and other good and valuable consideration, receipt of which is hereby acknowledged by the contractor, said Contractor does agree to indemnify the Owner and Architect in accordance with Paragraph 3.18 of Contract Document A-201 which was previously entered into by the parties.

7.4 Prior to beginning the Work, the Contractor shall obtain and furnish the Owner the Bonds and Insurance policies required by the Contract Documents, which shall be procured from agents authorized to do business in the State of Florida and in such form and amounts acceptable to the Owner. If at any time the Owner shall deem the surety, or sureties to be unsatisfactory of a Bond, and is deemed inadequate by the Owner, they shall be required to furnish an additional Bond or Bonds in such form and amount and with a surety acceptable to the Owner. The failure of the contractor to furnish such Bonds and Insurance policies in a timely manner shall not delay the commencement of the Contract time nor shall be a cause for an extension of the Contract time.

END OF SECTION I

SECTION J

GENERAL CONDITIONS

General Conditions of the Contract for Construction
Leon County School Board

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ARTICLE 1
GENERAL PROVISIONS

1.1 **BASIC DEFINITIONS**

1.1.1 **THE CONTRACT DOCUMENTS**

The Contract Documents consist of the Agreement between Owner and Contractor (hereinafter the Agreement), Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, addenda issued prior to execution of the Contact, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect.

1.1.2 **THE CONTRACT**

The Contract Documents form the Construction Contract. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Architect and Contractor, (2) between the Owner and a Subcontractor or a Sub-subcontractor or (3) between any persons or entities other than the Owner and Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

1.1.3 **THE WORK**

The term 'Work' means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

1.1.4 **THE PROJECT**

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate Contractors.

1.1.5 **THE DRAWINGS**

The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

1.1.6 **THE SPECIFICATIONS**

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services.

1.1.7 **THE PROJECT MANUAL**

The Project Manual is the volume usually assembled for the Work which may include the bidding requirements, sample forms, General and Supplemental Conditions of the Contract and Specifications.

1.1.8 **PROVIDE**

The term 'Provide', as used in the Contract Documents, includes furnishing all labor, supervision, tools, materials, supplies, equipment, shop drawings, product data and samples, together with performance of the Work, or production of an item or system usable in the completed Project.

1.1.9 **ADDENDA**

Addenda are written or graphic instruments issued prior to award of the Contract which modify or interpret the bid documents, including the Drawings and Specifications, by additions, deletions, clarifications or corrections.

1.1.10 **KNOWLEDGE**

The terms 'knowledge', 'recognize' and 'discover', their respective derivatives and similar terms in the Contract Documents, as used in reference to the Contractor, shall be interpreted to mean that which the Contractor knows (or should know), recognizes (or should recognize) and discovers (or should discover) in exercising the care, skill, and diligence required by the Contract Documents. Analogously, the expression 'reasonable inferable' and similar terms in the Contract Documents shall be interpreted to mean reasonably inferable by a Contractor familiar with the Project and exercising the care, skill and diligence required of the Contractor by the Contract Documents.

1.1.11 **PERSISTENTLY FAILS**

The phrase 'persistently fails' and other similar expressions, as used in reference to the Contractor, shall be interpreted to mean any combination of acts and omissions, which cause the Owner or the Architect to reasonably conclude that the Contractor will not complete the Work within the Contract Time, for the Contract Sum, or in substantial compliance with the requirements of the Contract Documents.

1.2 **EXECUTION, CORRELATION AND INTENT**

1.2.1 The Contract Documents shall be signed by the Owner and Contractor as provided in the Agreement. If either the Owner or Contractor or both do not sign all the Contract Documents, the Architect shall identify such unsigned Documents upon request.

1.2.2 Execution of the Contract by the Contractor is a representation that the Contractor has examined the site, become familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

1.2.2.1 Examination of site shall include determination of the nature and scope of the Work and all difficulties that accompany its execution.

1.2.2.2 Claims for additional labor, equipment, materials, or costs, resulting from difficulties which should have been noted during the examination of the site, will not be allowed.

1.2.2.3 The Contractor shall correlate all dimensions shown on the Drawings for existing work and for new work which is to connect to it. Verify existing dimensions by actual measurement of existing work. Report in writing to the Architect all discrepancies between the requirement of the Contract Documents and Existing conditions.

1.2.2.4 The Contractor and each Subcontractor shall evaluate and satisfy themselves as to the conditions and limitations under which the Work is to be performed, including, without limitation (1) the location, condition, layout and nature of the Project site and surrounding areas, (2) generally prevailing climatic conditions, (3) anticipated labor supply and costs, (4) availability and cost of materials, tools and equipment and (5) other similar issues. The Owner assumes no responsibility or liability for the physical condition or safety of the Project site or any improvements located on the Project site. The Contractor shall be solely responsible for providing a safe place for the performance of the Work. The Owner shall not be required to make any adjustment in either the Contract Sum or Contract Time in connection with any failure by the Contractor or any Subcontractor to comply with the requirements of this paragraph.

1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results.

1.2.4 Organization of the Specifications into divisions, section and articles, and arrangement of Drawings shall not control the Contractor in dividing the work among Subcontractors or in establishing the Extent of work to be performed by any trade.

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

1.3 OWNERSHIP AND USE OF ARCHITECT'S DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS

1.3.1 The Drawings, Specifications and other documents prepared by the Architect are instruments of the Architect's service through which the Work to be executed by the Contractor is described. The Contractor may retain one contract record set. Neither the Contractor nor any Subcontractor, Sub-subContractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Architect. All copies of them, except the Contractor's record set, shall be returned or suitably accounted for to the Architect, on request, upon completion of the Work. The Drawings, Specifications and other documents prepared by the Architect, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, Sub-subContractor or material or equipment supplier on other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner. The Contractor, Subcontractors, Sub-subContractors and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect appropriate to and for use in the execution of their Work under the Contract Documents.

1.4 CAPITALIZATION

1.4.1 Terms capitalized in these General Conditions include those which are (1) specifically defined, (2) the titles of numbered articles and identified references to Paragraphs, Subparagraphs and Clauses in the document.

1.5 **INTERPRETATION**

1.5.1 In the interest of brevity the Contract Documents frequently omit modifying works such as 'all' and 'any' and articles such as 'the' and 'an,' but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

ARTICLE 2
OWNER

2.1 **DEFINITION**

2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term 'Owner' refers to Leon County School Board, 2257 West Pensacola Street, Tallahassee, Florida 32304. The Owner will designate its School Board Project Coordinator and Inspector(s) who will act as its on-site field representatives and fulfill duties enumerated in Section 1013.38, Florida Statutes.

2.2 **INFORMATION AND SERVICES REQUIRED OF THE OWNER**

2.2.1 The Owner acknowledges financial arrangements have been made to fulfill the Owner's obligations under the Contract.

2.2.2 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site.

2.2.3 Except for permits and fees which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

2.2.4 Information or services under the Owner's control shall be furnished by the Owner with reasonable promptness to avoid delay in orderly progress of the Work.

2.2.5 The Owner will furnish the Contractor two (2) copies of Drawings and Project Manuals free of charge. Additional sets will be furnished at the Contractor's request and expense.

2.3 **OWNER'S RIGHT TO STOP THE WORK**

2.3.1 In the opinion of the Owner, if the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Paragraph 12.2 or persistently fails to carry out Work in accordance with the Contract Documents, the Owner by written order, may direct the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Subparagraph 6.1.3.

2.3.2 The Owner's Building Official and Construction Representative serves as the enforcement authority as defined in Chapter 533, Florida Statutes and Chapter 1, Florida Building Code, and shall have the authority to stop work that is in not in compliance with the Florida Building Code and/or construction Contract Documents. The Building Official may take such enforcement

action against the Contractor or subcontractor as the Building Official deems necessary per Chapter 533, Florida Statutes and Chapter 1, Florida Building Code.

2.4 **OWNER'S RIGHT TO CARRY OUT THE WORK**

2.4.1 If the Contractor defaults or neglects to carry out the work in accordance with the Contract Documents and fails within **three (3) business days period** after written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may after such **three (3) business days period**, without further notice and without prejudice to other remedies the owner may have, correct such deficiencies. In such case an appropriate change order shall be issued deducting from payments then or thereafter due the contractor thee cost of correcting such deficiencies, including compensation for the Architect's additional services and expenses made necessary by such default, neglect, or failure. Such action by the Owner and the amount charged to the Contractor are not subject to approval of the Architect. If payments then or thereafter are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

2.4.2 Failure to meet timelines defined in the Critical Path schedule submitted by the Contractor to the Owner shall be evidence of negligence when it appears by examination of the Critical Path Schedule that such failure will result in failure to meet the contracted substantial completion date. Nothing in this paragraph shall prevent the Owner from action against default or neglect for other reasons.

2.4.3 In the event that the Contractor's default, neglect, or failure to carry out the Work in accordance with the Contract Documents will jeopardize the health or safety of the present or future occupants of buildings or structures which are part of the Project, and which constitute a violation of any regulation or Code involving health or safety, the Owner's period of required notice to the Contractor shall be reduced from seventy-two (72) hours to twenty-four (24) hours, and all other provisions of paragraph 2.4.1 shall apply.

2.4.4 If after the lapse of seventy-two (72) hours (or twenty-four (24) hours if applicable), the Owner begins mobilization and procurement as required to correct the Work, and if after that time the Contractor commences and continues correction of the Work diligently and expeditiously, the Contractor shall reimburse the Owner for all expense of mobilization, procurement, labor, and materials incurred between the time that the written notice expired and the time that the Contractor had clearly and unambiguously commenced corrective work, with adequate work force to meet all applicable time lines.

ARTICLE 3
CONTRACTOR

3.1 **DEFINITION**

3.1.1 The Contractor is the person or entity identified as Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term 'Contractor' means the Contractor or the Contractor's authorized representative.

3.2 **REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR**

3.2.1 The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner pursuant to Subparagraph 2.2.2 and shall at once report to the Architect, errors, inconsistencies or omissions discovered. The Contractor shall not be liable to the Owner or Architect for damage resulting from errors, inconsistencies or omissions in damage resulting from errors, inconsistencies or omissions in the Contract Documents unless the Contractor recognized such error, inconsistency or omission and failed to report it to the Architect. If the Contractor performs any construction activity involving a

recognized error, inconsistency or omission in the Contract Documents without such notice to the Architect, the Contractor shall assume appropriate responsibility for such performance and shall bear an appropriate amount of the attributable costs for correction.

3.2.2 The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Architect at once.

3.2.2.1 The exactness of grades, elevations, dimensions, or locations given on any Drawings issued by the Architect, or the work installed by other Contractors is not guaranteed by the Architect or the Owner. Commencement by the Contractor of any excavation or grading shall be held as an acceptance of the survey data by the Contractor, after which time the Contractor has no claim against the Owner resulting from alleged errors, omissions or inaccuracies of the said survey data.

3.2.2.2 The Contractor shall, therefore, satisfy itself as to the accuracy of all grades, elevations, dimensions and locations. In all cases of interconnection of its Work with existing or other work, it shall verify at the site all dimensions relating to such existing or other work. Any errors due to the Contractor's failure to so verify all such grades, elevations, locations or dimensions shall be promptly corrected by the Contractor without any additional cost to the Owner.

3.2.3 The Contractor shall perform the Work in accordance with the Contract Documents and submittals approved pursuant to Paragraph 3.12.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the work under the contract, unless Contract Documents give other specific instructions concerning these matters.

3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.

3.3.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract or by tests, inspections or approvals required or performed by persons other than the Contractor.

3.3.4 The Contractor shall be responsible for inspection of portions of Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.

3.3.5 Before beginning work at the site, the Contractor shall attend a pre-construction conference scheduled by the Architect and he shall bring the superintendent employed for this project. At this time, all parties concerned will discuss the project under Contract and prepare a program of procedures in keeping with requirements of the Contract Documents. The superintendent shall henceforth make every effort to expeditiously coordinate all phases of the work, including the required reporting procedure, to obtain the end result within the full purpose and intent of the Contract Documents for the project

3.4 LABOR AND MATERIALS

3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

3.4.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

3.4.2.1 Pre-Employment Requirements: The Contractor shall provide to the Owner or its designee, within forty-eight (48) hours of the time an employee reports to work on the Project site, proof of operator's certification and licensing as required by law for all its workers who operate at any time, on or off the Project site, any motorized vehicle and/or specialized equipment pursuant to this Contract.

3.4.2.2 Conviction of Criminal Offenses: Contractor employees who are convicted of the below listed criminal offenses will be barred from further access to the Project site; (1) Drugs: Possession, dealing, cultivation, distribution, selling, or using, (2) Violence: Assault, battery, rape, use of a weapon in the commission of a crime, or other similar violent offenses (3) Miscellaneous: Any other crime which, if the Contractor's employee were allowed to continue working, could bring harm to other employees on the Project site. Contractor employees who have been charged with an offense against a minor shall be immediately identified to the Owner and shall be barred from the project site until such time the Owner consents to the employee's presence on the site.

3.4.2.2.1 The Contractor shall ensure that all employees, including all subcontractor employees, when working on occupied sites where students are present, have been fingerprinted by the Owner in accordance with Sections 1012.35 and 1012.465, Florida Statutes. Section 1012.32, Florida Statutes requires persons subject to this section found through fingerprint processing to have been convicted of a crime involving moral turpitude shall not be employed, engaged to provide services, or serve in any position requiring contact with students. From the screening results, the Owner shall determine those individuals that have been convicted of such crimes. The costs and fees associated with submitting fingerprints to the Owner shall be at the Contractor's expense. The Contractor shall verify daily and clearly identify through badging or other visible and apparent means, those employees that have been fingerprinted, screened and cleared by the Owner, to be present on the site where students are present. The Contractor shall continually ensure that employees that have not been cleared will not be present on the project site when students are present.

3.4.2.3 Site search and Inspection: Upon entering and leaving the Project site, each employee, vehicles, lunch boxes, and similar containers or personal items will be subject to search. In addition, all areas of construction will be subject to search at any time for illegal substances, drugs, and alcohol. This may include the use of trained dogs for detection.

3.4.2.4 Anti-terrorism provisions: The Contractor acknowledges the Owner's heightened awareness concerning domestic and international terrorism and shall fully cooperate with the Owner and public safety agencies in efforts to reduce the risk of terrorism.

3.4.3 Not later than fifteen (15) days from the Contract Date, the Contractor shall provide a list showing the name of the manufacturer proposed to be used for each of the products listed in the Project manual (Division 2 thru 16) and, where applicable, the name of the installing Subcontractor.

3.4.4 The Architect will within seven (7) days, reply in writing to the Contractor stating whether the Owner of the Architect, after due investigation, has reasonable objection to any such proposal.

If adequate data of any proposed manufacturer or installer is not available, the Architect may state that action will be deferred until the Contractor provides further data. Failure of the Owner or Architect to reply promptly shall constitute notice of not reasonable objection. Failure to object to a manufacturer shall not constitute a waiver of any of the requirements of the Contract Documents, and all products furnished by the listing manufacturer must conform to such requirements.

3.4.5 The Contractor shall furnish sufficient forces, construction plans and equipment, and shall work such hours, including night shifts and overtime operation, as may be necessary to insure the execution of the Work in accordance with the approved progress schedule. If the Contractor falls behind the progress schedule, the Contractor shall take such steps as may be necessary to improve the progress by increasing the number of shifts, overtime operations, days of work and the amount of construction plans, all without additional cost to the Owner. Failure of the contractor to comply with the requirements under this provision shall be grounds for determination by the Architect that the Contractor is not executing the Work with such diligence as will insure completion within the time specified and such failure constitutes a substantial violation of the conditions of the Agreement. Upon such determination, the Owner may terminate the Contractor's right to proceed with the Work, or any separable part thereof, in accordance with Article 14 of the General Conditions, or may withhold further payments as indicated in Article 9.5.1

3.5 WARRANTY

3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor’s warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

3.5.2 The Contractor shall and does hereby guarantee the Work and shall remedy any defects due to faulty materials or workmanship which appear within one (1) year, unless a longer period is specified in the Contract Documents.

3.6 TAXES

3.6.1 The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor which are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

3.6.2 Although the Owner is not subject to the Florida Sales and Use Tax on purchases, the Contractor in purchasing materials to be used in the construction under this project is not exempt from such taxes.

3.7 PERMITS, FEES AND NOTICES

3.7.1 The Owner shall issue at its expense, the building permit required under current Florida Building Code. The Owner shall obtain and ***if required for*** site plan approval. The Contractor shall secure and pay for right-of-way utilization permits, and any other permits and governmental fees, licenses and inspections which are customarily secured after execution of the Contract and necessary for proper execution and completion of the Work.

3.7.1.1 Prior to placing any utility into service, the Contractor shall submit application and forward all supporting documentation and test results that are necessary in obtaining such utility clearance. The Contractor shall be responsible for any regulatory fines that may be imposed should a utility be placed into service without the proper clearance. The Contractor shall ensure the clearances are obtained in a timely manner such that the Work is completed per the contract requirements and schedule, and substantial completion dates achieved.

3.7.1.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities bearing on performance of the Work.

3.7.3 It is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Architect and Owner in writing, and necessary changes shall be accomplished by appropriate modification.

3.7.4 If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Architect and Owner, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs.

3.7.5 All construction shall be in accordance with the editions of codes currently adopted by Leon County Schools.

3.8 ALLOWANCES

3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities against which the Contract makes reasonable objection.

3.8.2 Unless otherwise provided in the Contract Documents:

3.8.2.1 materials and equipment under an allowance shall be selected promptly by the Owner to avoid delay in the Work;

3.8.2.2 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

3.8.2.3 contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum and not in the allowances;

3.8.2.4 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual cost and the allowances under Clause 3.8.2.2 and (2) changes in Contractor's costs under Clause 3.8.2.3.

3.9 SUPERINTENDENT

3.9.1 The Contractor shall employ and keep at the site of the work during its progress a competent and thoroughly experienced superintendent capable of handling all phases of the project. The Superintendent shall have any necessary assistants, foremen and timekeepers required by the scope of this project, and shall be acceptable to the Architect ***and Owner***, and shall not be changed or transferred unless approved by the Architect ***and Owner***, or ceases to be in the employ of the Contractor. If the Contractor must replace the Superintendent for any reason between "Notice-to-Proceed" and final Architect's certification of completion of the work, then

the Contractor shall: Notify Architect ***and Owner*** that the existing Superintendent will be leaving the job on (date) and that all job work shall cease after said date until a satisfactory replacement Superintendent is found, approved by Architect ***and Owner***, and physically present on the site properly authorized and briefed by Contractor.

3.9.2 The Superintendent shall represent the Contractor in the Contractor's absence and all directions given to the Superintendent shall be as binding as if given to the Contractor. Major and important directions shall be confirmed in writing to the Contractor. Other directions shall be so confirmed on written request in each case.

3.9.3 The Contractor shall submit to the Architect ***and Owner*** the name and resume of the proposed superintendent for the Contractor at the pre-construction conference to allow investigation by Architect ***and Owner***.

3.9.4 The Contractor shall give efficient supervision to the work, using the best skill and attention. The Contractor shall carefully study and compare all Drawings, Specifications and other instructions and shall report at once to the Architect any error, inconsistency or omission which is discovered but shall not be held responsible for their existence or discovery. The Superintendent shall be in attendance on the job a minimum of six (6) hours per working day from "Notice-to-Proceed" continuously through final approval of the work by the Architect. No work shall be allowed to transpire on the site unless the Superintendent is in attendance at the site.

3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

3.10.1 The contractor shall furnish, not later than fifteen (15) days after receipt of "Notice-to-Proceed", a CPM schedule showing the expected times of completion of the various stages of work on this project. The schedule shall be a C.P.M. (Critical Path Method) chart. The work headings therein shall correspond generally with the headings listed in the Contractor's Schedule of Values. Refer to Division 1 - General Requirements. Final times of completion in the schedule shall not exceed the completion date required by the contract Documents. During progress of the work the Contractor shall enter on the schedule that Actual progress at the end of each month, and shall deliver two (2) copies to the Architect along with the Contractor's pay request. Contractor's pay request will not be processed until receipt and review of monthly updated CPM Chart. The schedule shall be cost loaded and be considered in submitting and approving, all progress payments.

3.10.2 The Contractor shall prepare as provided herein and keep current, for the Architect's approval, a schedule of submittals which is coordinated with the Contractor's construction schedule and allows the Architect reasonable time to review submittals. The schedule shall be drawn to a time scale and shall indicate the date of commencement and completion of each work item. At a minimum, the schedule shall indicate individual work items for each applicable section of the Specifications, further subdivided as necessary to indicate sitework and each building in the Project. The items shown shall be directly related to the items listed in the approved Schedule of Values required in Paragraph 9.2. The schedule shall indicate the anticipated percentage of completion for the entire work for each payment period during the construction. The schedule shall indicate adequate time for approval of submittal data, purchase and delivery of materials, equipment testing and acceptance. The schedule shall be accompanied by sufficient backup data to indicate that the proposed schedule is practical. The schedule shall be prepared on one or more sheets 30 by 42 inches.

3.10.3 The Contractor shall conform to the most recent schedules. The schedule shall be revised to reflect modifications by Change Order when such changes affect the overall schedule and approved changes in the schedule. The schedule shall be displayed in the Contractor's field office and progress shall be posted on this schedule.

3.10.4 The Progress Schedule shall be submitted as follows:

3.10.4.1 within fifteen (15) days after Notice to Proceed, the Contractor shall prepare a preliminary progress schedule (in five (5) copies) and meet with the Architect for the purpose of discussion and review.

3.10.4.2 within thirty (30) days of the award of the Contract, the Contractor shall have reworked the schedule to reflect the comments of the Architect and the requirements of the Project, and shall submit five (5) copies of the revised schedule. The Architect will not approve for payment any billing or invoice submitted by the Contractor until such time as the 'Progress Schedule' and the 'Schedule of Values' have been properly submitted to the Architect.

3.10.4.3 each time a revision to the schedule is authorized the Contractor shall submit five (5) copies of the revised schedule.

3.10.4.4 with each application for payments, the Contractor shall submit two (2) copies of the revised progress schedule. These copies shall have all work on or ahead of schedule marked in red. The application for payment will be returned, 'rejected' when not accompanied by the required revised 'Progress Schedule' and 'Schedule of Values'.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

3.11.1 The Contractor shall maintain at the site for the Owner one record copy of the drawings, Specifications, addenda, Change Orders and other Modifications, in good order and marked currently to record changes and selections made during construction, and in addition approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work.

3.11.1.1 This record set shall be in addition to the Drawings and Specifications used by the Contractor and its employees for normal reference during construction.

3.11.1.2 The Contractor shall clearly label each document 'Project Record' and in addition to changes (1) Mark drawings to indicate exact location of concealed utilities and appurtenances relative to permanent accessible features of structures, or survey data; (2) Mark each section of the specifications to identify manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.

3.11.1.3 The Contractor shall deliver the marked record set of Drawings to the Architect with a letter certifying that the changes made to the drawings are complete, correct and fully checked. The Architect will not approve final payment until this has been accomplished.

3.11.1.4 In addition to the above, the Contractor shall transfer all record changes, addenda and notes on to CAD (latest release) compact disk(s) media and generate a set of each drawing sheet in portable document format (.PDF). Each CAD and PDF sheet shall also be identified as 'PROJECT RECORD'. The files will be labeled such that the sheet number is included in the file label. The PDF files will be generated directly from the CAD files and not scanned from print media. The Contractor shall provide at the Contractor’s expense two complete sets of bond prints and specifications made from the CAD project record drawings. The CAD and .PDF file disks and the two sets of prints shall be delivered to the Owner upon completion of the Work.

3.11.2 A copy of Toxic Substance and accompanying MSDS Lists submitted by both the Contractor and Subcontractors to the Owner, must be kept at the site during the duration of construction.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Sub Contractor. Sub-subContractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

3.12.3 Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review by the Architect is subject to the limitations of Subparagraph 4.2.7.

3.12.5 The Contractor shall review, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate Contractors. Submittals made by the Contractor which are not required by the Contract Documents may be returned without action.

3.12.5.1 Shop Drawings and samples shall be dated and contain: name of project; project No.; description or names of equipment, materials and items; and complete identification of locations at which materials or equipment are to be installed. If the shop drawings do not conform completely with the requirements of the Contract Documents, such nonconformance shall be specifically noted on the face of the drawings. Submission of Shop Drawings and samples shall be accompanied by transmittal letter, containing project name, Contractor's name, number of drawings and samples, titles and other pertinent data.

3.12.5.2 Unless otherwise specified, the number of Shop Drawings and the number of samples which the Contractor shall submit and, if necessary, resubmit, is the number that the Contractor requires to be retained for the Contractor's use plus 2 which will be retained by the Architect.

3.12.5.3 All shop drawings for any Architectural, structural, mechanical or electrical work must be submitted to, and reviewed by, the Architect. The Contractor represents and warrants that all shop drawings shall be prepared by persons and entities possessing expertise and experience in the trade for which the shop drawing is prepared and, if required by the Architect or applicable law, by a licensed engineer.

3.12.6 The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been reviewed by the Architect. Such Work shall be in accordance with reviewed submittals.

3.12.7 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

3.12.8 The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's review of Shop Drawings, Product data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing independently of the submittal package of such deviation at the time of submittal and the

Architect has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals.

3.12.10 Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents.

3.13 **USE OF SITE**

3.13.1 The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

3.13.2 Only materials and equipment which are to be used directly in the Work shall be brought to and stored on the Project site by the Contractor. After equipment is no longer required for the Work, it shall be promptly removed from the Project site. Protection of construction materials and equipment stored at the Project site from weather, theft, damage and all other adversity is solely the responsibility of the Contractor.

3.13.3 The Contractor and any entity for which the Contractor is responsible shall not erect any sign on the Project site without the prior written consent of the Owner, which may be withheld in the sole discretion of the Owner.

3.13.4 Contractor shall ensure that the Work, at all times, is performed in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and all adjacent areas. The Work shall be performed, to the fullest extent reasonably possible, in such a manner that public areas adjacent to the site of the Work shall be free from all debris, building materials and equipment likely to cause hazardous conditions. Without limitation of any other provision of the Contract Documents, Contractor shall use its best efforts to minimize any interference with the occupancy or beneficial use of (1) any areas and building adjacent to the site of the Work or (2) the Building in the event of partial occupancy, as more specifically described in Paragraph 9.9.

3.13.5 Without prior approval of the Owner, the Contractor shall not permit any workers to use any existing facilities at the Project site, including, but not limited to, lavatories, toilets, entrances and parking areas other than those designated by the Owner. Without limitation of any other provision of the Contract Documents, the Contractor shall use its best efforts to comply with all rules and regulations promulgated by the Owner in connection with the use and occupancy of the Project site and the building, as amended from time to time. The Contractor shall immediately notify the Owner in writing if during the performance of the Work, the Contractor finds compliance with any portion of such rules and regulation to be impracticable, setting forth the problem of such compliance and suggesting alternatives through which the same results intended by such portions of the rules and regulations can be achieved. The Owner may, in the Owner's sole discretion, adopt such suggestions, develop new alternatives or require compliance with the existing requirements of the rules and regulation.

3.13.6 The Contractor acknowledges the possibility that the Owner may occupy existing facilities on-site during construction. The Contractor shall take all steps necessary to avoid disruption, isolate and separate Work activities, and avoid adversely impacting Owner’s use of facilities during construction.

3.14 **CUTTING AND PATCHING**

3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate Contractors by cutting, patching or otherwise altering such construction, or by excavation by the Owner or a separate Contractor except with written consent of the Owner and of such separate Contractor, such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate Contractor the Contractor's consent to cutting or otherwise altering the Work.

3.15 **CLEANING UP**

3.15.1 The Contractor shall keep the interior, premises and surrounding area free from accumulation of dust, waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials.

3.15.2 The Contractor shall keep the interiors of the project building(s) free of stored or unattended combustible materials

3.15.3 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

3.16 **ACCESS TO WORK**

3.16.1 The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

3.16.2 The authorized representatives and agents of the Architect, the Owner and such other persons as the Owner may designate, shall have access to and be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials and other relevant data and records wherever they are in preparation and progress. The contractor shall provide proper facilities for such access, inspection and, when required, exact duplicate copies of the aforementioned data shall be furnished.

3.17 **ROYALTIES AND PATENTS**

3.17.1 The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

3.18 **INDEMNIFICATION**

3.18.1 The CONTRACTOR shall defend, indemnify and hold harmless OWNER, its agents, employees, elected officers and representatives from liabilities, damages, penalties, judgments, actions, proceedings, losses or costs, including, but not limited to, reasonable attorneys' fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the indemnifying party and persons employed or utilized by the indemnifying party in the performance of the construction contract.

3.18.2 In claims against any person or entity indemnified under this Paragraph 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Paragraph 3.18 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts. In addition, compliance with insurance requirement shall not relieve the Contractor of its responsibility to indemnify the Owner, nor shall the indemnification obligation be negated or reduced by virtue of an insurance carrier's denial or coverage or refusal to defend.

3.18.3 The obligations of the Contractor under this Paragraph 3.18 shall not extend to the liability of the Architect, the Architect's consultants, and agents and employees of any of them arising out of (1) the preparation of approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications, or (2) the giving of or the failure to give directions or instructions by the Architect, the Architect's consultants, and agents and employees of any of them provided such giving or failure to give is the primary cause of the injury or damage.

ARTICLE 4
ADMINISTRATION OF THE CONTRACT

4.1 ARCHITECT

4.1.1 The Architect is the person lawfully licensed to practice Architecture or an entity lawfully practicing Architecture identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term 'Architect' means the Architect or the Architect's authorized representative.

4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

4.1.3 In case of termination of employment of the Architect, the Owner shall appoint an Architect whose status under the Contract Documents shall be that of the former Architect.

4.2 ARCHITECT'S ADMINISTRATION OF THE CONTRACT

4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents, and will be the Owner's representative (1) during construction, (2) until final payment is due and (3) with the Owner's concurrence, from time to time during the correction period described in Paragraph 12.2. The Architect will advise and consult with the Owner. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified by written instrument in accordance with other provisions of the Contract.

4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed Work and to determine in general if the Work is being performed in a manner indicating that the Work, when completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check quality or quantity of the Work. On the basis of on-site observations as an Architect, the Architect will keep the Owner informed of progress of the Work, and will endeavor to guard the Owner against defects and deficiencies in the Work.

4.2.3 The Architect will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and

programs in connection with the Work, since these are solely the Contractor's responsibility as provided in Paragraph 3.3. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work.

4.2.4 Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate through the Architect. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate Contractors shall be through the Owner.

4.2.5 Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificate for Payment in such amounts.

4.2.6 The Architect or Owner will have authority to reject Work which does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable for implementation of the intent of the Contract Documents, the Architect will have authority to require additional inspection or testing of the Work in accordance with Subparagraphs 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the work.

4.2.7 The Architect will review or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken within fifteen (15) days as to cause no delay in the Work or in the activities of the Owner, Contractor or separate Contractors, while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Paragraphs 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's acceptance of a specific item shall not indicate approval of an assembly of which the item is a component.

4.2.8 The Architect will prepare and issue to the Contractor Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Paragraph 7.4.

4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion, will receive and forward to the Owner for the Owner's review and records written warranties and related documents required by the Contract and assembled by the Contractor, and will certify the Contractor’s final Application for Payment upon compliance with the requirements of the Contract Documents.

4.2.10 The Owner and Architect may provide one or more Project representatives.

4.2.11 The Architect will interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made with reasonable promptness and within any time limits agreed upon. If no agreement is made concerning the time within which interpretations required of the Architect shall be furnished in compliance with this Paragraph 4.2, then delay shall not be recognized on account of failure by the Architect to furnish such interpretations until fifteen (15) days after written request is made for them.

4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith.

4.3 CLAIMS AND DISPUTES

4.3.1 **Definition**. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term 'Claim' also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims must be made by written notice. The responsibility to substantiate Claims shall rest with the party making the Claim.

4.3.1.1 All written Claims must specifically detail all facts and issues substantiating the claim, including all costs and expenses incurred.

4.3.2 **Decision of Architect**. Claims, including those alleging an error or omission by the Architect, shall be referred initially to the Architect for action as provided in Paragraph 4.4. A decision by the Architect, as provided in Subparagraph 4.4.4, shall be required as a condition precedent to litigation of a Claim between the Contractor and Owner as to all such matters arising prior to the date final payment is due, regardless of (1) whether such matters relate to execution and progress of the Work or (2) the extent to which the Work has been completed. The decision by the Architect in response to a Claim shall not be a condition precedent to litigation in the event (1) the position of Architect is vacant, (2) the Architect has not received evidence or has failed to render a decision within agreed time limits, (3) the Architect has failed to take action required under Subparagraph 4.4.4 within 30 days after the Claim is made, (4) forty-five (45) days have passed after the Claim has been referred to the Architect or (5) the Claim relates to a mechanic's lien.

4.3.3 **Time Limits on Claims**. Claims by either party must be made within twenty-one (21) days after occurrence of the event giving rise to such Claim or within twenty-one (21) days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims must be made by written notice and include all facts and detailed cost data substantiating the Claim. An additional Claim made after the initial Claim has been implemented by Change Order will not be considered unless submitted in a timely manner.

4.3.4 **Continuing Contract Performance**. Pending final resolution of a Claim including litigation, unless otherwise agreed in writing the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

4.3.5 **Claims for Concealed or Unknown Conditions**. If conditions are encountered at the site which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract

Documents, then notice by the observing party shall be given to the other party promptly before conditions are disturbed and in no event later than twenty-one (21) days after first observance of the conditions. The Architect will promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall so notify the Owner and Contractor in writing, stating the reasons. Claims by either party in opposition to such determination must be made within twenty-one (21) days after the Architect has given notice of the decision. If the Owner and Contractor cannot agree on an adjustment in the Contract Sum or Contract Time, the adjustment shall be referred to the Architect for initial determination, subject to further proceedings pursuant to Paragraph 4.4.

4.3.5.1 No adjustment in the Contract Time or Contract Sum shall be permitted, however, in connection with a concealed or unknown condition which does not differ materially from those conditions disclosed or which reasonably should have been disclosed by the Contractor's (1) prior inspections, tests, reviews and preconstruction services for the Project, or (2) inspections, test, reviews, and preconstruction services which the Contractor had the opportunity to make or should have performed in connection with the Project.

4.3.6 **Claims for Additional Cost**

4.3.6.1 If the Contractor wishes to make Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Paragraph 10.3. If the Contractor believes additional cost is involved for reasons including but not limited to (1) a written interpretation from the Architect, (2) an order by the Owner to stop the Work where the Contractor was not at fault, (3) a written order for a minor change in the Work issued by the Architect, (4) failure of payment by the Owner, (5) termination of the contract by the Owner, (6) Owner's suspension or (7) other reasonable grounds. Claim shall be filed in accordance with the procedure established herein.

4.3.6.2 All claims as provided for in Paragraph 4.3.6 shall be made by specific written notice and shall detail all facts and issues substantiating the claim including all costs and expenses incurred or to be incurred.

4.3.7 **Claims for Additional Time**

4.3.7.1 If the Contractor wishes to make Claim for any increase in the Contract Time, specific written notice as defined in Paragraph 4.3.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.

4.3.7.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that weather conditions had an adverse effect on the scheduled construction and that the conditions of 8.3.1.1 have been met as measured against the most recent Progress Schedule.

4.3.8 **Injury or Damage to Person or Property**. If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of the other party's employees or agents, or of others for whose acts such party is legally liable, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding twenty-one (21) days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. If a Claim for

additional cost or time related to this Claim is to be asserted, it shall be filed as provided in Subparagraphs 4.3.7 or 4.3.8.

4.3.8.1 The written notice required by Paragraph 4.3.8 shall be defined in Paragraphs 4.3.1 and 4.3.1.1.

4.4 **RESOLUTION OF CLAIMS AND DISPUTES**

4.4.1 The Architect will review Claims and take one or more of the following preliminary actions within ten days of receipt of a Claim: (1) request additional supporting data from the claimant, (2) submit a schedule to the parties indicating when the Architect expects to take action, (3) reject the Claim in whole or in part, stating reasons for rejection, (4) recommend approval of the Claim by the other party or (5) suggest a compromise. The Architect may also, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim.

4.4.2 If a Claim has been resolved, the Architect will obtain, prepare and issue appropriate documentation.

4.4.3 If a Claim has not been resolved, the party making the Claim shall, within ten (10) days after the Architect's preliminary response, take one or more of the following actions: (1) submit additional supporting data requested by the Architect, (2) modify the initial Claim or (3) notify the Architect that the initial Claim stands.

4.4.4 If a Claim has not been resolved after consideration of the foregoing and of further evidence presented by the parties or requested by the Architect, the Architect will notify the parties in writing that the Architect's decision will be made within seven (7) days, which decision shall be final and binding on the parties. Upon expiration of such time period, the Architect will render to the parties the Architect's written decision relative to the Claim, including any change in the Contract Sum or Contract Time or both. If there is a surety and there appears to be a possibility of a Contractor's default, the Architect may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

4.5 **ARBITRATION**

4.5.1 **Controversies and Claims Subject to Arbitration**. The Contractor and the Owner shall not be obligated to resolve any claim or dispute related to the Contract by arbitration. Any reference herein to arbitration is deemed void.

ARTICLE 5
SUBCONTRACTORS

5.1 **DEFINITIONS**

5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term 'Subcontractor' is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term 'Subcontractor' does not include a separate Contractor or Subcontractors of a separate Contractor.

5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term 'Sub-subcontractor' is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

5.2 **AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK**

5.2.1 The Contractor shall submit to the Owner a list of Subcontractors proposed for the Work per Specifications, Section 00430 Coordination. Subcontractors listed in the bid shall not be replaced without good cause. The Contractor shall indemnify and save harmless the Owner and its agents from the claims of any Subcontractors who allege that the Contractor replaced them without first establishing good cause to justify such a replacement.

5.2.1.2 Notwithstanding anything contained herein to the contrary, the Owner and Architect shall maintain the right to require the Contractor to replace a Subcontractor with which the Owner or Architect has reasonable objection.

5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. The Contract Sum shall be increased by the lesser of the following: (1) the difference between the subcontract amount proposed by the person or entity recommended by the Contractor and the subcontract amount proposed by the person or entity accepted or designated by the Owner and the Architect; (2) the amount by which the subcontract amount proposed by the person or entity accepted or designated by the Owner and the Architect exceeds the amount set forth in the Schedule of Values which is applicable to the Work covered by such subcontract. However, no increase in the Contract Sum shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

5.2.4 The Contractor shall not change a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objections to such change.

5.3 SUB CONTRACTUAL RELATIONS

5.3.1 By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Documents, assumes toward the Owner. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-Subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner provided that:

5.4.1.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Paragraph 14.2 and only for those subcontract agreements which the Owner accepts by notifying the Subcontractor in writing; and

5.4.1.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

5.4.2 If the Work in connection with a subcontract has been suspended for more than thirty (30) days after termination of the contract by the Owner pursuant to Paragraph 14.2 and the Owner chooses to accept assignment of such subcontract, the Subcontractor's compensation shall be equitably adjusted for any increase in direct costs incurred by such Subcontractor as a result of the suspension beyond the thirty (30) day period.

5.4.3 Each subcontract shall specifically provide that the Owner shall only be responsible to the Subcontractor for those obligations of the Contractor that accrue subsequent to the Owner's exercise of any rights under this conditional assignment.

ARTICLE 6
CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNERS RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts including Subcontractors currently on the Project in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided elsewhere in the Contract Documents.

6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term 'Contractor' in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate Contractors and the Owner in reviewing their construction schedules when directed to do so. The Contractor shall make any revisions to the construction schedule and Contract Sum deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate Contractors and the Owner until subsequently revised.

6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or other entities, the Owner shall be deemed to be subject to the same obligations and to have the same rights which apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford the Owner and separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgement that the Owner's or separate Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

6.2.3 Costs caused by delays or by improperly timed activities or defective construction shall be borne by the party responsible therefore.

6.2.4 The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed constriction or to property of the Owner or separate Contractors as provided in Subparagraph 10.2.5.

6.2.5 Claims and other disputes and matters in question between the Contractor and a separate Contractor shall be subject to the provisions of Paragraph 4.3 provided the separate Contractor has reciprocal obligations.

6.2.6 The Owner and each separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Paragraph 3.14.

6.3 **OWNER'S RIGHT TO CLEAN UP**

6.3.1 If a dispute arises among the Contractor, separate Contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described in Paragraph 3.15, the Owner may clean up and allocate the cost among those responsible as the Architect determines to be just.

ARTICLE 7
CHANGES IN THE WORK

7.1 **CHANGES**

7.1.1 Changes in the Work may be accomplished after execution of the contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work. Except as permitted in Paragraph 7.3 and Paragraph 9.7.2, a change in the Contract Sum or the contract Time shall be accomplished only by Change Order. Accordingly, no course of conduct or dealings between the parties, no express or implied acceptance of alterations or additions to the Work, and no claim that the Owner has been unjustly enriched by any alteration or addition to the Work, whether or not there is, in fact, any unjust enrichment of the Work, shall be the basis of claim to any increase in any amounts due under the Contract Documents or a change in any time period provided for in the Contract Documents.

7.1.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are so changed in a proposed Change Order or Construction Change Directive that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted. Unit prices shall include all overheads and profit.

7.1.5 In Subparagraph 7.1.3 the allowance for all home and field office overhead and profit combined, included in the total cost to the Owner, shall be limited t the following schedule:

7.1.5.1 For the Contractor, for work performed by the Contractor's own forces, ten (10%) percent of the cost for the work.

7.1.5.2 For the Contractor, for work performed by the Contractor's Subcontractor (at any tier), five (5%) percent of the amount due the Subcontractor.

7.1.5.3 For each Subcontractor who performs work with its own forces, ten (10%) percent.

7.1.5.4 For each Subcontractor not performing work with its own forces, five (5%) percent.

7.1.6 The cost of the bond premium will be based upon the amount listed in the contract bonds received from the Surety. Costs associated with extended overhead will not be allowed.

7.1.7 Cost shall be limited to the following: Bond premiums, cost of materials, including sales tax (in effect at time of change order) and cost of delivery, cost of labor and fringe benefits, including Social Security, Old Age and Unemployment Insurance (labor cost may include a pro rate share of foreman's time only in case an extension of Contract Time is granted on account of the change); Workmen's Compensation Insurance; rental value of power tools and equipment

7.1.8 All costs associated with off-site project management and administration, accounting, estimating, and related items shall be included in the applicable percentage for overhead and profit referenced above.

7.1.9 Overhead shall include the following: Supervision, superintendence, wage of time keepers, watchmen and clerks, small tools incidentals, general office expense and all other expenses not included in "cost".

7.1.10 All quotations and proposals shall be in sufficient detail and itemization of labor, materials and equipment to allow the Owner to verify the reasonableness of the costs proposed. Subcontractors' and Sub-subContractors' quotes, at all tiers, shall be disclosed on their company's particular letterhead or quote form and signed by an officer of that company.

7.2 CHANGE ORDERS

7.2.1 a Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect, stating their agreement upon all of the following:

7.2.1.1 a change in the Work;

7.2.1.2 the amount of the adjustment in the Contract Sum, if any; and

7.2.1.3 the extent of the adjustment in the Contract Time, if any

7.2.2 methods used in determining adjustments to the Contract Sum may include those listed in subparagraph 7.3.3.

7.2.3 Agreement on any Change Order shall constitute a final settlement and full accord and satisfaction of all matters relating to the change directly or indirectly changed or unchanged in the Work which is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum and the construction schedule. In the event a Change Order increases the Contract sum, Contractor shall include the Work covered by such Change Orders in Applications for Payment as if such Work were originally part of the Contract Documents.

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.1 A Construction Change Directive is written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum, or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusting accordingly.

7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order. The Contractor, pursuant to the terms of Article 7.3 shall upon receipt of a Construction Change Directive proceed without delay with the change in the work governed by the Construction Change Directive. However, notwithstanding anything contained within this contract to the contrary, the Owner shall not be required to make payment to the Contractor for the work covered by the Construction Change Directive until such time as the terms of the Construction Change Directive have been finalized and incorporated into an executed Change Order.

7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

7.3.3.1 mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

7.3.3.2 unit prices stated in the Contract Documents or subsequently agreed upon;

7.3.3.3 cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

7.3.3.4 as provided in Subparagraph 7.3.6.

7.3.4 Upon receipt of a Construction Change Directive, the Contractor shall proceed without delay with the change in the Work involved and immediately in writing advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the contract sum or contract Time.

7.3.5 A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall become effective only upon execution of a Change Order.

7.3.6 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Architect on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an allowance for overhead and profit as specified in Paragraph 7.1.5. In such case, and also under Clause 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized

accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Subparagraph 7.3.6 shall be limited to the following:

7.3.6.1 costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' or workmen's compensation insurance;

7.3.6.2 costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

7.3.6.3 rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

7.3.6.4 costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work;

7.3.7 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with, respect to that change.

7.3.8 If the Owner and Contractor do not agree with the adjustment in Contract Time or the method for determining it, the adjustment or the method shall be referred to the Architect for determination.

7.3.9 When the Owner and Contractor agree with the determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.

7.4 MINOR CHANGES IN THE WORK

7.4.1 The Architect will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders without delay.

ARTICLE 8
TIME

8.1 DEFINITIONS

8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

8.1.2 The date of commencement of the Work is the date established in the Notice to Proceed, issued by the Owner. The date shall not be postponed by the failure to act of the Contractor or persons or entities for whom the Contractor is responsible.

8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Paragraph 9.8.

8.1.4 The term 'day' as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

8.2 **PROGRESS AND COMPLETION**

8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period of performing the Work.

8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor. The date of commencement of the Work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by a Notice To Proceed given by the Owner, the Contractor shall notify the Owner in writing not less than five days or other agreed period before commencing the Work to permit the timely filing of mortgages, mechanic's liens and other security interests.

8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial completion within the contract time.

8.2.4 When the Contractor proposes to schedule work on Saturdays and Sundays or legal holidays, written notification shall be given to the Architect and Owner within forty-eight (48) hours prior to that date.

8.2.4.1 The Contractor shall furnish adequate forces, construction plant, and equipment, and shall work such hours, including night shifts, overtime operations, and Sunday and holiday work as may be necessary to insure the prosecution of the work in accordance with the approved Progress Schedule and updates. If the Contractor falls behind progress required in the Progress Schedule, the Contractor shall take such steps as may be necessary to improve its programs, and the Owner may require the Contractor to increase the number of shifts and/or overtime operations, day of work and/or the amount of construction plant, all without additional cost to the Owner under this Contract. Failure of the Contractor to comply with this provision shall be grounds for termination of the Contract by the Owner in accordance with Paragraph 14.2. Direction from the Architect or Owner under this provision shall not be construed by the Contractor as acceleration.

8.3 **DELAYS AND EXTENSIONS OF TIME**

8.3.1 If the Contractor is delayed at any time in progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate Contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other caused beyond the Contractor's control, or by delay authorized by the Owner, or by other causes which the Architect determines may justify delay, the Contract Time shall be extended by Change Order to the extent such delay will prevent the Contractor from achieving Substantial Completion with the contract Time and if the performance of the Work is not, was not, or would not have been delayed by any other cause for which the Contractor is not entitled to an extension in the contract time under the Contract Documents. The Contractor further acknowledges and agrees that adjustments in the contract Time will be permitted for a delay only to the extent such delay (1) is not caused, or could not have been anticipated, by the Contractor, or (2) could not be limited or avoided by the Contractor's timely notice to the Owner of the delay and (3) is of a duration not less than one (1) day.

8.3.1.1 Weather, which hinders or prevents work, is not a basis for a time extension unless it surpasses in severity the weather reasonably to be expected in the locality at the particular time of the year. If the contractor files timely notice that he was delayed by weather sufficiently severe as to entitle Contractor to additional time, Contractor should furnish promptly, a statement of the portion of the work affected, an explanation as to the reasons work was prevented or hindered by the weather if not readily apparent, the dates on which such portions of work were affected,

the total number of days the job in its entirety was delayed, and other information such as official weather bureau climatological data for a ten year period, local weather bureau data, job daily records, etc. Time extensions due to adverse weather shall not be allowed after the Contract Substantial Completion date. Construction time is based on Local Average weather conditions. Requests for time extensions due to adverse weather, shall be considered only for and equal to the number of "rain days" in excess of the ten year mean average number of days for any given time period as shown by the the US National Oceanic and Atmospheric Administration, National Climatic Data Center, Ashville, North Carolina for Tallahassee, Florida. The mean number of "rain days" for a month is as shown on the "U.S. Summary Report" under the heading "Number of days -- Precipitation .01 inch or more". If current rainfall is less than average, the contract time will not be shortened. Extension of time requests due to adverse weather shall be submitted within twenty (20) days after adverse weather. The Contractor shall submit the referenced climatological summary data immediately upon its availability and shall show how the time extension request corresponds with the climatological data.

8.3.1.2 Extension of time will be granted only to the extent that equitable time adjustments for activity or activities affected exceed the total float or slack associated with those activities at the time the direction to proceed was issued for the change. The Contractor acknowledges and agrees that delays in activities which do not affect any milestone completion dates shown on the network at the time of delay shall not be a basis for granting a time extension.

8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Paragraph 4.3.

8.3.3 If the Contractor submits a progress report indicating, or otherwise expresses an intention to achieve, completion of the work prior to any completion date required by the Contract Documents or expiration of the Contract Time, no liability of the Owner to the Contractor for any failure of the Contractor to so complete the Work shall be created or implied.

8.3.4 Notwithstanding anything to the contrary in the Contract Documents, an extension in the Contract Time, to the extent permitted under Paragraph 8.3.1. shall be the sole remedy of the Contractor for any (1) delay in the commencement, prosecution or completion of the Work, (2) hindrance or obstruction in the performance of the Work, (3) loss of productivity, or (4) other similar claims (collectively referred to in this Paragraph 8.3.4 as Delays) whether or not such Delays are foreseeable, unless a Delay is caused by acts of the Owner constituting active interference with the Contractor's performance of the Work, and only to the extent such acts continue after the Contractor furnishes the Owner with notice of such interference. In no event shall the Contractor be entitled to any compensation or recovery of any damages, in connection with any Delay, including, without limitation, consequential damages, lost opportunity costs, impact damages or other similar remuneration. The Owner's exercise of any of its rights or remedies under the Contract Documents (including, without limitation, ordering changes in the Work, or directing suspension, rescheduling or correction of the Work), regardless of the extent or frequency of the Owner's exercise of such rights or remedies, shall not be construed as active interference with the Contractor's performance of the Work.

8.3.5 Failure to complete the Project within the time fixed in this Agreement or Construction Documents will result in substantial injury to the Owner, and as damages arising from such failure cannot be calculated with any degree of certainty within the time fixed or within such further time, the Contractor shall pay to the Owner as Liquidated Damages for such delay, and not as a penalty, an amount stipulated in the Construction Documents. These Liquidated Damages shall be payable in addition to any expenses or costs payable by the Contractor to the Owner under the provisions of the Contract Documents and shall not exclude the recovery of damages of the Owner under the Contract Documents. The Contractor shall pay to the Owner as Liquidated Damages for such delay, and not as a penalty, **Five Hundred Dollars ($500.00)** for each and every calendar day elapsing between the date fixed for Substantial Completion and the date such Substantial Completion shall have been fully accomplished. It is

also hereby agreed that if after **thirty (30)** calendar days after Substantial Completion this Project is not fully and finally completed in accordance with the requirements of the Contract Documents, the Contractor shall pay to the Owner as Liquidated Damages, and not as a penalty, for such delay, one-fourth (1/4) of the rate previously indicated. These Liquidated Damages shall be payable in addition to any expenses or costs payable by the Contractor to the Owner under the provisions of the Contract Documents and shall not exclude the recovery damages of the Owner under the Contract Documents. This provision of Liquidated Damages for delay shall in no manner affect the Owner's right to terminate the Contract. The Owner's exercise of the right to terminate shall not release the Contractor from his obligation to pay Liquidated Damages. It is further agreed that the Owner may deduct from the balance of the Contract Sum held by the Owner the Liquidated Damages stipulated herein, or such portions as said balance will cover.

8.3.6 The Contractor agrees to make no claim for damages for delay in the performance of the contract occasioned by any act or omission of the Owner or any of its agents or representatives, or because of any injunction which may be brought against the Owner and agrees that any such claim shall be fully compensated for by an extension of time to complete performance of the Work as provided herein.

ARTICLE 9
PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

9.2 SCHEDULE OF VALUES

9.2.1 Upon full execution of the agreement, the Contractor shall submit to the Architect a schedule of values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, when approved by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. No subsequent pay requests will be approved until contractor has submitted an acceptable schedule of values.

9.2.2 The work items listed in the Schedule of Values shall relate directly to the items in the Progress Schedule required in Subparagraph 3.10.1. The Schedule of Values shall be arranged to conform to CSI Master Format for Divisions and Sections, with each item containing overhead and profit. The Contractor and each Subcontractor shall prepare a trade payment breakdown for the Work for which each is responsible, such breakdown being submitted on a uniform standardized form approved by the Architect and Owner. The form shall be divided in detail sufficient to exhibit areas, floors and/or sections of the Work, and/or by convenient units and shall be updated as required by either the Owner or the Architect as necessary to reflect (1) description of Work (listing labor and material separately), (2) Total value, (3) percent of the Work completed to date, (4) value of Work completed to date, (5) percent of previous amount billed, (6) previous amount billed, (7) current percent completed, and (8) value of Work completed to date. Any trade breakdown which fails to include sufficient detail, is unbalanced or exhibits 'front-loading' of the value of the Work shall be rejected. If trade breakdown had been initially approved and subsequently used, but later found improper for any reason, sufficient funds shall be withheld from future Applications for Payment to ensure an adequate reserve (exclusive of normal retainage) to complete the Work.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 At least ten (10) days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment for operations completed in accordance with the schedule of values. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and reflecting retainage if provided for elsewhere in the Contract Document.

9.3.1.1 Such applications may not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.

9.3.1.2 Each Application for Payment shall be accompanied by the following, all in form and substance satisfactory to the Owner:

9.3.1.3 a current Contractor's waiver and release duly executed and acknowledged sworn statement showing all Subcontractors and materialmen with whom the Contractor has entered into subcontracts, the amount of each subcontract, the amount requested for any Subcontractor and materialmen in the requested progress payment and the amount to be paid to the Contractor from such progress payment, together with similar sworn statements from all such Subcontractors and materialmen;

9.3.1.4 duly executed waivers of mechanics' and materialmen's liens from all Subcontractors in the form as prescribed in Section 713.20(4), Florida Statutes and, when appropriate, from materialmen and lower tier Subcontractors establishing payment or satisfaction of payment of all amounts requested by the Contractor on behalf of such entities or persons in any previous Application for Payment; and

9.3.1.5 all information and materials required to comply with the requirements of the Contract Documents or reasonably requested by the Owner or the Architect.

9.3.1.6 Contractor has reviewed the construction on the Project and certifies that the Work has progressed to the point indicated, and Contractor further certifies that to the best of its knowledge, information and belief, the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by Contractor for work for which previous Certificates of Payment were issued and payments received from the Owner, and that current payment shown herein is now due. Contractor specifically represents and certifies to Owner that there are no claims for additional compensation or damages with respect to the Work as of the date of this Certification, except for those identified below. Notwithstanding anything to the contrary, the payment by the Owner to the Contractor shall not relieve Contractor of its duty to perform the Work in accordance with the Contract Documents; provided, however, Contractor assumes no responsibility for the Architects duty to design the Project. Contractor will use its best efforts to obtain from each Subcontractor who performs Work covered by the Application for Payment a certification to Owner with language similar to that of Contractor.

9.3.1.7 These submissions of a pay application signed by the Contractor shall constitute the Contractor's certification that all undisputed invoices and amounts due to suppliers and Subcontractors have been paid by the Contractor.

9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. At the Owner's discretion, partial payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon by the Architect and Owner in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and

shall include applicable insurance, storage, and transportation to the site for such materials and equipment stored off the site.

9.3.2.1 The aggregate cost of materials stored off site shall not exceed $100,000 at any time without the prior written approval by the Owner.

9.3.2.2 Title to such materials shall be vested in the Owner, as evidenced by documentation satisfactory in form and substance to the Owner and the Owner's Construction Lender, including, without limitation, recorded financing statements, UCC filings and UCC searches.

9.3.2.3 With each Application for Payment, the Contractor shall submit to the Owner a written list identifying each location where materials are stored off the Project site and the value of materials at each location. The Contractor shall procure insurance satisfactory to the Owner for materials stored off the Project site in an amount not less than the total value thereof.

9.3.2.4 The consent of any surety shall be obtained by the Contractor to the extent required prior to payment of any materials stored off the Project site.

9.3.2.5 Representatives of the Owner shall have the right to make inspections of the storage areas at any time.

9.3.2.6 Such materials shall be protected from diversion, destruction, theft and damage, specifically marked for Project use and segregated from other materials at the storage facility.

9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

9.4 CERTIFICATES FOR PAYMENT

9.4.1 The Architect will, within three (3) ***business*** days after receipt of the Contractor's proper application for payment, either issue to the Owner a certificate for payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in subparagraph 9.5.1.

9.4.1.1 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's observations at the site and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of the Architect's knowledge, information and belief, quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to minor deviations from the Contract Documents correctable prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, or (3) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the contract Sum.

9.4.2 If the Contractor has submitted a timely and proper application for payment in accordance with this article, payment may be expected with twenty-***five (25) business*** days of the receipt of the approved proper application. Payment for a proper application reducing or releasing retainage may exceed this duration

9.5 **DECISIONS TO WITHHOLD CERTIFICATION**

9.5.1 The Architect may decide not to certify payment and may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Subparagraph 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the application, the Architect will notify the Contractor and Owner as provided in Subparagraph 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect deems is proper and is able to make such representations to the Owner. The Architect may also decide not to certify payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss because of:

9.5.1.1 defective Work not remedied;

9.5.1.2 third party and notices of non-payment claims filed or reasonable evidence indicating probable filing of such claims;

9.5.1.3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;

9.5.1.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

9.5.1.5 damage to the Owner or another Contractor;

9.5.1.6 reasonable evidence that the Work will not be completed within the contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or

9.5.1.7 persistent failure to carry out the Work or administrative requirement in accordance with the Contract Documents.

9.5.2 When the above reasons for withholding certification are remedied by the Contractor, certification will be made for amounts previously withheld.

9.6 **PROGRESS PAYMENTS**

9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided.

9.6.1.1 The Owner shall withhold retainage from each progress payment an amount equal to ten percent (10%) of the progress payment, until 50% completion. After 50% completion, the Owner shall reduce the retainage withheld to five percent (5%) the amount of retainage held from each progress payment.

9.6.2 The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually

retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The Contractor shall, by similar agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in similar manner.

9.6.3 The Architect or Owner will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor as reflected in the Contractor's Schedule of Values.

9.6.4 Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor.

9.6.5 Payment to material suppliers shall be treated in a manner similar to that provided in Subparagraphs 9.6.2, 9.6.3 and 9.6.4.

9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of work not in accordance with the Contract Documents.

9.7 **FAILURE OF PAYMENT**

9.7.1 If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within three (3) ***business*** days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within twenty-five (25) days after receipt, except as provided in Paragraph 9.4.3 the amount certified by the Architect then the Contractor may, upon seven (7) additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, which shall be accomplished as provided in Article 7.

9.7.2 If the Owner is entitled to reimbursement or payment from the Contractor under or pursuant to the Contract Documents, such payment shall be made promptly upon demand by the Owner. Notwithstanding anything contained in the Contract Documents to the contrary, if the Contractor fails to promptly make any payment due the Owner, or the Owner incurs any costs and expenses to cure any default of the Contractor or to correct defective Work, the Owner shall have an absolute right to offset such amount against the Contract Sum and may, in the Owner's sole discretion, elect either to: (1) deduct an amount equal to that which the Owner is entitled from any payment then or thereafter due the Contractor from the Owner, or (2) issue a written notice to the Contractor reducing the contract Sum by an amount equal to that which the Owner is entitled.

9.8 **SUBSTANTIAL COMPLETION**

9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents and as certified by the Architect so the Owner can occupy or utilize the Work for its intended use.

9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the

Contractor's list, which is not in accordance with the requirements of the Contract Documents, complete or correct such item. As a result of the inspection, the Architect may generate an additional list of items to be completed or corrected. When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate which shall identify all non-conforming, defective and incomplete Work and establish the date of commencement of warranties in connection with any such Work. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate.

9.8.3 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Architect, the Owner shall make payment, reflecting approved adjustment in retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

9.8.4 The contractor shall submit at substantial completion, three (3) copies of a certificate from each manufacturer's technical representatives that all Plumbing, HVAC and Electrical equipment and material have been installed properly and that all warranties and guarantees will be valid.

9.9 PARTIAL OCCUPANCY OR USE

9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Subparagraph 11.3.11 and authorized by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Subparagraph 9.8.2. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the work.

9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Subparagraph 9.10.2 as precedent to the Contractor's being entitled to final payment have

been fulfilled. All warranties and guarantees required under or pursuant to the Contract Documents shall be assembled and delivered by the Contractor to the Architect as part of the final Application for Payment. The final Certificate for Payment will not be issued by the Architect until all warranties and guarantees have been received and accepted by the Owner.

9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect and the Owner approves, (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be cancelled or allowed to expire until at least 30 days prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5) ,if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such claim. If such claim remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such claim, including all costs and reasonable attorneys' fees.

9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

9.10.3.1 The Contractor and all subcontractors shall submit final releases of payment in consideration of final payment by the Owner. Final releases shall accompany the application for payment for which the release applies and shall be in the exact form as listed in ***Specifications.***

9.10.4 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment. Such waivers shall be in addition to the waiver described in Subparagraph 4.3.5.

9.10.5 Notwithstanding any other provisions of the Contract Documents, no final payment or release of the retainage will be due to the Contractor until final acceptance of the work by Owner, Architect and final acceptance inspection and approval of the Department of Education. Final Payment shall be made after this date.

9.10.6 Neither the final payment nor any provision in the Contract Documents shall relieve the Contractor of the responsibility for negligence, defects of manufacturer, faulty materials, or workmanship to the extent within the period provided by law; and upon written notice that they shall remedy any defects due thereto and pay all expenses for any damages to other work resulting therefrom.

9.10.7 The Owner will suffer damages if the Project is not substantially and finally complete on the dates set forth in the Contract Documents. The Contractor (and the Contractor's Surety) shall be liable for and shall pay to the Owner the Sums hereinafter stipulated as fixed, agreed as liquidated damages for each calendar day of delay until the Work is Substantially and Finally Complete. The Owner and Contractor agree that the daily sum fixed herein as liquidated damages is not to be construed as a penalty, but instead is the parties' best estimate as to the daily damages which the Owner will incur at the time of execution of the Contract. The assessment of liquidated damages alone shall not be the sole basis in determining whether or not the contract was properly completed on time, and the Owner shall weigh, at the Owner's sole discretion, such assessment against other mitigating factors that are beyond the contractor's control.

ARTICLE 10
PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Contractor shall be responsible for initiating, maintaining and supervising ***and documenting*** all safety precautions and programs in connection with the performance of the Contract.

10.1.2 Unless provided elsewhere in the Contract Documents, in the event the Contractor encounters on the site material reasonably believed to be asbestos or polychlorinated biphenyl (PCB) which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner and Architect in writing. The Work in the affected area shall be resumed: (1) upon written notification by the Owner that no asbestos or polychlorinated biphenyl (PCB) is present, or (2) when the Owner confirms in writing that the presence of asbestos or polychlorinated biphenyl (PCB) and has been rendered harmless.

10.1.3 The Contractor shall not be required pursuant to Article 7 to perform without consent any Work relating to asbestos or polychlorinated biphenyl (PCB) mitigation.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

10.2.1.1 employees on the Work and other persons who may be affected thereby;

10.2.1.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, whether Contractor or Owner furnished, and under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and

10.2.1.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss. The contractor shall comply with all applicable provisions of the Workmen's Compensation Law, specifically, Chapter 440.56, Safety Rules and Provisions and the various safety codes or regulations adopted by the Florida Department of Commerce and the State of Florida. The Contractor shall be familiar with each of these documents and designate a safety officer to be responsible for compliance with these safety provisions.

10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying Owners and users of adjacent sites and utilities.

10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the work, the Contractor shall exercise utmost care and carry on such activates under supervision of properly qualified personnel. When use or storage of explosives or other hazardous materials or equipment or unusual construction methods are necessary, the Contractor shall give the Owner and the Architect reasonable advance notice.

10.2.5 The Contractor shall promptly remedy damage and loss to property referred to in Clauses 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Clauses 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Paragraph 3.18.

10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's Superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

10.2.7 The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.

10.2.8 When all or portion of the Work is suspended for any reason, the Contractor shall securely fasten down all coverings and protect the Work, as necessary, from damage by any cause.

10.2.9 The Contractor shall promptly report in writing to the Owner and Architect all accidents arising out of or in connection with the Work which cause death, personal injury, or property damage.

10.2.10 The Contractor and all subcontractor personnel working on-site shall comply with Sections 1012.465, 1012.467, and 1012.468, Florida Statutes and Leon County School Board Policy 8475 (Jessica Lunsford Act).

10.2.11 In accordance with National Emission Standards For Hazardous Air Pollutants (NESHAPS), 40 CFR Part 61, Subpart M and other guidance materials relating to asbestos regulations, the Contractor shall provide required notice to Florida Department of Environmental Protection prior to the start of any renovation involving existing asbestos containing building materials. Similar notice shall be sent for a demolition project even if no asbestos containing material is present in the facility

10.3 **EMERGENCIES**

10.3.1 In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Paragraph 4.3 and Article 7.

ARTICLE 11
INSURANCE AND BONDS

11.1 **CONTRACTOR'S INSURANCE**

11.1.1 The Contractor shall, at its sole expense, maintain in effect at all times during the performance of Work, insurance coverages with limits not less than those set forth below with insurers and under forms of policies satisfactory to Owner. The Contractor shall deliver to Owner no later than ten (10) days after award of this Agreement but, in any event, prior to execution of this Agreement by Owner and prior to commencing Work on the Project, Certificates of Insurance, IDENTIFIED ON THEIR FACES AS TO PROJECT NAME AND THIS AGREEMENT NUMBER TO WHICH APPLICABLE, as evidence that policies providing such coverage and limits of insurance are in full force and effect, which Certificates shall provide that no less than thirty (30) days advance notice will be given in writing to Owner prior to cancellation, termination or material alteration of said policies or insurance. The subject Certificates and other evidence are subject to the review and approval by the Owner as to form and substance

11.1.2 The Contractor shall purchase and maintain, at its sole cost and expense, in a company or companies to which the Owner has no reasonable objection, insurance for protection from claims which may arise out of or result from the Contractor's operations under this Agreement for Construction, whether such operations by itself or by any subcontractor, sub-subcontractor or materialman, or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable in the amounts and for the coverages required in this Article. Contractor shall not allow any subcontractor to commence work on the Project until such subcontractor has obtained the same insurance coverages and limits as required of Contractor herein.

11.1.3 All insurance shall be carried in companies satisfactory to Owner, shall name Owner as additional insured. Contractor shall not commence the Work under this Agreement until it has obtained all insurance required hereunder and true copies of policies evidencing such insurance have been submitted to and approved by Owner.

11.1.4 The insurance required under this Section shall include the following coverage and limits in the following categories, amounts and detail:

11.1.4.1 Worker's Compensation and Employers' Liability Insurance for all employees at the Project, as follows:

11.1.4.1.1 Coverage A (Worker's Compensation) – Statutory Limits

11.1.4.1.2 Coverage B (Employers' Liability) – One Million and No/100 U.S. Dollars ($1,000,000.00) each accident

11.1.4.1.2.1 Broad Form All States Endorsement

11.1.4.1.2.2 Voluntary Compensation Endorsement

11.1.4.2 Commercial General Liability Insurance, on an "occurrence" basis, including:

11.1.4.2.1 Bodily injury and Property Liability

11.1.4.2.1.1 One Million and No/100 U.S. Dollars ($1,000,000.00) each occurrence

11.1.4.2.1.2 Two Million and No/100 U.S. Dollars ($2,000,000.00) for aggregate-products and completed operations

11.1.4.2.1.3 Two Million and No/100 U.S. Dollars ($2,000,000.00) general aggregate (General Aggregate Limit specified above is warranted to be unimpaired by either payment of final

claims or amounts reserved for pending claims as of the date of this Agreement. Separate Primary Limits of Insurance with Two Million and No/100 U.S. Dollars ($2,000,000.00) General Aggregate Limit [other than products completed operations] will be maintained solely for this Project

11.1.4.2.2 These Commercial General Liability Policies shall include the following coverages:

11.1.4.2.2.1 Premises – Operations Liability

11.1.4.2.2.2 Independent Contractors Liability (to cover Contractor's liability arising out of the Work performed by its subcontractors.

11.1.4.2.2.3 Blanket Contractual Liability Insurance (including Completed Operations).

11.1.4.2.2.4 Personal Injury Liability Insurance (with employee and contractual exclusions removed).

11.1.4.2.2.5 Broad Form Property Damage Liability Insurance (including completed operations).

11.1.4.2.2.6 Railroad Protective Liability Insurance.

11.1.4.3. Comprehensive Automobile Liability Insurance covering allowed, hired or non-owned vehicles including the loading or unloading thereof – One Million and No/100 U.S. Dollars ($1,000,000.00) each accident

11.1.4.3 Umbrella Liability Insurance covering all operations of the Contractor:

11.1.4.4.1 One Million and No/100 U.S. Dollars ($1,000,000.00) each occurrence.

11.1.4.4.2 Two Million and No/100 U.S. Dollars ($2,000,000.00) aggregate.

11.1.5 **Indemnification Rider:** The Construction Manager at Risk's Liability Policy should provide a "Hold Harmless" rider to cover provisions include Contractual Liability Coverage designed to protect the Contractor for contractual liabilities assumed by the Contractor in the performance of this Contract.

11.2 **PROPERTY INSURANCE**

11.2.1 Unless otherwise provided, the Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the State of Florida, property insurance in the amount of the initial Contract sum as well as subsequent modifications thereto for the entire Work at the site on a replacement cost basis. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Paragraph 9.10 or until no person or entity other than the Owner has an insurable interest in the Property required by this Paragraph 11.2 to be covered, whichever is earlier. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work.

11.2.1.1 Property insurance shall be on an all-risk replacement value policy form and shall insure against the perils of fire, storm, sinkhole, flood and wind damage extended coverage and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, false-work, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's services and expenses required as a result of such insured loss. The form of policy for this coverage shall be the full insurable value of the Work.

11.2.1.2 Unless otherwise provided in the Contract Documents, this property insurance shall cover portions of the Work stored off the site after written approval of the Owner at the value established in the approval, and also portions of the Work in transit.

11.3. **DEDUCTIBLES**

11.3.2.1 The Contractor shall pay all deductibles for all insurance coverages in Article 11, with the exception of Articles 11.4.

11.3.2.2 The Contractor shall be responsible for all costs which are less than the deductible amounts.

11.3.3 The Owner shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five (5) days after occurrence of loss to the Owner's exercise of this power.

11.3.4 Partial occupancy or use in accordance with Paragraph 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

11.4 **OWNER'S LIABILITY INSURANCE**

11.4.1 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance. Optionally, the Owner may purchase and maintain other insurance for self-protection against claims which may arise from operations under the contract. The Contractor shall not be responsible for purchasing and maintaining this optional Owner's liability insurance unless specifically required by the Contract Documents.

11.5 **PERFORMANCE BOND AND PAYMENT BOND**

11.5.1 The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the contract. The amount of each bond shall be equal to one hundred percent (100%) of the Contract sum.

11.5.1.1 The Contractor shall furnish Payment and Performance Bonds as required by Section 255.05, Florida Statutes and Section 1013.47 Florida Statues.

11.5.1.2 The form of the Performance and Payment Bonds shall be as prescribed in Section 255.05, Florida Statutes. The original bond documents shall be recorded with the Clerk of the Court in the public records of Leon County, Florida, and two (2) certified copies of the recorded documents shall be provided to the Owner.

11.5.1.3 Contractor’s Bonds shall be issued by a surety licensed to conduct business in the State of Florida, and shall be rated “A-” or better by Best Insurance Rating Guide and appear in the current list of Sureties published by the U.S. Department of Treasury.

11.5.1.4 The Surety will include on the bond form the cost of the Performance and Payment Bond.

ARTICLE 12
UNCOVERING AND CORRECTION OF WORK

12.1 **UNCOVERING OF WORK**

12.1.1 If a portion of the Work is covered contrary to the Architect's or Owner's request or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Architect, be uncovered for the Architect or Owner's observation and be replaced at the Contractor's expense without change in the contract Time.

12.1.2 If a portion of the Work has been covered which the Architect has not specifically requested to observe prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work is not in accordance with the Contract Documents, the Contractor shall pay such costs unless the condition was caused by the Owner or a separate Contractor in which event the Owner shall be responsible for payment of such costs.

12.2 **CORRECTION OF WORK**

12.2.1 The Contractor shall promptly correct Work rejected by the Architect or Owner or failing to conform to the requirements of the Contract Documents, whether observed before or after Final Completion and whether or not fabricated, installed or completed. The Contractor shall bear costs of correcting such rejected Work, including additional testing and inspections and compensation for the Architect's services and expenses made necessary thereby. If prior to the date of Final Completion, the Contractor, a Subcontractor or anyone for whom either is responsible uses or damages any portion of the Work, including, without limitation, mechanical, electrical, plumbing and other mechanical device, the Contractor shall cause such item to be restored to 'like new' condition at no expense to the Owner.

12.2.2 If, within one year after the date of Substantial completion of the Work or designated portion thereof, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so. This period of one year shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial completion and the actual performance of the Work. This obligation under this Subparagraph 12.2.2 shall survive acceptance of the Work under the Contract and termination of the contract. The Owner shall give such notice promptly after discovery of the condition. Nothing in this paragraph shall be construed to limit or reduce the Contractor's warranty obligations under Paragraph 3.5.

12.2.2.1 The obligations under Paragraph 12.2 shall cover any repairs and replacement to any part of the Work or other property caused by the defective Work.

12.2.2.2 Upon completion of any Work under or pursuant to this Paragraph 12.1, the one (1) year correcting period in connection with the Work requiring correction shall be renewed and recommence.

12.2.3 The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

12.2.4 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Paragraph 2.4. If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Architect, the Owner may remove it and store the salvageable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten (10) days after written notice, the Owner may upon ten (10) additional days' after written notice, the Owner may upon ten additional days' written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the

Architect's services and expenses made necessary thereby. If such proceeds of sale do not cover costs which the Contractor should have borne, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

12.2.5 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate Contractors caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

12.2.6 Nothing contained in this Paragraph 12.2 shall be construed to establish a period of limitation with respect to obligations which the Contractor might have under the Contract Documents. Establishment of the time period of one (1) year as described in subparagraph 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

12.3 **ACCEPTANCE OF NONCONFORMING WORK**

12.3.1 If the Owner prefers to accept work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the contract sum will be reduced as appropriate and equitable, or prompt payment of damages remitted to the Owner. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13
MISCELLANEOUS PROVISIONS

13.1 **GOVERNING LAW**

13.1.1 The contract shall be governed by the law of the State of Florida. The sole and exclusive venue for initiating any legal proceeding concerning the terms of the contract or the Work performed pursuant thereto shall be in the appropriate state court in Leon County, Florida.

13.2 **SUCCESSORS AND ASSIGNS**

13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the contract as a whole or in part, without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

13.3 **WRITTEN NOTICE**

13.3.1 Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party giving notice.

13.4 **RIGHTS AND REMEDIES**

13.4.1 Except as expressly provided in the Contract Documents, duties and obligations imposed by the Contract Documents and rights and remedies available hereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

13.5 **TESTS AND INSPECTIONS**

13.5.1 Tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be required. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections or approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so the Architect may observe such procedures. The Owner shall bear costs of tests, inspections or approvals which do not become requirements until after bids are received or negotiations concluded. The Contractor shall not obligate the Owner for costs without the Architect's approval.

13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Subparagraph 13.5.1, the Architect will upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so the Architect may observe such procedures. The Owner shall bear such costs except as provided in subparagraph 13.5.3.

13.5.3 If such procedures for testing, inspection or approval under Subparagraphs 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, the Contractor shall bear all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses. The Contractor also agrees that the cost of testing services required for the convenience of the Contractor in his scheduling and performance of the Work, and the cost of testing services related to remedial operations performed to correct deficiencies in the Work shall be borne by the Contractor.

13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

13.5.6 Owner to notify Contractor of selected testing company. All tests, except those preformed exclusively for the Contractor's convenience, shall be paid by the Owner; however, the Contractor must notify and/or coordinate with the testing firms with proper notification to the Owner. Any retests made necessary by the Contractor's failure to perform to the specs in the specifications, these costs shall be paid by the Contractor.

13.6 **INTEREST**

13.6.1. Notwithstanding the contractor's compliance with the claim or dispute resolution terms of this contract and Section 715.12, Florida Statutes, the contractor shall not be entitled to any interest on payments which may be due and unpaid by the owner; nor shall the contractor be entitled to any prejudgments interest on any damages awarded to the contractor in any civil action or on any arbitration award, even if the owner is found to have breached the contract.

ARTICLE 14
TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1 The Contractor may terminate the contract if the work is stopped for a period of sixty (60) consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons performing portions of the work under contract with the Contractor, for any of the following reasons:

14.1.1.1 issuance of an order of a court or other public authority having jurisdiction;

14.1.1.2 an act of government, such as a declaration of national emergency, making material unavailable;

14.1.2 If one of the above reasons exists, the Contractor may, upon seven (7) additional days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead, profit and damages only for such executed work.

14.1.3 If the Work is stopped for a period of sixty (60) days or if repeated suspensions, delays or interruptions by the Owner as described in Paragraph 14.3 constitute in the aggregate the lesser of an amount to the Contract Time or one hundred twenty (120) days in any one (1) year period through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has persistently failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven (7) additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Subparagraph 14.1.2.

14.2 TERMINATION BY THE OWNER

14.2.1 The Owner may terminate the contract if the Contractor:

14.2.1.1 refuses or fails to supply enough properly skilled workers or proper materials;

14.2.1.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

14.2.1.3 disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction;

14.2.1.4 is guilty of substantial breach of a provision of the Contract Document;

14.2.1.5 breaches any warranty made by the Contractor under or pursuant to the Contract Documents;

14.2.1.6 fails to furnish the Owner with assurances satisfactory to the Owner evidencing the Contractor's ability to complete the Work in compliance with all the requirements of the Contract Documents;

14.2.1.7 fails after commencement of the Work to proceed continuously with the construction and completion of the Work for more than ten (10) days, except as permitted under the Contract Documents.

14.2.2 When any of the above reasons exist, the Owner may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven (7) days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

14.2.2.1 take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

14.2.2.2 accept assignment of subcontracts pursuant to Paragraph 5.4; and

14.2.2.3 finish the Work by whatever reasonable method the Owner may deem to be in the Owner's best interest.

14.2.3 When the Owner terminates the Contract for one of the reasons stated in Subparagraph 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses, and any legal expenses, made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

14.3 **SUSPENSION BY THE OWNER FOR CONVENIENCE**

14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

14.3.2 Adjustments made in the cost of performance may have a mutually agreed fixed or percentage fee.

ARTICLE 15
SMALL BUSINESS DEVELOPMENT

15.1 The Construction Manager shall comply with the Owner's Small Business Development Office program requirements. ***LCSB Small Business Development Office. www.leonschools.net <District Depts> <Small Business Development> SBDO website: http://sharepoint.leon.k12.fl.us/sbd/default.aspx.***

ARTICLE 16
EQUAL OPPORTUNITY

16.1 The Contractor shall maintain policies of employment as follows:

16.1.1 The Contractor and all Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin or age. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex, national origin, or

age. Such action shall include employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

16.1.2 The Contractor and all subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, national origin or age

ARTICLE 17
WAIVER OF TRIAL BY JURY

17.1 The parties herein expressly agree that in the event litigation between the parties ensues concerning the enforcement of this Contract, that they hereby voluntarily waive all rights to trial by jury of any such litigation, and instead agree to have any and all such disputes tried before a judge as the sole finder of fact.

ARTICLE 18
APPRENTICESHIP

18.1 The Owner desires to use the facilities construction program as a vehicle encouraging training, apprenticeship, internship, and co-op opportunities. Apprentices are individuals that come from a registry approved apprenticeship, youth apprenticeship, pre-apprenticeship, or trades training program. Interns are individuals from a college or university program working under an internship or co-op program.

18.2 The intent of the Owner is to build awareness in our students of the good careers in the construction industry. In order to effectuate this intent, the Contractor shall actively participate in a recognized Construction Trades Training Program. Participation shall mean that the Contractor shall employ at least one (1) youth apprentice from a State of Florida approved youth apprenticeship program, is such youth apprentices are available for employment, for each subcontract trade listed by the Contractor in its bid in accordance with Paragraph 5.2.1 of the Contract General Conditions. The Contractor shall accurately substantiate its compliance, or evidence of its good faith efforts to comply, upon the request of the Owner. The Contractor and its Subcontractors can seek recommendations from the appropriate program, agency or school for interns that would meet these requirements.

18.3 To be viewed as having put forth a good faith effort to solicit, recruit, and employ apprentices and interns to the intent stated above, a Contractor or design firms' efforts should be active, earnest, diligent and aggressive. To that end, each firm contracted to work on these Projects is required to adopt the following equal opportunity pledge:

18.3.1 The recruitment, selection, employment and training of apprentices or interns, during their apprenticeship or internship shall be without discrimination because of race, color, religion, national origin, or sex. Local program sponsors will take affirmative action to provide equal opportunity and apprenticeship and will operate the apprenticeship program as required under Title 29 of the code of Federal Regulations, part 30, as amended.

18.4 The provisions of this apprentice and intern policy shall be construed according to and in conformity with applicable local, State, and Federal laws.

END OF LCS GENERAL CONDITIONS

THIS PAGE INTENTIONALLY LEFT BLANK

IN WITHNESS WHEREOF, this Contract has been fully executed on behalf of the parties hereto by its duly authorized representatives as of the date first written above.

THE SCHOOL BOARD OF LEON COUNTY, FLORIDA

By: _____
Board Chair or Vice Chair

(SEAL)

ATTEST: _____
Board Secretary

Professional Architectural Consulting Firm

(SEAL)

ATTEST: _____
_____
Name of Company

By: _____
Name and Title

_____
Secretary of Company

Approved as to Form: ____**Via Board Docs** _____
School Board Attorney

End of Section J

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SECTION K

INSURANCE CERTIFICATIONS –
GENERAL:

CONTRACTORS INSURANCE CERTIFICATIONS:

Certifications are required for compliance with Supplementary General Conditions for Contractor's Liability, and they shall include the following information:

Insurance Certificates documenting the requirements of the Supplementary General Conditions shall be dated, addressed to the Owner, and shall contain the name of the insured Contractor, the specific job by name and the name of the insurer.

All contractors shall maintain Contractor's Public Liability which shall include comprehensive general liability, contractual liability, and products and completed operations liability. (The board is to be the named insured under this coverage). A minimum of $1,000,000.00 per occurrence up to the limits of contractor's coverage in force, whichever is greater:

(1) Bodily Injury limits of liability shall be at least $1,000,000.00 per occurrence. Higher limits may be required.

(2) Property Damage limits of liability shall be at least $1,000,000.00 per occurrence. Higher limits may be required.

(3) Personal Injury liability limits shall be specified in amounts of at least $1,000,000.00 per occurrence. Higher limits may be required. Separate coverage from Bodily Injury shall be required.

(4) The Contractor's liability policy shall provide "XCU" (Explosion, Collapse, Underground Damage) coverage for those classifications in which they are excluded.

(5) The School Board of Leon County, Florida shall be named as an additional insured on the contractor's policy.

(6) Indemnification Rider: The Contractor's Liability Policy should include Contractual Liability Coverage designed to protect the Contractor for contractual liabilities assumed by the Contractor in the performance of this Contract.

All Contractor's shall provide commercial Automobile Liability insurance coverage to include owned, non owned, and hired autos with limits of at least:

(1) Bodily Injury: $1,000,000.00 per occurrence
(2) Property Damage: $1,000,000.00 per occurrence

OWNER'S PROTECTIVE LIABILITY INSURANCE:
The Contractor shall procure and furnish an Owner's Protective Liability Insurance Policy (the Owner shall be named as insured). A Minimum of $1,000,000.00 per occurrence up to the limits of contractor's coverage in force, whichever is greater:

Bodily Injury Liability:	$1,000,000.00 minimum/per occurrence
Property Damage Liability:	$1,000,000.00 minimum/per occurrence
Personal Injury Liability:	$1,000,000.00 minimum/per occurrence

PROPERTY INSURANCE:

The Contractor shall purchase and maintain property insurance upon the entire Work at the site of the full insurable **replacement** value thereof. This insurance shall include the interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work and shall insure against the perils of fire and extended coverage and shall include **"all risk"** insurance for physical loss or damage including, without duplication of coverage, theft, vandalism, and malicious mischief. If not covered under the all risk insurance or otherwise provided in the Contract Documents, the Contractor shall effect and maintain similar property insurance on portions of the Work stored off the site or in transit when such portions of the Work are to be included in an Application for Payment under Subparagraph 9.3.2. Certificates evidencing that all or the above insurance is in force shall be furnished to the board before commencement of any work.

Furnish a certificate and specifically set forth evidence of all coverage required by 11.1.1 and 11.1.2 and 11.1.3; and the Contractor shall furnish to the Architect copies of any endorsements that are subsequently issued amending coverage or limits.

All insurance Certificates are to provide the following information:

a) A statement of the maximum amount of insurance against injuries, including death resulting from accident to one person, the maximum for each accident against injuries, including death resulting from accident to two or more persons; and,

b) A statement of the maximum amount of insurance against damage to property of other resulting from any one accident; and,

c) A statement that should any of the described policies be cancelled before the expiration date, the School Board of Leon County, Florida shall be notified at least thirty (30) days prior to the cancellation of policies by return-receipt, certified mail and that no other form of notification will otherwise relieve the insurance company, its agents, or its representatives of responsibility; and,

d) A statement that the Worker's Compensation shall be in compliance with Chapter 440, Florida Statutes.

e) Signature in the name of the insurer by its authorized resident agent, their address, phone number, and email.

f) Certificates shall be on either an ACORD Form or the Form provided on the following pages.

CERTIFICATE OF INSURANCE Date: _____

This Certificate is issued at the request of:

THE SCHOOL BOARD OF LEON COUNTY, FLORIDA
Division of Facilities/Department of Construction

The following insurance policies of this company have been issued to:
INSURED:
on the construction job designated below:
Name **Location** **Project No.**

Effective/ Insurance In Force	Minimum Limits in Thousands	Limits in Force in Thousands	Name of Insurance Carrier	Expiration Dates
Worker's Compensation and Employer Liability in compliance with Chapter 440, Florida Statutes Policy No._____	STATUTORY			
Contractor's Comprehensive General Liability and Property Damage Including Contractual Liability, Products and Completed Operations Liability and Personal Injury Policy No._____				
1.	Bodily Injury Liability	1000 per occurrence		
2.	Personal Injury	1000 per occurrence		
3.	Property Damage Liability	1000 per occurrence		
Automobile Liability Policy No._____				
1.	Bodily Injury Liability	1000 per occurrence		
2.	Property Damage Liability	1000 per occurrence		
Owner's and Contractor's Protective Liability Insurance Policy No._____				
1.	Bodily Injury Liability	1000 per occurrence		
2.	Property Damage Liability	1000 per occurrence		
Builder's Risk	Contract Amount			

Note: All blanks on this form must be completely filled in. If the same policy number is indicated for the "Contractor's Comprehensive General Liability and Property Damage Policy" and the "Owner's and Contractor's Protective Liability Policy," then the School Board of Leon County, Florida must be added as an additional named insured on that policy. Indicate that the School Board of Leon County, Florida is a **primary** additional named insured on that policy by checking YES_____ here.

OTHER REQUIRED COVERAGES:

1. "XCU (EXPLOSION, COLLAPSE, UNDERGROUND DAMAGE): The Contractor's Liability Policy shall provide "XCU" coverage for those classifications in which they are applicable.

2. CONTRACTUAL LIABILITY-WORK CONTRACTS: The Contractor's Liability Policy should include Contractual Liability Coverage designed to protect the Contractor for contractual liabilities assumed by the Contractor in the performance of this Contract.

3. INDEMNIFICATION RIDER: The Contractor's Liability Policy provides a "Hold Harmless" rider to cover the provisions of Article 3.18 of the referenced A.I.A. General Conditions and is so noted on the Contractor's Certificate of Insurance.

4. BROAD FORM PROPERTY DAMAGE COVERAGE & COMPLETED OPERATIONS: The Contractor's Liability Coverage shall include Broad Form Property Damage Coverage and Completed Operations.

5. BUILDER'S RISK COVERAGE: The Contractor shall secure and maintain during the life of this contract a "Builder's Risk Policy," All Risk Form and issued on a completed valued basis. Installation Floaters and other inland Marine Forms may be utilized where applicable and are in the best interest of the State of Florida.
   Policy No. _____
   Effective Date _____
   Expiration Date _____

6. BINDERS: When binders are issued as interim coverage, it shall be the sole responsibility of the insured to renew such binders as deemed necessary until such a time that the appropriate policy/policies are issued and copies of said policies delivered to the School Board of Leon County, Florida, Division of Facilities/Department of Construction, 3420 West Tharpe Street, Suite 100 Tallahassee, Florida 32303.

7. It is hereby certified that the above listed required policies and other required coverage are in force and that the above listed policies protect the Owner and Contractor performing work under the contract for the construction job designated above, against all claims for damages for **bodily injury and** personal injury, including death, resulting from accidents and for damage to property, which may arise from operations under the contract whether such operations be by the Contractor or anyone directly employed by him in connection with the performance of the contract, but only to those limits of liability specified in pages one (1) and two (2) of this certificate.

   In addition, it is also hereby certified that the designated insurer will give notice by return-receipt, certified mail to the School Board of Leon County, Florida, Division of Facilities, Department of Construction at least thirty (30) days prior to any material change in the provisions of or the cancellation of the above listed policies of insurance, and that no other form of notification will otherwise relieve the insurance company, its agents, or its representatives of responsibility.

INSURER: **FLORIDA AUTHORIZED LICENSED RESIDENT AGENT**

BY:_____ **Social Security No.**_____

Address:_____ **Area Code** ____ **Phone**_____

END OF SECTION K Page 2 of 2

SECTION L

CONTRACT DOCUMENTS
COMPONENT PARTS:
The Contract Documents shall consist of the following component parts.

Bidding requirements:
- Advertisement to Bid.
- Instructions to Bidders.
- Contractor's Bid as accepted by the Owner.
- Bid Bond.

Contract Forms:
- Acceptable Surety Companies.
- Payment Bond.
- Performance Bond.
- Contract Agreement.
- Addenda.
- Amendments to Contract Agreements.

General Conditions:
- General Conditions.
- Supplementary General Conditions.
- Insurance Certificates.

Technical Specifications:

Construction Drawings: Titled:

INTENT:
The Contract Documents shall be complementary to each other and what is called for by one shall be as binding as if called for by all.

The Specifications are divided into headings for the convenience of the Contractor. The Contractor, however, shall be held to the furnishing of a complete building, facility, etc., according to the meaning and intent of the Contract Documents, whether all of the items involved under any trade are mentioned in one or several places or can be reasonably inferred.

PRECEDENCE:
In the event that any provisions of the component parts of the Contract Documents conflicts with any provision of any other component part, the provisions of the Contract Agreement shall govern; the Supplementary General Conditions shall take precedence over the General Conditions.
Should the Drawings and Specifications conflict on any point the work shall be done according to the Specification; should the details and schedules shown on the Drawings conflict on any point, the details and schedules shall prevail over the small scale plans and elevations. Should the Structural and Architectural Drawings conflict, the work shall be done in accordance with the Structural Drawings.

Copies of forms of the American Institute of Architects are on file in the office of the Architect and may be examined on request.
END OF SECTION L

Section M:

SMALL BUSINESS DEVELOPMENT PROGRAM

For information go to the Leon County School Board Website at www.leonschools.net Select District Departments- Small Business Development – 850-922-0659
Or go to Small Business Development Website at **http://sharepoint.leon.k12.fl.us/sbd/default.aspx**

Section N: Conflict of Interest Certificate

CONFLICT OF INTEREST CERTIFICATE

Bidder **must** execute either Section I or Section II hereunder relative to Florida Statute 112.313(12). Failure to execute either section may result in rejection of this bid proposal.

SECTION I

I hereby certify that no official or employee of the Leon County School District requiring the goods or services described in these specifications has a material financial interest in this company.

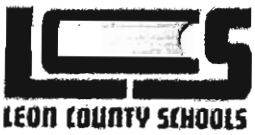
Signature	*Company Name*
Name of Official (Type or print)	*Business Address*
	City, State, Zip Code

SECTION II

I hereby certify that the following named Leon County School District official(s) and employee(s) having material financial interest(s) (in excess of 5 %) in this company have filed Conflict of Interest Statements with the Supervisor of Elections, 315 South Calhoun Street, Tallahassee, Leon County, FL prior to bid opening.

Name	**Title or Position**	**Date of Filing**

Signature	*Company Name*
Name of Official (Type or print)	*Business Address*
	City, State, Zip Code



LEON COUNTY SCHOOLS
2757 West Pensacola Street – Tallahassee, FL 32304-2998
FAX FORM TO: (850) 487-7869

APPLICATION FOR VENDOR STATUS

(IRS W-9 Facsimile)

NEW VENDOR ☐
UPDATE ☐

COMPANY NAME: _____

CONTACT PERSON: _____

PHONE NUMBER: (____) _____

FAX NUMBER (____) _____

CORRESPONDENCE:

ADDRESS: _____

CITY: _____ STATE: _____

ZIP + 4: _____ - ____ ____ ____ ____

REMITTANCE: NAME (if different than above): _____

ADDRESS: _____

CITY: _____ STATE: _____

ZIP + 4: _____ - ____ ____ ____ ____

WEBSITE: _____

EMAIL ADDRESS: _____

PLEASE CHECK APPROPRIATE BOX: ☐ Individual/Sole Proprietor ☐ S Corporation ☐ C Corporation
☐ Partnership ☐ Other_____
☐ LLC – Type (Check one) ☐ C ☐ D ☐ P

TAX IDENTIFICATION NUMBER: _____ - _____ OR _____ - ____ - _____
Federal Employer Identification Number — Social Security Number

Section 6109 of the Internal Revenue Service Code requires you to provide your correct TIN to persons, businesses, or agencies that are required to file information returns with the IRS. Purchase orders will not be issued to vendors who fail to provide a TIN.

PLEASE INDICATE THE FOLLOWING: ***Minority Vendor?** ☐ Yes ☐ No Male ☐ Female ☐

**If yes, certification required – (Please submit with form)*

Race: White: ☐ Hispanic: ☐ African American: ☐
Asian: ☐ American Indian: ☐ Other: _____

By: _____ _____ _____
SIGNATURE — PRINTED NAME — DATE

LCSB site contact requesting vendor: _____ _____
NAME — PHONE/EMAIL

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION -LOWER TIER COVERED TRANSACTIONS

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ON THE FOLLOWING PAGE)

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Organization Name	PR/Award Number or Project Name
Name(s) of Authorized Representative(s)	Title(s) of Authorized Representative(s)
Signature(s)	Date

Form AD-1048 (1/92)

INSTRUCTIONS FOR CERTIFICATION OF DEBARMENT

1. By signing and submitting this form, the prospective lower tier participant is providing the certification set out on the reverse side in accordance with these instructions.

2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

3. The prospective lower tier participant shall provide immediate written notice to the person to whom this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

5. The prospective lower tier participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

6. The prospective lower tier participant further agrees by submitting this form that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion -Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Form AD-IO48 (1/92)

U. S.GPO: 1996-757-776/201 07

LEON COUNTY SCHOOLS

BUILDING THE FUTURE TOGETHER

SWORN STATEMENT – NEW CONTRACTS
SWORN STATEMENT PURSUANT TO SECTION 1012.465, FLORIDA STATUTES AS AMENDED BY HB 1877, THE JESSICA LUNSFORD ACT

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted to The School Board of Leon County, Florida *(hereinafter "Board" or "School Board")* by _____
(Print individual's name and title)

for _____
(Print name of entity submitting sworn statement)

whose business address is _____

_____

and its Federal Employer Identification Number (FEIN) is _____
If the entity has no FEIN, include the Social Security Number (SSN) of the individual signing this sworn statement and so indicate.

2. I, _____ am duly authorized to make this sworn statement
(Print individual's name and title)

on behalf of: _____

_____

_____
(Print name of entity submitting sworn statement)

3. I understand that during the 2005 Legislative Session, House Bill 1877, The Jessica Lunsford Act (hereinafter "The Act" or "Act") was passed and approved by Governor Bush on May 2, 2005, with an effective date of September 1, 2005.

4. I understand that the Act amends the background screening requirements of section 1012.465, Florida Statutes (2004) for all non-instructional school district employees or **"contractual personnel"** by requiring all non-instructional school district employees or contractual personnel who are permitted access on school grounds when students are present to undergo and pass "level 2 background screening," and further I understand the Act defines **"contractual personnel"** to include any vendor, individual, or entity under contract with the Board.

5. I understand that pursuant to section 1012.465, Florida Statutes as amended by the Act, non-instructional school district employees or contractual personnel who are permitted access on school grounds when students are present, who have direct contact with students or who have access to or control of school funds must meet level 2 screening requirements as described in sections 1012.32 and 435.04, Florida Statutes.

6. I understand that as _____ *(eg. a charter bus company)* a
(Type of entity)
all contractual personnel, as defined in section 1012.465, Florida Statutes, must meet Level 2 screening requirements as outlined in sections 1012.32 and 435.04, Florida Statutes in order to do business with the

School Board.

7. I understand that "level 2 screening requirements" as defined in sections 1012.32 and 435.04, Florida Statutes means that fingerprints of all contractual personnel must be obtained and submitted to the Florida Department of Law Enforcement for state processing and to the Federal Bureau of Investigation for federal processing.

8. I understand that the School Board has implemented Board Policy 2.021 to comply with level 2 screening requirements, as defined in sections 1012.32 and 435.04, Florida Statutes. I understand that my company must comply with these local procedures as they are developed or amended from time to time.

9. I understand that any costs and fees associated with the required background screening will be borne by my company.

10. I understand that any personnel of the contractor found through fingerprint processing and subsequent level 2 background screening to have been found guilty of, regardless of adjudication, or entered a plea of nolo contendere or guilty to any offense outlined in Section 435.04, Florida Statutes (or any similar statute of another jurisdiction), **shall not be permitted** to come onto school grounds or any leased premises where school-sponsored activities are taking place when students are present, shall not be permitted direct contact with students, and shall not be permitted to have access to school district funds.

11. I understand that the failure of any of the company's or my affected personnel to meet level 2 screening standards as required by section 1012.465, Florida Statutes, may disqualify my company from doing business with the School Board.

12. I hereby certify that the foregoing statement is true and correct in relation to the company for which I am submitting this sworn statement. I further certify that this statement is being given knowingly and voluntarily by me on behalf of my company.

The company submitting this sworn statement agrees to be bound by the provisions of SECTIONS 1012.32, 1012.465, AND 435.04 OF THE FLORIDA STATUTES AS AMENDED BY HB 1877, THE JESSICA LUNSFORD ACT 2005.

I CERTIFY THAT THE SUBMISSION OF THIS FORM TO THE SCHOOL BOARD OF LEON COUNTY, FLORIDA ON BEHALF OF THE COMPANY IDENTIFIED IN PARAGRAPH ONE (1) ABOVE BINDS THE COMPANY TO FULLY COMPLY WITH THE BACKGROUND SCREENING REQUIREMENTS OF SECTIONS 1012.32, AND 435.04, FLORIDA STATUTES.

_____

(Signature)

Sworn to and subscribed before me this_____ day of _____ 20_____

_____ is personally known to me ☐ OR produced identification ☐

by showing _____

(Type of Identification)

Notary Public – State of _____ My commission expires on: _____

_____ _____

Signature of Notary Public *(Printed, typed or stamped commissioned name of Notary Public)*

Section O: Technical Specifications

LEON COUNTY SCHOOL BOARD

Technical Specifications

for

WOODVILLE ELEMENTARY WWTP MODIFICATIONS

HMM Project No. 338059

July 2014

PREBLE-RISH INC
CONSULTING ENGINEERS AND SURVEYORS
CIVIL • SURVEYING • SITE PLANNING

Hatch Mott MacDonald

1545 Raymond Diehl Road, Suite 200
Tallahassee, Florida 32308
Tel: (850) 222-0334
EB-0000155 LC 26000216

NHWL ENGINEERING, INC.

TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS

END OF TABLE OF CONTENTS

SECTION 01010

SUMMARY OF THE WORK

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

A. The intent of this Contract is the Construction of the Modifications to the Woodville Elementary School Wastewater Treatment Plant.

B. The intent and meaning of the Contract Documents require that each Contractor, under the terms of his Contract, shall take such action as necessary and/or required to provide labor, plant, materials, equipment, transportation, facilities and appurtenances thereto, which are indicated, or reasonably implied by each Drawing, and each Section of the Specifications, all of which are collectively necessary and required for the execution of the work.

C. Related Requirements Specified Elsewhere

1. Construction Schedule, Section 01300, SUBMITTALS

2. Progress Schedule, Section 01300, SUBMITTALS

1.2 DESCRIPTION OF WORK

A. Construction of new facilities as shown on the Drawing and as specified below:

1. Existing facilities to be modified generally consist of:

a. Replacement of effluent dosing pumps.

2. Existing facilities to be demolished or abandoned generally consist of:

a. Existing effluent absorption drainfields to be abandoned.
b. Existing sludge drying beds to be demolished.

3. New facilities generally consist of:

a. New influent pump station.
b. New static screen.
c. New effluent absorption drainfields.
d. New drive.

1.3 PERMITS AND REGULATIONS

A. The Contractor's responsibility includes compliance with federal, state and local regulations which in any way affect the work or implementation of the Project.

1.4 PROJECT CONSTRUCTION REQUIREMENTS

A. General

1. The Contractor is advised that existing wastewater flow must continue to be treated while this project is constructed. Bypass pumping or operational coordination requirements are anticipated prior to start-up of the new facilities.

2. The Contractor is advised that equipment purchases are to be scheduled so that mechanical items can be installed as the structures are completed. Purchase orders for any long lead items shall be placed with the equipment manufacturer as soon as possible after the receipt of Notice of Award so as not to delay equipment delivery.

3. All materials and equipment held in storage by the Contractor shall be protected from the weather, vandalism and/or flooding by suitable waterproof coverings or by placing in storage buildings until ready for installation or until equipment is to be turned over to the Owner. Equipment that is damaged or becomes inoperable shall be rejected and must be restored or replaced at no additional cost to the Owner.

   a. The Contractor shall effectively protect, at his own expense, his work, materials and equipment for the duration of the construction period.

   b. The Contractor shall exercise care in the installation of all equipment to avoid damage of any kind. All equipment shall be protected from dust and moisture prior to and after installation. All electrical control centers, instrumentation panels and all control panels furnished under these Specifications shall be covered by the supplying Contractor with a heavy polyethylene sheet or laminated kraft paper having a moisture barrier during all stages of construction.

c. Equipment which is stored in unheated or open areas on the job shall be provided by the supplying Contractor with thermostatically controlled heating units of sufficient size to keep the temperature of the equipment above the dew point.

d. Failure of the Contractor to protect the equipment as outlined herein shall be grounds for rejection of the equipment, materials and Work.

4. All Contractors affected by utilities shall make appropriate arrangements with the utility companies to provide for services necessary to complete the work. The Contractors shall comply with all protection requirements for the existing utilities.

5. The Contractor shall install new piping and provide all pipe and fittings as required to clear existing piping.

1.5 COORDINATION OF EQUIPMENT SYSTEMS

A. Coordinate all equipment systems with Contract Drawings and submit a complete and coordinated shop drawing submission of the specific equipment system in accordance with Section 01300, SUBMITTALS.

1.6 RECOMMENDED SEQUENCE OF CONSTRUCTION

A. The Contractor in accordance with Section 01300, SUBMITTALS shall submit a planned sequence of construction from mobilization through start-up operator training, trouble shooting and final certification prior to the start of construction. Any necessary temporary utilities, or to operate or test new facilities until such time as permanent utilities are installed, shall be provided with no additional cost to the Owner.

END OF SECTION 01010

SECTION 01060

MOBILIZATION AND CLOSE-OUT

PART 1 - MOBILIZATION

1.1 SCOPE

A. Mobilization shall consist of initiating the Contract, and may include such portions of the following as are required at the beginning of the project:

1. Setting up the respective Contractor's general plant, shops, storage areas and other facilities as may be required by the Specifications, by local or State law or by regulation.

2. Setting up field office for representative of Engineer and Owner.

3. Providing access to the project site by the Contractor.

4. The Contractor obtaining their necessary permits and licenses, and payment of fees for same.

5. Protecting existing utilities by the Contractors.

6. Providing required insurance and bonds by the Contractor.

1.2 MATERIALS

A. Materials under this part of this Specification are limited to those required for mobilization for the Contractor but not intended for incorporation in the completed Contracts.

1.3 EXECUTION

A. All equipment required to diligently start the respective Contractor's construction work shall be on the site in satisfactory operating condition. The physical construction facilities including field office, personnel and equipment shall be set up and operating at the required efficiency to diligently pursue the work.

SECTION 01060

MOBILIZATION AND CLOSE-OUT

PART 2 - CLOSE-OUT

2.1 CLEANING-UP

A. Upon completion and before work will finally be accepted and final payment made, the Contractor, except as noted, shall perform final cleaning as follows:

1. Sweep, wash and buff resilient floor and base.

2. Wash all tile, terrazzo, concrete and similar floors.

3. Dust, and if necessary wash, all plumbing and electrical fixtures; remove all tags and stickers except those giving operating instructions or safety cautions.

4. Clean all cabinets and casework.

5. Clean all walkways and stairs.

6. Clean, polish and wax, as required, all finished products that are not specified to be cleaned, etc., under other sections of the Specifications.

B. Final cleaning shall be performed after the work is completed and immediately before turning the work over to the Owner.

C. Cleaning materials shall be free from harmful abrasives and shall be acceptable to the manufacturers of the materials on which they are used.

D. The Contractor shall remove all his field offices, storage facilities and any other materials or items that were used by him during the construction and not incorporated into the Project. Leave these temporary service areas in a clean condition and repair or replace any damaged areas ready to be turned over to the Owner. The Contractor shall seed and sod as required.

2.2 FINAL RESTORATION

A. In addition to the requirements specified in the various Sections of these Specifications the Contractor shall make final restoration of all areas disturbed by his temporary construction facilities such as, but not limited to, office and storage trailers.

B. In general, the Contractor shall repair all walks, roadways and any other areas damaged during construction, inside or outside the Construction zone, to the satisfaction of the Owner.

2.3 RECORD DRAWINGS

A. In addition to the prints furnished for construction and for public bodies, the Contractor will be furnished without charge, four (4) sets of White Prints for the purpose of recording as-built conditions.

B. These prints shall be marked "Record Drawings" and maintained at the Project site. The Contractor shall record on the prints all deviations from the Contract Drawings, at the time that such deviations are made.

1. All changes made in partitions, doors, or in arrangement or construction of the Project, as well as a complete record of the exact manner in which mechanical and electrical work are installed, shall be recorded on these prints. Dimensions shall be included where necessary to accurately locate piping and other items which will be concealed in the finished work and which may later be necessary to locate for service.

2. Record Drawings shall show all vertical and horizontal changes to the piping as shown on the Drawings.

C. A complete file of accepted field sketches, diagrams, and other changes as may become necessary during the progress of the work shall also be maintained and attached to the set of marked-up prints.

D. For each progress payment submission the respective Contractor shall provide 11" x 17"drawings of the up to date record drawings as evidence to the satisfaction of the Engineer that all changes to date have been incorporated into the Contractor's "Record Drawings."

E. At completion of the work, the respective Contractor shall provide, for the information of the Engineer, each sheet of marked prints and all accepted field sketches and diagrams.

F. When this data has been checked and returned by the Engineer, the respective Contractor shall record all field changes and conditions on the "Record Drawings." Record drawings must be of professional quality in AutoCAD 2012 format and submitted to the Engineer in both "hard copy" and digital format on compact disc. Each sheet shall be signed by an

Officer of the Company certifying that each sheet reflects the as-built conditions.

G. Before final payment for this close-out item, deliver "Record Drawings" in a clean and neat condition to the Engineer or final payment will be held until receipt of the Record Drawing and is to the satisfaction of the Engineer.

2.4 MAINTENANCE AND OPERATING INSTRUCTIONS

A. Prior to final payment for this close-out item, the Contractor shall also provide final (up-dated) maintenance information and final (up-dated) operating instructions for all equipment provided under this Contract. These instructions shall set forth all of the information necessary for the Owner to operate, and make full and efficient use of equipment and perform such maintenance and servicing as would ordinarily be done by the Owner.

B. Information shall be given in simple, non-technical language with sufficient diagrams and explanation to be readily understandable by the average layman. Possible hazards shall be particularly pointed out with instructions cautioning against mistakes that might result in damage to equipment or building or in danger to personnel.

C. Four (4) copies of the final operation and maintenance documents shall be assembled and bound in a hard cover brochure(s) or book(s). Brochure shall contain:

1. Operating instructions.

2. Maintenance instructions.

3. Manufacturer's literature marked to key with item numbers or code on Contract Drawings, giving manufacturer's equipment designation and list for replacement parts.

4. Name, address and phone number of installing Contractor.

5. Name, address and phone number of local company providing 24-hour service if different from the installer.

6. Typed list of belt drives listing dimensions of sheaves, bore, keyway and manufacturer's replacement belt numbers.

7. Detailed description for the care and maintenance of planting.

D. Submit manuals and operating instructions in accordance with the provisions of Section 01300, SUBMITTALS.

E. One copy of operating and maintenance instructions portion of these data applying to equipment in each Mechanical, Electrical Room and similar spaces shall be suitably mounted and framed under glass, and the entire frame mounted where directed on the wall of each room.

END OF SECTION 01060

SECTION 01101

EROSION CONTROL AND ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.1 INTENT

It is the intent of these specifications to provide supplemental information to the contents of the construction drawings on the quality of materials, execution, measurement, etc. These specifications are generic in nature and may contain products and requirements which are not applicable to the project. Discrepancies between these specifications and the construction drawings, either imagined or real, shall be brought to the attention of the Owner's Engineer for clarification.

A. Likewise, there may be product requirements and techniques that are applicable for controlling erosion and sedimentation during construction that are not addressed herein.

1.2 DESCRIPTION OF WORK

A. The work of this section consists of the necessary erosion control and environmental protection measures required to control erosion and provide environmental protection on the project and areas outside the limits of the project, so as to prevent pollution of water, detrimental effects to public or private property adjacent to the project, damage to work on the project, and to satisfy the specific or general conditions of applicable permits and regulations. The need for temporary erosion control and environmental protection shall be considered as an anticipated condition of construction for compliance with state and federal laws and the Contractor's responsibility for providing the necessary solutions as part of these contract documents.

B. Erosion control work includes, but is not limited to, the following:

(1) Temporary erosion control
(2) Permanent erosion control

C. Environmental protection work includes, but is not limited to, the following:

(1) Staked hay bales
(2) Sediment control fence
(3) Sedimentation basins
(4) Turbidity barriers
(5) Temporary gravel construction entrance

1.3 QUALITY ASSURANCE

A. Codes and Standards: Perform all work in compliance with applicable requirements of governing authorities having jurisdiction.

B. Comply with the provisions of the following codes and standards, except as otherwise shown or specified:

C. "Standard Specifications for Road and Bridge Construction", Florida Department of Transportation, latest edition. Herein specified or shown on the plans as "Section XXX, FDOT Standard Specifications".

D. "Roadway and Traffic Design Standards", Florida Department of Transportation, latest edition. Herein specified as "FDOT Standard Index No. XXX".

E. "American Society for Testing and Materials (ASTM) Publications" as follows:

D 123-87	Standard Terminology Relating to Textiles
D 1683-81	Failure in Sewn Seams of Woven Fabrics
D 2487-83	Test Method for Classification of Soils for Engineering Purposes
D 3786-80	Standard Test Method for Mullen Burst Strength
D 3787-80	Bursting Strength of Knitted Goods - Constant-Rate-of-Traverse (CRT) Ball Burst
D 4439-87	Standard Terminology for Geotextiles
D 4533-85	Standard Test Method for Trapezoid Tearing Strength of Geotextiles
D 4632-86	Standard Test Method for Breaking Load and Elongation of Geotextiles (Grab Method)

F. Certification: The contractor shall be responsible for providing the required material certifications prior to construction. Failure to provide certification may result in rejection of the material and replacement at no cost to the Owner.

G. Testing: An independent testing and inspection service will not be required for the work of this section.

1.4 SUBMITTALS

A. Material Certificates: Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with or exceeds specified requirements. When test requirements are specified, the contractor shall supply results performed by a certified testing laboratory.

PART 2 – MATERIALS

2.1 TEMPORARY EROSION CONTROL (VEGETATION AND COVERINGS)

A. General: Temporary erosion control features shall consist of, but not be limited to, temporary grassing, temporary sodding, temporary mulching, sandbagging, artificial coverings, berms, and baled hay or straw.

B. Temporary Grassing: Temporary grassing shall be as specified in Section 1300 except as modified herein. Perennial grass seed may be omitted if permanent erosion control will be placed prior to death of annual grass.

C. Temporary Sod: Sod shall be as specified in Section 1200.
Temporary Mulch: Mulch shall be as specified in Section 1300.

D. Sandbagging: Sandbagging shall consist of furnishing and placing sandbags in configurations, so as to control erosion and siltation.

E. Artificial Coverings: This work shall consist of furnishing and applying fiber mats, netting, plastic sheeting, or other approved covering to the earth surfaces.

F. Baled Hay or Straw: This work shall consist of construction of baled hay or straw dams to protect against downstream accumulations of silt. The baled hay or straw dams shall be constructed in accordance with the details shown in the construction drawings or, when details are not shown, in accordance with the FDOT Standard Index No. 102.

2.2 TEMPORARY EROSION CONTROL (SILT FENCES AND TURBIDITY BARRIERS)

A. General: Temporary erosion control features shall consist of, but not be limited to, silt fences, floating turbidity barriers, and staked turbidity barriers. The work shall consist of furnishing, installing, maintaining, and removing temporary fences and barriers in accordance with the manufacturer's recommendations, these specifications, the details shown on the plans, or, when details are not shown, in accordance with the FDOT Standard Index No. 102 & 103. Turbidity barriers in waters of the state may be either floating or staked types or any combinations of types that will suit site conditions and meet erosion control and water quality requirements. The barrier type(s) will be at the Contractor's option unless otherwise specified in the plans.

B. Silt Fence: Silt fence or sediment control fence shall consist of a geotextile fabric attached to posts. The geotextile fabric shall be a woven or non-woven fabric as specified herein. Posts shall be a minimum length of five feet rough or surfaced four-inch by four-inch wood, three-inch minimum diameter wood or steel at least 1.33 pounds per linear foot. When called for, wire reinforcement shall be poultry

mesh, a minimum height of 36 inches, 20 gauge wire minimum, with a mesh spacing of one inch. As an alternative, Type A fence conforming to Section 966, FDOT Standard Specifications may be used.

C. Staked Turbidity Barrier: In addition to the requirements for a temporary silt fence contained herein, the fabric used for staked turbidity barrier shall have a double stitched hem at the top of the fabric into which has been sewn a braided nylon cord with a minimum diameter of 1/8 inch running the full length of that section of fabric. Supports for staked turbidity barriers shall be a minimum length of three feet seasoned two-inch by four-inch wood, 2-1/2 inch minimum diameter wood, or steel at least 1.33 pounds per linear foot.

D. Floating Turbidity Barrier: Floating turbidity barrier shall be Type I or Type II in accordance with the details shown in the construction drawings, or, when details are not shown, with the FDOT Standard Index No. 103. The type barrier used will be such as to minimize dispersion of turbid waters from the construction site. Alternate materials may be approved provided that compliance with applicable permit conditions and State water quality standards are maintained.

2.3 GEOTEXTILES

A. Filter Fabric: The geotextile fabric shall be a woven or non-woven fabric consisting of long-chain polymeric filaments or yarns such as polypropylene, polyethylene, polyester, polyamides, or polyvinyl chloride formed into a stable network such that the filaments or yarns retain their relative position to each other. The base plastic shall contain stabilizers and/or inhibitors to make the filaments resistant to deterioration from ultraviolet light, heat exposure, and commonly encountered chemicals. The edges of the fabric shall be salvaged or otherwise finished to prevent the outer yarn from pulling away from the fabric.

B. The fabric shall conform to the following physical requirements:

PROPERTIES	TEST METHOD	ACCEPTABLE VALUES
Seam Strength (min)	ASTM D 1683	120 lbs.
Mullen Burst Strength (min)	ASTM D 3786	200 psi
Puncture Strength (min)	ASTM D 3787	60 lbs.
Trapezoidal Tear Strength (min)	ASTM D 4533	50 lbs.

Grab Tensile Strength (min)	ASTM D 4632	120 lbs.
Elongation (max)	ASTM D 4632	25%
Filtration Efficiency (min)	VTM-51-79	75%
Slurry Flow Rate (min)	VTM-51-79	0.3 gpm/sf

C. Seams: The seams of the fabric shall be sewn with thread of a material meeting the chemical requirements for the fabric. The minimum seam strength shall comply with the property requirements contained herein.

D. Shipment and Storage: During shipment and periods of storage, the geotextile shall be protected from direct sunlight, ultra-violet rays, temperatures greater than 140 degrees Fahrenheit, mud, dirt, dust, and debris. Stockpiled materials shall be kept covered at all times.

PART 3 - EXECUTION

3.1 Execution

A. General

1. The installation of temporary erosion control features shall be coordinated with the construction of the permanent erosion control features to the extent necessary to assure effective and continuous control of erosion and water pollution throughout the life of the contract.

2. The Contractor shall take sufficient precautions to prevent pollution of streams, canals, lakes, reservoirs, and other water impoundments, with fuels, oils, bitumens, calcium chloride, or other harmful materials. Also, he shall conduct and schedule his operations so as to avoid pollution or siltation of such streams, etc.

3. Except as necessary for construction, excavated material shall not be deposited in rivers, streams, canals, or impoundments, or in a position close enough thereto to be washed away by high water or runoff.

4. Where de-watering methods are used, the water shall be treated by one or more of the following methods prior to discharge off-site or into environmental

areas: pumping into grassed swales or appropriate vegetated areas, sediment basins, or confined by an appropriate enclosure such as siltation curtains when other methods are not considered appropriate.

5. The Contractor shall not disturb lands or waters outside the limits of construction as staked, except as may be found necessary and authorized by the Owner's Engineer.

6. The locations of and methods of operation in all detention areas, excavation and stockpile areas, and disposal areas shall meet the approval of the Owner's Engineer as being such that erosion during and after completion of the work will not likely result in detrimental conditions, siltation, or water pollution.

B. Limitation of Exposure or Erodible Earth:

1. The Contractor shall limit the surface areas of unprotected erodible earth exposed by clearing and grubbing, excavation, or filling operations and shall provide immediate permanent or temporary erosion or pollution control measures to prevent contamination of any river, stream, lake, tidal water, reservoir, canal, or other impoundment or to prevent detrimental effects on property outside the project and damage to the project. The limitation of area in which excavation and filling operations may be underway shall be commensurate with the contractor's capability and progress in keeping the finish grading, grassing, sodding, and other such permanent erosion control measures current in accordance with the accepted schedule.

2. Under no conditions shall the surface area or erodible earth exposed by clearing and grubbing operations or by excavation and filling operations exceed one-half acre without specific prior approval by the Owner's Engineer. This limitation applies separately to clearing and grubbing operations and excavation and filling operations.

3. The Owner's Engineer may increase or decrease the amount of surface area allowed to be exposed at any one time, on the basis of his analysis of conditions on the project.

4. Permanent erosion control features shall be incorporated into the project at the earliest practical time. Temporary erosion control features will be used to control erosion prior to the time it is practical to construct permanent control features or to provide immediate temporary control of erosion that develops during normal construction operations, but is not associated with permanent erosion control features on the project. In no case shall exposure of erodible earth be for more than five days without erosion control features being implemented.

5. Temporary erosion control features may be authorized for use in controlling erosion in areas where stage construction or other conditions not under the control of the Contractor preclude completion of a section of work in a continuous manner and in areas where construction operations which must be performed subsequently will cause damage to permanent erosion control features constructed.

6. When the item of Topsoil or Muck Blanket is included in the contract, the rate of construction of these items may be limited by the availability of topsoil or muck from the normal grading operations. The existence of this condition will be considered as precluding completion of a section or roadway in a continuous manner, and use of temporary erosion control features will be used in areas so affected.

7. The Contractor shall schedule his operations such that the area of unprotected erodible earth exposed at any one time is not larger than the minimum area necessary for efficient construction operations, and the duration of exposed, uncompleted construction to the elements shall be as short as practicable.

8. Clearing and grubbing shall be so scheduled and performed that grading operations can follow immediately thereafter, and grading operations shall be so scheduled and performed that permanent erosion control features can follow immediate thereafter if conditions on the project permit.

3.2 TEMPORARY EROSION CONTROL (VEGETATION AND COVERINGS)

A. General: Temporary vegetative erosion control features shall be installed in accordance with Section 1300. Temporary coverings shall be installed in accordance with the manufacturer's recommendations.

3.3 TEMPORARY EROSION CONTROL (SILT FENCES AND TURBIDITY BARRIERS)

A. Temporary Silt Fence: Temporary silt fence shall be erected at locations as shown on the plans as dictated by the SWPPP or as approved by the Owner's Engineer. The filter fabric shall be reinforced with wire fence, when called for, and the posts spacing shall not exceed ten feet. The wire reinforcement shall be installed so that the filter fabric is on the upstream side of the fence, and both the wire fence and the filter fabric are on the upstream side of the posts. Posts shall be uniformly installed with approximately 20 degrees inclination toward the potential silt load (upstream) area. The silt fence shall be maintained in an effective condition at all times while in use.

B. Filter fabric shall be a minimum of 45 inches wide and shall be secured to the post or fence by suitable staples, tie wire, or hog rings in such a manner as to prevent tearing of the fabric. The bottom of the filter fabric shall be entrenched into the ground a minimum of eight inches to prevent water from flowing under the fence. Filter

fabric shall be spliced together only at support posts with a minimum of six-inch overlap and securely sealed.

C. Staked Turbidity Barrier: Staked turbidity barrier shall be securely fastened to wood or steel supports which are spaced at maximum intervals of six feet and driven a minimum of 12 inches into the ground. A minimum of three supports shall be used. The bottom of the fabric shall be entrenched into the existing ground a minimum of eight inches. The staked turbidity barrier shall be a minimum of 15 inches in height and shall not exceed 18 inches in height.

D. The support line sewn in the top hem of the filter fabric shall be used at each post location to secure the fabric to the post at an appropriate height.

E. Staked turbidity barriers shall be installed across ditch lines and at temporary locations as shown on the plans or approved by the Owner's Engineer where continuous construction activities change the natural contour and drainage runoff.

F. Posts in staked turbidity barriers shall be installed in the vertical position unless otherwise directed by the Owner's Engineer.

G. Floating Turbidity Barrier: This work shall consist of the installation and removal of floating turbidity barriers to contain silt and other deleterious materials that may occur as the result of dredging, filling, or other construction activities in waters of the State. The type barrier used will be installed in accordance with the details contained in the plans, or, when details are not shown, in accordance with the FDOT Standard Index No. 103, or as approved by the Owner's Engineer. Alternate methods may be approved provided that compliance with applicable permit conditions and State water quality standards are maintained.

H. All temporary erosion control features and devices shall be removed and disposed of by the Contractor when permanent erosion control features and devices (grassing, sodding, etc.) have reached the point of final acceptance.

3.4 INSPECTION AND MAINTENANCE

A. General: The Contractor shall, at his expense, provide routine maintenance of permanent and temporary erosion control features until the project is completed and accepted. The Contractor shall inspect all erosion and sediment control facilities within 24 hours of a ¼" rain or greater or once weekly after each rainfall. Any deficiencies shall be immediately corrected by the Contractor.

B. Silt Fences and Turbidity Barriers: The Contractor shall make a daily review of the location of silt fences and turbidity barriers to ensure that the silt fence or turbidity barriers are properly located for effectiveness and contain no breaches.

Where deficiencies exist, additional silt fences or turbidity barriers shall be installed as directed.

Sediment deposits shall be removed when the deposit reaches approximately one-half of the volume capacity of the temporary silt fence or turbidity barrier as directed. Any sediment deposits remaining in place after the temporary silt fence or turbidity barrier is no longer required shall be dressed to conform to the finished grade, prepared and finished as shown on the construction plans, or seeded in accordance with Section 13.

C. Inspection shall be made by qualified inspectors using Chapter 8 of the Florida Stormwater, Erosion and Sedimentation Control Inspection Manual. Referenced manual can be downloaded from http://www.floridadep.org/water/nonpoint/erosion.htm. All inspections shall be formally documented using the forms contained in the appendix to this section of the specifications.

3.5 MEASUREMENT AND PAYMENT

A. General: No separate payment will be made for the work covered by this section except for specific pay items shown in the proposal form, and, therefore, all costs in connection with the work of this section shall be included in the contract price for the item or structure to which it pertains. Additional materials, labor, equipment, tools, and incidentals above and beyond the separate payments contained herein and the work shown on the drawings may be required to satisfy the work of this section.

END OF SECTION 01100

SECTION 01200

SODDING

PART 1 - GENERAL

1.1 INTENT

A. It is the intent of these specifications to provide supplemental information to the contents of the construction drawings on the quality of materials, execution, measurement, etc. These specifications are general in nature and may contain products and requirements which are not applicable to the project. Discrepancies between these specifications and the construction drawing, either imagined or real, shall be brought to the attention of the Owner's Engineer for clarification.

1.2 DESCRIPTION OF WORK

A. Sodding includes, but is not limited to: Ground preparation, fertilization, sodding, watering.

1.3 QUALITY ASSURANCE

A. Codes and Standards: Perform all work in compliance with applicable requirements of governing authorities having jurisdiction.

B. Testing: An independent testing and inspection service will not be required for the work of this section.

C. It will be the responsibility of the Contractor to coordinate all testing and inspections. The Contractor shall notify the Owner's Engineer, testing service and applicable agency inspectors 48 hours in advance of testing and inspections.

PART 2 – MATERIALS

2.1 SOD

A. Grass sod shall match existing grass. The sod shall be taken up in rectangles, preferably 12 inch by 24 inch, shall be a minimum of two inches in thickness and shall be live, fresh and uninjured at the time of planting. It shall be reasonably free of weeds and other grasses and shall have a soil mat of sufficient thickness adhering firmly to the roots to withstand all necessary handling. The sod shall be planted as soon as possible after being dug and shall be shaded and kept moist until it is planted. Dumping from vehicles will not be permitted. Damaged sod will be rejected. Replanting shall be done within 48 hours after time of harvesting or sod shall be kept damp until planted.

PART 3 – EXECUTION

3.1 CONSTRUCTION

A. General: The limits of sod shall be as shown on the drawings, described herein or as directed by the Engineer. Areas which are disturbed due to construction activities but which are not shown within the limits of sod shall be stabilized in accordance with this specification at no cost to the Owner. In these areas the Owner shall reserve the right to determine which method and materials shall be used for stabilization.

B. Preparation of Ground: The area over which the sod is to be planted shall be scarified or loosened to a suitable depth and then raked smooth and free from rocks or stones. Where the soil is sufficiently loose, the Engineer, at his discretion, may authorize the elimination of ground preparation. No subsequent operations shall be commenced until the Engineer has approved the condition of the prepared areas.

C. Fertilization:

1. Fertilizer shall be spread at a rate per thousand square feet of area, in accordance with the following table.

5N-10P-5K: 30 LBS.	8N-8P-8K: 20 LBS.
6N-12P-2K: 25 LBS.	10N-6P-4K: 15 LBS.
7N- 7P-6K: 22 LBS.	10N-5P-5K: 15 LBS.

2. Fertilizer shall be mixed in the soil to a depth of at least two inches by disking or harrowing.

D. Sodding:

1. Soft spots and inequalities in grade shall be corrected before starting sod work.

2. Planting shall not be started until the Engineer has approved the condition of the soil. Water soil before planting sod.

3. Lay sod without voids, tamp or roll. Broom screen topsoil over entire area. Sod shall be thoroughly watered. The surface shall be true to finished grade lines; even and firm at all points.

4. Place sod with staggered joints closely butted, tamped or rolled to an even surface to the required finished grade. Avoid continuous seam along line of water flow in swales. Place sod in rows at right angles to slope.

5. In areas with slopes steeper than 4:1, the Contractor shall use sod staples, wooden stakes or other means approved by the Owner's Engineer, to prevent movement of the sod during rainfall events.

E. Watering: The areas on which the sod is to be placed shall contain sufficient moisture, as determined by the Engineer, for optimum results. After being placed, the sod shall be kept in a moist condition to the full depth of the rooting zone for at least two weeks. Thereafter, the Contractor shall apply water as needed until final acceptance.

3.2 MAINTENANCE

A. The Contractor shall at his expense maintain the sodded areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include repairing of any damaged areas and replacing areas in which the establishment of the grass stand does not appear to be developing satisfactorily.

B. Replanting or repair necessary due to the Contractor's negligence, carelessness or failure to provide routine maintenance shall be at the Contractor's expense. Replanting necessary due to factors determined to be beyond the control of the Contractor shall be paid for under the appropriate contract pay items.

3.3 GUARANTEE

A. The Contractor shall guarantee all sodding for a period of 90 days after the date of final acceptance. During the guarantee period, the Contractor shall replace at no cost to the Owner, any sod required under the Contract that dies or is not established 90 days after sodding if the causes for such defects are traced to negligence or poor workmanship by the Contractor.

B. Any sod missing or defective due to the Contractor's negligence shall be furnished or replaced in a manner satisfactory to the Engineer. In case of any doubt as to the condition and satisfactory establishment of the sod, the Engineer may allow the sod to remain through another 90 day establishment after which time the sod in question, if found to be dead or in an unhealthy or badly impaired condition, shall be replaced by the Contractor at no cost to the Owner.

3.4 TESTING AND INSPECTION REQUIREMENTS

A. Areas to receive sod will be subject to a visual inspection by the Owner's Engineer upon completion of ground preparation and prior to placement of sod.

B. Upon completion of sodding and prior to commencement of the guarantee period, the area will be subject to a visual inspection by the Owner's Engineer.

C. At the end of the guarantee period, final inspection of the sod will be made by the Engineer upon written notice requesting such inspection submitted by the Contractor at least three days before the anticipated inspection. All defects discovered shall be repaired or replaced by the Contractor before final acceptance.

END OF SECTION 01200

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.1 SCHEDULES

A. The Contractor shall be responsible for preparing a Progress or Work Schedule for the entire project.

1.2 SHOP DRAWINGS, SAMPLES AND MANUALS

A. The Contractor shall process the Shop Drawings required by his Contract to the Engineer and he shall be responsible for their timely submission in accordance with the Shop Drawing schedule which is included in the overall progress or work schedule as described in Part 2 of this Section.

B. Any proposed deviations/substitutions from that specified shall be clearly noted on the cover letter transmitting the shop drawing. Failure to so note will be cause for rejection of equipment, materials, etc. after installation.

C. All submissions shall be marked with the Specification Section Number containing the item submitted for review, or Drawing number for items specified on Drawings only.

D. Revised shop drawings submitted for review shall be marked "RESUBMISSION."

1.3 CONSTRUCTION PHOTOGRAPHS

A. The Contractor shall be responsible for all construction progress photographs.

1.4 SUBMITTAL PROCEDURES

A. All submittals shall be delivered to the Resident Project Representative on the project site.

B. The Resident Project Representative will screen the submittals to ensure that they have been properly certified and identified by the Contractor. If they are submitted properly, the items will be processed for review.

C. The processed submittals will be returned to the respective Contractor.

PART 2 - SCHEDULE

2.1 PREPARATION

A. The Contractor shall prepare a Progress or Work Schedule for the entire Project, using CPM, showing the order in which the Contractor proposes to carry on his work and salient features, including submissions of shop drawings and samples and procurement of materials, to meet date of completion.

B. Each activity in the Progress or Work Schedule shall be identified and a time for the performance of such activity indicated. Each activity shall be preceded by all work that must be accomplished prior to that activity. All abbreviations, codes and/or symbols used shall be described on the Schedule.

C. The Contractor, in preparing his proposed Progress or Work Schedule, shall prepare a narrative highlighting those items in the Proposed Schedule that differ from the "Recommended Sequence of Construction" in Section 01010. If no such narrative is provided by the Contractor, it will be assumed that the Contractor is following the "Recommended Sequence of Construction" in Section 01010. Any subsequent change to the Progress or Work Schedule that alters the sequence of construction shall include a narrative from the Contractor highlighting those subsequent changes.

D. In addition to the schedule described above, the Contractor shall submit a list of shop drawings he proposes to submit for review which shall include the following:

1. Specification Section Number

    a. Description of all items within section.

    b. Approximate date of each submittal.

2. Contract Drawing Number

    a. Description of all items on each Contract Drawing, if not previously covered by the Specifications.

    b. Approximate date of each submittal.

2.2 SUBMISSION

A. Submit six (6) copies of Schedule to the Engineer for review within ten (10) days after award of Contract. Update and resubmit Schedule monthly thereafter until completion of the work. Updated Schedule shall have completed activities removed or indicated as such. Whenever modifications are made to the Contract which add or delete activities and/or revise time of completion, Schedule shall be revised and resubmitted to the Engineer within ten (10) days after such modification is authorized.

B. In the event that the work is behind schedule, the Schedule shall be revised, through the use of overtime work or by other means, to ensure that the work is completed within the Contract time. Under these circumstances, overtime work shall be performed at no additional cost to the Owner.

2.3 MANUFACTURER'S CERTIFICATION

A. The Contractor shall require the manufacturer or manufacturer's representative to place the following certification on submittal data transmittals:

> "This is to certify that we have examined the Plans and Specifications for this Project and have ascertained that this equipment or material is suitable for the purpose and use intended."

PART 3 - SHOP DRAWINGS AND MANUALS

3.1 GENERAL

A. Shop drawings are defined as drawings, diagrams, illustrations, schedules, performance charts, brochures and other data prepared by the Contractor which illustrate how specific portions of the work shall be fabricated and/or installed.

B. Shop drawings are not part of the Contract Documents, but are a supplementary means of communications to assist in the understanding of what the Contractor proposes to provide and to establish that whatever he intends to install either does or does not conform to the Drawings and Specifications.

C. In the instance of a request for a substituted item, the Contractor shall verify that it will fit into the space allocated to the originally required item giving due regard to all other trades' requirements. Where modifications to the Contract Documents are proposed, the Contractor must clearly indicate such deviation in writing in his transmittal letter. If the modification and/or substitutions are agreed to by the Engineer, the Contract Documents will be appropriately modified. However when additional work is required, the Contractor is advised that he must pay the Engineer for redesign to accommodate the revised substitution as well as pay other contractors for

extra work required by them for the change. No increase in Owner's construction cost will be allowed.

3.2 CATALOG SHEETS

A. For standard manufactured items considered by the Engineer as not requiring special Shop Drawings, the Contractor shall six (6) copies of manufacturer's catalog sheets showing model numbers and illustrated cuts of the items to be furnished, scale details, sizes, dimensions, performance characteristics, capacities, wiring and control diagrams and all other pertinent information. This information shall be highlighted on all six (6) copies when appropriate.

B. The Engineer will retain three (3) copies and return three to the Contractor submitting the catalog sheets.

3.3 SHOP DRAWINGS

A. The Contractor shall submit for review six (6) white prints of shop and working drawings of materials fabricated especially for his Contract, and of equipment and materials for which such drawings are specifically requested.

1. The Contractor shall submit six (6) copies of a letter with the Shop Drawings for each piece of equipment signed and certified by an authorized representative of the Equipment Manufacturer which certifies that the subject equipment meets or exceeds the current OSHA/ANSI and local industrial codes for safety. The letter shall also specifically identify any exceptions that the Equipment Manufacturer has taken in not providing the required safety devices as they relate to the above codes.

B. Coordinate all equipment systems with the Drawings and submit a complete and coordinated shop drawing submission of the specific equipment system. All shop drawings related to the specific equipment system shall be submitted at the same time for review. The shop drawing submission shall provide the coordination of concrete foundations, piping, relative elevations, electrical, chemical facilities, instrumentation facilities, dimensions, structural changes, etc. in sufficient detail that the Engineer can adequately review the shop drawing. Equipment systems submitted which are incomplete and uncoordinated shall be returned to the respective Contractor, unchecked. A resubmission shall be made after equipment system shop drawings have been completed and coordinated. Any required changes in the equipment system layout vs. the equipment system shown on the Drawings shall be provided by the respective Contractor at no added expense to the Owner or Engineer.

C. Prior to submitting drawings to the Engineer, the respective Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter conforms to the Drawings and Specifications in all respects. Drawings which are correct shall be marked with the date, checker's name and certification of the

Contractor's approval, and then shall be submitted to the Resident Project Representative. Any Shop Drawings submitted without the respective Contractor's certification will be returned without review.

D. The Engineer will retain three (3) copies and return three (3) copies to the Contractor.

E. Shop Drawings shall show the principal dimensions, weight, structural and operating features, performance characteristics and wiring diagrams, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When it is customary to do so, when the dimensions are of particular importance or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for this Contract.

F. When so specified or if considered by the Engineer to be acceptable, manufacturer's specifications, catalog data, descriptive matter, illustrations, etc., may be submitted for review in place of shop and working drawings. In such case the requirements shall be as specified for shop and working drawings, insofar as applicable.

G. The Contractor shall be responsible for the prompt submission of all shop and working drawings in accordance with the shop drawing schedule so that there shall be no delay to the work due to the absence of such drawings.

H. No material shall be purchased or fabricated especially for this Contract until the required shop and working drawings have been submitted and reviewed as conforming to the Contract requirements. All materials and work involved in the construction shall then be as represented by said drawings.

I. The Engineer's review of shop and working drawings will follow a general check made to ascertain conformance with the design concept and functional result of the project and compliance with the information given in the Contract Documents. The Contractor is responsible for details and accuracy, for conforming and correlating all quantities and dimensions at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

3.4 MANUALS

A. The Contractor shall submit for review three (3) copies of all requested operating and maintenance manuals with the shop drawing submittals.

B. The Engineer will retain one (1) copy and return the two (2) copies to the Contractor.

C. Prior to final payment, provide two (2) updated operating, maintenance manuals and parts lists for the Owner's use.

3.5 FIELD DISTRIBUTION

A. The Contractor shall be responsible for the required number of processed drawings or catalog cuts for field distribution to all necessary Contractors.

B. The Contractor shall be responsible for the prompt distribution of processed Shop Drawings to all other Contractors whose work must be coordinated with the work progress.

PART 4 - SAMPLES

4.1 SUBMISSION OF SAMPLES

A. Unless otherwise specified, the Contractor shall provide samples in duplicate and identify each sample by an appropriate tag or label listing the names of the Project, the Owner, the Engineer and the Contractor and/or Subcontractor as well as the exact identification of the sample. Tag or label shall be large enough to provide a blank space for review stamps.

B. Samples of items submitted for destruction tests or for use in testing mixture with other materials will not be returned. Review of these items will be given by letter.

C. When reviewed, one sample of each item, not submitted for destruction, will be returned to the respective Contractor and shall be kept and maintained in good condition in the submitting Contractor's office at the project site for later use in comparison with material actually delivered for the work. When samples of large fabricated items or of costly items are required, reviewed samples may be installed in the work if the exact location of such samples is recorded on the Engineer's Record Drawings.

PART 5 - CERTIFICATIONS AND TESTS

5.1 GENERAL

A. Six (6) copies of certifications and reports of tests when required under the various sections of the Specifications shall be submitted.

PART 6 - CONSTRUCTION PHOTOGRAPHS

6.1 GENERAL

A. The Contractor shall provide pre-construction views, submitted in duplicate of the entire construction area before any work begins. Views shall be in the form of VHS video tapes or DVD.

B. The Contractor shall provide, from commencement of Project through completion of all Work, clear, sharp, color, 8 inch by 10 inch photographs, in duplicate. These progress photographs shall be submitted to the Engineer each month in conjunction with the current Monthly Estimate. Interior and/or exterior views shall be made as requested by the Engineer.

C. Each photograph shall have the following information clearly noted on the picture. The information shall be typed or neatly printed on a label and placed on the face of the picture, and not obliterate important construction features.

1. Date Photo was taken and photo number
2. Client/Owner
3. Project Title and Contract number
4. Contractor
5. Description of what is shown on the photo including direction

6.2 NUMBER OF VIEWS

A. Provide a minimum of ten views each month from pre-selected locations clearly showing the progress of the Work.

END OF SECTION 01300

SECTION 02200

EARTHWORK

PART 1 - GENERAL

1.1 SCOPE

A. DESCRIPTION OF WORK

1. Provide all labor, materials, tools and equipment necessary to complete the earthwork shown on the drawings and specified herein, including rough grading.

B. RELATED WORK SPECIFIED ELSEWHERE

1. Erosion, Section 01101, EROSION CONTROL.

2. Topsoiling, seeding and sodding, Section 01200, SODDING.

3. Concrete, Section 03300, CAST-IN-PLACE CONCRETE.

4. Conduit, Division 16 - ELECTRICAL

1.2 GENERAL REQUIREMENTS:

A. Bidders shall examine the site of the work and make their own determination of the character of materials and the conditions to be encountered on the work, and their proposal shall be based upon their own investigations. Neither the Owner nor the Engineer shall be held responsible for variations found to exist between any soils data which may be included for information only, and actual field conditions that develop through the period of construction.

B. Underground structures and utilities shown on the drawings are located according to the best available records. However, it shall be the Contractor's responsibility to acquaint himself with all information and to locate all underground structures and utilities along the line of work in order to avoid conflict with existing facilities. Neither the Owner nor the Engineer shall be held responsible for the inaccuracies or omissions in the location or grade of facilities of this type.

C. Where actual conflicts are unavoidable, work shall be performed so as to cause as little interference as possible with the service rendered by the facility disturbed. Facilities or structures damaged in the prosecution of the work shall be repaired immediately at the Contractor's expense, in conformance with the best standard practice, to the satisfaction of the facility owner and to the extent required, including replacement.

D. Benchmarks and other reference points shall be carefully maintained and, if disturbed or destroyed by the Contractor, shall be replaced by a Professional Surveyor registered to practice in the State of Florida, to the satisfaction of the Engineer and at no additional cost to the Owner. Location of benchmarks and other reference points not

shown on the drawings but used during construction shall be recorded on the Contractor's "as-builts" of the Contract Drawings.

E. On paved surfaces the Contractor shall not use or operate tractors, bulldozers, or other power operated equipment which would damage such surfaces. All surfaces which have been damaged by the Contractor's operations shall be restored to a condition at least equal to that in which they were found immediately before work was begun. Suitable materials and methods as determined by the Engineer shall be used for such restoration.

PART 2 - EXECUTION

2.1 STRIPPING AND STOCKPILING TOPSOIL

A. Topsoil suitable for final grading operations shall be stripped and stockpiled for reuse. Unsuitable material shall be removed from the site and disposed of in a manner satisfactory to the Engineer at no additional cost to the Owner.

B. The Owner reserves the right to claim and use for his own benefit all excess spoil material.

2.2 GRADING

A. Grade all areas as indicated. Fill shall be brought to finish grades shown and shall be graded to drain water away from structures as required.

B. Overall Area Grading for Which No Grades are Indicated:
Within the limits of construction and outer limits of clearing and grubbing, all holes and other depressions shall be filled, all mounds and ridges cut down, and the area brought to sufficiently uniform control so that the Owner's subsequent mowing operation will not be hindered by irregular terrain. This work shall be done regardless of whether the irregularities were the result of the Contractor's operations or originally existed.

2.3 EXCESS MATERIAL

A. Excess excavated material suitable for reuse as backfill, shall be immediately disposed of by the Contractor on site as directed by the Engineer or Owner, and at no additional cost to the Owner. Material shall be spread and graded in such a manner as to drain properly and not disturb existing drainage conditions.

B. Excess excavated material not suitable as reuse for backfill shall be immediately removed from the site and disposed of by the Contractor at no expense to the Owner.

2.4 UNSUITABLE MATERIAL

A. If unsuitable material is encountered, the Contractor shall immediately notify the Engineer. The Engineer shall arrange for an independent soils testing firm to define the limits of and quantify the unsuitable material to be removed and replaced. Contractor shall be responsible for the removal, disposal and replacement of unsuitable material. Wet materials will not be considered unsuitable and it is the Contractor's responsibility to dry suitable materials as necessary for use at the site.

2.5 DUST CONTROL

A. Dust control, if need arises, will be the contractors responsibility. If, in the opinion of the Owner or the Engineer, it is necessary to control dust from time to time during the progress of the work, the Contractor shall use water trucks and/or furnish and spread calcium chloride at the site of the work as directed by the Engineer at no additional cost to the Owner.

2.6 SILTATION AND EROSION

A. It shall be the responsibility of the Contractor to obtain all Federal, State, and local regulatory agencies permit(s), including NPDES, before commencing any work.

B. The Contractor shall take steps and make suitable provisions to minimize siltation and erosion which may result from, or as a result of, his operations during the course of construction of this project. All siltation and erosion control shall be in strict accordance with applicable local, State, Federal, and NPDES requirements. The contractor shall be responsible for removing all erosion control barriers upon completion of the work.

2.7 COMPACTION

A. Refer to paragraph 3.5 of Section 02215 of the specifications.

2.8 TESTING:

A. Testing shall comply with the requirements of paragraph 3.15 of Section 02215 entitled "Excavation, Backfill, and Compaction."

END OF SECTION 02200

SECTION 02215

EXCAVATION, BACKFILL, AND COMPACTION

PART 1 - GENERAL

1.1 SCOPE

A. DESCRIPTION OF WORK

1. Perform all work necessary pertaining to earthwork for excavations, fills and embankments for structures, pavements, rights-of-way, and sites and trench excavating, backfilling, and compacting for underground pipelines and appurtenant structures.

2. All excavation and backfill for utilities shall be in accordance with the geotechnical engineering report included with these specifications.

B. RELATED WORK SPECIFIED ELSEWHERE

1. Erosion, Section 01101, EROSION CONTROL.

2. Top soiling, seeding and sodding, Section 01200, SODDING.

3. Concrete, Section 03300, CAST-IN-PLACE CONCRETE.

4. Conduit, Division 16 - ELECTRICAL

1.2 STANDARDS

A. Determine the density of soil in place by nuclear methods, ASTM D2922.

B. Determine laboratory options moisture-density relations of cohesive soils by ASTM ASTM D698 (standard proctor) or AASH TO-99 (method C).

C. Sample backfill materials by ASTM D75.

1.3 DEFINITIONS

A. Subgrade: The undisturbed material immediately below the bottom of an excavation, below an area of fill, or below a structure.

B. Excavation: Removal of earth or buried material, either temporarily or permanently, as specified or as necessary for construction of the project.

C. Over excavation: Excavation exceeding that specified or shown on the plans.

D. Backfill: Earth material placed permanently in an excavated area.

E. Fill: Earth material placed permanently above the existing grade.

F. Borrow: Earth material brought from off the site to be used as fill or backfill.

G. Structural Backfill: Backfill placed beneath structures and in over excavated areas.

H. Structures: Buildings, foundations, and other man-made, stationary features above or below ground.

PART 2 - PRODUCTS

2.1 BACKFILL AND FILL

A. For Structures: Backfill and fill shall be clean soils that is free from clayballs contain no more than 10% by weight passing the No. 200 sieve. The gradation of this granular material shall be such as to achieve the specified compaction.

B. For pipe and appurtenance structures, conform as follows:

1. First Lift: From the excavation grade to a level 12 inches above the top of the pipeline. Exclude material with fragments larger than the following.

Pipe Type	Fragment Size (Greatest Dimension-Inches)
Concrete, steel, cast, or ductile iron and corrugated metal	0.5
Vitrified Clay	0.5
Polyvinyl Chloride (PVC) and Polyethylene (PE)	0.5

2. Second Lift: From the top of the First Lift to the ground surface. Exclude material with fragments larger than six inches.

3. In the event there is insufficient satisfactory material from the excavation to meet the requirements for backfill or fill material, obtain borrow which meets the requirements for backfill material from sources secured by the Contractor.

2.2 STRUCTURAL BACKFILL

A. Structural backfill shall be free from clay balls and shall conform to ASTM D1241, Type I, Gradation B.

2.3 WATER FOR COMPACTION

A. Water shall be free of acid, alkali, or organic materials and shall have a pH of 7.0 to 9.0. Provide all water needed for earthwork. Provide temporary piping, valves, and trucks to convey water from the source to the point of use. Provide any meters required if the water is taken from a public water system.

PART 3 - EXECUTION

3.1 DEWATERING

A. Contractor shall be responsible for obtaining all Federal, State, and local regulatory agencies' permit(s) before starting any dewatering operation.

B. Provide and operate equipment adequate to keep excavations free of water. Remove water during periods when concrete is being deposited, when pipe is being laid, during the placing of backfill, and for proper inspection and/or testing of the exposed subgrade. These provisions shall apply during the noon hour as well as overnight. Do not drain trench water through the pipeline under construction. Avoid settlement or damage to adjacent property. Dispose of water in a manner that will not damage adjacent property or interfere with normal drainage. When dewatering open excavations, dewater from outside the structural limits and from a point below the bottom of the excavation. Obtain and comply with all required discharge permits from appropriate regulatory authorities.

3.2 EXCAVATION

A. Excavate to the elevations shown on the drawings, to the bottom elevations of the slabs, structures, and foundations or the bottom of the roadway sub base (top of sub base if only to be compacted), whichever is the lowest elevation.

B. Perform all excavation regardless of the type, nature, or condition of the material encountered to accomplish the construction. Excavate for foundations to a point 5' horizontally behind the outside face of footings and base mats.

C. After the excavation has been completed, the Owner or his representative will observe the exposed subgrade to determine the need for any additional excavation. It is intended that additional excavation be conducted in all areas within the influence of the structure where unacceptable subgrade removal of all such unacceptable material that exists directly beneath the hole or structure for the full width of the hole or structure and to a depth required to reach suitable foundation material. Refill the over excavated areas with structural backfill. All such over excavation and refilling shall be executed in accordance with a change order. Payment for over excavation and refill shall be made in accordance with the Standard General Conditions. No payment will be made by the Owner for over excavation of wet subgrade materials. It shall be the Contractor's responsibility to dry wet subgrade materials as necessary for proper compaction and stabilization.

D. Do not carry excavation for footings, slabs, or conduits deeper than the elevations shown on the plans. Backfill over excavations below the elevations shown to the proper elevation with compacted structural backfill material. Correct cuts below grade by similarly cutting adjoining areas and creating a smooth transition.

E. The Contractor will not receive any additional payment for over excavation or refill material used for his convenience or which is not authorized by the Owner or his representative.

F. The Contractor shall acquaint himself with existing conditions and locate all structures and utilities within the project area in order to avoid conflicts.

G. Protect any pipes, conduits, wires, mains, footings or other underground structures encountered in trenching/excavating/backfilling from damage or displacement. Replace any pipes, conduits, wires, mains, footings or other structures disturbed during construction.

H. Contact all utility companies with underground utilities in the project area and obtain their assistance in locating facilities prior to excavation.

I. Excavate sufficiently in advance of pipe laying to discover obstructers in time to modify alignment, if necessary, to avoid the obstruction. The Owner or his representative must review and approve such alignment modifications before they are encountered.

3.3 PREPARATION OF SUBGRADE PRIOR TO PLACING FOUNDATIONS

A. Excavate and shape subgrade to line, grade, and cross-section. Remove soft material encountered and replace with structural backfill. Fill holes and depressions to the required line, grade, and cross sections with structural backfill. The finished subgrade shall be within a tolerance of 0.08 feet of the grade and cross section shown, smooth and free form irregularities, and at the specified relative density.

3.4 PREPARATION FOR PLACING FILL OR BACKFILL

A. Remove loosened and disturbed materials at the subgrade.

B. Remove form materials and trash before placing any fill or backfill. Obtain the specified compressive strength and finish of concrete work before backfilling.

C. Do not operate earthmoving or excavation equipment within five feet of existing structures or newly completed structures. Place and compact fill or backfill adjacent to concrete walls with hand-operated tampers or other equipment that will not damage the structure.

3.5 COMPACTION

A. Unless otherwise specified or shown on the drawings, areas outside pipe trenches must meet the following compaction requirements.

1. Structural Backfill: 100% standard proctor density in 8-inch maximum layers.

2. Subgrade Under fill or Backfill: 95% standard proctor density to a depth of 12 inches.

3. Subgrade Under Structural Backfill or Structures: 100% standard proctor density to a depth of 24 inches.

4. Backfill or Fill under Pavement: In accordance with FDOT Standard Specifications for Road and Bridge Construction, 2004 or Latest Edition.

5. All Other Areas: 95% standard proctor density in 8-inch maximum layers.

B. Compact by using methods acceptable to the Engineer (powered tampers, vibrators, etc.). Compact the first 2 feet of backfill over pipe either by hand-operated tamping devices or with powered equipment which will not damage the pipe. Flooding or puddling with water to consolidate backfill is not acceptable, except where sand is encountered and the specified density can be obtained using this method.

C. During the compacting operations, maintain material within 2% of optimum moisture. Aerate material containing excessive moisture by blading, disking, or harrowing to hasten the drying process.

D. Pipe and Appurtenant Structures: Unless otherwise shown on the drawings or otherwise described in the specifications for the particular type of pipe installed, compact soil in pipe trenches to the following minimum:

1. First Lift: 95% standard proctor density. (100% proctor density beneath paving.)

2. Second Lift not Beneath Paving: 95% standard proctor density.

3. Second Lift in Paved Areas and Under Structures: 100% standard proctor density.

4. Refill for over excavation: 95% standard proctor density.

3.6 SHEETING, SHORING, AND BRACING OF TRENCHES

A. Install adequate sheeting and bracing to prevent damage to property and injury to persons. Comply with all applicable safety regulations and laws.

B. Remove sheeting when the trench has been backfilled to at least one-half its depth or when removal will not endanger proper pipe alignment or support.

C. When conditions or plans and specifications require that sheeting be left in place, cut off the top at an elevation 2.5 feet below finished grade, unless otherwise specified.

3.7 SIDEWALKS, PAVEMENT AND CURB REMOVAL

A. Cut and remove bituminous and concrete pavements, curbs and sidewalks prior to excavation of the trenches. Width of the pavement or brick pavement cut shall be at least one foot wider than the required width of the trench at ground surface. Haul pavement and concrete materials from the site to disposal site secured by Contractor. Do not use for trench backfill.

3.8 TRENCHING

A. Cut trenches to a minimum width equal to the outside diameter of the pipe at the joint plus eight inches for unsheeted trenches, or 12 inches for sheeted trenches. The maximum width of trench, measured at the top of the pipe, shall not exceed the outside pipe barrel diameter plus two feet, unless otherwise shown on the plans or details.

B. Maintain vertical trench walls from the bottom of the trench to a line measured 12 inches above the top of the pipe.

C. Utility Bedding: The minimum utility bedding allowable shall consist of a shaped trench bottom which provides firm bedding for the utility pipe. Bed the pipe in undisturbed firm soil of hand-shaped unyielding material, so that the pipe will be in continuous contact therewith for its full length and provide a minimum bottom segment support for the pipe equal to 0.6 of the outside diameter of the barrel. All bedding materials and installation for pipe shall be in accordance with the manufacturer's recommendations.

D. Construct special bedding as called for on the plans or in the contract documents as recommended by the pipe manufacturer(s).

E. Excavate the trench to the lines and grades shown on the drawings with allowance for pipe thickness and for pipe base or special bedding. If the trench is excavated below the required grade, refill any part of the trench excavated below the required grade at no additional cost to the Owner. Place the refilling material over the full width of trench in compacted layers not exceeding six inches deep to the established grade with allowance for the pipe base or special bedding.

F. During trench excavation, place the excavated material only within the project area. Do not obstruct any roadways or streets. Conform to federal, state, and local codes governing the safe loading of trenches with excavated material.

G. Limit the length of open trench to 800 feet in advance of pipe laying or amount of pipe that may be installed in one working day. Complete backfilling and temporary or first layer paving not more than 1200 feet in the rear of pipe laying.

3.9 TRENCH EXCAVATION IN BACKFILL AND FILL AREAS

Construct trench excavation for pipe, pipes, or conduit in backfill or fill areas in accordance with the following procedures:

A. Construct and compact the backfill or fill to an elevation of one-foot minimum over the top of the pipe or conduit to be installed.

B. Excavate trench in the compacted backfill or fill. Place pipe base material; install pipe or conduit, and backfill to 12 inches above the pipe as specified for the type of pipe used. Compact backfill above this point to the same relative density as the adjacent embankment.

3.10 STRUCTURAL BACKFILL

A. Place structural backfill where specified and in over-excavation areas, to the lines and grades shown or specified. Compact each layer. Stop structural backfill at least 6 inches below finished grade in all areas where topsoil is to be replaced. Moisten material as necessary to aid compaction.

3.11 TRENCH BACKFILLING

A. Excavate bell holes at each joint to permit proper assembly and inspection of the entire joint.

B. Backfill for non-plastic pipe and appurtenant structures in accordance with the following procedures:

1. After pipe has been bedded, place "First Lift" material simultaneously on both sides of the pipe, keeping the level of backfill the same on each side. Carefully place the material around the pipe so that the pipe barrel is completely supported and that no voids or uncompacted areas are left beneath the pipe. Place material on the underside of the pipe in such a manner as to prevent lateral movement during subsequent backfilling.

2. Compact material placed within 12 inches of the outer surface of the pipe by hand tamping only.

3. Push the backfill material carefully onto the backfill previously placed in the "First Lift". Do not permit free fall of the material until at least two feet of cover is provided over the top of the pipe. Do not drop sharp, heavy pieces of material directly onto the pipe or the tamped material around the pipe.

C. Place backfill material in maximum 12 inch layers and compact each lift to the specified relative density.

3.12 SITE WORK

A. Shape the surface of earthwork to conform to lines, grades and cross sections that existed prior to beginning work or as shown on the drawings, within 1/10 of a foot. Round tops of banks to circular curves to not less than a 6-foot radius. Neatly and smoothly trim rounded surfaces. Do not over excavate and backfill to achieve the proper grade.

B. Remove excess, unsuitable, or cleared material resulting from the facility installation from the work site and dispose of at locations secured by the Contractor.

3.13 DRAINAGE, EROSION AND SEDIMENTATION

A. Maintain all existing drainage patterns and control run-off from the construction area to prevent erosion, sedimentation, or flooding due to the construction in accordance with Federal, State, and local regulatory agencies' permit(s), including but not limited to NPDES Permit.

3.14 PROTECTION OF PROPERTY

A. Protect the trunks of trees adjacent to this work by enclosure with padding or wood. Operate excavating machinery and cranes with care to prevent damage to trees, particularly to overhanging branches and limbs.

B. Do not cut branches, limbs and roots unless they are within six inches of the facility under construction. Make all necessary cuts smoothly and neatly without splitting or crushing. Neatly trim and cover the tree with healing paint at all cut or damaged portions.

C. Do not cut or operate on paved surfaces any equipment with treads or wheels which will cut or otherwise damage paved surfaces. Provide adequate protective measures to avoid damages to the paved surfaces.

D. As promptly as practicable, restore existing property or structures. Do not leave restoration until the end of the construction period.

3.15 TESTING

A. Field density tests will be made in locations reviewed by the Owner, normally in each vertical layer, and using the following approximate spacing.

1. Under structures, pavements, and slabs, one per 700 square feet with at least three per structure per lift or area.

2. In trenches, one every 300 feet in continuous trenches under pavements or future pavements plus one at each intersection or one every 500 feet in continuous trenches not under pavements, plus one at each pavement of driveway crossing.

B. If any field density tests are below the specified relative density, recompact or re-excavate, re-backfill and re-compact the area until the specific density is obtained. Make a minimum of two field density tests per re-compacted and/or re-excavated area, but do not exceed the spacing specified above.

END OF SECTION 02215

SECTION 2530

TECHNICAL SPECIFICATIONS - TRENCH SAFETY ACT

553.60 Short title.-This act may be cited as the "Trench Safety Act."

History.-s.1, ch. 90-96.

553.61 Intent.-The purpose and intent of this act is to provide for increased worker safety by requiring compliance with sufficient standards for trench safety.

History.-s.2, ch. 90-96.

553.62 State Standard.-The Occupational Safety and Health Administration's excavation safety standards, 29, C.F.R. s. 1926.650 Subpart P, are hereby incorporated as the state standard. The Department of labor and Employment Security may, but rule, adopt updated or revised versions of those standards, provided that the updated or revised versions are consistent with the intent expressed in this act and s. 553.72, and are not otherwise inconsistent with state law. Any rule adopted as provided in this section shall be complied with upon its effective date.

History.-s.3, ch. 90-96.

553.63 Trench excavations in excess of 5 feet deep; required information.- On all specific contracts for trench excavation in which such excavation will exceed a depth of 5 feet:

1. The contract bid submitted by the contractor who will perform such excavation shall include:

   a. A reference to the trench safety standards that will be in effect during the period of construction of the project.

   b. Written assurance by the contractor performing the trench excavation that such contractor will comply with the applicable trench safety standards.

   c. A separate item identifying the cost of compliance with the applicable trench safety standards.

2. A contractor performing trench excavation shall:

a. As a minimum, comply with the excavation safety standards which are applicable to a project.

b. Adhere to any special shoring requirements, if any, of the State of other political subdivisions which may be applicable to such a project.

c. If any geotechnical information is available from the owner, the contractor, or otherwise, the contractor performing trench excavation shall consider this information in the contractor's design of the trench safety system which it will employ on the project. This paragraph shall not require the owner to obtain geotechnical information.

History.-s.4, ch. 90-96.

553.64 Certain requirements for contract bids.-The separate item identifying the cost of compliance with trench safety standards shall be based on the linear feet of trench to be excavated. The separate item for special shoring requirements, if any, shall be based on the square feet of shoring used. Every separate item shall indicate the specific method of compliance as well as the cost of that method.

History.-s.5, ch. 90-96

END OF SECTION 02530

SECTION 02571

SITE AND EARTHWORK FOR PUMP STATIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Work under this Section includes furnishing all plant, labor, materials, equipment and incidentals for clearing, excavation, shoring, backfilling, grading, removal and disposal of excess material and other site work as shown on the Plans and specified herein.

1.2. CLEARING

A. In general, clearing shall consist of the removal and disposal of all Undergrowth, brush, logs, trash and other objectionable obstructions. All materials cleared from the site shall be disposed of off the site by the Contractor. It is the intent that the entire area within the limits of the pumping stations as shown on the Plans be cleared. Clearing and grubbing will be paid for under the lump sum bid item for the various pump stations.

1.3 DISTURBED AREAS

A. All areas that are disturbed due to direct or indirect construction operations shall be restored by the Contractor to a condition equal to or better than the condition of the area prior to operations.

1.4. EXCAVATION FOR PIPES AND STRUCTURES

A. General: The Contractor shall perform excavation of every description regardless of the nature of the material encountered. Trenches or foundations for pipes or structures shall be excavated to the lines, grades and elevations shown on the Plans. Trench and structure excavations shall be of sufficient size to permit the placing of pipes and forms.

B. Overcuts: If at any point in excavating for structures, material is excavated beyond the neat lines upon or against which concrete is to be placed, the overcut shall be filled with gravel fill properly compacted, or with concrete, as directed by the Engineer. The proposed elevations and positions for the different structures are shown on the Plans; however, the Engineer reserves the right to make such modifications as in his opinion are necessary to carry out the intent of the Plans or Specifications. No payment will be made for overcuts or gravel fill in overcuts.

C. Dewatering: Should lowering of groundwater be necessary for the installation of concrete structures, piping, etc., or to prevent lateral movement of material under concrete already placed, such lowering shall be accomplished by means of a well point system or other approved means to a depth of at least two feet below the trench or structure. Comprehensive plans for dewatering operations if used shall be submitted by the Contractor prior to installation.

PART 2 - PRODUCTS

2.1 TOPSOIL

A. The final top 4 inches of soil on the pumping station sites shall be a good quality "Topsoil" which may be material from the excavation or may be furnished at the Contractor's cost from an off-site source. Topsoil shall be workable, friable, loamy soil free from hard lumps, stiff clay, gravel, noxious weeds, brush and other deleterious materials. Topsoil shall be suitable to promote vegetative growth.

PART 3 - EXECUTION

3.1 BACKFILL FOR PIPES AND STRUCTURES

A. General: Backfill over, under and around pipes and structures shall be of selected material placed and tamped and compacted in a manner and by methods that will avoid unbalanced loading, and that will not cause movement or undue strain on any pipe or structure. The fill placed against or immediately adjacent to pipes, or structures shall be built in horizontal layers not exceeding 6 inches loose and must be compacted by approved mechanical tampers. The density of each layer of material composing the backfill shall be not less than 95 percent of the relative maximum density as determined by the AASHTO compacting test (T-99). Each layer of backfill material which does not contain sufficient moisture to compact thoroughly shall be sprinkled and mixed with water as directed. Material containing excess moisture shall be permitted to dry out to proper consistency before compacting is attempted. No muck or unsuitable material shall be used in the backfill.

B. Deficiency of Backfill or Fill: In the event that existing material from the excavation is insufficient to bring the pumping station site to the lines and grades shown on the Plans, additional select material shall be provided by the Contractor from his own source. The select material shall be granular soil containing not more than 15 percent passing the 200 mesh sieve, except that the top 4 inches shall be topsoil as described in paragraph 2.1.A. No separate payment will be made for the additional backfill or fill required.

C. Excess Material: After backfilling, excess material shall be removed and disposed of by the Contractor off the site.

D. Gravel: 12" of gravel bedding shall be placed below the P.S. structure.

3.2 CLEAN-UP

A. After final operation tests, the interior and exterior of the station shall be cleared of all trash and debris and left in final operating condition. Final grading of the

site and restoration of surfaces with grass shall be in strict accordance with the applicable Plans.

END OF SECTION 02571

SECTION 02585

WWTP PIPING, VALVES AND APPURTENANCES

PART 1 – GENERAL

1.1 SCOPE

A. Provide all labor, materials and equipment necessary to furnish and install all piping, fittings, valves and appurtenances as shown on the Drawings and/or as specified herein.

1.2 DESCRIPTION OF WORK

A. Extent of work is shown on the drawings.

B. The work includes, but is not limited to: Piping, valves, fittings, appurtenances.

C. Comply with the requirements of applicable sections for excavation and backfilling required in connection with work.

1.3 QUALITY ASSURANCE

A. Codes and Standards: Perform all work in compliance with applicable requirements of governing authorities having jurisdiction and the applicable standards of the American Water Works Association (AWWA). American National Standards Institute (ANSI), and the American Society for Testing and Materials (ASTM), of the latest edition.

B. Testing and Inspection Service:

1. Employ, at Contractor's expense, testing laboratory to perform necessary testing.

2. It will be the responsibility of the Contractor to coordinate all testing and inspections. The Contractor shall notify the Owner's Engineer, testing service and applicable agency inspectors 48 hours in advance of testing and inspection.

1.4 SUBMITTALS

A. Operating instructions, manual, and shop drawings shall be submitted in accordance with Section 1300, SUBMITTALS.

PART 2 - PRODUCTS

2.1 GENERAL

A. All materials shall be in accordance with the Material Standard and shall, in no event, be less than that necessary to conform to the requirements of any applicable law, ordinances and codes.

B. All materials shall be new, unused, correctly designed, and shall be of standard first grade quality and intended for the use for which they are offered. Materials or equipment which, in the opinion of the Owner's Engineer, are inferior or of a lower grade than indicated, specified or required, will not be accepted.

2.2 PIPING AND VALVES

A. Piping and valves shall be in accordance with the Pipe and Valve Specification Sheets at the end of this Section.

B. All PVC pipe shall be marked using a solid No. 10 copper wire buried between 3 and 6 inches above the top of the pipe. Backfill shall be carefully placed to a depth of 3 inches by hand to assure that the wire is secured in place over the pipe. It is the intent of the paragraph to provide a means to locate PVC pipe using standard pipe location equipment. The wire shall be carried up through valve boxes and terminated at least 2 feet above the ground line to permit connecting of location equipment. Excess wire at valve boxes shall be neatly rolled and stored in the valve box for easy accessibility. Number 10 locating wire splice shall be heat sealed or water proof splicing connector.

C. All ductile iron pipe for sewer shall have a green stripe at third points around the pipe for its full length. All PVC pipe for sewer shall be green.

D. All ductile iron for reclaimed effluent shall have a purple stripe at third points around the pipe for its full length. All PVC pipe for reclaimed effluent shall be purple.

E. All ductile iron pipes for water shall have a blue stripe at third point around the pipe for its full length. All PVC pipe for water shall be blue.

2.3 FITTINGS

A. General: Fittings three inches and larger shall be ductile iron unless otherwise noted on the plans. Fittings smaller than three inches shall be PVC unless otherwise noted on the plans.

2.4 DUCTILE IRON FITTINGS - 3 INCHES AND LARGER

A. Fittings: Fittings three inches and larger shall be ductile iron manufactured in accordance with AWWA C-153. The minimum pressure rating for fitting shall be 250 psi.

B. Joints: Fitting joints shall meet the specifications of the pipe joints as specified on the Pipe Specification Sheet for the appropriate joint, push on joints, mechanical joints or flange joints.

2.5 TAPPING SLEEVES

A. General: Tapping sleeves shall be constructed of Grade 18-8 Type 304 stainless steel, and shall be in two halves. All tapping sleeves shall be Ford or equal.

2.6 MISCELLANEOUS ITEMS

A. Pipe Couplings for Steel or Ductile Iron Pipe: Pipe couplings shall be provided in sizes and at locations shown on the Drawings. Couplings shall be of gasketed, sleeve type, with diameter to properly fit the pipe, and shall consist of one steel middle ring; two steel follower rings; two rubber compound wedge section gaskets and sufficient steel track-head bolts to properly compress the gaskets. Provide galvanized steel bolts and nuts for outdoor and underground couplings. All underground couplings shall be coated with bitumastic. Aboveground couplings shall be painted. Couplings shall be assembled to provide permanently tight joints, and shall be as manufactured by Dresser Mfg. Div., Bradford, PA, Smith Blair, or equal.

B. Pipe Restraints:

1. Mechanical joint restraint shall be incorporated in the design of the follower gland and shall include a restraining mechanism which, when actuated, imparts multiple wedging action against the pipe, increasing its resistance as the pressure increases. Glands shall be manufactured of ductile iron conforming to ASTM A 536-80. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI A21.11 and ANSI/AWWA A21.53/C153 of latest revision. Twist-off nuts shall be used to insure proper actuating of the restraining devices.

2. The mechanical joint restraining device shall have a working pressure of at least 350 psi with a minimum safety factor of 2:1 and shall be EBAA Iron, Inc. MEGALUG series or equal for ductile iron pipe, and Series 2000 PV for PVC pipe or equal.

3. Push-on joint restraints shall be Fast-Grip Gasket by American D.I. Pipe Co. or equal, or EBAA Iron Service 1700 for ductile iron pipe, and Service 1600, 2800 and 6500 for PVC pipe.

4. Coatings: Coatings shall be as follows:

a. Flange adapters shall be provided with a painted "shop coat".

b. Retainer glands shall be provided with a bituminous coat.

C. Non-Shrink Grout: Non-shrink grout for closing masonry and concrete openings at pipe and sleeve locations, shall be EMBECO 636 Grout by Master Builders, Philadelphia, PA, or equal.

D Pipe Tie Rods: Pipe tie rods shall be made of steel, with steel tie-rod plates as detailed on the Drawings.

E. Floor Boxes: Cast-iron floor boxes shall be furnished and installed where valve is operated from floor above. They shall be approximately 6 inches inside diameter by 8 inches deep. The frames and covers shall be cast iron with an arrow cast upon the lid showing the direction for opening the valve. The valve boxes shall be equipped with a guide bearing for accommodating the valve stem. Both the inside and outside of the valve boxes shall be thoroughly cleaned and coated with asphaltum before leaving the foundry.

F. Extension Stems: Extension stems of cold rolled steel shall be provided for buried valves and shall be of sufficient size to withstand, without buckling, the loads which will be imposed upon them. The different sections of each stem shall be jointed together by rigid coupling. The coupling shall be keyed or pinned to the stems.

G. Floor Stands: Floor stands shall be of the indicating type, cast or clear gray iron, substantial in construction and neat in appearance. They shall be provided for bolting to concrete floors with through bolts. The bolts shall be furnished under this contract. Handwheels shall be cast-iron of approved diameter, not less than 12 inches, however, having cast thereon in raised letters the word "OPEN" and an arrow indicating the direction of turn to open. The stands shall be properly finished on the outside to the satisfaction of the Engineer and both the inside and outside shall be thoroughly cleaned and coated with asphaltum varnish applied hot before leaving the foundry.

H. Valve Boxes: Valve boxes are required on all buried valves, unless otherwise noted on Drawings. Valve boxes shall be of cast-iron. Provide extension stems complete with operating nut not more than 12 inches below top of valve box. Provide spacers every 5 feet for extension stem. The minimum thickness of the metal of the valve box at any point shall be not less than 3/16 of an inch. The cover shall have cast thereon the

words "SEWER" or "WATER" and "OPEN" and a direction arrow. In areas other than paved, the Contractor shall construct a Class "B" concrete pad 2' X 2' X 4" under the valve box. The valve box shall be sufficient in size to enclose any exposed working part of the valve, such as the valve stem. Provide one "T" wrench for each 4 buried valves but in no case less than 3 wrenches shall be supplied.

I. Pressure Gages

1. Gages shall be dial size, 4-1/2 inches, accuracy 1 percent, bronze bourdon tube, phenol turret type case, 1/2 inch NPT threaded bottom connection dial graduated as tabulated.

2. Gages shall be factory assembled to a diaphragm seal having a steel bottom bowl, 316 stainless steel diaphragm 3/4 inch NPT threaded process connection. Assembly to be liquid filled.

3. Each gage shall be supplied with one size 3/4 inch ball valve.

4. Gage shall be Type 1220A, diaphragm seal Type 101 and gage cock Type No. 1092, all products of Ashcroft, or equal.

J. Saddles

1. Service saddle shall be Ford Iron style FC 202 with stainless steel bond and epoxy coating or equal.

PART 3 - EXECUTION

3.1 GENERAL (APPLIES TO ALL INSTALLATIONS)

A. Pipe, fittings, valves and appurtenances shall be installed in accordance with the manufacturer's recommendation and the applicable sections of the codes and standards listed in the quality and assurance section of these specifications.

B. All valve operators and handwheels, etc., shall face and be accessible to platforms or operating areas. The Contractor is responsible for proper orientation to meet this requirement.

C. The Contractor shall coordinate all piping and conduit for proper clearances and avoidance of conflicts.

D. All interior pipe couplings shall have tie rods of the size and quantity as shown on the Drawings.

E. Piping and valves shall not be supported from mechanical equipment unless otherwise permitted by the equipment manufacturer.

F. All new mechanical or push-on joint pressure piping, fittings, valves, plugs, reducers bends, tees, etc. at the wastewater treatment facility shall be restrained utilizing restrained joint gasket or mechanical joint retainer gland (no exception).

G. All yard pressure piping, fittings, valves, plugs, reducers, bends, tees, etc. shall be restrained with mechanical joint retainer gland or pipe bell restrained harness in accordance with manufacturer's recommendations. No thrust block will be allowed.

3.2 HANDLING PIPE (APPLIED TO ALL PIPE INSTALLATION)

A. General:

1. All material, unless otherwise directed, shall be unloaded at the job site and distributed at the site of the project by the Contractor. Materials shall be handled with care to avoid damage. In loading and unloading, pipe shall be lifted by hoists or slid or rolled on skidways in such a manner as to avoid shock. Under no circumstances shall pipe be dropped. Pipe handled on skidways must not be allowed to roll against pipe already on the ground. The Contractor shall be responsible for the safe handling of all materials. Damaged materials will not be installed.

2. Pipe shall be handled so as to avoid damage to the coating and lining. If, however, any part of the coating or lining is damaged by the Contractor, the repair shall be made by the Contractor at his expense in a manner satisfactory to the Owner's Engineer before installation.

3. Pipe shall be distributed on the site of the work parallel with and opposite or near the place it is to be laid in the trench and with bell ends facing the directions in which the installation will proceed unless otherwise directed.

3.3 INSTALLATION OF FITTINGS (APPLIES TO ALL PIPE INSTALLATION)

A. Fittings:

1. Fittings shall be handled with care to avoid damage. All fittings shall be loaded and unloaded by lifting, and under no circumstances shall fittings be dropped, skidded or rolled. Fittings shall not be placed, under any circumstances, against pipe or other fittings in such a manner that damage could result. Slings, hooks or tongs used for lifting shall be padded in such a manner as to prevent damage to exterior surface or interior lining of fittings. If any part of the fittings' coating or lining is damaged by the Contractor, the repair or replacement shall be made by

the Contractor at his expense in a manner satisfactory to the Owner's Engineer before installing. Fittings shall also be stored at all times in a safe manner to prevent damage and kept free of dirt, mud or other foreign matter. All fittings gaskets shall be stored and placed in a cool location out of direct sunlight and out of contact with petroleum products. All gaskets shall be used on a first-in, first-out basis.

2. Fittings shall be set and joined to the pipe in a manner specified previously for joint assembly. When conditions warrant, fittings should be provided with special support trussing and blocking.

3.4 ANCHORAGE OF BENDS, TEES AND PLUGS (APPLIES TO ALL INSTALLATIONS)

A. General: Adequate precautions shall be taken to prevent the separation of joints at bends, tees and plugged ends.

B. Retainer Glands:

1. Retainer glands shall be installed in conformance with manufacturer's recommendations.

C. Anchoring Devices:

1. All anchoring devices shall be suitable for use with mechanical joint fittings meeting AWWA C-110, and/or C-111.

2. All anchoring devices shall be constructed of ductile iron (at least ASTM A536 Grade 70-50-05) and manufactured in accordance with AWWA C-110, and/or C-111.

3. All anchoring devices shall have a sufficient number of set screws so as to properly restrain various fittings or pipes at the rated pressure without the need for additional thrust restraint.

D. Thrust Blocking:

1. Where reaction or thrust blocking is required, it shall be of concrete of a mix not leaner than one cement, two and one-half sand, five stone and having a compressive strength of not less than 3,000 pounds per square inch after 28 days and shall have a minimum curing time of three days. The poured concrete shall be left exposed for a minimum of 24 hours before backfilling, but not more than 48 hours. Before concrete thrust blocks are covered, contractor will have City inspect installation.

2. Blocking shall be placed between undisturbed earth and the fitting to be anchored; the area of bearing on pipe and on ground in each instance shall be that shown in the Construction Details. The blocking shall, unless otherwise directed, be so placed that the pipe and fitting joints will be accessible for repair.

3.5 INSTALLATION OF VALVES

A. General:

1. Valves shall be handled with care to avoid damage. All valves shall be loaded and unloaded by lifting, and under no circumstances shall valves be dropped, skidded or rolled. Valves shall not be placed, under any circumstances, against pipe or other fittings in such a manner that damage could result. Slings, hooks or tongs used for lifting shall be padded in such a manner as to prevent damage. If any part of the valves' coating and lining is damaged by the Contractor, the repair or replacement shall be made by the Contractor at his expense in a manner satisfactory to the Owner's Engineer before installing. Valves shall also be stored at all times in a safe manner to prevent damage and kept free of dirt, mud or other foreign matter. All valve gaskets shall be stored and placed in a cool location out of direct sunlight and out of contact with petroleum products. All gaskets shall be used on a first-in, first-out basis.

2. Gate valves and butterfly valves shall be set and joined to new pipe in the manner previously specified for cleaning, laying and joining pipe.

B. Valve Boxes: Cast iron valve boxes shall be firmly supported and maintained centered and plumb over the operating nut of the valve by the Contractor with box cover flush with the surface of the finished pavement or at such other level as may directed. All valve boxes set in non-paved areas shall have concrete pads poured around the top section of the valve box. The pad shall be 24 inches square or 24 inches in diameter and shall be centered on the valve box. All valve covers shall be cast with the word sewer or the letter S.

3.6 INSTALLATION OF TAPS

A. General: All material supplied, and drilling and tapping equipment used to make taps will be in accordance with AWWA Standards. After the tapping sleeve and valve have been installed and before the tap is made, the sleeve will be tested to ensure a watertight joint. A test plug will be provided in the sleeve and after the sleeve has been installed it will be filled with water and the pressure increased between 150 psi and 190 psi. All leaking joints will be repaired to the satisfaction of the Owner's Engineer at the Contractor's expense.

3.7 UNDERGROUND PIPE INSTALLATION – PLANT SITE

A. General

1. All pipe, fittings and appurtenances shall be carefully inspected in the field before lowering into the trench. All pieces found to be defective shall be rejected. Such rejected pipe shall be clearly tagged in such a manner as not to deface or damage it, and the pipe shall then be removed from the job site by the Contractor at his own expense. Results of pipe plant tests shall be submitted to the Engineer prior to installation of the pipe for which such test results were ordered.

2. Any conflicts during the installation of piping shall be brought to the attention of the Inspector. No improvising or field changes will be permitted without the approval of the Engineer.

3. Handling of Pipe and Fittings

   a. All pipe and fittings shall be carefully handled by equipment of sufficient capacity and proper design to avoid damage to the pipe and fittings. Under no circumstances shall materials be dropped or dumped into the trench. No defective pipe or fittings shall be laid or placed in the system. Any piece discovered to be defective after having been laid shall be removed and replaced by a sound and satisfactory piece at the expense of the Contractor.

4. Preparation

   a. Each pipe and fitting shall be thoroughly cleaned before it is placed, and it shall be kept clean and dry. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. The entrance of earth into pipe will not be permitted, and the Engineer may require the placing of a heavy canvas bag of suitable size over each end of the pipe before it is lowered into the trench. During laying operations, no debris, tools, clothing or other materials shall be placed in the pipe.

5. Laying

   a. Pipe and fittings shall be laid accurately to the lines and grades indicated on the Drawings. Care shall be taken to ensure alignment both horizontally and vertically, and to give buried pipe a firm bearing along its entire length. Pipes shall not be laid in water nor shall water be allowed to flow through them. The Contractor shall take all necessary precautions to prevent floatation of the pipe in the trench.

6. Excavation and Backfilling

a. Excavation and backfilling of the pipe trench shall be done as specified in Division 2, SITE WORK.

7. Temporary Plugs

a. At all times when pipe laying is not actually in progress, the open ends of pipe shall be closed with temporary watertight plugs or by other approved means. If water is in the trench when work is resumed, the plug shall not be removed until all danger of water entering the pipe has passed.

8. Pipe Supports

a. Install all supports necessary to hold the piping and appurtenances in a firm substantial manner at the lines and grades indicated on the Drawings.

b. Where the above anchorage is not feasible the pipe and fittings shall be harnessed as shown on the Drawings.

d. All bends, tees, plugs, etc. on pressure main shall be restrained with mechanical joint retainer glands. The mechanical joint retainer glands shall be each side of the fitting using mechanical joint pipe.

e. Ductile iron pipe joints and fittings on gravity lines and pressure lines, located within and above the excavated area around a structure shall be restrained with mechanical joint retainer glands. The retainer glands shall be installed at all joints within 20 feet beyond the limit of the structural excavation.

f. In fill area or in areas of over excavation around a structure; pipes shall be supported on concrete piers designed for the Contractor by a registered professional engineer. The design calculations for the pipe supports shall be reviewed by the Engineer prior to being installed.

g. Pipes shall be installed between structures with all necessary fittings required for changes in elevations and direction whether or not shown on the Drawing.

h. All pipe shall have minimum cover of 2'-6" from finished grade to top of pipe, unless otherwise noted.

i. Corrosion resistant bolts shall be used for all underground bolted pipe joints.

B. Ductile Iron Pipe

1. Handling

a. Pipe and accessories shall be handled in such a manner as to insure delivery on the work in sound, undamaged condition. Particular care shall be taken not to injure the pipe coating. No other pipe or material of any kind shall be placed inside of any pipe or fitting any time after the coating has been applied.

2. Cutting

a. Cutting of pipe shall be done in a neat manner by method which will not damage the pipe. All cutting of pipe shall be done by means of mechanical cutters of an approved type.

3. Placing / Laying

a. Before lowering and while suspended, the pipe shall be inspected for defects and rung with a light hammer to detect cracks. Any defective, damaged or unsound pipe will be rejected. Pipe shall be laid with the bells facing in the direction of laying and for lines on an appreciable slope bells shall face up-grade.

4. Coupling DIP with Push-On Rubber Gasket Joints

a. Gasket seat in the socket and the gasket should be wiped with a cloth. The gasket should be placed in the socket with the large round end entering first, then sprung into gasket seat so that the groove fits over the bead in the seat. A thin film of lubricant shall then be applied to the inside surface of the gasket that will come in contact with the entering pipe. Only non-toxic vegetable soap lubricant as recommended by pipe manufacturers shall be used. Mineral oil or petroleum base lubricant shall never be used.

b. The plain end of the pipe to be entered, shall be wiped clean and placed in approximate alignment with the bell of the pipe to which it is to be joined. In some cases it might be desirable to apply a thin film of lubricant to the outside of the plain end for about 1 inch back from the end. After lubrication, the plain end of the pipe should then be lifted and started into the socket so that it is in

contact with the gasket. The joint should be made up with entering pipe deflected at an angle.

c. When pipe is cut in the field, the cut end shall be conditioned so that it may be used to make up the next joint. The outside of the cut end should be tapered back about 1/8 inch at an angle of about 30 degrees with the center line of the pipe by using a coarse file or portable grinder. The operation should remove any sharp, rough edges which otherwise might damage the gasket.

d. When installing rubber gasket joint pipe in below freezing temperatures, keep lubricant and gaskets workable by leaving them in hot water bath when not actually in use or in a heated storeroom.

e. Pipe pulling tools may be rented or purchased from the pipe manufacturer by the Contractor.

f. With "Push-On Joints," the joint deflection angle should not exceed amounts recommended by manufacturer.

5. Mechanical Joints

a. Mechanical joints shall conform to ANSI Std. A21.11, latest issue, be of stuffing box type, adapted for use of a gasket, cast iron gland and bolts.

b. In making each mechanical joint, the surfaces with which the rubber gasket comes in contact shall be brushed thoroughly with a wire brush just prior to assembly to remove all loose rust or foreign material and to provide clean surfaces, which should be brushed with soapy water just prior to slipping the gasket over the spigot end and into the bell. Soapy water brushed over the gasket prior to installation also removes loose dirt, and lubricates the gasket as it is forced into its retaining space.

c. The sequence of assembly is to be as follows: the gland followed by the rubber gasket is to be placed over the spigot end which is inserted into the socket. The gasket should be pushed into position so that it is evenly seated in the socket. The gland is then moved into position against the face of the gasket. Bolts are then to be inserted and made finger tight.

d. When tightening bolts, it is essential that the gland be brought toward the pipe flange evenly maintaining approximately the same distance between the gland and the face of the flange at all points around the socket. This may be done by partially

tightening the bottom bolt first, then the top bolts next to the bolts at either side, and last the remaining bolts. This cycle is to be repeated until all bolts are within the following range of bolt torque.

C. Plastic Pipe Installation

1. Unloading, Handling and Storage

a. Unloading and handling of plastic pipe shall be the responsibility of the Contractor. Do not drop, impact or bump pipe, particularly at ends. When unloading, use pliable straps, slings or rope to lift. Do not use steel cables or chain to lift or transport pipe.

b. When transporting pipe, support all pipe sections on cradle conforming to shape of the pipe and spaced on a maximum of 20 foot centers.

c. When storing plastic pipe outdoors for extended periods of time, pipe shall be protected from direct exposure to sunlight.

d. Plastic pipe and fittings should be stored in such a way so that the surfaces to be mated are protected from physical damage and are kept as clean as possible.

e. The pipe shall be stored by providing support at each end and intermediate support at 5 foot intervals along the length of the pipe. The pipe shall be stored in such a way as to prevent sagging or bending.

f. Pipe which is found to be defective or is damaged during installation shall be replaced at the Contractor's expense.

2. Joints

a. The pipe and fittings shall be joined by the elastomeric gasket system. The joining shall provide a permanent and efficient seal against excessive ex-filtration and infiltration.

b. The pipe may be of the "plain end" type to be assembled using couplings or it may be of the "bell and spigot" type wherein the bell is integral to the pipe. For pipe with belled ends, the thickness of the wall in the bell may be considered satisfactory if the bell was formed on pipe meeting the requirements of the applicable standards.

3. Joining Systems

a. Elastomeric Joint

(1) The critical sealing dimensions of the bell, spigot and gasket should be in accordance with the manufacturer's standard dimensions and tolerances.

(2) The elastomeric gasket shall be rubber and shall comply with the physical requirements specified in ASTM D1869.

(3) The joint design shall provide for the development by the gasket of an adequate compressive force against the sealing surfaces of the bell and spigot so as to affect a positive seal. The gasket shall be the only element depended upon to make the joint flexible and watertight.

(4) Lubricants, if necessary for the assembly of the elastomeric gasket joint, should not support bacterial growth nor have any deteriorating effect on pipe, fitting or gasket materials and should be the type recommended by the pipe manufacturer.

(5) The joint should be assembled in accordance with the manufacturer's recommended procedure.

(6) Requirements for the joint are given in ASTM D3212.

4. Installation

a. Plastic piping installation shall be made in accordance with ASTM D2321, "Underground Installation of Flexible Thermoplastic Sewer Pipe."

b. Any requests for changes, modifications, exceptions and/or relief of the requirements of these Specifications, relating to procedure, construction method or technique, materials or any other condition, shall be submitted to the Engineer, in writing, and accompanied by supporting plan and documents.

c. The pipe shall be bedded true to line and grade with uniform and continuous support from a firm base. Blocking shall not be used to bring the pipe to grade.

3.8 INTERIOR AND ABOVE GROUND PIPE INSTALLATION – PLANT SITE

A. General

1. Any conflicts during the installation of piping shall be brought to the attention of the Inspector. No improvising or field changes will be permitted.

2. All piping shall be installed in such a manner as to obtain sufficient flexibility and to prevent excessive stresses in materials and excessive bending moments at joints or connections to equipment.

3. Full lengths of pipe shall be used wherever possible. Short lengths of pipe with couplings will not be permitted. All pipes shall be cut to exact measurement and shall be installed without forcing or springing unless otherwise shown on the Drawings.

4. Tool marks and unnecessary pipe threads shall be avoided. Burrs formed when cutting pipe shall be removed by reaming. Before installing any pipe, care shall be taken that the inside is thoroughly cleaned and free from cuttings and foreign matter.

5. Where lines are purposely pitched for drainage, an accurate grade shall be maintained. No lines shall be supported in such a manner as to permit deflection due to gravity, sufficient to pocket the lines when full of liquid. All changes in direction shall be made by using pipe and fittings unless otherwise shown on the Drawings.

6. Unions shall be installed in all piping connections to equipment, regulating valves and wherever necessary to facilitate the dismantling of piping and/or removal of valves and other items requiring maintenance. Flanges on equipment may be considered as unions. At least one union shall be provided in every straight run of pipe unless otherwise noted or permitted.

7. Raised face flanges shall not be used to connect to cast-iron flanges. The raised face shall be turned off before use and full face gaskets shall be employed. In general, all service lines shall come off the top of headers and if possible, service lines shall have some slope for drainage.

8. Pipe anchors, expansion joints, loops and bends shall be installed where indicated on the Drawings and as required to properly protect the piping against vibration, misalignment and overstressing.

9. Exposed piping shall be neatly arranged, straight, run parallel to or at right angles to walls and shall be so graded that the entire system can be drained. Drain valves shall be installed at the low points of piping as shown on Drawings.

10. Installed piping shall not interfere with the operations or accessibility of doors or windows and shall not encroach on aisles, passageways and equipment and shall not interfere with the servicing or maintenance of any equipment. Adjacent pipe lines shall be grouped in the same horizontal or vertical plane.

11. Where possible, all piping shall be concealed by installation above ceilings and in pipe ways.

B. Pipe Sleeves, Hangers, Supports

1. Pipe Hangers

a. Pipe supports shall be installed in an approved manner.

b. Pipe lines close to the floor may be supported from the floor by structural shapes or by poured concrete blocks or piers. In such cases, care shall be taken to avoid blocking floor drainage.

c. Building steel as indicated on the Drawings shall be used wherever possible for supporting pipe hangers. Structural members shall not be drilled or welded for hangers.

d. Expansion bolts may be used where practicable and as noted on the Drawings.

e. All vertical piping shall be properly supported with suitable steel brackets to prevent swinging or sagging.

f. Heavy valves or fittings shall be supported by hangers, poured concrete, blocks, or special provisions shall be taken to avoid undue line deflection.

g. The maximum spacing of hangers for steel and cast iron piping shall be in accordance with the following table, except where otherwise indicated on the Drawings.

(1) Pipe hanger table

Pipes	Hanger Rods	Hanger Spacing Center to Center
1/2 in. and 3/4 in.	3/8 in.	Not more than 6 ft.-6 in.
1 in. and 1-1/4 in.	3/8 in.	Not more than 8 ft.-0 in.
1-1/2 in. and 2 in.	1/2 in.	Not more than 10 ft-0 in.
3 in and 4 in	1/2 in	Not more than 14 ft-0 in.
6 in. and 8 in.	5/8 in.	Not more than 16 ft-0 in.
10 in. and larger	3/4 in.	Not more than 20 ft-0 in.

h. All hangers of different services running parallel with and near each other shall be installed parallel to the lines of the building.

3. Pipe Supports

a. Adjustable Pipe Supports

(1) Cast iron type shall consist of a factory assembled nipple and reducer and a pipe saddle. A minimum adjustment shall be possible with the reducer. Support pipe and flange shall also be included.

(2) Steel pipe supports, optional type should be made of following materials: the saddle to be cut to size from heavy steel and forged to shape. Supporting column is steel pipe with an ANSI 125 pound companion flange to form the base. Adjustable support shall consist of shank of threaded solid steel rod. Adjustment shall be by means of heavy steel nut mounted on reinforced malleable iron cap screwed to top of support column.

4. Wall Castings

a. Castings shall be placed in position before the concrete is poured to insure a water-tight connection between wall end casting. Pipe lines should be connected to wall casting after concrete has cured.

C. Plastic Pipe

1. Socket Solvent Welding for Jointing

a. Field cut pipe must be cut square and deburred. Remove dust and dirt from mating surfaces.

b. Use solvent cement recommended by PVC pipe manufacturer.

c. Apply thin coating of solvent to inside of socket, over entire mating surface.

d. Apply liberal coating of solvent over spigot end, equal to socket depths making sure that entire mating surface is covered.

e. Immediately, while surfaces are still wet, push spigot end of pipe into socket until spigot reaches socket bottom. Hold in place until surfaces are firmly bonded (5 to 15 seconds normally).

f. Allow 4 hours cure time before testing.

D. Ductile Iron Pipe Installation

1. Flanged Pipe

a. All flanges shall have standard drilling, ANSI Class 125. All flanged joints shall be firmly bolted with machine bolts; however, where valves or specials are attached to a flanged pipe, stud or tap bolts may be used, providing the number used and diameter for each joint is the same for each respective size of pipe or special or valve as recommended by the manufacturer's standards for flange drilling. If studs are used, holes shall be tapped entirely through the flange and studs shall be of sufficient length to extend entirely through the thickness of two flanges and one end provided with a nut. All bolts shall be of ASTM A307 carbon steel of sufficient length to pass through two flanges and the threads shall be ANSI. Bolt heads shall be cut square and nuts hexagonal in shape with both the heads and the nuts being chamfered.

PART 4 - TESTING

4.1 TESTING

A. All pipe testing shall be performed by Contractor at his expense in presence of Engineer as follows:

1. Gravity piping ex-filtration tests shall be performed before backfilling to measure joint tightness. Basic minimum internal head of

5 feet over top of pipe shall be applied. Water shall be held in pipe for 24 hours. Leakage shall not exceed 100 gallons per 1 inch diameter of pipe per mile in 24 hours.

2. Force Mains shall be tested for leakage in accordance with AWWA Standard C600 Latest Edition for DI pipe and AWWA Standard M23 Latest Edition for PVC pipe. (No leakage will be permitted inside buildings.). Test pressure shall be at a minimum 150 psi.

3. Allowable leakage, for force mains outside buildings, shall conform to limits indicated in applicable table in AWWA Std. C600 Latest Edition for DI pipe and AWWA Standard M-23 Latest Edition for PVC.

4. All other pipes not listed shall be tested to 50 percent above normal operating pressure. (No leakage will be permitted inside building).

5. The Contractor shall provide a certification of all pipe tests. Duration of tests shall be two (2) hours.

PART 5 - SPECIFICATION SHEETS

ATTACHED AS FOLLOWS:

D-1c	Piping Specification Sheet
D-3a	Piping Specification Sheet
G-1b	Piping Specification Sheet
V-206	Valve Specification Sheet
V-234	Valve Specification Sheet
V-801	Valve Specification Sheet
V-802	Valve Specification Sheet

END OF SECTION 02585

ENGINEERING STANDARD

ISSUED	07/29/04	**PIPING SPECIFICATION SHEET**	**D-1c**
REVISED			

Service:	Process Piping and Force Main 200 psig to 150°F - lined pipe. Laying condition - Type 2 per ANSI/AWWA C151/A21.51.
Pipe:	3" – 12" dia. - ductile iron – Pressure Class 350. 14" – 20" dia. – ductile iron – Pressure Class 250 24" – 64" dia. - ductile iron – Pressure Class 200 60,000 psi tensile, 42,000 psi yield, 10% elongation, ANSI/AWWA C151/21.51 (see Note 2 - Remarks).
Fittings:	250 psi rating, ductile iron, mechanical joint in accordance with ANSI/AWWA C110/A21.10.
Pipe Connections:	Mechanical joint in accordance with ANSI/AWWA C111/A21.11.
Gaskets:	To be of type and materials as recommended by pipe supplier for service indicated on drawings.
Bolting:	To be of type recommended by pipe supplier of material with minimum 45,000 psi tensile, with semi-finished heavy nuts in accordance with ANSI/AWWA C111/A21.11.
Remarks:	1. Lining: The interior of all pipes and fittings shall be lined with Protecto 401 ceramic epoxy to a dry thickness of 40 mils. All pipes shall receive an exterior bituminous coating in accordance with AWWA C151 and AWWA C110. 2. For cover depths greater than 10'-0" refer to ANSI/AWWA C151/A21.51 for required thickness class. 3. Required Marking: Each piece, pressure rating, metal thickness, weight, manufacturers name, letters D.I. or ductile and length.

ISSUED 07/06/98	PIPING SPECIFICATION SHEET	D-3a
REVISED		

Service:	Process Facilities - Water, sewage or other liquids - 200 psig at 150°F maximum. Above Grade Piping Installations.
Pipe:	Ductile Iron - Grade 60-42-10 in accordance with ANSI/AWWA C151/A21.51, latest revision 4"- 64" = AWWA C150 and C151 pressure class 250
Pipe Joints:	Ductile Iron Cast-On-Flange in accordance with ANSI/AWWA A21.10/C110 and/or threaded-on-flange in accordance with ANSI/AWWA A21.15/C115. Bolt holes and bolt circles shall match those of ANSI B16.1 Class 125 flanges and ANSI B16.5 Class 150 flanges.
Gaskets:	1/8" thick red rubber ring gaskets or American Cast Iron Pipe Company, Toruseal* gaskets designed for AWWA C110 or C115 flanges.
Pipe Line Couplings:	Plain-end to plain-end pipe couplings shall utilize a steel cylindrical middle ring, two resilient gaskets, two follower rings and a set of trackhead bolts. The couplings shall be specifically coated for underground service. The couplings shall be Dresser* style 38 or equal. 3" to 12" plain-end pipe to valve couplings shall utilize Dresser'~ Style 127 cast iron flanges adapters. 14" to 24" plain end to valve couplings shall utilize Dresser* style 128 steel flanged adapters. Other field made flanged connections shall utilize cast iron set screw type flange adapters.
Fittings:	Fittings shall be 250 PSI pressure rated, Ductile Iron flanged in accordance with ANSI/AWWA A21.1/C110 or ANSI/AWWA A21.53/C153. Flanges shall have facing and drilling to match AWWA C115 and ANSI B16.1 Class 125 flanges. The fittings shall be Ductile Iron Grade 70-50-05, with a minimum tensile strength of 70,000 PSI and minimum yield strength of 50,000 PSI per AWWA C110 or C153.
Wall Pipe:	Wall pipes shall be integrally cast with wall collars or shall be shop fabricated with full length penetration weld-on collars. All wall pipes shall be designed for use in thrust and load bearing conditions.

Bolting: Fasteners shall be hex head machine bolts with hex nuts. Studs with one hex nut each are required for tapped flanges. Bolts, studs and nuts are low carbon steel per ASTM A307. Threads shall be ANSI 61.1 Coarse Thread series, Class 2A external and Class 26 internal. Recommended studs are same length as corresponding bolt length with "tap end" threaded approximately the same length as flange thickness.

Coating and Lining: The interior of all pipes and fittings shall be lined with Protecto 401 ceramic epoxy to a dry thickness of 40 mils. All pipes shall receive an exterior bituminous coating in accordance with Specification Section 9900 Painting.

Marking: Each piece of pipe and all fittings shall be marked with the weight, class or nominal thickness, mark identifying year of manufacture, the letter "D.I." and manufacturer's name.

Laying Conditions: All above grade piping shall have hangers and/or supports spaced not less than one per pipe joint or as indicated on drawings.

Accessories: All piping accessories required to complete the project, including tapping saddles, sleeves, bosses, etc., shall be the product of the pipe manufacturer or meet the approval of the pipe manufacturer for installation as part of this project.

- *The use of manufacture and/or brand name products within this specification is done only to provide the reviewer with a known product meeting this specification and not to limit the application of other products meeting this specification.

ENGINEERING STANDARD

ISSUED 10/14/87	PIPING SPECIFICATION SHEET	G-1b
REVISED 09/19/88		

Service:	150 psig to 73°F
Pipe:	Polyvinyl Chloride Type 1, Grade 1, 1120, Cell Classification 12454-B as outlined in ASTM D1784 ¼" dia. through 4" dia. - Schedule 80 in accordance with ASTM D1785
Fittings:	150 psi rating, Socket Type PVC 1120 in accordance with ASTM D2467.
Pipe Connections:	Socket solvent weld in accordance with ASTM D3036.
Flanges:	Sch. 80 Socket Solvent weld in accordance with ASTM D-2467
Gaskets:	Rubber, full face, 1/8" thick in accordance with ANSI/AWWA C110/A21.10 for flanged connections.
Bolting:	To be in accordance with piping manufacturers recommendation
Remarks:	1. PVC line is not to be placed under a building slab or in an interior run, unless otherwise indicated on drawings. 2. Pipe embedment is to be in accordance with ASTM D2321. 3. Above-grade piping shall be formulated for high (UV) ultraviolet resistance. 4. All above-grade piping shall be supported in accordance with manufacturer's recommendations.

ENGINEERING STANDARD

ISSUED	05/05/81	**VALVE SPECIFICATION SHEET**	**V-206**
REVISED	02/27/04		

Type: Swing Check

Rating: 2" – 12" = 150 psi water, 14" – 36" – 150 psi water

Ends: Flanged, F.F., 1253 ANSI B16.1

Body: Cast Iron, ASTM A 126, Class B

Bonnet: (Cover) Cast Iron, ASTM A 126, Class B

Body & Bonnet Bolting: ASTM A 307, Gr. B

Disc: Cast Iron, ASTM A 126, Class B with Bronze Bushing and Bronze Faced

Stem: (Clapper Arm Shaft) Stainless Steel

Seat: Bronze Renewable

Seals (or Packing): Conventional Packing

Operator: Outside Weight and Lever

Service: Water and Wastewater, Oil and Gas

Remarks: Horizontal or Vertical Installation

ACCEPTABLE VALVE EQUIVALENTS

MANUFACTURER	FIG. NO.	SIZE RANGE	REMARKS
Mueller	A-2600-2	2" – 24"	
Clow		2" – 12"	
American Flow Control	50SC	2" – 36"	

ENGINEERING STANDARD

ISSUED	02/27/04 05/31/08	VALVE SPECIFICATION SHEET	V-234

Type:	Slow Closing Check Valve Globe or "Y" Pattern, Hydraulically Operated
Rating:	250 PSI Max. Water @ 180° F
Ends:	Flanged Class 150# ANSI BI16.42
Body and Cover:	ASTM A536 –Ductile Iron
Main Valve Trim:	Bronze ASTM B62
Diaphragm:	Nylon Reinforced Buna-N Rubber
Stem:	316 Stainless Steel
Disc:	Buna-N Rubber
Seals (or Packing):	No External Packing Glands.
Service:	Treated Effluent
Remarks:	Furnish and install complete with all operating accessories, stainless steel tubing and strainer, cock isolation valve, opening & closing speed controls. Coating to be Fusion Bonded Epoxy. Reduced port valves are not acceptable. The application for this valve is for reclaimed water containing 20 mg/L of suspended solids. It shall be the manufacturer's responsibility to provide appropriate strainer for the valve.
Warranty:	Minimum 2 Years (Non Pro-rated)

ACCEPTABLE VALVE EQUIVALENTS

MANUFACTURER	MODEL #	SIZE RANGE	REMARKS
Golden Anderson	2730-D	2" – 12"	
Cla-Val	81-02	2" - 24"	

ENGINEERING STANDARD

ISSUED	10/27/82	**VALVE SPECIFICATION SHEET**	**V-801**
REVISED	02/08/89		

Type:	Plug (non-lubricated, eccentric type with resilient faced plugs)
Rating:	Sizes through 36" = 150 psi min. 42" through 54" = 125 psi min.
Ends:	Flanged F.F., 125/150 lb. ANSI B16.1 or mechanical joint, AWWA std., C111-64
Body:	Cast iron, ASTM A126, Class B
Bonnet:	(Bolted (4" and larger)
Body & Bonnet Bolting:	ASTM 307, Gr. B, zinc plated (stainless steel for buried service)
Disc:	(Plug) cast iron ASTM A126 Class B with resilient plug facing
Stem:	Integral with plug, with stainless steel and/or bronze sleeve-type journal bearings at each end of plug
Seat:	Nickel alloy (90% nickel) or Type 304 stainless steel
Seals (or Packing):	V-Ring or cartridge type O-ring
Operator:	3" - 6" wrench operated, 8" - 54" worm gear operated
Service:	Municipal wastewater

ISSUED	10/27/82	**VALVE SPECIFICATION SHEET**	**V-801**
REVISED	02/08/89		

Remarks: Port areas of valves through 20" shall be a min. of 80% of full pipe area. Valves 24" and larger shall be a min. of 70%. See Drawing for operational requirements.

ACCEPTABLE VALVE EQUIVALENTS

MANUFACTURER	FIG. NO.	SIZE RANGE	REMARKS
DeZurik	Series 100 PEC Eccentric Plug Valve	½" - 3" – 4"-54"	
Clow	Ful-Flow	3" - 24"	
Val-Matic	Cam-Centric 5800 or 5400	3" - 30"	

NOTES: Buried valves shall be furnished with valve boxes, stem extensions and tee wrench operator, unless otherwise noted.

Valves shall provide drip-tight shutoff to full valve rating with pressure in either direction.

ENGINEERING STANDARD

ISSUED 10/15/08 REVISED	VALVE SPECIFICATION SHEET	V-802

Type:	Plug (3-way and 4-way tapered)
Rating:	Sizes through 36" = 150 psi min. 42" through 54" = 125 psi min.
Ends:	Flanged F.F., 125/150 lb. ANSI B16.1 or mechanical joint, AWWA std., C111-64
Body:	Cast iron, ASTM A126, Class B
Operator:	Electric Motor
Service:	Municipal wastewater
Remarks:	Port areas of valves through 20" shall be a min. of 80% of full pipe area. Valves 24" and larger shall be a min. of 70%. See Drawing for operational requirements.

ACCEPTABLE VALVE EQUIVALENTS

MANUFACTURER	FIG. NO.	SIZE RANGE	REMARKS
DeZurik	3-way and 4-way tapered plug	3" – 16"	

NOTES: Buried valves shall be furnished with valve boxes, stem extensions and tee wrench operator, unless otherwise noted.

Valves shall provide drip-tight shutoff to full valve rating with pressure in either direction.

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Description of scope and intent:

1. Contractor to provide all material, labor, and tools required to complete the installation of specified system.

2. Any omission of reference to items required to complete the full operational and functional system specified in the section does not relieve the contractor of the obligation to provide same.

3. To provide installation of all items, including delivery, dispersing to the proper locations within the building, and affixing in place.

4. Installation shall be accomplished by workers skilled in their craft who will perform their work in a professional manner and will leave the premises safe, orderly and clean.

5. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

6. Contractor is responsible for coordination of work included in this specification with all other specification sections related to furnishing of all materials, labor, permits, fees and services necessary for completion of work in this section.

B. Section Includes:

1. Formwork for cast-in-place concrete, with shoring, bracing, and anchorage.

2. Formwork accessories.

3. Form stripping.

4. Reinforcing steel for cast-in-place concrete.

5. Cast-in-place concrete, including concrete for the following:

a. Foundations, footings.
b. Slabs on grade.
c. Supported slabs.

d. Foundation walls.
e. Building frame members.
f. Equipment pads and bases.
g. Reinforced masonry.

6. Concrete curing.

7. Shoring and Reshoring.

C. Related Sections:

1. Joint sealers: Division 7.

1.2 REFERENCES

All referenced standards refer to the edition in force at the time these plans and specifications are issued for bidding.

A. AASHTO M 182 -- Standard Specification for Burlap Cloth Made from Jute or Kenaf; American Association of State Highway and Transportation Officials.

B. ACI 117 -- Standard Tolerances for Concrete Construction and Materials; American Concrete Institute.

C. ACI 201.2R -- Guide to Durable Concrete; American Concrete Institute.

D. ACI 211.1 -- Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute.

E. ACI 214 –Recommended Practice for Evaluation of Compression Test Results of Field Concrete.

F. ACI 301 -- Specifications for Structural Concrete for Buildings; American Concrete Institute.

G. ACI 302.1R -- Guide for Concrete Floor and Slab Construction; American Concrete Institute.

H. ACI 304R -- Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute.

I. ACI 305R -- Hot Weather Concreting; American Concrete Institute.

J. ACI 306R -- Cold Weather Concreting; American Concrete Institute.

K. ACI 318 -- Building Code Requirements for Reinforced Concrete; American Concrete Institute.

L. ACI 347R -- Guide to Formwork for Concrete; American Concrete Institute.

M. ACI 350 – Concrete Sanitary Engineering Structures.

N. ACI SP-66 -- ACI Detailing Manual; American Concrete Institute.

O. ASTM A 185 -- Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.

P. ASTM A 615 – Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

Q. ASTM C 31 -- Standard Practice for Making and Curing Concrete Test Specimens in the Field.

R. ASTM C 33 -- Standard Specification for Concrete Aggregates.

S. ASTM C 39 -- Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

T. ASTM C 42 -- Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.

U. ASTM C 94 -- Standard Specification for Ready-Mixed Concrete.

V. ASTM C 143 -- Standard Test Method for Slump of Hydraulic Cement Concrete.

W. ASTM C 150 – Standard Specification for Portland Cement.

X. ASTM C 171 -- Standard Specification for Sheet Materials for Curing Concrete.

Y. ASTM C 172 -- Standard Practice for Sampling Freshly Mixed Concrete.

Z. ASTM C 173 -- Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.

AA. ASTM C 231 -- Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.

BB. ASTM C 260 -- Standard Specification for Air-Entraining Admixtures for Concrete.

CC. ASTM C 494 -- Standard Specification for Chemical Admixtures for Concrete.

DD. ASTM C 618 -- Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.

EE. ASTM C 685 -- Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing.

FF. ASTM C 881 – Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete.

GG. ASTM C 1059 -- Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete.

HH. ASTM C 1107 -- Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).

II. ASTM D 1751 -- Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

JJ. ASTM D 1752 -- Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.

KK. ASTM E 154 -- Standard Test Methods for Water Vapor Retarders Used in Contact with Earth under Concrete Slabs, on Walls, or as Ground Cover.

LL. ASTM E 329 -- Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.

MM. CRSI -- Manual of Standard Practice; Concrete Reinforcing Steel Institute.

NN. Florida Building Code -- FBC

1.3 DEFINITIONS

A. Unexposed Finish: A general-use finish, with no appearance criteria, applicable to all formed concrete concealed from view after completion of construction.

B. Exposed Finish: A general-use finish applicable to all formed concrete

exposed to view except those indicated to receive textured finish, and including surfaces which may receive a paint coating (if any).

C. Textured Finish: An exposed finish achieved by means of form liners or special construction of the formwork.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's product data for the following:

1. Formwork accessories.
2. Form liners.
3. Concrete admixtures.
4. Grout.
5. Bonding compound.
6. Epoxy bonding system.

B. Aggregates: Submit test reports showing compliance with specified quality and gradation.

C. Shop Drawings: Submit shop drawings for fabrication and placement of the following:

1. Reinforcement: Comply with ACI SP-66. Include bar schedules, diagrams of bent bars, arrangement of concrete reinforcement, and splices.

a. Show construction joints.
b. Include details of reinforcement at openings through concrete structures.
c. Include elevations of reinforcement in walls.
d. Show stirrup spacing.
e. Concrete embedments.

2. Shoring and reshoring for elevated concrete placement shall include:

a. Location, size, and type of all shoring members.
b. Location, size, and type of all reshoring members.
c. Location, size, and type of all mud sills, blocking, temporary lateral bracing and other accessories necessary to safely support and brace the structure during construction.
d. Prepare shop drawings under seal of professional structural engineer registered in the state in which the project is located.

D. Quality Control Submittals: Submit the following information related to quality assurance requirements specified:

1. Design data: Submit proposed mix designs and test data before concrete operations begin. Identify for each mix submitted the method by which proportions have been selected.

   a. For mix designs based on trial mixtures, include trial mix proportions, test results, and graphical analysis and show required average compressive strength f(cr).
   b. Indicate quantity of each ingredient per cubic yard of concrete.
   c. Indicate type and quantity of admixtures proposed or required.

2. Test reports: Submit laboratory test reports for all testing specified.

3. Certifications: Submit affidavits from an independent testing agency certifying that all materials furnished under this section conform to specifications.

4. Certifications: Provide certification from manufacturers of concrete admixtures that chloride content complies with specified requirements.

5. Certifications: Submit mill test certificates for all reinforcing steel furnished under this section, showing physical and chemical analysis.

6. Placement schedule: Submit concrete placement schedule prior to start of any concrete placement operations. Include location of all joints indicated on drawings, plus anticipated construction joints.

7. Submit batch tickets complying with ASTM C 685 or delivery tickets complying with ASTM C 94, as applicable, for each load of concrete used in the work.

   a. Include on the tickets the additional information specified in the ASTM document.

8. Cold weather concreting: Submit description of planned protective measures.

9. Hot weather concreting: Submit description of planned protective measures.

1.5 QUALITY ASSURANCE

A. Codes and Standards: Comply with the following documents, except where requirements of the contract documents or of governing codes and governing authorities are more stringent:

1. ACI 301.
2. ACI 318.
3. ACI 350
4. CRSI Manual of Standard Practice.

B. Testing Agency Services:

1. Employ, at contractor's expense, an independent testing agency acceptable to the Engineer to perform specified tests and other services required for quality assurance.

a. Testing agency shall meet ASTM E 329 requirements.

C. Source of Materials: Obtain materials of each type from same source for the entire project.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver reinforcement to project site bundled and tagged with metal tags indicating bar size, lengths, and other data corresponding to information shown on placement drawings.

1. Store concrete reinforcement materials at the site to prevent damage and accumulation of dirt or rust.

B. Store cementitious materials in a dry, weather tight location. Maintain accurate records of shipment and use.

C. Store aggregates to permit free drainage and to avoid contamination with deleterious matter or other aggregates. When stockpiled on ground, discard bottom 6 inches of pile.

D. Handle aggregates to avoid segregation.

1.7 PROJECT CONDITIONS

A. Cold-Weather Concreting: Comply fully with the recommendations of ACI 306.

1. Well in advance of proposed concreting operations, advise the engineer of planned protective measures including but not limited to heating of materials, heated enclosures, and insulating blankets.

B. Hot-Weather Concreting: Comply fully with the recommendations of ACI 05R.

1. Well in advance of proposed concreting operations, advise the engineer of planned protective measures including but not limited to cooling of materials before or during mixing, placement during evening to dawn hours, fogging during finishing and curing, shading, and windbreaks.

PART 2 - PRODUCTS

2.1 FORMWORK

A. Facing Materials:

1. Unexposed finish concrete: Any standard form materials that produce structurally sound concrete.

2. Exposed finish concrete: Materials selected to offer optimum smooth, stain-free final appearance and minimum number of joints. Provide materials with sufficient strength to resist hydrostatic head without bow or deflection in excess of allowable tolerances.

3. Textured finish concrete: Materials or linings as indicated on the drawings, or as required to match engineer's control sample.

B. Formwork Accessories:

1. Form coating: Form release agent that will not adversely affect concrete surfaces or prevent subsequent application of concrete coatings.

2. Metal ties: Commercially manufactured types; cone snap ties, taper removable bolt, or other type which will leave no metal closer than 1-1/2 inches from surface of concrete when forms are removed, leaving not more than a 1-inch-diameter hole in concrete surface.

3. Fillets: Wood or plastic fillets for chamfered corners, in maximum lengths possible.

2.2 REINFORCING MATERIALS

A. Reinforcing Bars: Provide deformed bars complying with the following, except where otherwise indicated:

1. ASTM A 615, Grade 60.

B. Welded Wire Fabric: ASTM A 185, cold-drawn steel, plain.

C. Reinforcing Accessories:

1. Tie wire: Black annealed type, 16-1/2 gage or heavier.

2. Supports: Bar supports conforming to specifications of CRSI "Manual of Standard Practice."

a. Class 1 (plastic protected) at all formed surfaces which will be exposed to weather.
b. Class 1 (plastic protected) or Class 2 (stainless steel protected) at all formed surfaces which will be exposed to view but not to weather.
c. Precast concrete blocks of strength equal to or greater than specified strength of concrete or Class 3 supports equipped with sand plates, where concrete will be cast against earth. Concrete masonry units will not be accepted.

2.3 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, and as follows:

1. Type I, except where other type is specifically permitted or required.

B. Fly Ash: ASTM C 618, Type C or F.

C. Water: Potable.

D. Aggregates:

1. Normal weight concrete: ASTM C 33.

a. Class 5M.
b. Gradation as specified below under mix design.

E. Admixtures - General: Admixtures which result in more than 0.1 percent

of soluble chloride ions by weight of cement are prohibited.

F. Air-Entraining Admixture: ASTM C 260 and certified by manufacturer for compatibility with other mix components.

1. Products: The following products, provided they comply with requirements of the contract documents, will be among those considered acceptable:

a. "Air Mix"; The Euclid Chemical Company.
b. "Sika-Aer"; Sika Corporation.
c. "Micro-Air"; Master Builders, Inc.
d. "Darex AEA"; W. R. Grace & Co.

G. Water-Reducing, Retarding Admixture: ASTM C 494, Type D.

1. Products: The following products, provided they comply with requirements of the contract documents, will be among those considered acceptable:

a. "Pozzolith Retarder"; Master Builders, Inc.
b. "Eucon Retarder 75"; The Euclid Chemical Company.
c. "Daratard-17"; W. R. Grace & Co.
d. "PSI-R Plus"; Cormix Construction Chemicals.
e. "Plastiment"; Sika Corporation.
f. "Protard"; Master Builders, Inc. (former Conchem product).

H. Water-Reducing and Accelerating Admixtures: ASTM C 494, Type E.

1. Products: The following products, provided they comply with requirements of the contract documents, will be among those considered acceptable:

a. "Accelguard 80"; The Euclid Chemical Company.
b. "Pozzutec 20"; Master Builders, Inc.
c. "Gilco Accelerator"; Cormix Construction Chemicals.

I. High-Range Water-Reducing Admixture (Superplasticizer): ASTM C 494, Type F or G.

1. Products: The following products, provided they comply with requirements of the contract documents, will be among those considered acceptable:

a. "WRDA 19" or "Daracem-100"; W. R. Grace & Co.

b. "PSP Superplasticizer"; Master Builders, Inc. (former Conchem product).
c. "Sikament 300"; Sika Corporation.
d. "Eucon 37"; The Euclid Chemical Company.
e. "PSI Super"; Cormix Construction Chemicals.
f. "Rheobuild"; Master Builders, Inc.

2.4 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Vapor Retarder: Membrane for installation beneath slabs on grade, resistant to decay when tested in accordance with ASTM E 154, and as follows:

1. Polyethylene sheet, not less than 8 mils thick.

B. Nonshrink Grout: ASTM C 1107.

1. Type: Provide nonmetallic type only.

2. Products: The following products, provided they comply with requirements of the contract documents, will be among those considered acceptable:

a. Nonmetallic type:

1) "Masterflow 928"; Master Builders, Inc.
2) "Sonogrout 14k"; Sonneborn Building Products Division/ChemRex, Inc.
3) "Euco N-S Grout"; The Euclid Chemical Company.
4) "Supreme"; Cormix Construction Chemicals.
5) "Five Star Grout"; Five Star Products, Inc.

C. Burlap: AASHTO M 182, Class 2 jute or kenaf cloth.

D. Moisture-Retaining Cover: ASTM C 171, and as follows:

1. Curing paper.

2. Polyethylene film.

3. White burlap-polyethylene sheeting.

E. Bonding Compound: Non-redispersable acrylic bonding admixture, ASTM C 1059, Type II.

1. Products: The following products, provided they comply with

requirements of the contract documents, will be among those considered acceptable:

a. "Everbond"; L & M Construction Chemicals, Inc.
b. "Flex-Con"; The Euclid Chemical Company.

F. Epoxy Bonding Systems: Epoxy adhesive for bonding fresh concrete to hardened concrete and for grouting wall pipes, bolts and reinforcing dowels. ASTM C 881; type, grade, and class as required for project conditions.

1. Products: The following products, provided they comply with requirements of the contract documents, will be among those considered acceptable:

a. "Concresive LPL"; Master Builders, Inc.
b. "Sikadur 32 Hi-Mod"; Sika Corporation.
c. "Euco #452 Epoxy System"; The Euclid Chemical Company.
d. Sikastix 390.
e. EucoEpoxy 461.
f. Five Star Epoxy Grout.
g. Sikstix 370.
h. EucoEpocy 463.

G. Expansion Joint Filler:

1. Expansion Joint Filler shall be preformed non-extruding and resilient type meeting the Specifications of ASTM D1751, or D1752, unless otherwise specified.

2. All expansion joints in base slabs on grade other than hydraulic structures shall be fiber expansion joints of required slab depth meeting the requirement of ASTM D1751, Type I and AASHTO M213. Exposed joints shall be sealed as specified below.

3. All expansion joints in hydraulic structures shall be ¾ inch sponge rubber expansion joints of required wall thickness meeting the requirements of ASTM D1752, Type I and AASHTO M153, Type I. Joints shall be sealed on both sides as specified below.

a. Nonextruding bituminous type: ASTM D 1751.
b. Sponge rubber type: ASTM D 1752, Type I.

H. Expansion Joint Sealer

Joint sealants for hydraulic structures shall be one of the following, or approved equal:

1. "CM-60" two-part gray tone, as manufactured by W. R. Meadows, Inc., applied over a backer rod sized for the joint. Underwater primer shall be used on all joints subject to immersion. Standard "CM-60" primer shall be applied to all other joints. Sealant depth shall be one-half the width of the joint.

2. The sealant shall be a two-part, polyurethane sealant "Eucolastic I" by the Euclid Chemical Company or "Sikaflex 1a" by Sika Chemical Company. Joint width should be 4 times the expected joint movement, but not less than ¼ inch. All joints shall be primed with Eucolastic Primer by the Euclid Chemical Company or "Sikaflex 429" by Sika Chemical Company.

I. PVC Waterstops

PVC (polyvinyl chloride) waterstops shall be manufactured from all virgin materials and shall meet or exceed the requirements of U.S. Corps of Engineers Specification CRD-C-572. Waterstops shall be ribbed with a center bulb as manufactured by Greenstreak Plastic Products, Vinylex Corporation, and Vulcan Metal Products.

The dimensions of the waterstops shall be as shown on the Drawings.

Splicing of the PVC waterstops shall be done with a special thermostatically controlled splicer, furnished by the manufacturer, and shall be done strictly in accordance with the manufacturer's instructions.

2.5 Concrete Mix Design

A. Review: Do not begin concrete operations until proposed mix has been reviewed by the engineer.

B. Proportioning of Normal Weight Concrete: Comply with recommendations of ACI 211.1.

C. Required Average Strength: Establish the required average strength f(cr) of the design mix on the basis of trial mixtures as specified in ACI 301, and proportion mixes accordingly. Employ an independent testing agency acceptable to the engineer for preparing and reporting proposed mix design.

D. Proportion normal-weight concrete mix to produce an average strength at 28 day as follows unless otherwise indicated on the drawings:

1. Footings, Foundation Walls, and Hydraulic Structures: 4000 psi.
2. Slab-on-grade: 4000 psi.
3. Suspended Slabs: 4000 psi.
4. Building Frame Members: 4000 psi.
5. Pea gravel pump mix for filled CMU: 3000 psi
6. Toppings subject to traffic: 5000 psi
7. Other Toppings: 3000 psi

E. Fly Ash:

1. The contractor may elect to replace a portion of the Portland cement with fly ash up to a maximum of 25 percent by weight of cement plus fly ash.

F. Admixtures:

1. Air-entraining admixture: Add at rate to achieve specified air content.

   a. Do not use in slabs-on-grade scheduled to receive topping, unless manufacturer of topping recommends use over air-entrained concrete.

2. Water-reducing and retarding admixture: Add as required in concrete mixes to be placed at ambient temperatures above 90 degrees F.

3. Water-reducing and accelerating admixture: Add as required in concrete mixes to be placed at ambient temperatures below 50 degrees F.

4. High-range water-reducing admixture (superplasticizer): Add as required for placement and workability.

5. Do not use admixtures not specified or approved.

G. Design mix to meet or exceed each requirement specified. Where more than one criterion is specified, the most stringent shall apply. For example, a minimum cement content or maximum water-cement ratio might result in strengths greater than the minimum specified; likewise, a greater cement content or lower water-cement ratio may be required in order to achieve the required strength.

1. Specified compressive strength f'(c) (ASTM C 39): As noted

2. Maximum water-cement ratio by weight:

a. 0.4 for concrete toppings subject to traffic
b. 0.45 for all other concrete

3. Maximum slump: As recommended in ACI 211.1. and ACI 350 as applicable.

4. Gradation of coarse aggregate: ASTM C 33 standard gradation with maximum nominal size of 3/4 inches.

5. Total air content (ASTM C 173 or ASTM C 231): 5 percent.

H. Mix Adjustments: Provided that no additional expense to owner is involved, contractor may submit for engineer's approval requests for adjustment to approved concrete mixes when circumstances such as changed project conditions, weather, or unfavorable test results occur. Include laboratory test data substantiating specified properties with mix adjustment requests.

2.6 CONTROL OF MIX IN THE FIELD

A. Slump: A tolerance of up to 1 inch above that specified will be permitted for 1 batch in 5 consecutive batches tested. Concrete of lower slump than that specified may be used, provided proper placing and consolidation is obtained.

1. If slump upon arrival at the site is lower than 1 inch below the value specified, one addition of water in accordance with ASTM C 94 will be permitted to bring slump within tolerance, provided that:

a. A positive means is available to measure the amount of water added at the site.
b. The specified (or approved) maximum water-cement ratio is not exceeded.
c. Not more than 45 minutes have elapsed since batching.

B. Total Air Content: A tolerance of plus or minus 1-1/2 percent of that specified will be allowed for field measurements.

C. Do not use batches that exceed tolerances.

2.7 CONCRETE MIXING

A. On-Site Equipment: Mix concrete materials in appropriate drum type batch machine mixer, in compliance with ASTM C 685. Mix each batch minimum of

1-1/2 minutes and maximum of 5 minutes before discharging concrete. Clean thoroughly at end of day and before changing concrete type.

B. Transit Mixers: Mix concrete materials in transit mixers, complying with requirements of ASTM C 94.

1. At ambient temperatures of 85 to 90 degrees F, reduce mixing and delivery time to 75 minutes.

2. At ambient temperatures above 90 degrees F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 CONCRETE FORM PREPARATION

A. General: Comply with requirements of ACI 301 for formwork, and as herein specified. The contractor is responsible for design, engineering, and construction of formwork, and for its timely removal.

B. Earth Forms: Hand-trim bottoms and sides of earth forms to profiles indicated on the drawings. Remove loose dirt before placing concrete.

C. Design: Design and fabricate forms for easy removal, without impact, shock, or damage to concrete surfaces or other portions of the work. Design to support all applied loads until concrete is adequately cured, within allowable tolerances and deflection limits.

D. Construction: Construct and brace formwork to accurately achieve end results required by contract documents, with all elements properly located and free of distortion. Provide for necessary openings, inserts, anchorages, and other features shown or otherwise required.

1. Joints: Minimize form joints and make watertight to prevent leakage of concrete.

a. Align joints symmetrically at exposed conditions.

2. Chamfers: Provide chamfered edges and corners at exposed locations, unless specifically indicated otherwise on the drawings.

3. Permanent openings: Provide openings to accommodate work of other trades, sized and located accurately. Securely support items built into forms; provide additional bracing at openings and discontinuities in

formwork.

4. Temporary openings: Provide temporary openings for cleaning and inspection in most inconspicuous locations at base of forms, closed with tight-fitting panels designed to minimize appearance of joints in finished concrete work.

E. Tolerances for Formed Surfaces: Comply with minimum tolerances established in ACI 117, unless more stringent requirements are indicated on the drawings.

F. Release Agent: Provide either form materials with factory-applied nonabsorptive liner or field-applied form coating. If field-applied coating is employed, thoroughly clean and recondition formwork and reapply coating before each use. Rust on form surfaces is unacceptable.

3.2 VAPOR RETARDER INSTALLATION

A. General: Place vapor retarder sheet over prepared base material, aligning longer dimension parallel to direction of pour and lapped 6 inches. Seal joints with appropriate tape. Cover with sand to depth shown on drawings.

3.3 PLACING REINFORCEMENT

A. General: Comply with requirements of ACI 301 and as herein specified.

B. Preparation: Clean reinforcement of loose rust and mill scale, soil, and other materials which adversely affect bond with concrete.

C. Placement: Place reinforcement to achieve not less than minimum concrete coverages required for protection. Accurately position, support, and secure reinforcement against displacement. Provide Class C tension lap splices complying with ACI 318 unless otherwise indicated. Do not field-bend partially embedded bars unless otherwise indicated or approved.

1. Use approved bar supports and tie wire, as required. Set wire ties to avoid contact with or penetration of exposed concrete surfaces. Tack welding of reinforcing is not permitted.

2. Wire fabric: Install in maximum lengths possible, lapping adjoining pieces not less than one full mesh. Offset end laps to prevent continuous laps in either direction, and splice laps with tie wire.

D. Welding: Welding of reinforcement is not permitted.

3.4 JOINT CONSTRUCTION

A. Construction Joints: Locate and install construction joints as indicated on drawings. If construction joints are not indicated, locate in manner which will not impair strength and will have least impact on appearance, as acceptable to the engineer. Construction joints in retaining walls and walls of concrete tanks or structures subject to hydrostatic pressure shall be intentionally roughened to a full amplitude of approximately ¼ inch.

1. Keyways: Provide keyways not less than 1-1/2 inches deep.

2. Reinforcement: Continue reinforcement across and perpendicular to construction joints, unless details specifically indicate otherwise.

B. Isolation Joints: Construct isolation joints in slabs poured on grade at points of contact with vertical components, such as foundation walls and column pedestals. Install expansion joint filler to full concrete depth. Recess top edge of filler 1/8 inch where joints are unsealed.

C. Expansion Joints: Construct expansion joints where indicated. Install expansion joint filler to full depth of concrete. Recess edge of filler to depth indicated to receive joint sealant and backer rod as specified herein and detailed on drawings.

D. Control Joints: Construct contraction joints in building slabs poured on grade to form panels of sizes indicated on drawings, but not more than 20 feet apart in either direction.

1. Saw cuts: Form control joints by means of saw cuts one-fourth the depth of the slab, performed as soon as possible after slab finishing without dislodging aggregate.

3.5 INSTALLATION OF EMBEDDED ITEMS

A. General: Set anchorage devices and other items required for other work connected to or supported by cast-in-place concrete, using templates, setting drawings, and instructions from suppliers of items to be embedded.

1. Edge Forms and Screeds: Set edge forms and intermediate screeds as necessary to achieve final elevations indicated for finished slab surfaces.

3.6 WATERSTOPS

A. Waterstops shall be provided at all joints to seal off leakage of liquid from or into concrete tanks or structures subject to hydrostatic pressures. The type of

waterstops used shall be as shown on the Drawings and as specified herein. The Contractor shall submit to the Engineer for approval the proposed procedure and schedule of his concrete placing operations along with a detailed layout of the waterstop materials required showing sizes, lengths and types of joints.

Where required for proper location of waterstops, whether shown on the Drawings or not, starter walls of up to 1-1/2 inches in height and monolithic with slabs shall be provided at all wall construction joints. Reinforcing steel shall not be depressed at waterstops, but shall have only the amount of concrete covering shown or specified. Starter walls as specified shall be required whether shown on the Drawings or not, unless specified concrete cover over reinforcing steel is 3 inches or greater.

3.7 CONCRETE PLACEMENT

A. Preparation: Provide materials necessary to ensure adequate protection of concrete during inclement weather before beginning installation of concrete.

B. Inspection: Before beginning concrete placement, inspect formwork, reinforcing steel, and items to be embedded, verifying that all such work has been completed.

1. Wood forms: Moisten immediately before placing concrete in locations where form coatings are not used.

C. Placement - General: Comply with requirements of ACI 304 and as follows:

1. Concreting should be carried on at such a rate that the concrete is at all times plastic and flows readily into spaces between reinforcement.

2. Schedule continuous placement of concrete to prevent the formation of cold joints.

3. Provide construction joints if concrete for a particular element or component cannot be placed in a continuous operation.

4. Deposit concrete as close as possible to its final location, to avoid segregation.

5. Concrete shall be worked around reinforcement and embedded fixtures and into corners of forms.

6. The following shall be prohibited from use:

a. Partially hardened concrete.

b. Contaminated concrete.
c. Re-tempered concrete.
d. Re-mixed concrete after initial set has occurred.

D. Placement in Forms: Limit horizontal layers to depths which can be properly consolidated, but in no event greater than 24 inches.

1. Consolidate concrete by means of mechanical vibrators, inserted vertically in freshly placed concrete in a systematic pattern at close intervals. Penetrate previously placed concrete to ensure that separate concrete layers are knitted together.

2. Vibrate concrete sufficiently to achieve consistent consolidation without segregation of coarse aggregates.

3. Do not use vibrators to move concrete laterally.

E. Slab Placement: Schedule continuous placement and consolidation of concrete within planned construction joints.

1. Thoroughly consolidate concrete without displacing reinforcement or embedded items, using internal vibrators, vibrating screeds, roller pipe screeds, or other means acceptable to engineer.

2. Strike off and level concrete slab surfaces, using highway straightedges, darbies, or bull floats before bleed water can collect on surface. Do not work concrete further until finishing operations are commenced.

F. Cold Weather Placement: Comply with recommendations of ACI 306 when air temperatures are expected to drop below 40 degrees F either during concrete placement operations or before concrete has cured.

1. Do not use frozen or ice-laden materials.

2. Do not place concrete on frozen substrates.

G. Hot Weather Placement: Comply with recommendations of ACI 305R when ambient temperature before, during, or after concrete placement is expected to exceed 90 degrees F or when combinations of high air temperature, low relative humidity, and wind speed are such that the rate of evaporation from freshly poured concrete would otherwise exceed 0.2 pounds per square foot per hour.

1. Do not add water to approved concrete mixes under hot weather conditions.

2. Provide mixing water at lowest feasible temperature, and provide adequate protection of poured concrete to reduce rate of evaporation.

3. Use fog nozzle to cool formwork and reinforcing steel immediately prior to placing concrete.

3.6 FINISHING FORMED SURFACES

A. Repairs, General: Repair surface defects, including tie holes, immediately after removing formwork.

1. Remove honeycombed areas and other defective concrete down to sound concrete, cutting perpendicular to surface or slightly undercutting. Dampen patch location and area immediately surrounding it prior to applying bonding compound or patching mortar.

2. Before bonding compound has dried, apply patching mixture matching original concrete in materials and mix except for omission of coarse aggregate, and using a blend of white and normal Portland cement as necessary to achieve color match. Consolidate thoroughly and strike off slightly higher than surrounding surface.

B. Textured Form Finish: Repair tie holes and patch defective areas to match pattern created by form construction or form liners.

C. Unexposed Form Finish: Repair tie holes and patch defective areas. Rub down or chip off fins or other raised areas exceeding 1/4 inch height.

D. Exposed Form Finish: Repair and patch defective areas, with fins or other projections completely removed and smoothed.

1. Smooth rubbed finish: Apply to surfaces indicated no later than 24 hours after form removal.

a. Wet concrete surfaces to be finished and rub with Carborundum brick or other abrasive until uniform color and texture are achieved.

b. Do not apply separate grout mixture.

2. Contiguous unformed surfaces: Strike smooth and float to a similar texture tops of walls, horizontal offsets, and other unformed surfaces adjacent to or contiguous with formed surfaces. Continue final finish of

formed surfaces across unformed surfaces, unless otherwise specifically indicated.

3.7 FINISHING SLABS

A. Finishing Operations - General:

1. Do not directly apply water to slab surface or dust with cement.

2. Use hand or powered equipment only as recommended in ACI 302.1R.

3. Screeding: Strike off to required grade and within surface tolerances indicated. Verify conformance to surface tolerances. Correct deficiencies while concrete is still plastic.

4. Bull Floating: Immediately following screeding, bull float or darby before bleed water appears to eliminate ridges, fill in voids, and embed coarse aggregate. Recheck and correct surface tolerances.

5. Do not perform subsequent finishing until excess moisture or bleed water has disappeared and concrete will support either foot pressure with less than 1/4-inch indentation or weight of power floats without damaging flatness.

6. Final floating: Float to embed coarse aggregate, to eliminate ridges, to compact concrete, to consolidate mortar at surface, and to achieve uniform, sandy texture. Recheck and correct surface tolerances.

B. Coordinate appearance and texture of required final finishes with the engineer before application.

1. Apply final finishes in the locations indicated on the drawings.

C. Float Finish: As specified above.

D. Broomed Float Finish: After floating and when water sheen has practically disappeared, apply uniform transverse corrugations approximately 1/16 inch deep, without tearing surface.

E. Slab Surface Tolerances:

1. Achieve flat, level planes except where grades are indicated. Slope uniformly to drains.

2. Floated finishes: Depressions between high spots shall not exceed 5/16 inch under a 10-foot straightedge.

F. Repair of Slab Surfaces: Test slab surfaces for smoothness and to verify surface plane to tolerance specified. Repair defects as follows:

1. High areas: Correct by grinding after concrete has cured for not less than 14 days.

2. Low areas: Immediately after completion of surface finishing operations, cut out low areas and replace with fresh concrete. Finish repaired areas to blend with adjacent concrete. Proprietary patching compounds may be used when approved by the engineer.

3. Crazed or cracked areas: Cut out defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts. Dampen exposed concrete and apply bonding compound. Mix, place, compact, and finish patching concrete to match adjacent concrete.

4. Isolated cracks and holes: Groove top of cracks and cut out holes not over 1 inch in diameter. Dampen cleaned concrete surfaces and apply bonding compound; place dry pack or proprietary repair compound acceptable to engineer while bonding compound is still active:

a. Dry-pack mix: One part Portland cement to 2-1/2 parts fine aggregate and enough water as required for handling and placing.

b. Install patching mixture and consolidate thoroughly, striking off level with and matching surrounding surface. Do not allow patched areas to dry out prematurely.

3.8 CONCRETE CURING AND PROTECTION

A. General:

1. Prevent premature drying of freshly placed concrete, and protect from excessively cold or hot temperatures until concrete has cured.

2. Provide curing of concrete by one of the methods listed and as appropriate to service conditions and type of applied finish in each case.

B. Curing Period:

1. Not less than 7 days for standard cements and mixes.

2. Not less than 4 days for high early strength concrete using Type III cement.

C. Curing Temperature:

1. Concrete shall be maintained above 50° F and in moist condition during the entire curing period.

D. Formed Surfaces: Cure formed concrete surfaces by moist curing with forms in place for full curing period.

1. Keep wooden or metal forms moist when exposed to heat of the sun.

2. If forms are removed prior to completion of curing process, continue curing by one of the applicable methods specified.

E. Surfaces Not in Contact with Forms:

1. Start initial curing as soon as free water has disappeared, but before surface is dry.

2. Keep continuously moist for not less than 3 days by uninterrupted use of any of the following:

a. Water ponding.
b. Water-saturated sand.
c. Water-fog spray.
d. Saturated burlap: Provide 4-inch minimum overlap at joints.

3. Begin final curing procedures immediately following initial curing and before concrete has dried.

a. Moisture-retaining cover: Lap not less than 3 inches at edges and ends, and seal with waterproof tape or adhesive. Repair holes or tears during curing period with same tape or adhesive. Maintain covering in intimate contact with concrete surface. Secure to avoid displacement.

1) Extend covering past slab edges at least twice the thickness of slab.
2) Do not use plastic sheeting on surfaces which will be exposed to view when in service.

4. Continue final curing to end of curing period.

F. Avoid rapid drying at end of curing period.

G. During and following curing period, protect concrete from temperature changes of adjacent air in excess of 5 degrees F per hour and 50 degrees F per 24 hours. Progressively adjust protective measures to provide uniform temperature changes over entire concrete surface.

3.9 SHORES AND SUPPORTS

A. General: Comply with recommendations of ACI 347 for shoring and reshoring in multistory construction.

B. Low-Rise Construction: Extend shoring from ground to roof for structures 4 stories or less in height.

C. Reshoring: Remove shores and reshore in a planned sequence, to avoid damage to partly cured concrete. Locate and provide adequate reshoring to safely support work without excessive stress or deflection.

D. Provide as a package, shoring and reshoring drawings prepared by or under the direct supervision of a specialty engineer registered in the State of Florida.

3.10 REMOVAL OF FORMS AND SUPPORTS

A. Non-Load-Bearing Formwork: Provided that concrete has hardened sufficiently that it will not be damaged, forms not actually supporting weight of concrete or weight of soffit forms may be removed after concrete has cured at not less than 50 degrees F for 24 hours. Maintain curing and protection operations after form removal.

B. Load-Bearing Formwork: Do not remove shoring and forms supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, until concrete has attained at least the specified compressive strength f'(c) and until the contractor has determined that the actual compressive strength attained is adequate to support the weight of the concrete and superimposed loads.

C. Keep reshores in place a minimum of 15 days after placing upper tier, and longer if required, until concrete has attained at least the specified compressive strength f'(c) and until the contractor has determined that the actual compressive strength attained is adequate to support the weight of the concrete and superimposed loads.

D. Keep supports in place until heavy loads due to construction operations have been removed.

E. Test field-cured specimens to determine potential compressive strength of concrete for specific locations.

3.11 MISCELLANEOUS CONCRETE ITEMS

A. Fill-in: Fill in holes and openings left in concrete structures for passage of work by other trades after such work is in place. Place such fill-in concrete to blend with existing construction, using same mix and curing methods.

B. Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as indicated on drawings. Set anchor bolts at correct elevations, complying with diagrams or templates of equipment manufacturer.

1. Grout base plates and foundations as indicated with nonshrink grout.

2. Use nonmetallic grout for exposed conditions, unless otherwise indicated.

C. Reinforced Masonry: Provide concrete grout for reinforced masonry where indicated on drawings and as scheduled.

3.12 CONCRETE REPAIRS

A. General: Repairs due to poor workmanship shall be made by the contractor at the contractor's expense and shall be approved by the Engineer prior to repair procedure being implicated.

B. Perform cosmetic repairs of concrete surfaces as specified under concrete application.

C. Perform structural repairs with prior approval of the engineer for method and procedure, using epoxy bonding systems. The engineer's approval is required for repair methods using materials other than those specified.

3.13 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. Testing Agency Services: Employ, at Contractor's expense, an independent testing agency acceptable to the owner and engineer to perform the specified tests and other services required for quality assurance as listed below.

B. Composite Sampling, and Making and Curing of Specimens: ASTM C 172 and ASTM C 31.

1. Take samples at point of discharge.

2. For pumped concrete, perform sampling and testing at the frequencies specified herein at point of delivery to pump, and perform additional sampling and testing at the same frequency at discharge from line.

Results obtained at discharge from line shall be used for acceptance of concrete.

C. Slump: ASTM C 143. One test per strength test and additional tests if concrete consistency changes.

1. Modify sampling to comply with ASTM C 94.

D. Air Content of Normal Weight Concrete: ASTM C 173 or ASTM C 231. One test per strength test performed on air-entrained concrete.

E. Concrete Temperature:

1. Test hourly when air temperature is 40 degrees F or below.

2. Test hourly when air temperature is 90 degrees F or above.

3. Test each time a set of strength test specimens is made.

F. Compressive Strength Tests: ASTM C 39.

1. Compression test specimens: Mold and cure one set of 4 standard cylinders for each compressive strength test required.

2. Testing for acceptance of potential strength of as-delivered concrete:

a. Obtain samples on a statistically sound, random basis.

b. Minimum frequency:

1) One set per 100 cubic yards or fraction thereof for each day's pour of each concrete class.
2) One set per 3500 square feet of slab or wall area or fraction thereof for each day's pour of each concrete class.
3) When the above testing frequency would provide fewer than 5 strength tests for a given class of concrete

during the project, conduct testing from not less than 5 randomly selected batches, or from each batch if fewer than 5.

c. Test one specimen per set at 7 days for information unless an earlier age is required.

d. Test 2 specimens per set for acceptance of strength potential; test at 28 days unless other age is specified. The test result shall be the average of the two specimens. If one specimen shows evidence of improper sampling, molding, or testing, the test result shall be the result of the remaining specimen; if both show such evidence, discard the test result and inform the engineer.

e. Retain one specimen from each set for later testing, if required.

f. Strength potential of as-delivered concrete will be considered acceptable if all of the following criteria are met:

1) No individual test result falls below specified compressive strength by more than 500 psi.
2) Average of any 3 consecutive strength test results equals or exceeds specified compressive strength f'c.

3. Testing for evaluation of field curing:

a. Frequency: 1 field set of specimens per strength acceptance test.

b. Mold specimens from same sample used for strength acceptance tests. Field-cure, and test at same age as for strength acceptance tests.

c. Evaluate construction and curing procedures and implement corrective action when strength results for field-cured specimens are less than 85 percent of test values for companion laboratory-cured specimens.

4. Removal of forms or supports: Mold additional specimens and field-cure with concrete represented; test to determine strength of concrete at proposed time of form or support removal.

G. Test Results: Testing agency shall report test results in writing to engineer and contractor within 24 hours of test.

1. Test reports shall contain the following data:

   a. Project name, number, and other identification.
   b. Name of concrete testing agency.
   c. Date and time of sampling.
   d. Concrete type and class.
   e. Location of concrete batch in the completed work.
   f. All information required by respective ASTM test methods.

2. Nondestructive testing devices such as impact hammer or sonoscope may be used at engineer's option for assistance in determining probable concrete strength at various locations or for selecting areas to be cored, but such tests shall not be the sole basis for acceptance or rejection.

3. The testing agency shall make additional tests of in-place concrete as directed by the engineer when test results indicate that specified strength and other concrete characteristics have not been attained.

   a. Testing agency may conduct tests of cored cylinders complying with ASTM C 42, or tests as directed.
   b. Cost of additional testing shall be borne by the contractor when unacceptable concrete has been verified.

H. Tightness of Water Containing Walls

1. All basins and tanks are hydraulic structures and shall be watertight. Each tank or basin shall be filled with water, full depth, prior to backfilling (unless otherwise noted) and kept full 24 hours for observation. The Contractor shall exercise every precaution to secure water tightness by careful mixing and placing of the concrete so as to obtain a homogeneous mixture at maximum density, without air pockets or voids, using the minimum practical amount of water in the mix. Extreme care shall be used to secure continuity of water stops at expansion and construction joints, to seal off holes from wall ties, and when placing concrete about wall sleeves, wall pipes and other obstructions. The Contractor shall fix all leaks. The Contractor shall furnish test water at his own expense.

Below grade dry structures shall be watertight. Contractor shall fix all leaks.

END OF SECTION 03300

SECTION 6710

ABSORPTION FIELD CHAMBERS

PART 1 – GENERAL

1.1 DESCRIPTION

This section covers high-density plastic absorption field chambers.

1.2 QUALITY ASSURANCE

A. The chambers shall be INFILTRATOR™ Quick4™ Equalizer36 Chamber as manufactured by Infiltrator Systems Inc. (800-221-4436), or equal as defined.

B. Chamber manufacturing facility shall be ISO 9002 certified. Proof of certification shall be required as part of the submittals.

C. If the plant is not ISO 9002 certified then the contractor shall submit material testing as defined in the submittals.

1.3 SUBMITTALS

ISO certification or material testing requirements.

Material testing requirements to be submitted:

a. A third party materials testing laboratory shall be contracted.
b. 3 random samples from sales distribution locations shall be obtained without manufacturer notification.
c. Product samples shall be test for: Tensile Flexural Modulus ASTM D790, Tensile Yield Strength ASTM D638, Environmental Stress Crack Resistance D1693, and Izod Impact ASTM D256.
d. Materials testing lab shall contact the manufacturer and obtain the minimum property specifications.
e. The materials testing laboratory shall prepare a report comparing the testing results to the minimum specifications.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Do not deliver chambers to job site earlier than one week prior to scheduled date of commencing installation.

B. All storage and handling of the chambers at job site shall not in any way impair or damage the product.

SECTION 6710

ABSORPTION FIELD CHAMBERS

PART 2 – PRODUCTS

2.1 ABSORPTION FIELD CHAMBERS

A. The chambers shall be manufactured of polypropylene by an injection molding process. If the chambers are to be manufactured with other then the Environmental Stress Crack Resistance testing is required per the submittals.

D. The chambers shall be arch shaped and of open bottom construction with provisions for side exit of effluent. Side exit openings shall be louvered so as not to allow entry of backfill materials into the chamber. The sidewall louver height shall extend at least to 10.7 inches.

E. The chambers shall achieve an axle loading of 16,000 lbs/axle (AASHTO rating of H-10) with 12" of compacted backfill, and installed according to manufacturer's specifications.

F. The chamber shall be injection molded in units not exceeding 4.5 feet in length, by 1.90 feet in width, by 12.5 inches in height. When interlocked the effective length shall be 4 feet. If the chamber is not 4 feet in length then the contractor may be required to cut the chambers to meet the required trench length per the plans.

G. The chamber endplates shall accommodate 1.25" and 6" invert heights and come with a premolded splash pad to prevent trench erosion. If there is no splash pad provided then the contractor shall provide other means for trench erosion protection such as concrete patio blocks or other method to be approved by the design engineer.

H. To meet LEED Certification the chambers shall be manufactured with a minimum of 85% recycled content material.

I. Individual units shall be constructed in a manner that allows interlocking from one to the next. Each joint shall allow a minimum deflection of 10 degrees.

J. Chambers shall have 4 inch molded premarked pipe locations to allow for venting and/or monitoring ports.

K. Chambers shall have interior drip ledges to prevent pressure dosed effluent from traveling down the inside walls, thereby preventing fill from entering the chamber. If the chamber does not have a drip ledge then orifice shields shall be required.

L. The chamber shall allow for pressure or gravity distribution.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install chambers, pipe fittings, accessories, and bedding materials in strict accordance with plans and instructions by the manufacturer.

B. Refer to Earthwork Section for soil/fill material requirements or specifications.

END OF SECTION 6710

SECTION 11000

MECHANICAL EQUIPMENT - GENERAL

PART 1 - GENERAL

1.1 SCOPE

A. Description of Work

1. Furnish and install all mechanical equipment specified in this Division as well as all other mechanical equipment shown and specified on the Drawings and not specifically excluded from this Contract.

2. Included are all supervision, labor, materials, tools, equipment, and services as required for installation and test operation of equipment.

3. Installation shall include placing, shimming, anchoring, grouting, lubricating, assembling, adjusting, cleaning and painting of all mechanical equipment.

4. The Contractor shall coordinate his work with the other Contractors to provide a complete and workable installation.

5. The Contractor's attention is called to the fact that the presence of a manufacturer's name in a Section of these Specifications does not relieve the Contractor from meeting the detailed mechanical and performance requirements set forth in that Specification.

B. Related Work Specified Elsewhere

1. The provisions of the GENERAL CONDITIONS, as well as all other Sections of these Specifications where appropriate, apply equally to all Specification Sections in Division 11.

1.2 EQUIPMENT MANUFACTURER'S SERVICE REPRESENTATIVE

A. Installation Assistance

1. Any equipment which will require equipment manufacturer's service representative for the purpose of assisting and directing the installation, adjustment and initial operation, is noted in the specific Specification Section. The cost of this service shall be included in the Contract Price.

2. The following items must be completed as a part of the installation assistance:

a. Installation

b. Calibration, adjustment, etc.

c. Energize equipment

d. Mechanical shakedown

e. Deficiency correction

f. Compliance with applicable performance specification

g. Provide certification from the manufacturer's service representative that the installation and operation is in complete compliance with the manufacturer's recommendations and Engineer's requirements. The required Equipment Certification Form is attached herewith as Part 4 of this Section.

3. Operator instruction/training shall not be undertaken during installation, but only as stated under Paragraph C below.

4. Upon completion of Project, the Contractor will forward to the Owner all required equipment certifications.

a. Copy of Equipment Certification Form is attached at the end of this Section.

B. Process Start-up and/or Process Stabilization and Balancing Assistance

1. Equipment that requires process start-up and/or process stabilization and balancing assistance is noted in the Specification Section. The cost of this service shall be included in the Contract Price.

2. For such equipment the manufacturer's service representative is required to be on hand during either process startup or process stabilization and balancing for the period of time determined by the Engineer. The representative shall make all necessary field adjustments.

C. Operating Instructions and/or Operator Training

1. Equipment that requires operating instructions and/or training for the Plant Operators is noted in the specific Specification Section. The cost of this service shall be included in the Contract Price.

2. The Contractor, if instructions and/or training are required and after the equipment has been accepted, shall arrange through the equipment manufacturer's service representative, or other qualified individual, to

adequately instruct designated employees of the Owner in the operation and care of the equipment. During this training period instructions shall be provided on proper safety measures to be taken during operation of equipment. The training period is to be integrated by the Owner with overall training.

3. A letter of certification shall be submitted to the Engineer from the manufacturer's service representative upon completion of the plant visit indicating that the plant personnel have been instructed in the proper use of the equipment.

1.3 MANUALS, SHOP DRAWINGS, SERVICE AND MAINTENANCE

A. Manuals

1. Manuals shall be furnished in accordance with the provisions of Section 01300, SUBMITTALS.

B. Shop Drawings

1. Shop Drawings shall be furnished in accordance with the provisions of Section 01300, SUBMITTALS.

C. Service and Maintenance

1. Evidence shall be furnished, if requested by the Engineer, that there is an efficient service organization which regularly carries a stock of repair parts for the proposed equipment.

1.4 TOOLS AND ACCESSORIES

A. The Contractor shall furnish, with each type, make, or size of equipment, any special tools and appliances which may be needed to adjust, operate, maintain, or repair the equipment. Such tools and appliances shall be high-grade, properly labeled, and delivered to the Owner prior to initial operation of the equipment.

1.5 IDENTIFICATION NAMEPLATES

A. Each piece of equipment shall be provided with a substantial brass, stainless steel or plastic nameplate, securely fastened in a conspicuous place and clearly inscribed with the equipment manufacturer's name, year of manufacture, serial number, and principal rating data. These nameplates shall not be painted.

1.6 GUARANTEE AND WARRANTY

A. See detailed equipment specifications.

PART 2 - PRODUCTS

2.1 DESIGN CRITERIA

A. As stated in the GENERAL CONDITIONS, the Contractor is liable for any changes in design necessitated by any equipment manufacturer's requirements which differ from those shown or specified in the Contract Documents.

2.2 QUALITY OF EQUIPMENT

A. Equipment and appurtenances shall be designed in conformity with ANSI, ASME, IEEE, NEMA, AGMA, and other generally accepted applicable standards. They shall be of high quality construction and designed to withstand all stresses which may occur during fabrication, testing, transportation, installation, and all conditions or operations. All moving parts shall be adequately protected from wear by the use of bearings, bushings or other approved means. Provisions shall be made for adequate lubrication with readily accessible devices.

B. Machinery parts shall conform to the dimensions shown on the working drawings within allowable tolerances. The corresponding parts of identical machines shall be made interchangeable. Ample clearance shall be provided for repairs, inspection and adjustment. Protruding members such as joints, corners and gear covers shall be finished in appearance. All exposed welds shall be ground smooth and the corners of structural shapes shall be rounded or chamfered.

C. All machinery and equipment shall be safeguarded in accordance with the safety codes of the ANSI, OSHA and local industrial codes such as providing metal guards over all belt drives, couplings and moving equipment to protect personnel from injury.

2.3 ELECTRIC MOTORS

A. All electric motors furnished to drive mechanical equipment shall conform to the design, construction and performance requirements defined in Division 16, ELECTRICAL - and shall suit the characteristics of the available electric service.

B. Motors shall be factory installed where applicable by the equipment manufacturer.

2.4 ANCHOR BOLTS

A. The equipment manufacturer shall provide anchor bolts of the proper size for all equipment specified under this Division of the Specifications. These anchor bolts, nuts and washers shall be hot dip galvanized steel unless specified otherwise in the equipment Specification or shown on the Contract Drawings.

2.5 PROTECTIVE COATINGS

A. All machined surfaces and shafting shall be cleaned and protected from corrosion by the proper type and amount of coating necessary to assure protection during shipment and prior to installation.

B. Oil lubricated gears, bearings, etc. are to be shipped with an oil soluble protective coating as recommended by the equipment manufacturer.

C. Motors, reducers and electric controls shall have the standard factory finish prior to delivery.

D. Metal surfaces, except as noted above, or unless otherwise specified in the equipment specification, shall be cleaned and prime coated using the appropriate "system" as specified in Section 09900, PAINTING.

2.6 STANDARDIZATION OF GREASE FITTINGS

A. The grease fittings on all mechanical equipment shall be such that they can be serviced with a single type of grease gun. Fittings shall be of the "Alemite" button head type, Zurn, or equal, unless otherwise stated in the detailed equipment specifications.

2.7 PREPARATION FOR SHIPMENT

A. Fabricated sub-assemblies, if any, shall be shipped in convenient sections as permitted by carrier regulations and shall be properly match-marked for ease of field erection.

PART 3 - EXECUTION

3.1 QUALITY OF WORKMANSHIP

A. All equipment shall be installed true, level and in the location shown on the Drawings. Precision gages and levels shall be used in setting all equipment.

3.2 ANCHORS AND SUPPORTS

A. Working Drawings for installation shall be furnished by the equipment manufacturer and suitable templates shall be used by the Contractor when required.

B. The Contractor shall install and protect all necessary guides, bearing plates, anchor and attachment bolts, and all other appurtenances required for the installation.

C. The anchor bolts shall be set with the proper projection as required by the equipment manufacturers, such that no field cutting of the galvanized anchor bolts is required.

3.3 INSTALLATION OF EQUIPMENT

A. The Contractor shall have on-site sufficient proper construction equipment and machinery of ample capacity to facilitate the work and to handle all emergencies normally encountered in work of this character. To minimize field erection problems, mechanical units shall be factory assembled when practical.

B. It will be the Contractor's responsibility to determine weights of equipment to be handled, and to provide adequate handling equipment and experienced riggers. Any weights shown on the Drawings are approximate and are to be used at the Contractor's discretion.

C. Equipment shall be erected in a neat and workmanlike manner on the foundations and supports at the locations and elevations shown on the Contract Drawings, unless instructed otherwise by the Engineer during installation.

D. The equipment shall be brought to proper level by wedges and shims. After the machine has been leveled and aligned, the nuts on the anchor bolts shall be tightened to bind the machine firmly into place against the wedges or shims.

E. All equipment shall be installed in such a manner as to provide access for routine maintenance including lubrication.

F. For equipment such as pumping units, which require field alignment and connections, the Contractor shall provide the services of the Equipment Manufacturer's qualified mechanic, millwright, machinist, or authorized representative, to align the pump and motor prior to making piping connections or anchoring the pump base.

G. Equipment of a portable nature which requires no installation shall be delivered to a location designated by the Engineer.

3.4 FIELD PAINTING

A. All equipment, unless otherwise specified, shall be painted in accordance with Section 09900, PAINTING.

3.5 ELECTRICAL CONNECTIONS AND CONTROLS

A. Wiring and conduits for electrical power, control and instrumentation will be provided by the Contractor under Division 16, ELECTRICAL.

3.6 LUBRICATION

A. The Contractor shall thoroughly lubricate all equipment in accordance with the equipment manufacturer's instructions. Lubricating oils and greases shall be of type and viscosity as recommended by the equipment manufacturer.

B. All lubricants shall be furnished by the Contractor.

C. All systems requiring oil lubrication for gears, bearings, etc., are to be flushed with oil as recommended by the equipment manufacturer. This includes all gears, bearings, etc., regardless of whether they have been shipped with or without oil soluble protective coatings.

D. Following flushing, oil lubricated systems shall be filled with "run-in" oil as recommended by the Equipment Manufacturer. The equipment shall be "run-in" at the no-load condition for a minimum period of 2 hours. Following "run-in" and inspection, the equipment is to be drained and flushed again with flushing oil as recommended by the equipment manufacturer.

E. The schedule for the above procedures is to be submitted for review by the Engineer at least 2 weeks prior to the selected procedure starting date. At this time inspection details can be worked out.

3.7 TEST OPERATION

A. When all relevant items of equipment, including controls and instrumentation, have been completely erected, the Contractor shall notify the Engineer, who will designate a time to make such tests as are required, and operate the equipment to his satisfaction. All testing shall be done in the presence of the Engineer. "Completely erected" shall mean that the installation is erected, all necessary adjustments have been made, all required utility connections have been made, required lubricants and hydraulic fluid have been added and the unit has been cleaned up. All testing operations shall be complete before operator training is started.

B. The Contractor shall furnish labor, lubricants, and all other materials, equipment and instruments necessary for all acceptance tests.

3.8 RESPONSIBILITY DURING TESTS

A. The Contractor shall be fully responsible for the proper operation of equipment during tests and instruction periods and shall neither have nor make any claim for damage which may occur to equipment prior to the time when the Owner normally takes over the operation thereof.

3.9 ACCEPTANCE OF EQUIPMENT BY THE OWNER

A. After the equipment has satisfied all of the above conditions, the Contractor shall notify the Engineer and shall, at such time as agreed upon, demonstrate to his satisfaction that the equipment is ready for operation. The equipment shall then be designated as "accepted" and the Owner will be responsible for all further maintenance and operation of same.

END OF SECTION 11000

SECTION 11011

SUBMERSIBLE CHOPPER PUMPS

PART 1 - GENERAL

1.1 SCOPE

A. Description of Work

1. Provide all labor, material and equipment to furnish and install pumps and controllers as specified herein and/or shown on the Drawings.

2. This Specification covers the general requirements for the design, fabrication and testing the specified pumps and associated appurtenances.

B. Work and Components Included (but not limited to the following items)

1. Influent Pump Station Pumps (2)

C. Related Work Specified Elsewhere

1. The provisions of this Section are a direct extension of Section 11000, MECHANICAL EQUIPMENT - GENERAL, and although set forth only once within these Specifications, shall apply equally to this Section.

2. The following items are specified under other Sections of these Specifications:

a. Foundations - Division 3, CONCRETE
b. Piping - Section 2500, PIPING, VALVES, AND APPURTENANCES
c. Motors, motor starters, breakers, switch gear, instrumentation, wiring and conduit - Division 16, ELECTRICAL

1.2 QUALIFICATIONS

A. Manufacturer's Experience

1. The Equipment Manufacturer shall have not less than 5 successful years of experience in the design, construction and operation of equipment of the type specified at 5 plants.

2. The Engineer may require evidence, in the form of operating records, from these plants to substantiate any claims concerning the ability of the equipment to perform as required.

B. Quality Assurance and Performance Affidavit

1.3 SUBMITTALS

A. Operating instructions, manuals and Shop Drawings shall be submitted in accordance with Section 1300, SUBMITTALS.

B. Shop Drawings for all pumps, drive motors and accessories shall be submitted in accordance with Section 01300 of the specifications and shall give make, size, style, model, capacity, weight and all other data required to show compliance with the requirements of the Plans and Specifications. Shop Drawings shall include performance curves of the pump unit showing capacity of pump at its motor speed or range of speeds from shut-off heads to minimum head, recommended head and capacity range for continuous operation of the pump, pump efficiencies, brake horsepower, NPSH requirements and solids handling capabilities. Shop Drawings shall include motor data noting horsepower, voltage, current, enclosure type, NEMA design, dimensions and all other data as required to show compliance with Specification requirements. Shop Drawings shall cover all items directly associated with the pump assembly.

C. The contractor shall submit manufacturer's standard warranty and a performance affidavit for equipment to be furnished in accordance with this section. The warranty for workmanship and materials shall be manufacturer's standard for 1 year from startup. In the performance affidavit, the manufacturer must certify to the Contractor and the Owner, that the Contract Documents have been examined, and that the equipment will meet in every way the performance requirements set forth in the Contract Documents for the application specified. Shop drawings will not be reviewed prior to the receipt by the Engineer of an acceptable performance affidavit. The performance affidavit must be signed by an officer of the company manufacturing the equipment, and witnessed by a notary public. The performance affidavit must include a statement that the equipment will not clog or bind on solids typically found in the application set forth.

1.4 EQUIPMENT MANUFACTURER'S SERVICE REPRESENTATIVE

A. General

1. See Section 11000, MECHANICAL EQUIPMENT - GENERAL, for complete requirements for the Manufacturer's Service Representative.

2. Supplier's/Manufacturer's Services

a. A supplier's and/or manufacturer's representative for the equipment specified herein shall be made available at the job site in the event of failure or other malfunction of the equipment to verify

the problem and take whatever action is necessary for correction thereof. In addition, suppliers'/manufacturers' representatives shall be made available for installation assistance, inspection, functional testing, and written certification of installation acceptability for each pumping system. The cost of this service shall be included in the pump supplier's cost.

3. Factory Tests

a. Pumps
(1) A factory test certified by the pump manufacturer's test representative shall be performed on the pumps actually furnished, and written notice of the same shall be furnished to the Engineer. Information required to be furnished at the time of test is as necessary to show conformance to specified performance. Tests shall conform to the Hydraulic Institute Standards test code.

b. Motor Tests and Test Reports
(1) As specified in Pump Specification Sheets. Pump drivers shall not be overloaded at any point on the pump curve.

c. Balance of Vibration
(1) The rotating parts of each pump and its driving unit shall be dynamically balanced before final assembly. The driving unit alone shall operate without vibration in excess of the limits stated in the latest revision of NEMA MG 1.

4. Operating Instructions and/or Operator Training:

a. Provide for one (1) eight (8) hour working day total to instruct Plant Operators for the equipment supplied. The training period will be coordinated by the Owner with overall plant training. The operator training shall be after the acceptance of each pump system.

b. An additional two (2) trips not less than one (1) day per trip shall be provided for operation assistance of the equipment supplied.

PART 2 - PRODUCTS

2.1 GENERAL

A. All pumps of the same type, frame and size shall be of the same manufacturer and shall have interchangeable parts. All complete pump units with all

accessories shall be suitable for outdoor installation and all surfaces shall have adequate protection to minimize corrosion or deterioration on account of moisture. All screws, small bolts, nuts, washers and miscellaneous items normally subjected to corrosion shall be constructed of Everdur, Monel, bronze, or stainless steels exceeding 12 percent chrome and 7 percent nickel. All pumps shall be suitable for flanged pipe type connections. All pump units and accessories shall be suitable for the intended service and shall be free of defects. Any pump or accessory delivered to the work site and found to be defective or damaged shall be repaired or the entire unit shall be replaced at no cost to the Owner.

B. The vendor shall furnish 2 submersible wet pit chopper pump and all appurtenances as specified. The pump shall be specifically designed to pump waste solids at heavy consistencies without plugging or dewatering of the solids. Materials shall be chopped/macerated and conditioned by the pump as an integral part of the pumping action. The pump must have demonstrated the ability to chop through and pump high concentrations of solids such as plastics, heavy rags, grease and hair balls, wood, paper products and stringy materials without plugging, both in tests and field applications.

B. The pump supplier shall provide in suitable substantial case any special tools or adjustment devices necessary for the proper maintenance and adjustment of the equipment furnished. This shall include all special or unusual items necessary for the dismantling and assembling of all furnished equipment.

C. Pump Identification Plate

(1) A 16 gauge stainless steel identification plate shall be securely mounted on each pump in a readily visible location. The plate shall bear the 1/4 inch die-stamped equipment identification number that is assigned each pump in the Pump Specification Sheets.

D. Lifting Lugs

(1) Equipment weighing over 100 pounds shall be provided with lifting lugs.

E. Vent and Drain Connections

(1) Provide 1/2 inch tapped and plugged case vent and drain connections.

F. Gauge Connections

(1) Provide 1/2 inch tapped and plugged suction and discharge gauge connections on the pump nozzles or flanges.

2.2 APPROVED MANUFACTURER

A. Pump shall be Model SE3G as manufactured by Vaughan Co., Inc., or approved equal.

B. It is the express intent of these specifications to accurately describe equipment that is a regular production item of the specified manufacturer, and that has a proven record of performance in identical (not just similar) applications in other treatment facilities. The chopper pump manufacturer shall have a minimum of twenty (20) years of documented experience in the design and production of chopper pumps of

all types, and not less than five (5) years of experience in the production of the exact equipment as specified herein.

C. Alternates shall be pre-approved no less than 15 days prior to the bid date, accompanied by a list of no less than twenty five (25) reference installations of chopper pumps in identical service applications. At least five (5) of the reference installations provided shall be of the exact model pump specified herein. References shall be pumps that have been used in continuous service for a period of no less than three (3) years. Only equipment that is in service at the time of referral shall be considered valid. Pumps that have been removed from service for any reason will not be considered as references. Telephone numbers and contact names shall be provided for any/all references upon request from the Engineer. Provision of performance bonds or other means of circumventing the above requirements for historical references and verification of past performance in identical applications are not considered an acceptable means of verifying the manufacturer's experience.

2.3 SERVICE CONDITIONS

The pumps specified in this section will pump using the following design flow criteria:

GPM: 103 TDH: 21.05 HP: 5 RPM: 1300

2.4 PUMP CONSTRUCTION

A. Casing and Back Pull-Out Plate: The pump casing shall be of volute design, spiraling outward to the 125 lb. flanged centerline discharge. Back pull-out design shall incorporate jacking bolts for accurate adjustment of impeller-to-cutter bar clearance. Casing & backplate shall be ductile cast iron with all water passages to be smooth, and free of blowholes and imperfections for good flow characteristics. A pressure tap shall be included on or near the discharge flange. Backplate shall include a replaceable Rockwell C 60 steel cutter adjustable for 0.005-0.015" clearance to cut against the rotating impeller pumpout vanes for removing fiber and debris.

B. Impeller: Shall be semi-open type with pump out vanes to reduce seal area pressure. Chopping/maceration of materials shall be accomplished by the action of the cupped and sharpened leading edges of the impeller blades moving across the cutter bar at the intake openings, with a maximum set clearance between the impeller and cutter bar of 0.015-0.025" cold. Impeller shall be cast alloy steel heat treated to minimum Rockwell C 60 and dynamically balanced. The impeller shall be keyed to the shaft and shall have no axial adjustments and no set screws.

C. Cutter Bar Plate: Shall be recessed into the pump bowl and shall contain at least 2 shear bars extending diametrically across the intake opening to within 0.010-0.020" of the rotating cutter nut tooth, for the purpose of preventing intake opening blockage and wrapping of debris at the shaft area. Chopper pumps utilizing individually

mounted shear bars shall not be acceptable. Cutter bar shall be alloy steel heat-treated to minimum Rockwell C 60.

D. Cutter Nut: The impeller shall be secured to the shaft using a cutter nut, designed to cut stringy materials and prevent binding using a raised, rotating cutter tooth. The cutter nut shall be cast steel heat treated to minimum Rockwell C 60.

E. Upper Cutter: Shall be threaded into the back pull-out adapter plate behind the impeller, designed to cut against the pump-out vanes and the impeller hub, reducing and removing stringy materials from the mechanical seal area. Upper cutter shall be cast steel heat treated to minimum Rockwell C 60. The upper cutter teeth are positioned as closely as possible to the center of shaft rotation to minimize cutting torque and nuisance motor tripping. The ratio of upper cutter cutting diameter to shaft diameter in the upper cutter area of the pump shall be 3.0 or less.

F. Shafting: Pump shafting shall be heat-treated alloy steel. The pump shaft shall directly couple to the motor shaft, with a bolt and keyway.

G. Stainless Steel Nameplates: Shall be attached to the pump and drive motor giving the manufacturer's model and serial number, rated capacity, head, speed and all pertinent data.

2.5 SUBMERSIBLE ELECTRIC MOTOR

Submersible Electric Motor: The submersible motor shall be U/L LISTED EXPLOSION PROOF for Class 1, Group D, Division 1 hazardous locations, rated at 5 HP, 1300 RPM, 208 Volts, 60 Hertz, and 3 phase, with a 1.15 service factor and Class F insulation. Motor shall be equipped with tandem independently mounted mechanical seals in oil bath and with dual moisture sensing probes. The inner and outer seals shall be separated by an oil-filled chamber. Double-seal (back to back) configurations are not acceptable due to the potential for failure of both seals as a result of lodged solids. The oil chamber shall act as a barrier to trap moisture and provide sufficient time for a planned shutdown. The oil shall also provide lubrication to the internal seal. The inner seal shall be a standard UL listed John Crane Type 21 or equal, with carbon rotating face and ceramic stationary face. The outer seal construction shall be designed for easy replacement. Outer mechanical seal shall be 316 stainless steel pusher type with silicon or tungsten carbide faces. Seal shall be positively driven by set screws. Elastomers shall be of Viton®. Motor shall include two normally closed automatic resetting thermostats connected in series and imbedded in adjoining phases. Motor frame shall be cast iron, and all hardware and shaft shall be stainless steel.

2.6 SPARK-PROOF GUIDE RAIL SYSTEM

Provide a non-sparking guide rail system consisting of two (galvanized or stainless steel) guide rails, cast bronze pump guide bracket, cast ductile iron discharge elbow with mounting feet and 125 lb. flanges, upper guide rail mounting bracket, and intermediate guide brackets every 10 feet. System design shall prevent spark ignition of explosive gases during pump installation and removal.

2.7 SURFACE PREPARATION

Solvent wash, coat with minimum 3 MDFT epoxy.

2.8 SPARE PARTS

A. A suggested spare parts list for pumps, drive systems, and special tools shall be furnished to the Owner by the pump supplier.

B. Spare parts for pumps shall be furnished to provide 60 months of full time service and special tools required for that service shall be suitably boxed and marked for shipment and storage.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Equipment shall be installed in accordance with Section 11000, MECHANICAL EQUIPMENT - GENERAL, and in accordance with the manufacturer's recommendations to provide a complete installation.

B. All equipment specified under this Section shall be installed in accordance with manufacturer's recommendations.

3.2 PERFORMANCE TEST

A. The Contractor shall perform field tests on all completed pump and control system assemblies to demonstrate their conformance to the Specifications to the satisfaction of the Engineer. A minimum of three (3) different operating points per pump unit shall be acquired to assure pump is operating as designed. A test log shall be presented to the Engineer upon the completion of each test that records the following:

1. Flow, in gallons per minute

2. Pump discharge pressures as measured by calibrated gauges, converted to feet of the liquid pumped and corrected to pump datum as

defined by Hydraulic Institute Standards, calculated velocity heads at the discharge flanges, and total head, all tabulated in feet.

3. For AC motors, driving motor voltage and amperage measured for each phase and 3-phase kilowatts.

4. There shall be no significant change in vibration and noise level over the entire listed range of flow and head of the pumping system.

3.3 FUNCTIONAL TEST

Prior to plant startup or field performance test, all equipment described in the Pump Specifications Sheets following shall be inspected for proper alignment, quiet operation, proper connection, and satisfactory performance by means of a functional test.

3.4 FINAL PROJECT INSPECTION

During the final inspection of the project, the Contractor will be required to demonstrate that each pump of each station can be removed from the wetwell and then replaced as specified herein.

END OF SECTION 011011

SECTION 11012

SUBMERSIBLE NON-CLOG PUMPS

PART 1 – GENERAL

1.1 SCOPE

A. Description of Work

1. Provide all labor, material and equipment to furnish and install pumps and controllers as specified herein and/or shown on the Drawings.

2. This Specification covers the general requirements for the design, fabrication and testing the specified pumps and associated appurtenances.

B. Work and Components Included (but not limited to the following items)

1. Effluent Dosing Pumps (2)

C. Related Work Specified Elsewhere

1. The provisions of this Section are a direct extension of Section 11000, MECHANICAL EQUIPMENT - GENERAL, and although set forth only once within these Specifications, shall apply equally to this Section.

2. The following items are specified under other Sections of these Specifications:

a. Piping - Section 2500, PIPING, VALVES, AND APPURTENANCES

c. Motors, motor starters, breakers, switch gear, instrumentation, wiring and conduit - Division 16, ELECTRICAL

1.2 SUMMARY

A. Furnish two wastewater pump capable of delivering 26 U.S. GPM at a total dynamic head of 18 feet. The pump shall have a 2": ANSI horizontal discharge. The motor shall be 1 HP connected for operation on a 208 volts, 3 phase, 60 hertz electrical supply service. Each pump unit shall have 20 feet of lifting cable sized properly for the weight of the pump, and

15 feet of power cable. The pump assembly shall be approved by UL 778 and CSA C22.2-108 standards. Pumps shall be ABS Scavenger Model EJ D-2 or equal.

1.2 QUALIFICATIONS

A. Manufacturer's Experience

1. The Equipment Manufacturer shall have not less than 5 successful years of experience in the design, construction and operation of equipment of the type specified at 5 plants.

2. The Engineer may require evidence, in the form of operating records, from these plants to substantiate any claims concerning the ability of the equipment to perform as required.

1.3 SUBMITTALS

A. Operating instructions, manuals and Shop Drawings shall be submitted in accordance with Section 1300, SUBMITTALS.

B. Shop Drawings for all pumps, drive motors and accessories shall be submitted in accordance with Section 01300 of the specifications and shall give make, size, style, model, capacity, weight and all other data required to show compliance with the requirements of the Plans and Specifications. Shop Drawings shall include performance curves of the pump unit showing capacity of pump at its motor speed or range of speeds from shut-off heads to minimum head, recommended head and capacity range for continuous operation of the pump, pump efficiencies, brake horsepower, NPSH requirements and solids handling capabilities. Shop Drawings shall include motor data noting horsepower, voltage, current, enclosure type, NEMA design, dimensions and all other data as required to show compliance with Specification requirements. Shop Drawings shall cover all items directly associated with the pump assembly.

1.4 EQUIPMENT MANUFACTURER'S SERVICE REPRESENTATIVE

A. General

1. See Section 11000, MECHANICAL EQUIPMENT - GENERAL, for complete requirements for the Manufacturer's Service Representative.

2. Supplier's/Manufacturer's Services

a. A supplier's and/or manufacturer's representative for the equipment specified herein shall be made available at the job site in the event of failure or other malfunction of the equipment to verify the problem and take whatever action is necessary for correction thereof. In addition, suppliers'/manufacturers' representatives shall be made available for installation assistance, inspection, functional testing, and written certification of installation acceptability for each pumping system. The cost of this service shall be included in the pump supplier's cost.

3. Factory Tests

a. Pumps

(1) A factory test certified by the pump manufacturer's test representative shall be performed on the pumps actually furnished, and written notice of the same shall be furnished to the Engineer. Information required to be furnished at the time of test is as necessary to show conformance to specified performance. Tests shall conform to the Hydraulic Institute Standards test code.

b. Motor Tests and Test Reports

(1) As specified in Pump Specification Sheets. Pump drivers shall not be overloaded at any point on the pump curve.

c. Balance of Vibration

(1) The rotating parts of each pump and its driving unit shall be dynamically balanced before final assembly. The driving unit alone shall operate without vibration in excess of the limits stated in the latest revision of NEMA MG 1.

PART 2 – PRODUCTS

2.1 GENERAL

A. All pumps of the same type, frame and size shall be of the same manufacturer and shall have interchangeable parts. All complete pump

units with all accessories shall be suitable for outdoor installation and all surfaces shall have adequate protection to minimize corrosion or deterioration on account of moisture. All screws, small bolts, nuts, washers and miscellaneous items normally subjected to corrosion shall be constructed of Everdur, Monel, bronze, or stainless steels exceeding 12 percent chrome and 7 percent nickel. All pumps shall be suitable for flanged pipe type connections. All pump units and accessories shall be suitable for the intended service and shall be free of defects. Any pump or accessory delivered to the work site and found to be defective or damaged shall be repaired or the entire unit shall be replaced at no cost to the Owner.

B. The pump supplier shall provide in suitable substantial case any special tools or adjustment devices necessary for the proper maintenance and adjustment of the equipment furnished. This shall include all special or unusual items necessary for the dismantling and assembling of all furnished equipment.

C. Pump Identification Plate

A 16 gauge stainless steel identification plate shall be securely mounted on each pump in a readily visible location. The plate shall bear the 1/4 inch die-stamped equipment identification number that is assigned each pump in the Pump Specification Sheets.

D. Lifting Lugs

Equipment weighing over 100 pounds shall be provided with lifting lugs.

E. Vent and Drain Connections

Provide 1/2 inch tapped and plugged case vent and drain connections.

F. Gauge Connections

Provide 1/2 inch tapped and plugged suction and discharge gauge connections on the pump nozzles or flanges.

2.2 PUMP DESIGN

A. The pump(s) shall be designed to handle clean or solids contaminated water, raw sewage, wastewater effluent, storm water, and other similar non corrosive, solids-laden fluids, without clogging. The pump shall have

integrated feet allowing it to stand on a hard bottom wet well. The pump shall also be capable of mounting on a Guide Rail System allowing the pump to be removed from the wet well without disturbing the discharge piping or requiring personnel to enter the wet well. The Guide Rail System shall be cast iron, have an integrated discharge elbow, and shall utilize a single guide rail pipe to guide the pump into place.

2.3 PUMP CONSTRUCTION

A. Major pump components shall be of gray cast iron, ASTM A-48, class 30, with smooth surfaces devoid of porosity or other irregularities. All exposed fasteners shall be AISI type 304 stainless steel. All metal surfaces coming into contact with the pumped media shall be protected by a factory applied spray coating of modified alkyd and phenol resin primer and top coat, with a total paint thickness of 3.5-4.5mils.

B. Critical mating surfaces where a watertight seal is required shall be of machined and fitted with Buna-N o-rings. Sealing will be the result of controlled compression of rubber o-rings without requiring a specific torque on fasteners to accomplish sealing. Rectangular cross sectioned gaskets requiring specific fastener torque to achieve compression shall not be considered adequate or equal. No secondary sealing compounds shall be used or required.

C. Impeller:

The impeller shall be a semi-open, non-clogging, dynamically balanced, double vane, ABS ContraBlock design, capable of passing a 2" diameter spherical solid. The impeller shall have a precision machined slip fit onto the motor shaft and drive key, and shall be fastened to the shaft by a stainless steel bolt and machined impeller washer. The back side of the impeller shall be fit closely against the lower portion of the motor and shall incorporate an active chopping system to prevent stringy solids from entering the area behind the impeller and interfering with the shaft.

D. Self-Cleaning Wear Plate:

The pump shall be equipped with an ABS ContraBlock self-cleaning wear plate. The wear plate shall be capable of adjustment for maximum pump efficiency without disassembling the pump. The wear plate shall be designed with a wave shaped inlet and an outward spiral V-shaped groove on the side facing the impeller, to shred and force stringy solids outward

from the impeller and through the pump discharge. The use of non-adjustable wear rings or adjustment systems which require removal and shimming of the impeller shall not be considered equal.

E. Pump Volute:

The pump volute shall be a single piece design with centerline discharge. Passages shall be smooth and large enough to pass any solids which may enter the impeller. Discharge flange design shall permit attachment to standard ANSI 2" flanges.

F. Shaft and Rotating Assembly:

The common motor/pump shaft shall be of 420 stainless steel material and shall have a polished finish and accurately machined shoulders to accommodate bearings, seals and impeller. Carbon steel shafts shall not be considered adequate or equal. The rotating assembly (impeller, shaft and rotor) shall be dynamically balanced such that undue vibration or other unsatisfactory characteristics will not result when the pump is in operation.

G. Mechanical Seals:

Each pump shall be equipped with a mechanical shaft seal system consisting of two independent seal assemblies with a common spring between them. The seals shall operate in an oil filled chamber which is completely separate from the motor chamber. Oil contained in this chamber shall be non-toxic. The rotating seal faces shall be carbon, and stationary seal faces shall be aluminum oxide. As an option, seal faces of silicon carbide shall be available. Static sealing components of the mechanical seal such as boots and o-rings shall be constructed of Buna-N. Metallic components of the mechanical seal shall be constructed of 300 series stainless steel. The seal system shall no rely upon the pumped media for lubrication and shall not be damaged when the pump is run dry. As a third level of sealing, a v-ring type lip seal shall be installed on the shaft behind the impeller to prevent solids in the pumped media from interfering with the primary mechanical seal.

H. Bearings:

The pump shaft shall rotate on ball bearings. The upper bearing shall be a single row deep grooved ball bearing. The lower bearing shall be a heavy

duty single row, deep grooved ball bearing. Upper and lower bearings shall be of sufficient size and properly spaced to transfer all radial and axial loads to the pump housing and minimize shaft deflection. Bearings shall be continuously lubricated by the oil contained in the pump motor housing. B-10 bearing life shall be a minimum of 25k hr at BEP. Pump designs utilizing other than ball bearings, or those requiring supplemental guide bushings for the shaft of impeller shall not be considered acceptable.

I. Motor:

The motor shall be of the squirrel-cage induction design, with copper windings, housed in an oil filled, water tight chamber. The oil within the motor housing shall be non-toxic. The motor shall be capable of continuous submerged operation underwater to a depth of 65 feet. The stator windings and stator leads shall be insulated with moisture resistant Class B insulation rated for 130oC (266o F). The motor shall be capable of operating continuously, submerged in liquid of 40oC (104 oF) without overheating. The motor shall be capable of handling up to 10 evenly spaced starts per hour. The service factor (as defined by NEMA) shall be a minimum of 1.15. Three phase motors shall be tri-voltage, 208-230/460. A three phase motor rated at 575 volts shall also be available. Single phase versions shall be rated 208-230 volts. Single phase versions shall utilize a capacitor start circuit with a solid state voltage sensing start relay. The start circuit shall be integrated into the top of the motor. All motors shall have a voltage tolerance of +/- 10% from nominal name plate rating.

J. Power Cable:

The power cable shall be sized according to NEC and CSA standards and shall be of sufficient length to reach the junction box without requiring splices. The outer jacket of the cable shall be oil and water resistant thermoplastic elastomer. The power cable shall be fitted to the motor using an epoxy potted, water tight cable entry system, with a rubber grommet as the secondary seal and strain relief.

K. Lifting Bail:

The pump shall be equipped with a stainless steel, open lop lifting bail to which a chain or other lifting device may be attached. The bail shall be firmly attached to the pump in a fixed, upright position, and shall be large enough to allow the pump to be hooked from the surface in an emergency.

Bails which are not fixed in an upright position or those which cannot be hooked from the surface shall not be considered acceptable.

2.4 SPARE PARTS

A. A suggested spare parts list for pumps, drive systems, and special tools shall be furnished to the Owner by the pump supplier.

B. Spare parts for pumps shall be furnished to provide 60 months of full time service and special tools required for that service shall be suitably boxed and marked for shipment and storage.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Equipment shall be installed in accordance with Section 11000, MECHANICAL EQUIPMENT - GENERAL, and in accordance with the manufacturer's recommendations to provide a complete installation.

B. All equipment specified under this Section shall be installed in accordance with manufacturer's recommendations.

3.2 PERFORMANCE TEST

A. The Contractor shall perform field tests on all completed pump and control system assemblies to demonstrate their conformance to the Specifications to the satisfaction of the Engineer. A minimum of three (3) different operating points per pump unit shall be acquired to assure pump is operating as designed. A test log shall be presented to the Engineer upon the completion of each test that records the following:

1. Flow, in gallons per minute

2. Pump discharge pressures as measured by calibrated gauges, converted to feet of the liquid pumped and corrected to pump datum as defined by Hydraulic Institute Standards, calculated velocity heads at the discharge flanges, and total head, all tabulated in feet.

3. For AC motors, driving motor voltage and amperage measured for each phase and 3-phase kilowatts.

4. There shall be no significant change in vibration and noise level over the entire listed range of flow and head of the pumping system.

3.3 FUNCTIONAL TEST

Prior to plant startup or field performance test, all equipment described in the Pump Specifications Sheets following shall be inspected for proper alignment, quiet operation, proper connection, and satisfactory performance by means of a functional test.

3.4 FINAL PROJECT INSPECTION

During the final inspection of the project, the Contractor will be required to demonstrate that each pump of each station can be removed from the wetwell and then replaced as specified herein.

END OF SECTION 011012

SECTION 11331

STATIC SCREEN

PART 1 - GENERAL

1.1 There will be furnished one 18" static screen Model HS18DF Static screen unit, as manufactured by Parkson Corporation, Vernon Hills, IL, or equal.

1.2 The Static screen unit will consist of a screen cabinet with outlet and drain connections, influent distribution chamber and curved screen panel.

1.3 Performance: The screen panel will be able to handle 105 GMP at a suspended solids concentration of 200 mg/l.

PART 2 - CONSTRUCTION AND MATERIALS

2.1 Screen cabinet: The screen cabinet will be of 12 gauge type 304 stainless steel. This is a top feed unit with no influent pipe. The cabinet will have a 6.63 inch diameter plain-end pipe effluent connection secured to the lower discharge hopper with a full strength weld. The effluent pipe connection will be constructed of 12 gauge type 304 stainless steel. The cabinet walls will be extended and flanged with mounting holes for purposes of support.

The cabinet will be fitted with two (2) observation ports, each having a non-metallic grommet secured around the circumference

2.1.1 Influent distribution chamber: The screen cabinet will have an integral influent distribution chamber. The chamber will receive the incoming flow and evenly distribute the flow to the weir. The discharge weir will be the full width of the cabinet, having a well radiused crown with a minimum 9-inch long screen approach apron. The influent chamber will have a 3-inch diameter drain with pipe plug.

2.1.2 Flow distribution baffle: A fully hinged flow distribution baffle extending the full width of the weir will be furnished. The baffle will be constructed of 16 gauge type 304 stainless steel. The baffle will be accurately positioned and located so that the contoured extension lip is parallel with the weir approach apron.

2.2 Screen panel: The screen panel will be constructed of type 304 stainless steel; it will be removable and will consist of a screen element and drip lip.

2.2.1 Screen element: The screen element will be a single concave curved panel with a radius of 60.00 inches at the screen surface and extending over an arc of approximately 38.5 degrees,

positioned in the screen cabinet to properly process the flow. The screen panel will be 18 inches wide and approximately 40.32 inches long as measured along the radius. Transverse screen segments will be formed to have a triangular cross section (wedgewire) and to have 360 degree attachment loops on 3.94-inch centers securing each segment to longitudinal .313-inch-diameter support rods. The transverse screen segments will be formed to contain a double arc between each longitudinal support rod, each arc being 1.25-inch radius and 61 degrees. Each arc will be separated by a .625-inch tangent; the screen panel will be oriented so that the arcs lie in the direction of the flow. The screen opening will be at most 0.07 inch. The coined transverse screen segments will have a face width of 0.086 inch and a maximum depth of 0.125 inch. No rivets, bolts or other mechanical fastening will be used to attach the transverse screen segments to the longitudinal support rods.

2.2.2 Drip lip: A 14 gauge type 304 stainless steel contoured drip lip will be furnished along the bottom edge of the screen panel to control excess water from running off the screen panel. The drip lip will be contoured so as to direct free water into the screen cabinet for discharge.

2.3 Flange: The influent and effluent pipe connections will be equipped with type 316 stainless steel face rings and type 304 stainless steel backup type flanges. The bolt hole location and bolt hole size will conform to the 150 lb. class.

2.4 The equipment will be thoroughly inspected by the manufacturer prior to shipment to ensure proper interface and adjustment of all parts.

END OF SECTION 11331

SECTION 16000

ELECTRICAL SPECIFICATION INDEX

SECTION 16010

GENERAL PROVISIONS

1.0 GENERAL

1.1 Related Documents

1.1.1 Drawings and Division-1 "General Requirements" of contract, including General Conditions and Supplementary Conditions sections, apply to work specified in Division-16.

1.1.2 Division-16 Basic Electrical Materials and Methods sections apply to all sections in this Division.

1.2 General Description of Work

1.2.1 The Contractor shall provide all labor, materials, and equipment as described herein and on the contract document drawings, including all auxiliaries and accessories required for a complete and operable electrical system.

1.2.2 The Contractor shall obtain all necessary permits and inspections required for the work to be performed and shall pay all charges incidental thereto.

1.2.3 Bidders are expected to visit the jobsite and carefully inspect the present conditions before preparing a bid. The failure of a bidder to visit the jobsite shall not relieve a bidder from full responsibility for all factors governing his work.

1.2.4 Equipment furnished as specified in other sections of these specifications or shown on other than the Electrical drawings that require any wiring or electrical installation shall be governed by this Division of the Specifications.

1.2.5 The plans and specifications are complementary one to the other and any item called for by one and not the other shall be supplied the same as if it were called for by both.

1.2.6 It is the intent of these specifications and drawings that the electrical system shall be complete, fully operational, and suitable in every way for the service required. Drawings are diagrammatic in nature and do not show in every detail all devices and incidental materials necessary to accomplish their intent. Therefore, it shall be understood that such devices and incidental materials required shall be furnished at no additional cost to the Owner.

1.2.7 Layout of Work and Coordination: The Contractor shall correlate final equipment locations with all other trades to ensure all trades may install equipment in available space, and provide all required coordination and supervision where work connects to or is affected by work of others.

1.2.8 The Contractor shall furnish all temporary power and lighting as required by all other trades.

1.2.9 Demonstration of Completed Electrical and Control Systems: The function of the electrical and control systems shall be demonstrated after the construction is substantially complete in the presence of the Owner or his representative and at a time mutually agreed upon.

1.3 Scope of Work

1.3.1 General

In, general, the scope of work for this project includes the supply and installation of the equipment and materials to provide electrical power service, power distribution, grounding, and controls for a new Influent Pump Station at the existing Waste Water Treatment Facility (WWTF) at Woodville Elementary School. The work also includes the electrical work to re-terminate the Effluent Dosing Pumps being replaced by the project (mechanically installed by others).

The work shall include supplying the materials and labor to install the electrical service/feeder from the existing WWTF Control Panel to the new Influent Pump Station. The feeder route shall be above and below grade and shall be coordinated with existing equipment above and below grade.

The work shall include the receipt of the Pump Station Control Panel from the Pump Station vendor, and the installation of the panel on the post/frame support. Conduit and wiring between the Control Panel and the service equipment, and the wet well (pumps, floats, etc.) shall be part of the work.

The work shall include supplying the material and labor to install new feeder cables from the existing WWTF Control Panel to the new Effluent Dosing Pumps. The existing conduit and junction box shall be reused. The work shall include terminating the pumps' motor leads to the feeder cables (supply and install terminating materials).

1.3.3 Check-Out and Start-Up

The scope of work includes check-out and start-up work.

Check-out work consists of checking the termination of all wiring to determine that all devices function as planned prior to starting the equipment with fluids. (i.e. motor rotations are correct, H-O-A's function correctly, field instruments correctly terminated and functioning, etc.).

Start-up work consists of assisting the Pump Station Vendor and/or the Owner during the start-up and initial operation of the facilities.

1.4 Submittals

1.4.1 Manufacturers' data in the form of "cut sheets" and engineering drawings of the equipment and materials shall be submitted to the Engineer for review before delivery to work site. Review of the submittal by the Engineer is to check for general conformance to the design intent and shall not relieve the Contractor of the responsibility for the correctness of all dimensions and the correct fitting of all parts of the work.

1.4.2 The entire Electrical Submittal shall be complete and delivered in one (1) package. An incomplete submittal will be returned to the Contractor without review.

1.4.3 The submittal shall be thoroughly checked by the Contractor for accuracy and compliance with the contract requirements. The submittal shall be dated and shall be accompanied by a statement from the contractor that they have been checked for conformity to the specifications and drawings. Submittals not so checked and noted will be returned without review.

1.4.4 Substitutions: Requests for substitutions shall be per General Conditions set forth in this specification and must be received in the Owner's office a minimum of ten days prior to bid, including credits and test and performance data to determine if equipment meets all specifications and requirements. Substitutions will not be reviewed if submitted with bid. All substituted equipment that cannot meet space requirements shall be replaced at the Contractor's expense.

1.4.5 Any alternate proposals affecting the design or intent of the plans and specifications shall be submitted with the bid. They shall be complete with plans, specifications and sufficient details for proper evaluation. Incomplete or partial proposals will not be given consideration.

1.5 Record Drawings

1.5.1 At Job Close-Out, submit three (3) copies of Record Drawings which are clean, complete, and accurately and clearly show deviations to the Contract Drawings.

1.6 Guarantees

1.6.1 In addition to the guarantee of equipment by the manufacturer, the Contractor shall also guarantee such equipment and shall be responsible for a period of one year after final acceptance to make good any defects of the materials or workmanship occurring during this period, without expense to the Owner. Light bulb replacement guarantee shall be limited to thirty days.

1.6.2 Additional guarantee requirements may be in the General and Special Conditions of these Specifications.

SECTION 16100

BASIC MATERIALS AND METHODS

1.0 EXECUTION

1.1 Supervision

1.1.1 The electrical work shall be supervised by a licensed journeyman or master electrician who shall be on the job site at all times while work is in progress.

1.2 Workmen

1.2.1 All electrical work shall be performed by persons skilled in the trade.

1.3 Quality of Work

1.3.1 All electrical work shall be done neatly and in keeping with good practice and conventions of the trade.

1.4 Corrosion Preventative Procedures

1.4.1 All metallic materials shall be protected against corrosion. All hardware made of ferrous metals (including all nuts, bolts, washers, etc.) but not of corrosion resistant steel, shall be hot dip galvanized after fabrication, except where equivalent protective treatment is specifically approved by the Engineer. Aluminum shall not be used in contact with the earth, and where connected to dissimilar metal, shall be protected to dissimilar metal by approved fittings and treatment. Steel conduits or piping installed underground or in concrete shall have two complete coats of an approved quick drying asphalt base paint applied throughout the imbedded length to six inches (6") above the ground line or concrete surface.

1.5 Cleaning

1.5.1 The interior and exterior of all equipment shall be thoroughly cleaned at the completion of installation.

1.6 Painting

1.6.1 All painting shall be done according to the Finishes Section of the Specifications.

1.7 Tests

1.7.1 The Contractor shall test all wiring for shorts and proper grounding before energizing.

1.8 Layout of Work and Coordination

1.8.1 Contractor shall coordinate all work and equipment locations with all other trades to ensure all trades may install equipment in available space and within schedule.

2.0 CODES AND STANDARDS

2.1 The latest editions of the established codes, standards and ordinances of the following organizations shall be followed as if they were fully written herein and constitute a part of the specification requirements, except where otherwise specified:

- Occupational Safety and Health Administration (O.S.H.A.)
- Life Safety Code C NFPA 101
- Underwriters Laboratories, Inc. Publications
- National Fire Protection Associate (NFPA)
- American National Standards Institute (ANSI)
- National Electrical Code, NFPA 70 (NEC)
- Institute of Electrical and Electronic Engineers (IEEE)
- National Electrical Manufacturer's Association (NEMA)
- International Power Cable Engineer's Association (IPCEA)
- National Electrical Safety Code (HESC)
- The Southern Standard Building Code (SBCCI)
- Federal Communications Commission (F.C.C.)
- Municipal, local or other codes having jurisdiction
- Utility Company Rules and Regulations

2.2 The foregoing documents shall be followed by the Contractor as minimum requirements. They shall not relieve the Contractor from furnishing and installing higher grades of materials and workmanship which are specified herein or indicated on the drawings.

3.0 PRODUCTS

3.1 Equipment and Materials

3.1.1 The Contractor shall furnish materials or equipment specified by manufacturers named or approved equal.

3.1.2 The materials furnished shall be new, undamaged and packed in the original manufacturer's packing.

3.1.3 Equipment and materials shall at all times during construction be protected from mechanical and water damage.

3.1.4 Damaged materials and equipment shall be replaced by the Contractor at no cost to the Owner.

3.2 Equipment and Materials Standards

3.2.1 The design and fabrication of electrical equipment and materials furnished under Division-16 shall comply with the latest edition and revisions of the following codes and standards:

- The American National Standards Institute (ANSI)
- The American Society of Mechanical Engineers (ASME)
- The American Society for Testing and Materials (ASTM)
- The Institute of Electrical and Electronic Engineers (IEEE)
- The National Electrical Manufacturers Association (NEMA)
- The Occupational Safety and Health Administration (OSHA)
- The Underwriters Laboratories (UL)
- The National Fire Protection Association (NFPA)
- The National Electrical Code (NEC)

3.3 Equipment Ratings

3.3.1 The horsepower and wattage of equipment shown on the drawings are estimated.

3.3.2 Conduit, wire, disconnects, fuses, and circuit breakers shall be sized to suit the horsepower and wattage of equipment actually furnished.

3.3.3 In no case shall conduit, wire, disconnects, fuses, and circuit breakers be sized smaller than shown on the drawings.

3.4 Nameplates

3.4.1 Provide laminated plastic nameplates for each panelboard, automatic transfer switch, equipment enclosures and any other major pieces of equipment.

3.4.2 Nameplates shall be made of .125 inch thick laminated plastic with a black matte outer finish and white inner core.

3.4.3 Nameplates shall have square corners and be a minimum of 1.0 x 2.5 inches with 0.25 inch high block style engraved letter.

3.4.4 Attach nameplates to equipment, aligned with structural features of equipment, with two #4 stainless steel bolts, nuts and lockwashers.

END OF SECTION

SECTION 16110

RACEWAYS

1.0 GENERAL

1.1 Scope of Work

1.1.1 Furnish and install complete raceway systems as indicated on the drawings and as specified herein. The installation shall be for an outdoor facility.

1.2 Applications

1.2.1 All above grade wiring shall be installed in rigid galvanized steel (RGS) conduit and all wiring below grade shall be in rigid non-metallic conduit (PVC) or rigid galvanized steel conduit coated with bitumastic coating for corrosion prevention unless indicated otherwise on the drawings.

1.2.2 All conduit of a given type shall be the product of one manufacturer.

2.0 PRODUCTS

2.1 Conduit and Fittings

2.1.1 Rigid steel conduit shall be hot-dipped galvanized conforming to the requirements of UL 6 and ANSI C80.1 standards.

2.1.2 Fittings for rigid steel conduit shall be the threaded type manufactured by RACO, Steel City, Thomas & Betts (T&B), or approved equal.

2.1.3 Rigid non-metallic conduit (PVC) shall be PVC schedule 40 and meet UL651 and federal specifications WC-1094A.

2.2 Flexible Metal Conduit, Couplings, and Fittings

2.2.1 All flexible metal conduit shall be Liquid Tight, UL listed, spiral wound galvanized steel with a PVC outer jacket.

2.2.2 Fittings for liquid tight conduit shall be designed for use with liquid tight flexible conduit and shall be manufactured by RACO, Steel City, T&B, or approved equal.

2.3 Conduit Mounting Equipment

2.3.1 Hangers, rods, backplates, strut material, etc. shall be hot-dipped galvanized iron or steel. They shall be as manufactured by the Appleton Electric Co., Thomas and Betts Co., Unistrut Corp., or approved equal.

2.4 Cable Tray

2.4.1 Cable Tray shall be NEMA 12-B or equal galvanized steel ladder type with maximum 9" rung spacing, 4" sidewall.

2.4.2 Conduits interfacing to the cable tray shall include a proper clamp to form a continuous ground circuit and an insulated bushing at the conduit exit.

3.0 EXECUTION

3.1 Installation

3.1.1 Conduit smaller than 3/4-in. electrical trade size shall not be used, nor shall any have more than three 90-degree bends in any one run. Pull boxes shall be provided as required or directed.

3.1.2 Wire shall not be pulled until the conduit system is complete in all details.

3.1.3 The ends of all conduits shall be tightly plugged to exclude dust and moisture during construction.

3.1.4 Conduit terminations shall be made with water tight hubs (Myers Hubs) and shall have insulated bushings.

3.1.5 Rigid steel conduits shall be installed using threaded fittings and couplings.

3.1.6 Conduit support shall be spaced at intervals of 8 ft. or less, as required to obtain rigid construction.

3.1.7 Single conduits shall be supported by means of two-hole pipe clamps. Multiple runs of conduits shall be supported on trapeze type hangers with steel horizontal members and threaded hanger rods. The rods shall be not less than 3/8-inch diameter.

3.1.8 Conduit hangers shall be attached to structural steel by means of beam or channel clamps.

3.1.9 All conduits on exposed work shall be run at right angles to and parallel with the surrounding structures. No diagonal runs will be allowed. Bends in parallel conduit runs shall be concentric. All conduit shall be run straight and true.

3.1.10 Flexible, liquid-tight metal conduit shall be used for all motor terminations and other equipment where vibration is present. Flexible conduit length shall not exceed 2'-0" or be less than 1'-0" in length for this application.

3.1.11 All underground raceways shall be installed in accordance with section 300-5 of the NEC. The minimum cover for any conduit shall be eighteen inches (18"). Included under this section shall be the responsibility for verifying finished lines in areas where raceways will be installed underground before the grading is complete. All 90° turn-ups shall be rigid galvanized steel with corrosion protection.

Underground raceways shown in a concrete ductbank shall have a 2-inch cover of concrete minimum.

3.1.12 All raceways shall have an isolated copper system ground conductor throughout the entire length. Grounding conductors shall be included in the total conduit fill, even if not included or shown on the drawings.

END OF SECTION

SECTION 16120

WIRES AND CABLES

1.0 GENERAL

1.1 Scope of Work

1.1.1 Furnish, install and test all wire, cable, and appurtenances as shown on the drawings and as specified here.

1.2 General Requirements

1.2.1 Wires and cables shall meet all the applicable requirements of the NEC and UL for the type of insulation, jacket, and conductor specified or indicated.

1.2.2 All conductors shall be copper.

1.2.3 Wire and cable manufactured more than 12 months before delivery to the job site shall not be used.

1.3 Applications

1.3.1 Wire in dry locations shall be type THHN and for wet locations shall be THWN unless noted otherwise on the drawings. Cable routed in cable tray shall be type TC

1.3.2 Cable for direct burial applications shall be type UF.

1.3.3 Power wire and/or cable for aerial or exposed installation will be type SO for hard usage.

1.3.4 Instrument wire for DC signals shall have an overall shield and shall be installed separate from 480VAC and 120VAC circuits.

1.4 Identification

Conductor identification shall be by color coded insulation and wire labels.

1.4.1 Power wiring with black insulation shall be color coded with colored plastic adhesive backed tape in each enclosure where taps, splices or terminations are made.

Power Wiring Color Codes:

120/240 Volts AC System C

Phase A	Black
Phase B	Red
Phase C	Blue
Neutral	White
Ground	Green

480 Volts AC System C

Phase A	Brown
Phase B	Orange
Phase C	Yellow
Neutral	White
Ground	Green

Green and White shall be used for no other purpose.

1.4.2 Control wiring shall be identified by color coded insulation and an adhesive wire label corresponding to the wiring diagrams.

Control Wiring Color Codes C

120VAC Discrete Control	Red
24VAC Discrete Control	Gray
DC Discrete Control	Blue

The adhesive wire markers shall be pre-printed cloth wrap-on type, written adhesive type or shrink-on style.

1.5 Minimum Sizes

1.5.1 Except for control and signal leads, no wire smaller than No. 14 AWG shall be used for AC circuits.

1.5.2 DC control circuits shall use No. 18 AWG, unless noted otherwise.

2.0 PRODUCTS

2.1 General

2.1.1 Wires and cables shall be of annealed, 98% conductivity, soft drawn copper unless indicated otherwise on the drawings or in these specifications.

2.1.2 All conductors shall be stranded.

2.2 600 Volt Wire and Cable

2.2.1 Cable shall be type TC with a sunlight resistant PVC jacket overall and type XHHW or THHN / THWN insulated conductors. Individual wires shall be THHN/THWN. Products shall be manufactured by Anaconda Wire and Cable Co., Rome Cable Corp., Okonite Co., Southwire or equal.

2.3 300 Volt Signal Cable

2.3.1 Signal cable shall have a minimum rating of 300 volts. The cable shall consist of pairs or triads of seven (7) stranded copper conductors each with primary insulation of PVC with nylon. The conductors shall have an overall shield of aluminum-mylar with a drain wire. The overall cable jacket shall be sunlight resistant PVC.

The cable shall be manufactured by Belden (Cooper Ind.), Rome Cable Corp., or approved equal.

3.0 EXECUTION

3.1 Installation

3.1.1 All conductors shall be carefully handled to avoid kinks or damage to insulation.

3.1.2 Lubrications shall be used, if required, to facilitate wire pulling. Lubricants shall be U.L. approved for use with the insulation specified.

3.2 Tests

3.2.1 All 600 Volt wire insulation on motor conductors shall be tested with a "megger" after installation. Tests shall be made at not less than 500 Volts.

END OF SECTION

SECTION 16140

WIRING DEVICES

1.0 GENERAL

1.1 Description of Work

1.1.1 Extent of wiring device work is indicated by drawings and schedules. Wiring devices are defined as single discrete units of electrical distribution systems which are intended to carry but not utilize electric energy.

1.1.2 Types of electrical wiring devices in this section include the following:

Receptacles
Weatherproof Boxes/Covers
Disconnect (Safety) Switches

1.2 Quality Assurance

1.2.1 Manufacturers: Firms regularly engaged in manufacture of electrical wiring devices, of types, sizes, and ratings required, whose products have been in satisfactory use in similar service for not less than 3 years.

1.2.2 Installer's Qualifications: Firms with at least 2 years of successful installation experience on projects utilizing wiring devices similar to those required for this project.

1.2.3 NEC Compliance: comply with NEC as applicable to installation and wiring of electrical wiring devices.

1.2.4 UL Compliance: Comply with applicable requirements of UL 20, 486A, 498 and 943 pertaining to installation of wiring devices. Provide wiring devices which are UL-listed and labeled.

1.2.5 NEMA Compliance: Comply with applicable portions of NEMA Stds Pub/No. WD 1, "General-Purpose Wiring Devices", WD 2, "Semiconductor Dimmers for Incandescent Lamps", and WD 5, "Specific Purpose Wiring Devices".

1.3 Submittals

1.3.1 Product Data: Submit manufacturer's data on electrical wiring devices.

2.0 GENERAL

2.1 Acceptable Manufacturers

2.1.1 Subject to compliance with requirements, manufacturers offering wiring devices which may be incorporated in the work include, but are not limited to, the following:
Receptacles:

Adalet-PLM, Scott and Fetzer Co.
AMP Products Corp.
Arrow-Hart Div, Crouse Hinds Co.
Eagle Electric Mfg Co.
GTE Products Corp.
Harvey Hubbell Inc.
Leviton Mfg. Co.
Slater Electric Co.
Thomas and Betts Corp.

Disconnect (Safety) Switches:

Square D
Siemens

2.2 Fabricated Wiring Devices

2.2.1 General: Provide factory-fabricated wiring devices, in types, colors, and electrical ratings for applications indicated and which comply with NEMA Stds Pub/No. WD 1. Provide ivory color devices and wall plates except as otherwise indicated; color selection to be verified by Contractor with Architect/Engineer.

2.2.2 Receptacles

Heavy-Duty Duplex: Provide heavy-duty duplex receptacles, 2-pole, 3-wire, grounding 20-amperes, 125-volts, with metal plaster ears, design for side and back wiring with spring loaded, screw activated pressure plate, with NEMA configuration 5-15R unless otherwise indicated.

2.3 Weatherproof Boxes/Covers

2.3.1 Boxes: Provide Cast FS Boxes with mounting ears and threaded hubs.

Covers: Provide Gasketed Spring-Closing Covers to match FS Box and Receptacle.

2.4 Disconnect (Safety) Switches

2.4.1 Disconnect (Safety) Switches shall be Heavy Duty, 600 VAC rated, with NEMA enclosures based on the application/location. Switches located outside shall have NEMA 4X enclosures, and switches located inside shall have NEMA 1 enclosures.

Switches shall be externally operated, 3-pole, single throw switches (unless noted otherwise). They shall be equipped with visible blades or a red flag/handle to indicate the switches position. The operator/handle shall be lockable in the off position.

3.0 EXECUTION

3.1 Installation of Wiring Devices

3.1.1 Wiring devices shall be installed as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices to fulfill project requirements.

3.1.2 Contractor shall coordinate with other work, including painting, electrical boxes, and wiring work, as necessary to interface installation of wiring devices with other work.

3.1.3 Wiring devices shall be installed only in electrical boxes which are clean; free from excess building materials, dirt, and debris.

3.1.4 Wiring devices shall be installed after wiring work is completed and wall plates after painting work is completed.

3.1.5 Connectors and terminals, including screws and bolts, shall be tightened in accordance with equipment manufacturer's published torque tightening valves for wiring devices. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Stds 486A and B. Use properly scaled torque indicating hand tool.

3.2 Grounding

3.2.1 Equipment grounding connections for wiring devices shall be provided, unless otherwise indicated. Tighten connections to comply with tightening torques specified in UL Std 486A to assure permanent and effective grounds.

3.3 Testing

3.3.1 Prior to energizing circuitry, wiring shall be tested for electrical continuity and for short-circuits. Contractor shall ensure proper polarity of connections is maintained. Subsequent to energization, wiring devices shall be tested to demonstrate compliance with requirements.

END OF SECTION

SECTION 16450

GROUNDING

1.0 GENERAL

1.1 Scope of Work

1.1.1 The work required under this section of the specifications consists of the installation of the complete grounding system for the project. Provide all materials required for the grounding system under this section of the specifications.

1.2 Related Work

1.2.1 Coordinate installation of grounding system with all work required under Division- 16.

1.3 Application

1.3.1 Equipment grounding conductors shall be used to establish grounding of the entire system.

1.3.2 Equipment grounding shall not be by metallic raceway alone.

1.3.3 Table 250-94 of the NEC shall be used to size all grounding electrode conductors.

1.3.4 Table 250-95 of the NEC shall be used to size equipment grounding conductors.

2.0 PRODUCTS

2.1 Ground Rods

2.1.1 Ground rods shall be 3/4" x 10', sectional type coupled together to obtain length required, unless indicated otherwise.

2.1.2 Construction shall be a solid steel core with a heavy uniform covering of electrolytic copper.

2.1.3 Threads, on sectional rods, shall be rolled (not cut) into the composite metal after the copper covering has been applied.

2.1.4 Copper covering shall be work hardened by drawing rods.

2.1.5 Rod couplings shall be of a corrosion resistant alloy.

2.2 Grounding Electrode Conductor and Connections

2.2.1 All grounding electrode conductors shall be stranded copper.

2.2.2 Conductor connections shall be by exothermic weld (Cadweld or equal).

2.3 Equipment Grounding Conductors

2.3.1 Equipment grounding conductors shall be Green with THHN or XHHN insulation (See Section 16120 C Wires and Cables).

3.0 EXECUTION

3.1 Installation

3.1.1 Ground all non-current carrying metal parts of the electrical system to provide a low impedance path for ground fault current.

3.1.2 The neutral conductor(s) of the incoming electrical service shall be grounded to the ground rod system, metal piping system, and structural steel using Table 250-94 of the NEC for conductor sizing. Grounding conductors shall be run in rigid non-metallic conduit.

3.1.3 Separate bus bars shall be provided for branch circuit neutrals and equipment grounding conductors. These bars will be joined together at only one point with a bonding jumper at the service and shall be isolated throughout the system.

3.2 Testing

3.2.1 The Contractor shall test the ground rod for ground resistance by the Fall of Potential method.

3.2.2 Ground resistance shall be measured at 20 ohms or less. If ground resistance is greater than 20 ohms, additional ground rods shall be driven and the ground system retested.

3.2.3 Records of the ground resistance test shall be submitted to the Engineer.

END OF SECTION

SECTION 16601

SURGE PROTECTIVE DEVICES (SPD)

1.0 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.

1.2 SUMMARY

1.2.1 This Section includes Surge Protective Devices for low-voltage power (< 600 Volts) equipment.

1.2.2 Related Sections include the following:

1.2.2.1 Other sections and the drawings relate to this specification. It is the intent of the documents that SPD's be provided for all panels.

1.3 SUBMITTALS

1.3.1 Product Data: For each type of product indicated. Include operating voltage, rated capacities, operating temperature, shipping and installed weights, and items per Section 2: Products.

1.3.2 Product Certifications: Signed by manufacturers of transient voltage suppression devices, certifying that products furnished comply with the following testing and labeling requirements:

1.3.2.1 UL 1449, 3rd Edition and UL Listing and classifications.

1.3.3 Field Test Reports. Written reports of tests specified in Part 3 of this Section. Include the following:

1.3.3.1 Test results that comply with requirements

1.3.4 Maintenance Data: Transient voltage suppression devices to include installation instructions, operation and maintenance manuals specified in Division 1.

1.3.5 Warranties: Special warranties specified in this Section.

1.4 QUALITY ASSURANCE

1.4.1 Product must be made by a company engaged in the manufacture of such devices in the USA for a minimum of ten years.

1.4.2 Source Limitations: Obtain suppression devices from a single manufacturer.

1.4.3 Product Options: Drawings indicate size, dimensional requirements, and electrical performance of suppressors and are based on the specific system indicated. Other manufacturers' products complying with requirements may be considered by the engineer/architect if submitted more than 14 days prior to bid. Samples may be required for approval. Refer to Division 1 Section "Substitutions".

1.4.4 Electrical Components, Devices and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.4.5 IEEE Compliance: Comply with ANSI/IEEE C62.41, "IEEE Guide for Surge Voltages in Low Voltage AC Power Circuits" and test devices in accordance with ANSI/IEEE C62.45, "IEEE Guide for Surge Suppressor Testing".

1.4.6 NEMA Compliance: Comply with NEMA LS-1 "Low Voltage Surge Protective Devices".

1.4.7 UL Compliance: Listed to UL 1449 3rd edition "Surge Protective Devices" and UL1283 "Electromagnetic Filters". Shall be UL listed.

1.5 PROJECT CONDITIONS

1.5.1 Placing into Service: Do not energize or connect service entrance equipment or panelboards to their sources until the surge protective devices are installed and connected. Do not single phase, hi-pot or meggar Service Entrance Equipment without disconnecting the surge protective device, as damage may result from these procedures to the surge protective device.

1.5.2 Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1.5.2.1 Notify Architect not less than two days in advance of proposed utility interruptions.

1.5.2.2 Do not proceed with utility interruptions without Architect's written permission.

1.5.3 Service Conditions: Rate surge protective devices for continuous operation under the following conditions, unless otherwise indicated:

1.5.3.1 Maximum Continuous Operating Voltage: Not less than 125 % of nominal system operating voltage for 120/240 Single Phase or 120/208 VAC Wye systems, Not less than 115 % for 277/480 VAC Wye or 480 VAC Delta systems.

1.5.3.2 Operating Temperature: -40 to +185 degrees F (-40 to +85 degrees C)

1.5.3.3 Humidity: 0 to 95 %, noncondensing.

1.5.3.4 Altitude: Less than 20,000 feet (6,000 m) above sea level.

1.6 COORDINATION

1.6.1 Coordinate location of field mounted surge suppressors to allow adequate clearances for maintenance, clearance per NEC and all local electrical codes.

1.6.2 Coordinate surge protective devices with Division 16 Section "Electrical Power Monitoring and Control".

1.7 WARRANTY

1.7.1 General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

1.7.2 Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of surge suppressors that fail in materials or workmanship within ten years (120 months) from date of Substantial Completion, or 126 months from date of manufacture. Warranty shall include parts and labor.

2.0 PRODUCTS

2.1 MANUFACTURERS

2.1.1 Manufacturers: Subject to compliance with requirements of this specification listed herein, provide products by one of the following manufacturers or equal:

2.1.1.1 Surge Suppression, Inc.

2.1.1.2 APT

2.1.1.3 Siemens

2.1.2 This specification is performance based, and any other vendors who desire approval to bid this project shall provide written documentation of any deviations from this specification, which shall be included in product submittal 14 days prior to bid.

2.1.3 The systems for this project is 120/240 VAC three phase, and 120/240 VAC single phase.

3.0 EXECUTION

3.1 INSTALLATION OF SURGE PROTECTIVE DEVICES

3.1.1 Install devices at service entrance, distribution panels, and panelboards as indicated on electrical one-line drawings.

3.1.2 Provide multi-pole, 100 Amp breaker as a dedicated disconnect for the suppressor at Service Entrance location, unless otherwise indicated on drawings.

3.1.3 Install devices per manufacturer's instructions with conductors between suppressor and points of attachment as short and as straight as possible. Do not mount internal to switchgear to facilitate ease of future maintenance and/or replacement.

3.1.4 Provide multi-pole, 30 Amp breaker as a dedicated disconnect for the suppressor at panelboard locations, unless otherwise indicated on drawings.

3.2 CONNECTIONS

3.2.1 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 and UL 486B.

3.3 FIELD QUALITY CONTROL

3.3.1 Testing: Perform the following field quality control testing:

3.3.1.1 After installing the surge protective devices, but before electrical circuitry has been energized, test for compliance with requirements.

3.3.1.2 Complete start-up checks and voltage verifications according to manufacturer's written instructions.

3.3.1.3 Perform visual and mechanical inspection on each unit. Certify that units are installed per manufacturer's recommendations.

3.3.2 Repair or replace malfunctioning units. Retest after repairs or replacements are made.