CONTRACT DOCUMENTS

AND

SPECIFICATIONS

CITY OF MADISON FISCAL YEAR 2016
COMMUNITY DEVELOPMENT
BLOCK GRANT
NEIGHBORHOOD REVITALIZATION
PROJECT NUMBER 18DB-OM-03-50-02-N 33

ENGINEER:

MADISON ENGINEERING
269 NE RIDGE LOOP
MADISON, FL 32341
850.973.7864

GRANT ADMINISTRATOR:

NORTH CENTRAL FLORIDA REGIONAL PLANNING COUNCIL
2009 NW 67TH PLACE
GAINESVILLE, FL 32653-1603
352.955.2200

JANUARY 2019

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AND

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SECTION A

ADVERTISEMENT FOR BIDS

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SECTION A

ADVERTISEMENT FOR BIDS

Project No. 18DB-OM-03-50-02-N 33

City of Madison (herein referred to as the "Owner")

Sealed bids marked "Sealed Bid" - City of Madison Small Cities Community Development Block Grant Project for Fiscal Year 2016 to be financed by the State of Florida Department of Economic Opportunity under the provisions, and subject to the requirements, of Title I of the Housing and Community Development Act of 1974, as amended, will be received by the Owner for the construction of the Project described, as follows:

Install replacement sanitary sewer lines to serve homes on Arnold, Hall, Hudson and Walton Streets.
Repave Arnold, Hall, Hudson and Walton Streets.
Sewer hookups for 28 low- and moderate-income households on the same four streets.
Install sanitary sewer line along Martin Luther King, Jr. Drive from Arnold Street to Southwest Bum Gardener Drive.
Replace existing Railroad Lift Station on Happy Drive and 3,000 linear feet of force main.

Bid proposals shall be addressed to the City of Madison, and delivered to the Office of the City Manager at the 321 Southwest Rutledge Street, Madison, FL 32340, 850.973.5081, not later than 3:00 p.m., Eastern Standard Time, on February 4, 2019. Proposals shall be designated as "Sealed Bid"- City of Madison Community Development Block Grant Project for Fiscal Year 2016 to be financed by the State of Florida Department of Economic Opportunity. Facsimile or electronic mail bids will not be accepted. Any bids received after the specified time and date will not be considered. The sealed bids will be publicly opened and read aloud at 3:00 p.m., Eastern Standard Time, on February 4, 2019 in the City Commission Meeting Room, City Hall, 321 Southwest Rutledge Street, Madison, FL 32340.

The information for Bidders, Form of Bid Proposal, Form of Contract, Plans, Specifications, and Forms of Bid Bond, Performance and Payment Bond, and other contract documents may be examined at City Hall, 321 Southwest Rutledge Street, Madison, FL 32340. Electronic copies may be obtained by contacting the City Clerk or downloading from the City of Madison website.

The Owner reserves the right to waive any informalities or to reject any or all bids.

Each Bidder must deposit with his/her bid, security in the amount, form and subject to the conditions provided in the Information for Bidders. Sureties used for obtaining bonds must appear as acceptable on the Department of Treasury Circular 570.

Only bidders with prior experience in completing projects of similar scope and magnitude will be qualified to submit a bid. A mandatory bidders prequalification meeting will be held in the City Commission Meeting Room at City Hall located at 321 Southwest Rutledge Street, Madison, FL 32340, on January 16, 2019 at 10:00 a.m. Eastern Standard Time. **If you plan to submit a bid, a representative of your firm must attend the prequalification meeting to become familiar with the work to be completed**.

No Bidder may withdraw his/her bid within ninety (90) days after the actual date of the opening thereof.

A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime, pursuant to Section 287.133, Florida Statutes, may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for Category Two for a period of 36 months from the date of being placed on the convicted vendor list.

Attention of Bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under the Contract, Section 3, Segregated Facilities, Section 109 Executive Order 11246, and all applicable laws and regulations of the Federal government and State of Florida, and bonding and insurance requirements.

In accordance with Executive Order 11246 and Supplemental General Conditions, paragraph 21.2.1.1, the Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, national origin, disability, age or genetics. Such action shall include, but not be limited to the following: 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.

IN PARTICULAR, BIDDERS SHOULD NOTE THE REQUIRED ATTACHMENTS AND CERTIFICATIONS TO BE EXECUTED AND SUBMITTED WITH THE FORM OF BID PROPOSAL, WHICH ARE IDENTIFIED ON THE ATTACHMENTS CHECKLIST OF THE FORM OF BID PROPOSAL.

A FAIR HOUSING/EQUAL OPPORTUNITY/HANDICAP ACCESS JURISDICTION

Publish in the legal section on January 4, 2019.

SECTION B

INFORMATION FOR BIDDERS

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SECTION B

INFORMATION FOR BIDDERS

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SECTION B

INFORMATION FOR BIDDERS

1.0 RECEIPT AND OPENING OF BIDS

1.1 City of Madison (herein called the "Owner"), invites bids on the form attached hereto, all blanks of which must be appropriately completed. Bids will be received by the Owner at the Office of the City Manager at the 321 Southwest Rutledge Street, Madison, FL 32340, (850) 973-5081, not later than 3:00 p.m., Eastern Standard Time, on February 4, 2019. The sealed bids will be publicly opened and read aloud at 3:00 p.m. Eastern Standard Time on February 4, 2019, in the City Commission Meeting Room, City Hall, 321 Southwest Rutledge Street, Madison, FL 32340. The envelopes containing the bids must be sealed, addressed to the City Commission of City of Madison, and designated as "Sealed Bid"- City of Madison Community Development Block Grant for Fiscal Year 2016 to be financed by the State of Florida Department of Economic Opportunity.

1.2 The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within ninety (90) days after the actual date of opening thereof.

2.0 PREPARATION OF BID

2.1 Each bid must be submitted in triplicate, one original with original signatures and two copies, on the prescribed form and accompanied by Bid Bond or Security, Noncollusion Affidavit of Prime Bidder, Addenda Receipt Acknowledgment, Bidder's Experience List, Subcontractors List, Minority Businesses and Women’s Business Enterprises Subcontractor Bid Solicitation List, Manufacturers List, Certification of Bidder Regarding Equal Employment Opportunity, Certification of Bidder (Contractor) Regarding Section 3 and Segregated Facilities, Certification by Bidder (Contractor) Concerning Labor Standards and Prevailing Wage Requirements, Contractor's Section 3 Plan and Contractor Debarment Certification. One original with original signatures and two copies must be submitted. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures, and the foregoing Certifications must be fully completed and executed when submitted. Facsimile or electronic mail bids will not be accepted.

2.2 Each bid must be submitted in a sealed envelope bearing on the outside the name of the Bidder, his/her address, and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope and addressed as specified in the Form of Bid Proposal.

2.3 The Bidder shall submit lump sum bids and/or unit price bids as indicated on the form of Bid Proposal.

2.4 Bids may be considered irregular and subject to rejection if they show serious omission, unauthorized alterations of form, unauthorized alternate bids, incomplete or unbalanced bids, or irregularities of any kind. If the Specifications identify manufacturers for material/equipment or equivalents, no bid will be considered a regular bid without a list of the manufacturers of materials and/or equipment on which the bid is based, as required in attachments to the Form of Bid Proposal. No Bidder shall list a material or equipment item produced by a manufacturer not listed herein as acceptable unless that manufacturer can produce written evidence of having received from the Engineer prior approval of his/her material or equipment item for this project.

2.5 Only one (l) bid from any individual, firm, partnership, or corporation under the same or different names, will be considered. Should it appear to the Owner that any Bidder is interested in more than one (1) bid for work contemplated, all bids in which such Bidder is interested will be rejected.

2.6 The Bidder, if an individual, shall sign his/her name and show his/her address in the blank space provided therefore; if the bid is made by the partnership or corporation, together with the names and addresses of the partners or officers, shall be shown, and the bid acknowledged by one (1) of the partners or officers, as required. When requested, satisfactory evidence of the authority of the officer signing said bid on behalf of the corporation shall be furnished.

2.7 Unit adjustment prices shown on the proposal shall apply to items of known quantity which may be necessary in addition to the work specifically covered in the Plans and Specifications. Prices shall apply to changes made necessary by unforeseen conditions or other changes deemed necessary by the Engineer during construction, but shall not apply to changes or additions made necessary to accommodate equipment furnished and installed under this Contract. Prices shall be subject to acceptance or rejection by Owner without invalidating the remainder of the proposal or any contract based thereon.

2.8 The completed Proposals shall be submitted as outlined in "Advertisement for Bids".

2.9 Estimated quantities are presented in the contract documents solely for the convenience of the Bidder. Notwithstanding any other provision of the contract documents, the Bidder shall assume the risk of the estimated quantities presented in the executed Contract.

3.0 SUBCONTRACTS

3.1 The Bidder is specifically advised that any person, for, or other party to whom it is proposed to award a Subcontract under this contract, must submit Certification by Proposed Subcontractor Regarding Equal Employment Opportunity, Certification by Proposed Subcontractor Concerning Labor Standards and Prevailing Wage Requirements, and Certification of Proposed Subcontractor Regarding Section 3 and Segregated Facilities. Approval of the proposed Subcontracts award cannot be given by the Owner unless and until the proposed Subcontractor has submitted the Certification and/or other evidence showing that it was fully complied with any reporting requirements to which it is or was subject.

4.0 QUALIFICATIONS OF BIDDER

4.1 The Owner may make such investigations as he/she deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request.

The Bidder must also submit the following:

4.1.1 A statement of experience listing all jobs similar in both scope and type of construction awarded within the past five (5) years;

4.1.2 A list of Subcontractors and major materials suppliers contractor proposes to use; and

4.1.3 A list of officers and addresses.

4.2 The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. Conditional bids will not be accepted.

5.0 BID SECURITY

5.1 Each Bid must be accompanied by certified check of the Bidder, bid bond, or other negotiable instrument prepared on the Form of Bid Bond attached hereto, duly executed by the Bidder as principal and having as Surety thereon a Surety company which is acceptable on the Department of Treasury Circular 570 and approved by the Owner, the amount of five percent (5%) of the bid. Such certified checks, bid bonds, or other negotiable instrument will be returned to all except the three (3) lowest bidders within ten (10) days after the opening of the bids, and the remaining certified checks, bid bonds, or other negotiable instrument will be returned promptly after the Owner and the accepted Bidder have executed the Contract, or, if no award has been made within ninety (90) days after the date of the opening of bids, upon demand of the Bidder at any time thereafter, so long as he/she has not been notified of the acceptance of his/her bid.

6.0 LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

6.1 The successful Bidder, upon his/her failure or refusal to execute and deliver the Contract and bonds required within ten (10) days after he/she has received notice of the acceptance of his/her bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his/her bid.

7.0 TIME OF COMPLETION OF LIQUIDATED DAMAGES

7.1 Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the Owner and to substantially complete the project in sixty (60) calendar days. Bidder must agree also to pay as liquidated damages, the sum of Five Hundred Dollars and No Cents ($500.00) for each calendar day thereafter as hereinafter provided in the General Conditions. After substantial completion, Bidder shall complete the remaining work within thirty (30) calendar days. Bidder must agree to pay as liquidated damages, the sum of One Thousand Dollars and No Cents ($1,000.00) for each calendar day thereafter as hereinafter provided in the General Conditions. Total Contract time shall be ninety (90) calendar days.

8.0 CONDITIONS OF WORK

8.1 Each Bidder must inform himself/herself fully of the conditions relating to the construction of the Project and the employment of labor thereon. Failure to do so will not relieve a successful Bidder of his/her obligation to furnish all material and labor necessary to carry out the provisions of his/her Contract.

9.0 ADDENDA AND INTERPRETATIONS

9.1 No interpretations of the meaning of the Plans, Specifications, or other pre-bid documents will be made to any Bidder orally. Every request for such interpretation shall be in writing and addressed to T. Brent Whitman, P. E., Madison Engineering, 269 NE Ridge Loop, Madison, FL 32341, and copied to the North Central Florida Regional Planning Council, Attention Scott R. Koons, 2009 NW 67th Place, Gainesville, Florida 32653-1603, and to be given consideration, must be received at least five (5) days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the Specifications which, if issued, will be mailed by certified mail with return receipt requested to all prospective Bidders (at the respective addresses furnished for such purposes), with a postmark not later than three (3) days prior to the date fixed for the opening of bids. Failure of any Bidder to receive any such addendum or interpretation shall not relieve such Bidder from any obligations under his/her bid as submitted. All addenda so issued shall become part of the contract documents.

10.0 SECURITY FOR FAITHFUL PERFORMANCE

10.1 Simultaneously with his/her delivery of the executed Contract, the Contractor shall furnish surety bonds as security for faithful performance of this Contract and for the payment of all persons performing labor on the Project under this Contract, as specified in the General Conditions, included herein. The Surety on such bonds shall be a duly authorized surety company which is listed on the Department of Treasury Circular 570 and approved by the Owner.

11.0 POWER OF ATTORNEY

11.1 Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

12.0 NOTICE OF SPECIAL CONDITIONS

12.1 Attention is particularly called to those parts of the contract documents and Specifications which deal with the following:

12.1.1 Bonding and insurance requirements.
12.1.2 Conditions of employment.
12.1.3 Executive Order 11246 (Equal Employment Opportunity).
12.1.4 Inspection and testing of materials.
12.1.5 Minimum wage rates.
12.1.6 Section 3 requirements.
12.1.7 Section 109 requirements.
12.1.8 Segregated facilities.

13.0 LAWS AND REGULATIONS

13.1 The Bidder's attention is directed to the fact that all applicable state laws, local ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.

14.0 METHOD OF AWARD

14.1 If at the time this Contract is to be awarded, the lowest base bid submitted by a <u>responsive</u> and <u>responsible</u> Bidder does not exceed the amount of funds then estimated by the Owner as available to finance the Contract, the Contract will be awarded on the base bid only. If such bid exceeds such amount, the Owner may reject all bids or may award the Contract on the base bid combined with such deductible alternates, if any, applied in numerical order in which they are listed in the Form of Bid Proposal, as produces a net amount which is within the available funds.

15.0 EXECUTION OF CONTRACT

15.1 The successful Bidder shall, within ten (10) calendar days after he/she has received written notice of the acceptance of his/her Bid, enter into a written Contract with the Owner on the forms included with these Specifications. The Contract when executed, shall be deemed to include the entire agreement between the parties hereto, and the Contractor shall not claim any modifications thereof resulting from any representation or promise made at a time by any representative of the Owner or any other person.

16.0 OBLIGATION OF BIDDER

16.1 Before submitting proposals, the Bidders shall carefully examine the Plans, Specifications, Contract Documents, and site of the proposed work and inform themselves thoroughly of the difficulties involved in the completion of all work under this Contract in accordance with the Specifications.

16.2 At the time of the opening of the bids, each Bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Plans, Specifications and Contract Documents (including all addenda). No plea of ignorance of conditions, which exist or may hereafter exist due to failure to make the necessary examinations, will be accepted as an excuse for any failure or omission on the part of the Bidder to fulfill all requirements of the Plans, Specifications and Contract Documents.

17.0 SAFETY STANDARDS AND ACCIDENT PREVENTION

17.1 With respect to all work performed under this Contract, the Contractor shall:

17.1.1 Comply with the safety standards and provisions of all applicable laws, building and construction codes, the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), and the requirements of Title 29 of the Code of Federal Regulations, Section 1518 as published in the "Federal Register", Volume 36, Nr. 75, Saturday, April 17, 1971.

17.1.2 Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property.

17.1.3 Maintain at his/her office or other well known place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for immediate removal to a hospital or a doctor's care of persons (including employees), who may be injured on the job site. In no case shall employees be permitted to work at a job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.

18.0 PLANS

18.1 The successful Bidder will be furnished three (3) copies of the approved Plans and Specifications, at no charge, for the project to be constructed under this Contract.

19.0 OWNERSHIP OF PLANS AND SPECIFICATIONS

19.1 These Plans and Specifications are the property of the Engineer and are furnished to the Owner for construction of the Project.

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SECTION C

BONDING REQUIREMENTS

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SECTION C

BONDING REQUIREMENTS

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SECTION C

BONDING REQUIREMENTS

1.0 BONDING REQUIREMENTS

1.1 The following minimum bonding requirements shall apply to the Project:

1.1.1 A bid bond from each Bidder equivalent to five percent (5%) of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the Bidder will, upon acceptance of his/her bid, execute such contractual documents as may be required within the time specified.

1.1.2 A performance bond on the part of the Contractor for one hundred percent (100%) of the Contract price. A "performance bond" is one executed in connection with the Contract to assure fulfillment of all the Contractor's obligations under the Contract.

1.1.3 A payment bond on the part of the Contractor for one hundred percent (100%) of the Contract price. A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the Contract.

2.0 U. S. DEPARTMENT OF TREASURY CIRCULAR 570

Acceptable Surety companies are listed on the U. S. Department of Treasury Circular 570 (see attached).

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List of Certified Companies

Download the complete listing of Certified Companies PDF, or browse the list below.

Also, see Supplemental Changes to Circular 570

Last updated July 1, 2018

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

A

Updated July 1, 2018

ACCREDITED SURETY AND CASUALTY COMPANY, INC.

(NAIC #26379)

BUSINESS ADDRESS: PO Box 140855, Orlando, FL 32814.

PHONE: (407) 629-2131.

UNDERWRITING LIMITATION b/: $5,446,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Florida.

ACE American Insurance Company

(NAIC #22667)

BUSINESS ADDRESS: 436 Walnut Street P.O. Box 1000, Philadelphia, PA 19106.

PHONE: (215) 640-1000.

UNDERWRITING LIMITATION b/: $478,637,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Pennsylvania.

ACE Property and Casualty Insurance Company

(NAIC #20699)

BUSINESS ADDRESS: 436 WALNUT STREET, P.O. Box 1000, Philadelphia, PA 19106.

PHONE: (215) 640-1000.

UNDERWRITING LIMITATION b/: $296,248,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Pennsylvania.

ACSTAR INSURANCE COMPANY

(NAIC #22950)

BUSINESS ADDRESS: 30 SOUTH ROAD, FARMINGTON, CT 06032.

PHONE: (860) 415-8400.

UNDERWRITING LIMITATION b/: $2,360,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

Aegis Security Insurance Company

(NAIC #33898)

BUSINESS ADDRESS: P.O. Box 3153, Harrisburg, PA 17105.

PHONE: (717) 657-9671.

UNDERWRITING LIMITATION b/: $5,374,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Pennsylvania.

ALL AMERICA INSURANCE COMPANY

(NAIC #20222)

BUSINESS ADDRESS: P.O. BOX 351, VAN WERT, OH 45891 - 0351.

PHONE: (419) 238-1010.

UNDERWRITING LIMITATION b/: $15,662,000.

SURETY LICENSES c,f/: AZ, AR, CA, CO, CT, GA, ID, IL, IN, IA, KY, ME, MD, MA, MI, MN, MS, MT, NV, NH, NJ, NM, NY, NC, OH, OK, OR, PA, SC, TN, TX, UT, VT, VA, WA, WI.

INCORPORATED IN: Ohio.

Allegheny Casualty Company

(NAIC #13285)

BUSINESS ADDRESS: One Newark Center, 20th Floor, Newark, NJ 07102.

PHONE: (800) 333-4167 x-269.

UNDERWRITING LIMITATION b/: $2,264,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New Jersey.

ALLEGHENY SURETY COMPANY

(NAIC #34541)

BUSINESS ADDRESS: 4217 Steubenville Pike, Pittsburgh, PA 15205.

PHONE: (412) 921-3077.

UNDERWRITING LIMITATION b/: $254,000.

SURETY LICENSES c,f/: PA.

INCORPORATED IN: Pennsylvania.

ALLIED Property and Casualty Insurance Company

(NAIC #42579)

BUSINESS ADDRESS: ONE WEST NATIONWIDE BLVD., 1-04-701, COLUMBUS, OH 43215 - 2220.

PHONE: (515) 508-4211.

UNDERWRITING LIMITATION b/: $6,045,000.

SURETY LICENSES c,f/: AL, AZ, AR, CA, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, ME, MD, MI, MN, MS, MO, MT, NE, NV, NH, NM, NY, ND, OH, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Iowa.

Allied World Insurance Company

(NAIC #22730)

BUSINESS ADDRESS: 199 Water Street, New York, NY 10038.

PHONE: (646) 794-0500.

UNDERWRITING LIMITATION b/: $59,242,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI,.

INCORPORATED IN: New Hampshire.

Allied World Specialty Insurance Company

(NAIC #16624)

BUSINESS ADDRESS: 199 WATER STREET, NEW YORK, NY 10038.

PHONE: (646) 794-0500.

UNDERWRITING LIMITATION b/: $41,919,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Delaware.

AMCO Insurance Company

(NAIC #19100)

BUSINESS ADDRESS: ONE WEST NATIONWIDE BLVD., 1-04-701, COLUMBUS, OH 43215 - 2220.

PHONE: (515) 508-4211.

UNDERWRITING LIMITATION b/: $20,982,000.

SURETY LICENSES c,f/: AL, AZ, AR, CA, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, ME, MD, MI, MN, MS, MO, MT, NE, NV, NM, NY, NC, ND, OH, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Iowa.

AMERICAN ALTERNATIVE INSURANCE CORPORATION

(NAIC #19720)

BUSINESS ADDRESS: 555 COLLEGE ROAD EAST - P.O. BOX 5241, PRINCETON, NJ 08543.

PHONE: (609) 243-4200.

UNDERWRITING LIMITATION b/: $20,167,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Delaware.

American Automobile Insurance Company

(NAIC #21849)

BUSINESS ADDRESS: 225 W. WASHINGTON STREET, SUITE 1800, CHICAGO, IL 60606 - 3484.

PHONE: (888) 466-7883.

UNDERWRITING LIMITATION b/: $7,803,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Missouri.

AMERICAN BANKERS INSURANCE COMPANY OF FLORIDA

(NAIC #10111)

BUSINESS ADDRESS: 11222 QUAIL ROOST DRIVE, MIAMI, FL 33157 - 6596.

PHONE: (305) 253-2244.

UNDERWRITING LIMITATION b/: $56,177,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH,

NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Florida.

American Casualty Company of Reading, Pennsylvania

(NAIC #20427)

BUSINESS ADDRESS: 151 N. Franklin St., CHICAGO, IL 60606.

PHONE: (312) 822-5000.

UNDERWRITING LIMITATION b/: $14,216,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Pennsylvania.

AMERICAN CONTRACTORS INDEMNITY COMPANY

(NAIC #10216[1])

BUSINESS ADDRESS: 801 South Figueroa Street, Suite 700, Los Angeles, CA 90017.

PHONE: (310) 649-0990.

UNDERWRITING LIMITATION b/: $12,855,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MI, MN, MS, MO, MT, NE, NV, NJ, NM, NY, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, WA, WV, WI, WY.

INCORPORATED IN: California.

American Fire and Casualty Company

(NAIC #24066)

BUSINESS ADDRESS: 175 Berkeley Street, Boston, MA 02116.

PHONE: (617) 357-9500.

UNDERWRITING LIMITATION b/: $4,070,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New Hampshire.

American Guarantee and Liability Insurance Company

(NAIC #26247)

BUSINESS ADDRESS: 1299 ZURICH WAY, 5TH FLOOR, SCHAUMBURG, IL 60196 - 1056.

PHONE: (847) 605-6000.

UNDERWRITING LIMITATION b/: $18,450,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New York.

American Home Assurance Company

(NAIC #19380)

BUSINESS ADDRESS: 175 WATER STREET, 18TH FLOOR, NEW YORK, NY 10038.

PHONE: (212) 770-7000.

UNDERWRITING LIMITATION b/: $623,782,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New York.

American Insurance Company (The)

(NAIC #21857)

BUSINESS ADDRESS: 225 W. WASHINGTON STREET, SUITE 1800, CHICAGO, IL 60606 - 3484.

PHONE: (888) 466-7883.

UNDERWRITING LIMITATION b/: $6,667,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

AMERICAN ROAD INSURANCE COMPANY (THE)

(NAIC #19631)

BUSINESS ADDRESS: One American Road, MD 7600, Dearborn, MI 48126 - 2701.

PHONE: (313) 337-1102.

UNDERWRITING LIMITATION b/: $27,040,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Michigan.

American Southern Insurance Company

(NAIC #10235)

BUSINESS ADDRESS: P O Box 723030, Atlanta, GA 31139 - 0030.

PHONE: (404) 266-9599.

UNDERWRITING LIMITATION b/: $4,335,000.

SURETY LICENSES c,f/: AL, AZ, AR, CO, DE, DC, FL, GA, IL, IN, KS, KY, MD, MI, MN, MS, MO, NE, NJ, NY, NC, OH, PA, SC, TN, UT, VA, WA, WV, WI, WY.

INCORPORATED IN: Kansas.

American Surety Company

(NAIC #31380)

BUSINESS ADDRESS: 250 East 96th Street, Suite 202, Indianapolis, IN 46240.

PHONE: (317) 875-8700.

UNDERWRITING LIMITATION b/: $1,045,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WY.

INCORPORATED IN: Indiana.

Amerisure Insurance Company

(NAIC #19488)

BUSINESS ADDRESS: P. O. Box 2060, Farmington Hills, MI 48331 - 3586.

PHONE: (248) 615-9000.

UNDERWRITING LIMITATION b/: $24,179,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Michigan.

Amerisure Mutual Insurance Company

(NAIC #23396)

BUSINESS ADDRESS: P. O. Box 2060, Farmington Hills, MI 48331 - 3586.

PHONE: (248) 615-9000.

UNDERWRITING LIMITATION b/: $71,674,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Michigan.

Amerisure Partners Insurance Company

(NAIC #11050)

BUSINESS ADDRESS: P. O. Box 2060, Farmington Hills, MI 48331 - 3586.

PHONE: (248) 615-9000.

UNDERWRITING LIMITATION b/: $2,398,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NM, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Michigan.

Antilles Insurance Company

(NAIC #10308)
BUSINESS ADDRESS: PO Box 9023507 , San Juan , PR 00902 - 3507.

PHONE: (787) 474-4900.

UNDERWRITING LIMITATION b/: $3,387,000.

SURETY LICENSES c,f/: PR.

INCORPORATED IN: Puerto Rico.

Arch Insurance Company

(NAIC #11150)

BUSINESS ADDRESS: Harborside 3, 210 Hudson Street, Suite 300, JERSEY CITY, NJ 07311 - 1107.

PHONE: (201) 743-4000.

UNDERWRITING LIMITATION b/: $92,978,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Missouri.

Arch Reinsurance Company

(NAIC #10348)
BUSINESS ADDRESS: 445 South Street, Suite 220, P.O. Box 1988, Morristown, NJ 07962 - 1988.

PHONE: (973) 898-9575.

UNDERWRITING LIMITATION b/: $35,781,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV.

INCORPORATED IN: Delaware.

Argonaut Insurance Company

(NAIC #19801)

BUSINESS ADDRESS: P.O. BOX 469011, SAN ANTONIO, TX 78246.

PHONE: (800) 470-7958.

UNDERWRITING LIMITATION b/: $87,278,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

ASPEN AMERICAN INSURANCE COMPANY

(NAIC #43460)

BUSINESS ADDRESS: 175 Capital Boulevard, Suite300, Rocky Hill, CT 06067.

PHONE: (860) 258-3500.

UNDERWRITING LIMITATION b/: $50,628,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Texas.

Associated Indemnity Corporation

(NAIC #21865)

BUSINESS ADDRESS: 225 W. WASHINGTON STREET, SUITE 1800, CHICAGO, IL 60606 - 3484.

PHONE: (888) 466-7883.

UNDERWRITING LIMITATION b/: $9,002,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: California.

Atlantic Specialty Insurance Company

(NAIC #27154)
BUSINESS ADDRESS: 605 Highway 169 North, Suite 800, Plymouth, MN 55441.

PHONE: (952) 852-2431.

UNDERWRITING LIMITATION b/: $61,805,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: New York.

Auto-Owners Insurance Company

(NAIC #18988)

BUSINESS ADDRESS: P.O. BOX 30660, LANSING, MI 48909 - 8160.

PHONE: (517) 323-1200.

UNDERWRITING LIMITATION b/: $1,063,474,000.

SURETY LICENSES c,f/: AL, AZ, AR, CO, FL, GA, ID, IL, IN, IA, KS, KY, MI, MN, MS, MO, NE, NV, NM, NC, ND, OH, OR, PA, SC, SD, TN, UT, VA, WA, WI.

INCORPORATED IN: Michigan.

AXIS Insurance Company

(NAIC #37273)

BUSINESS ADDRESS: 11680 Great Oaks Way, Ste. 500, Alpharetta, GA 30022.

PHONE: (678) 746-9400.

UNDERWRITING LIMITATION b/: $54,467,000.

SURETY LICENSES c,f/: AL, AK, AS, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

AXIS Reinsurance Company

(NAIC #20370)

BUSINESS ADDRESS: 11680 Great Oaks Way, Suite 500, Alpharetta, GA 30022.

PHONE: (678) 746-9400.

UNDERWRITING LIMITATION b/: $96,681,000.

SURETY LICENSES c,f/: AL, AK, AS, AZ, AR, CA, CO, CT, DE, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New York.

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Bankers Insurance Company

(NAIC #33162)

BUSINESS ADDRESS: P.O. BOX 15707, ST. PETERSBURG, FL 33733.

PHONE: (727) 823-4000.

UNDERWRITING LIMITATION b/: $7,791,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Florida.

Bankers Standard Insurance Company

(NAIC #18279)

BUSINESS ADDRESS: 436 WALNUT STREET, P.O. Box 1000, Philadelphia, PA 19106.

PHONE: (215) 640-1000.

UNDERWRITING LIMITATION b/: $19,790,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Pennsylvania.

Beazley Insurance Company, Inc.

(NAIC #37540)

BUSINESS ADDRESS: 30 Batterson Park Road, Farmington, CT 06032.

PHONE: (860) 677-3700.

UNDERWRITING LIMITATION b/: $12,010,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

Berkley Insurance Company

(NAIC #32603)

BUSINESS ADDRESS: 475 STEAMBOAT ROAD, GREENWICH, CT 06830.

PHONE: (203) 542-3800.

UNDERWRITING LIMITATION b/: $453,117,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Delaware.

Berkley Regional Insurance Company

(NAIC #29580)
BUSINESS ADDRESS: PO BOX 9190, DES MOINES, IA 50306 - 9190.

PHONE: (515) 473-3000.

UNDERWRITING LIMITATION b/: $72,799,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Delaware.

Berkshire Hathaway Homestate Insurance Company

(NAIC #20044)

BUSINESS ADDRESS: 1314 Douglas Street, Suite 1300, Omaha, NE 68102 - 1944.

PHONE: (402) 393-7255.

UNDERWRITING LIMITATION b/: $166,073,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Nebraska.

Berkshire Hathaway Specialty Insurance Company

(NAIC #22276)

BUSINESS ADDRESS: 1314 Douglas Street, Suite 1400, Omaha, NE 68102 - 1944.

PHONE: (402) 916-3000.

UNDERWRITING LIMITATION b/: $374,964,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Nebraska.

BITCO GENERAL INSURANCE CORPORATION

(NAIC #20095)

BUSINESS ADDRESS: 3700 MARKET SQUARE CIRCLE, DAVENPORT, IA 52807.

PHONE: (800) 475-4477.

UNDERWRITING LIMITATION b/: $29,364,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

BOND SAFEGUARD INSURANCE COMPANY

(NAIC #27081)

BUSINESS ADDRESS: 10002 Shelbyville Road, Suite 100, Louisville, KY 40223 - 2979.

PHONE: (615) 553-9500.

UNDERWRITING LIMITATION b/: $3,938,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, KS, KY, LA, ME, MD, MA, MN, MS, MO, MP, MT, NV, NH, NJ, NM, NC, ND, OH, OK, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: South Dakota.

Bondex Insurance Company

(NAIC #12965)

BUSINESS ADDRESS: P.O. Box 6, Florham Park, NJ 07932.

PHONE: (973) 377-7000.

UNDERWRITING LIMITATION b/: $351,000.

SURETY LICENSES c,f/: DE, NJ, NY, PA.

INCORPORATED IN: New Jersey.

Boston Indemnity Company, Inc.

(NAIC #30279)

BUSINESS ADDRESS: PO Box 6, Florham Park, NJ 07932.

PHONE: (973) 377-7000.

UNDERWRITING LIMITATION b/: $451,000.

SURETY LICENSES c,f/: AL, AZ, AR, CT, DE, DC, FL, GA, ID, IN, KS, KY, LA, ME, MA, MN, MS, MT, NE, NV, NC, ND, OK, PA, SD, TN, WV.

INCORPORATED IN: South Dakota.

INCORPORATED IN: South Dakota.

Brierfield Insurance Company

(NAIC #10993)

BUSINESS ADDRESS: 6300 University Parkway, Sarasota, FL 34240 - 8424.

PHONE: (800) 226-3224 x-2422.

UNDERWRITING LIMITATION b/: $913,000.

SURETY LICENSES c,f/: AL, AR, FL, GA, MS, TN.

INCORPORATED IN: Mississippi.

BRITISH AMERICAN INSURANCE COMPANY

(NAIC #32875)

BUSINESS ADDRESS: P.O. Box 1590, Dallas, TX 75221 - 1590.

PHONE: (214) 443-5500.

UNDERWRITING LIMITATION b/: $3,249,000.

SURETY LICENSES c,f/: TX.

INCORPORATED IN: Texas.

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Capitol Indemnity Corporation

(NAIC #10472)
BUSINESS ADDRESS: P.O. Box 5900, Madison, WI 53705 - 0900.

PHONE: (608) 829-4200.

UNDERWRITING LIMITATION b/: $21,699,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Wisconsin.

Capitol Preferred Insurance Company, Inc.

(NAIC #10908)

BUSINESS ADDRESS: 2750 Chancellorsville Dr, Tallahassee, FL 32312.

PHONE: (850) 521-0742.

UNDERWRITING LIMITATION b/: $2,654,000.

SURETY LICENSES c,f/: FL, GA, SC.

INCORPORATED IN: Florida.

Carolina Casualty Insurance Company

(NAIC #10510)

BUSINESS ADDRESS: PO BOX 9190, DES MOINES, IA 50306 - 9190.

PHONE: (904) 363-0900.

UNDERWRITING LIMITATION b/: $10,338,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Iowa.

Centennial Casualty Company

(NAIC #34568)

BUSINESS ADDRESS: 2200 Woodcrest Place, Suite 200, Birmingham, AL 35209.

PHONE: (205) 414-2600.

UNDERWRITING LIMITATION b/: $8,292,000.

SURETY LICENSES c,f/: AL.

INCORPORATED IN: Alabama.

CENTRAL MUTUAL INSURANCE COMPANY

(NAIC #20230)

BUSINESS ADDRESS: P.O. BOX 351, VAN WERT, OH 45891 - 0351.

PHONE: (419) 238-1010.

UNDERWRITING LIMITATION b/: $66,541,000.

SURETY LICENSES c,f/: AZ, AR, CA, CO, CT, DE, GA, ID, IL, IN, IA, KY, ME, MD, MA, MI, MN, MS, MT, NV, NH, NJ, NM, NY, NC, OH, OK, OR, PA, SC, TN, TX, UT, VT, VA, WA, WI.

INCORPORATED IN: Ohio.

CENTURY SURETY COMPANY

(NAIC #36951)

BUSINESS ADDRESS: 550 Polaris Parkway, Westerville, OH 43082.

PHONE: (614) 895-2000.

UNDERWRITING LIMITATION b/: $3,931,000.

SURETY LICENSES c,f/: AZ, IN, OH, WV, WI.

INCORPORATED IN: Ohio.

Charter Oak Fire Insurance Company (The)

(NAIC #25615)

BUSINESS ADDRESS: ONE TOWER SQUARE, HARTFORD, CT 06183.

PHONE: (860) 277-0111.

UNDERWRITING LIMITATION b/: $22,735,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

Cherokee Insurance Company

(NAIC #10642)

BUSINESS ADDRESS: 34200 Mound Road, Sterling Heights, MI 48310.

PHONE: (800) 201-0450 x-3400.

UNDERWRITING LIMITATION b/: $19,781,000.

SURETY LICENSES c,f/: AL, AZ, AR, CA, CO, CT, DE, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Michigan.

CHUBB INDEMNITY INSURANCE COMPANY

(NAIC #12777)

BUSINESS ADDRESS: 202B Hall's Mill Road, Whitehouse Station, NJ 08889.

PHONE: (212) 827-4400.

UNDERWRITING LIMITATION b/: $17,505,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New York.

Cincinnati Casualty Company (The)

(NAIC #28665)

BUSINESS ADDRESS: P.O. Box 145496, Cincinnati, OH 45250 - 5496.

PHONE: (513) 870-2000.

UNDERWRITING LIMITATION b/: $39,229,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

CINCINNATI INDEMNITY COMPANY, THE

(NAIC #23280)

BUSINESS ADDRESS: P.O. BOX 145496, CINCINNATI, OH 45250 - 5496.

PHONE: (513) 870-2000 x-4414.

UNDERWRITING LIMITATION b/: $10,000,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

Cincinnati Insurance Company (The)

(NAIC #10677)

BUSINESS ADDRESS: P.O. BOX 145496, CINCINNATI, OH 45250 - 5496.

PHONE: (513) 870-2000.

UNDERWRITING LIMITATION b/: $460,128,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

CITIZENS INSURANCE COMPANY OF AMERICA

(NAIC #31534)

BUSINESS ADDRESS: 440 LINCOLN STREET, WORCESTER, MA 01653 - 0002.

PHONE: (508) 853-7200.

UNDERWRITING LIMITATION b/: $69,946,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, CT, DE, DC, GA, HI, IL, IN, IA, KS, ME, MD, MA, MI, MN, MS, MO, MT, NE, NH, NJ, NM, NY, NC, ND, OH, OK, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI.

INCORPORATED IN: Michigan.

COLONIAL AMERICAN CASUALTY AND SURETY COMPANY

(NAIC #34347)

BUSINESS ADDRESS: 1299 ZURICH WAY, 5TH FLOOR, SCHAUMBURG, IL 60196 - 1056.

PHONE: (847) 605-6000.

UNDERWRITING LIMITATION b/: $2,337,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Maryland.

COLONIAL SURETY COMPANY

(NAIC #10758)

BUSINESS ADDRESS: 123 Tice Boulevard, Suite 250, Woodcliff Lake, NJ 07677.

PHONE: (201) 573-8788.

UNDERWRITING LIMITATION b/: $4,052,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Pennsylvania.

Continental Casualty Company

(NAIC #20443)

BUSINESS ADDRESS: 151 N Franklin St., CHICAGO, IL 60606.

PHONE: (312) 822-5000.

UNDERWRITING LIMITATION b/: $738,083,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

CONTINENTAL HERITAGE INSURANCE COMPANY

(NAIC #39551)

BUSINESS ADDRESS: 6140 PARKLAND BLVD, STE 321, MAYFIELD HEIGHTS, OH 44124.

PHONE: (440) 229-3420.

UNDERWRITING LIMITATION b/: $2,514,000.

SURETY LICENSES c,f/: AZ, CA, CO, DC, FL, GA, ID, IL, IN, IA, KY, LA, ME, MD, MN, MS, NE, NV, NJ, ND, OH, PA, SC, SD, TN, TX, UT, VA, WA, WV, WY.

INCORPORATED IN: Florida.

Continental Insurance Company (The)

(NAIC #35289)

BUSINESS ADDRESS: 151 N Franklin St., CHICAGO, IL 60606.

PHONE: (312) 822-5000.

UNDERWRITING LIMITATION b/: $155,806,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Pennsylvania.

CONTRACTORS BONDING AND INSURANCE COMPANY

(NAIC #37206)

BUSINESS ADDRESS: 9025 N. Lindbergh Drive, Peoria, IL 61615.

PHONE: (309) 692-1000.

UNDERWRITING LIMITATION b/: $11,490,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

Cooperativa de Seguros Multiples de Puerto Rico

(NAIC #18163)
BUSINESS ADDRESS: PO BOX 363846, SAN JUAN, PR 00936 - 3846.

PHONE: (787) 622-3575 x-2512.

UNDERWRITING LIMITATION b/: $15,318,000.

SURETY LICENSES c,f/: PR.

INCORPORATED IN: Puerto Rico.

CorePointe Insurance Company

(NAIC #10499)

BUSINESS ADDRESS: 401 South Old Woodward Avenue, Suite 300, Birmingham, MI 48009.

PHONE: (800) 782-9164.

UNDERWRITING LIMITATION b/: $1,452,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Delaware.

CUMIS INSURANCE SOCIETY, INC.

(NAIC #10847)

BUSINESS ADDRESS: POST OFFICE BOX 1084, MADISON, WI 53701.

PHONE: (608) 238-5851.

UNDERWRITING LIMITATION b/: $85,551,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Iowa.

CUMIS Specialty Insurance Company, Inc.

(NAIC #12758)

BUSINESS ADDRESS: Post Office Box 1084, Madison, WI 53701.

PHONE: (608) 238-5851.

UNDERWRITING LIMITATION b/: $5,549,000.

SURETY LICENSES c,f/: AL, CA, CT, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, MD, MA, MI, MN, MO, NE, NV, NJ, NY, NC, OH, OK, OR, PA, SC, SD, TX, UT, VA, WA, WI, WY.

INCORPORATED IN: Iowa.

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Developers Surety and Indemnity Company

(NAIC #12718)[3]
BUSINESS ADDRESS: P.O. BOX 19725, IRVINE, CA 92623 - 9725.

PHONE: (949) 263-3300.

UNDERWRITING LIMITATION b/: $9,634,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: California.

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Employers Insurance Company of Wausau

(NAIC #21458)

BUSINESS ADDRESS: 175 Berkeley Street, Boston, MA 02116.

PHONE: (617) 357-9500.

UNDERWRITING LIMITATION b/: $138,602,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Wisconsin.

Employers Mutual Casualty Company

(NAIC #21415)

BUSINESS ADDRESS: P. O. BOX 712, DES MOINES, IA 50306 - 0712.

PHONE: (515) 280-2511.

UNDERWRITING LIMITATION b/: $143,661,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Iowa.

Endurance American Insurance Company

(NAIC #10641)

BUSINESS ADDRESS: 4 MANHATTANVILLE ROAD, PURCHASE, NY 10577.

PHONE: (914) 468-8000.

UNDERWRITING LIMITATION b/: $42,689,000.

SURETY LICENSES c,f/: AL, AK, AZ, CO, DE, DC, GA, HI, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MS, MO, MT, NE, NV, NJ, NM, NY, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, WA, WV, WY.

INCORPORATED IN: Delaware.

Endurance Assurance Corporation

(NAIC #11551)

BUSINESS ADDRESS: 4 MANHATTANVILLE ROAD, PURCHASE, NY 10577.

PHONE: (914) 468-8000.

UNDERWRITING LIMITATION b/: $46,459,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WY.

INCORPORATED IN: Delaware.

Erie Insurance Company

(NAIC #26263)

BUSINESS ADDRESS: 100 ERIE INSURANCE PLACE, ERIE, PA 16530.

PHONE: (814) 870-2000.

UNDERWRITING LIMITATION b/: $37,432,000.

SURETY LICENSES c,f/: DC, IL, IN, KY, MD, MN, NY, NC, OH, PA, TN, VA, WV, WI.

INCORPORATED IN: Pennsylvania.

Euler Hermes North America Insurance Company

(NAIC #20516)

BUSINESS ADDRESS: 800 Red Brook Blvd, Owings Mills, MD 21117.

PHONE: (410) 753-0753.

UNDERWRITING LIMITATION b/: $15,764,000.

SURETY LICENSES c,f/: AL, AK, AZ, CA, CO, CT, DE, DC, GA, HI, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, PA, RI, SC, SD, TN, TX, UT, VT, VA, WI, WY.

INCORPORATED IN: Maryland.

Everest Reinsurance Company

(NAIC #26921)

BUSINESS ADDRESS: P.O. Box 830, Liberty Corner, NJ 07938 - 0830.

PHONE: (908) 604-3000.

UNDERWRITING LIMITATION b/: $339,185,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Delaware.

Evergreen National Indemnity Company

(NAIC #12750)

BUSINESS ADDRESS: 6140 PARKLAND BLVD, STE 321, MAYFIELD HEIGHTS, OH 44124.

PHONE: (440) 229-3420.

UNDERWRITING LIMITATION b/: $3,445,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WI, WY.

INCORPORATED IN: Ohio.

Executive Risk Indemnity Inc.

(NAIC #35181)

BUSINESS ADDRESS: 202B Hall's Mill Road, Whitehouse Station, NJ 08889.

PHONE: (215) 640-5259.

UNDERWRITING LIMITATION b/: $156,166,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Delaware.

Explorer Insurance Company

(NAIC #40029)

BUSINESS ADDRESS: P.O. BOX 509039, SAN DIEGO, CA 92150.

PHONE: (858) 350-2400 x-2550.

UNDERWRITING LIMITATION b/: $14,355,000.

SURETY LICENSES c,f/: AZ, CA, CO, CT, DE, HI, ID, IL, IN, IA, MD, MA, MI, MS, MT, NV, NJ, NM, OR, PA, TN, TX, UT, VT, VA, WA, WV.

INCORPORATED IN: California.

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Fair American Insurance and Reinsurance Company

(NAIC #35157)

BUSINESS ADDRESS: One Liberty Plaza, 165 Broadway, New York, NY 10006.

PHONE: (212) 365-2200.

UNDERWRITING LIMITATION b/: $19,390,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: New York.

Farmers Alliance Mutual Insurance Company

(NAIC #19194)

BUSINESS ADDRESS: P.O. Box 1401, McPherson, KS 67460.

PHONE: (620) 241-2200.

UNDERWRITING LIMITATION b/: $17,571,000.

SURETY LICENSES c,f/: CO, ID, IA, KS, MN, MO, MT, NE, NM, ND, OK, SD.

INCORPORATED IN: Kansas.

Farmington Casualty Company

(NAIC #41483)

BUSINESS ADDRESS: ONE TOWER SQUARE, HARTFORD, CT 06183.

PHONE: (860) 277-0111.

UNDERWRITING LIMITATION b/: $27,447,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

Farmland Mutual Insurance Company

(NAIC #13838)

BUSINESS ADDRESS: ONE WEST NATIONWIDE BLVD., 1-04-701, COLUMBUS, OH 43215 - 2220.

PHONE: (515) 508-3300.

UNDERWRITING LIMITATION b/: $16,365,000.

SURETY LICENSES c,f/: AL, AZ, AR, CA, CO, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, MD, MI, MN, MS, MO, MT, NE, NV, NC, ND, OH, OK, OR, PA, SC, SD, TN, TX, UT, VA, WA, WV, WI, WY.

INCORPORATED IN: Iowa.

FCCI Insurance Company

(NAIC #10178)

BUSINESS ADDRESS: 6300 University Parkway, Sarasota, FL 34240 - 8424.

PHONE: (800) 226-3224 x-2726.

UNDERWRITING LIMITATION b/: $54,754,000.

SURETY LICENSES c,f/: AL, AZ, AR, CO, DC, FL, GA, IL, IN, IA, KS, KY, LA, MD, MI, MS, MO, NE, NC, OH, OK, PA, SC, TN, TX, VA.

INCORPORATED IN: Florida.

Federal Insurance Company

(NAIC #20281)

BUSINESS ADDRESS: 202B Hall's Mill Road, Whitehouse Station, NJ 08889.

PHONE: (908) 903-2000.

UNDERWRITING LIMITATION b/: $393,705,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Indiana.

FEDERATED MUTUAL INSURANCE COMPANY

(NAIC #13935)

BUSINESS ADDRESS: 121 EAST PARK SQUARE, OWATONNA, MN 55060.

PHONE: (507) 455-5200.

UNDERWRITING LIMITATION b/: $336,551,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Minnesota.

Fidelity and Deposit Company of Maryland

Fidelity and Deposit Company of Maryland

(NAIC #39306)

BUSINESS ADDRESS: 1299 ZURICH WAY, 5TH FLOOR, SCHAUMBURG, IL 60196 - 1056.

PHONE: (847) 605-6000.

UNDERWRITING LIMITATION b/: $14,785,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Maryland.

FIDELITY AND GUARANTY INSURANCE COMPANY

(NAIC #35386)

BUSINESS ADDRESS: One Tower Square, Hartford, CT 06183.

PHONE: (860) 277-0111.

UNDERWRITING LIMITATION b/: $1,775,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Iowa.

Fidelity and Guaranty Insurance Underwriters, Inc.

(NAIC #25879)

BUSINESS ADDRESS: One Tower Square, Hartford, CT 06183.

PHONE: (860) 277-0111.

UNDERWRITING LIMITATION b/: $8,899,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Wisconsin.

Financial Casualty & Surety, Inc.

(NAIC #35009)

BUSINESS ADDRESS: 3131 Eastside, Suite 600, Houston, TX 77098.

PHONE: (800) 392-1604.

UNDERWRITING LIMITATION b/: $1,651,000.

SURETY LICENSES c,f/: AZ, CA, CT, DE, FL, GA, ID, IN, IA, KS, LA, MD, MI, MN, MS, MO, MT, NV, NJ, NY, NC, ND, OH, PA, SC, SD, TN, TX, UT, VT, VA, WA, WV.

INCORPORATED IN: Texas.

Financial Pacific Insurance Company

(NAIC #31453)

BUSINESS ADDRESS: P.O. BOX 73909, CEDAR RAPIDS, IA 52407 - 3909.

PHONE: (319) 399-5700.

UNDERWRITING LIMITATION b/: $9,759,000.

SURETY LICENSES c,f/: AK, AZ, AR, CA, CO, FL, ID, IL, IA, KS, MN, MO, MT, NE, NV, NM, ND, OK, OR, SD, TX, UT, WA, WI.

INCORPORATED IN: California.

Fireman's Fund Insurance Company

(NAIC #21873)

BUSINESS ADDRESS: 225 W. WASHINGTON STREET, SUITE 1800, CHICAGO, IL 60606 - 3484.

PHONE: (888) 466-7883.

UNDERWRITING LIMITATION b/: $129,737,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: California.

First Founders Assurance Company

(NAIC #12150)

BUSINESS ADDRESS: 6 Mill Ridge Lane, Chester, NJ 07930 - 2486.

PHONE: (908) 879-0990.

UNDERWRITING LIMITATION b/: $464,000.

SURETY LICENSES c,f/: NJ, NY.

INCORPORATED IN: New Jersey.

First Insurance Company of Hawaii, Ltd.

(NAIC #41742)

BUSINESS ADDRESS: PO Box 2866, Honolulu, HI 96803.

PHONE: (808) 527-7777.

UNDERWRITING LIMITATION b/: $28,154,000.

SURETY LICENSES c,f/: GU, HI.

INCORPORATED IN: Hawaii.

First Liberty Insurance Corporation (The)

(NAIC #33588)

BUSINESS ADDRESS: 175 Berkeley Street, Boston, MA 02116.

PHONE: (617) 357-9500.

UNDERWRITING LIMITATION b/: $2,229,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

First Net Insurance Company

(NAIC #10972)

BUSINESS ADDRESS: 424 WEST O'BRIEN DRIVE, STE 202, HAGATNA, GU 96910.

PHONE: (671) 477-8613.

UNDERWRITING LIMITATION b/: $1,238,000.

SURETY LICENSES c,f/: GU, MP.

INCORPORATED IN: Guam.

Frankenmuth Mutual Insurance Company

(NAIC #13986)

BUSINESS ADDRESS: One Mutual Avenue, Frankenmuth, MI 48787 - 0001.

PHONE: (989) 652-6121.

UNDERWRITING LIMITATION b/: $60,669,000.

SURETY LICENSES c,f/: AL, AZ, AR, CO, CT, DE, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Michigan.

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General Casualty Company Of Wisconsin

(NAIC #24414)

BUSINESS ADDRESS: One General Drive, Sun Prairie, WI 53596.

PHONE: (608) 825-5160.

UNDERWRITING LIMITATION b/: $17,029,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, GA, HI, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Wisconsin.

General Reinsurance Corporation

(NAIC #22039)

BUSINESS ADDRESS: 120 LONG RIDGE ROAD, STAMFORD, CT 06902 - 1843.

PHONE: (203) 328-5000.

UNDERWRITING LIMITATION b/: $1,139,255,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Delaware.

GRANGE INSURANCE COMPANY OF MICHIGAN

(NAIC #11136)

BUSINESS ADDRESS: 671 South High Street, P.O. Box 1218, Columbus, OH 43216 - 1218.

PHONE: (614) 445-2900.

UNDERWRITING LIMITATION b/: $4,441,000.

SURETY LICENSES c,f/: MI.

INCORPORATED IN: Ohio.

GRANGE MUTUAL CASUALTY COMPANY

(NAIC #14060)

BUSINESS ADDRESS: 671 South High Street, Columbus, OH 43206 - 1014.

PHONE: (614) 445-2900.

UNDERWRITING LIMITATION b/: $118,013,000.

SURETY LICENSES c,f/: AL, GA, IL, IN, IA, KS, KY, MN, MO, OH, PA, SC, TN, VA, WI.

INCORPORATED IN: Ohio.

GRANITE RE, INC.

(NAIC #26310)

BUSINESS ADDRESS: 14001 Quailbrook Drive, Oklahoma City, OK 73134.

PHONE: (405) 752-2600.

UNDERWRITING LIMITATION b/: $4,157,000.

SURETY LICENSES c,f/: AL, AZ, AR, CO, CT, DE, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MI, MN, MS, MO, MT, NE, NV, NM, NC, ND, OH, OK, OR, PA, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Oklahoma.

Granite State Insurance Company

(NAIC #23809)

BUSINESS ADDRESS: 175 WATER STREET, 18TH FLOOR, NEW YORK, NY 10038.

PHONE: (212) 770-7000.

UNDERWRITING LIMITATION b/: $3,384,000.

UNDERWRITING LIMITATION b/: $3,384,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DC, DE, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

GRAY CASUALTY & SURETY COMPANY (THE)

(NAIC #10671)

BUSINESS ADDRESS: P.O. Box 6202, Metairie, LA 70009 - 6202.

PHONE: (504) 888-7790.

UNDERWRITING LIMITATION b/: $1,478,000.

SURETY LICENSES c,f/: AL, AZ, AR, CA, DC, GA, IL, KY, LA, MD, MS, MO, NV, NM, NY, NC, OK, PA, SC, TN, TX.

INCORPORATED IN: Louisiana.

GRAY INSURANCE COMPANY (THE)

(NAIC #36307)

BUSINESS ADDRESS: P.O. BOX 6202, METAIRIE, LA 70009 - 6202.

PHONE: (504) 888-7790.

UNDERWRITING LIMITATION b/: $10,422,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Louisiana.

Great American Alliance Insurance Company

(NAIC #26832)

BUSINESS ADDRESS: 301 E Fourth Street, Cincinnati, OH 45202.

PHONE: (513) 369-5000.

UNDERWRITING LIMITATION b/: $2,791,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

Great American Insurance Company

(NAIC #16691)

BUSINESS ADDRESS: 301 E Fourth Street, Cincinnati, OH 45202.

PHONE: (513) 369-5000.

UNDERWRITING LIMITATION b/: $164,046,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

GREAT AMERICAN INSURANCE COMPANY OF NEW YORK

(NAIC #22136)

BUSINESS ADDRESS: 301 E Fourth Street, Cincinnati, OH 45202.

PHONE: (513) 369-5000.

UNDERWRITING LIMITATION b/: $4,916,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New York.

Great Midwest Insurance Company

(NAIC #18694)

(NAIC #18094)
BUSINESS ADDRESS: 800 Gessner, Suite 600, Houston, Texas 77024.

PHONE: (713) 935-0226.

UNDERWRITING LIMITATION b/: $10,697,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NJ, NY, NC, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, WA, WV, WI, WY.

INCORPORATED IN: Texas.

Great Northern Insurance Company

(NAIC #20303)

BUSINESS ADDRESS: 202B Hall's Mill Road, Whitehouse Station, NJ 08889.

PHONE: (215) 640-5259.

UNDERWRITING LIMITATION b/: $38,173,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Indiana.

Guarantee Company of North America USA (The)

(NAIC #36650)

BUSINESS ADDRESS: One Towne Square, Suite 1470, Southfield, MI 48076 - 3725.

PHONE: (248) 281-0281 x-66012.

UNDERWRITING LIMITATION b/: $18,995,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Michigan.

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Hanover Insurance Company (The)

(NAIC #22292)

BUSINESS ADDRESS: 440 LINCOLN STREET, WORCESTER, MA 01653 - 0002.

PHONE: (508) 853-7200.

UNDERWRITING LIMITATION b/: $129,817,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New Hampshire.

HARCO NATIONAL INSURANCE COMPANY

(NAIC #26433)

BUSINESS ADDRESS: 702 OBERLIN ROAD, RALEIGH, NC 27605 - 0800.

PHONE: (919) 833-1600.

UNDERWRITING LIMITATION b/: $20,406,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

Hartford Accident and Indemnity Company

(NAIC #22357)

BUSINESS ADDRESS: One Hartford Plaza, Hartford, CT 06155 - 0001.

PHONE: (860) 547-5000.

UNDERWRITING LIMITATION b/: $194,687,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

Hartford Casualty Insurance Company

(NAIC #29424)

BUSINESS ADDRESS: One Hartford Plaza, Hartford, CT 06155 - 0001.

PHONE: (860) 547-5000.

UNDERWRITING LIMITATION b/: $88,651,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Indiana.

Hartford Fire Insurance Company

(NAIC #19682)

BUSINESS ADDRESS: One Hartford Plaza, Hartford, CT 06155 - 0001.

PHONE: (860) 547-5000.

UNDERWRITING LIMITATION b/: $991,602,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

Hartford Insurance Company of Illinois

(NAIC #38288)

BUSINESS ADDRESS: One Hartford Plaza, Hartford, CT 06155 - 0001.

PHONE: (860) 547-5000.

UNDERWRITING LIMITATION b/: $125,353,000.

SURETY LICENSES c,f/: CT, HI, IL, MI, NY, PA.

INCORPORATED IN: Illinois.

Hartford Insurance Company of the Midwest

(NAIC #37478)

BUSINESS ADDRESS: One Hartford Plaza, Hartford, CT 06155 - 0001.

PHONE: (860) 547-5000.

UNDERWRITING LIMITATION b/: $50,777,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Indiana.

Hartford Insurance Company of the Southeast

(NAIC #38261)

BUSINESS ADDRESS: One Hartford Plaza, Hartford, CT 06155 - 0001.

PHONE: (860) 547-5000.

UNDERWRITING LIMITATION b/: $6,342,000.

SURETY LICENSES c,f/: CT, FL, GA, KS, LA, MI, PA.

INCORPORATED IN: Connecticut.

Hudson Insurance Company

(NAIC #25054)

BUSINESS ADDRESS: 100 William Street, 5th Floor, New York, NY 10038.

PHONE: (212) 978-2800.

UNDERWRITING LIMITATION b/: $42,838,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Delaware.

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IMT Insurance Company

(NAIC #14257)
BUSINESS ADDRESS: P.O. Box 1336, Des Moines, IA 50306 - 1336.

PHONE: (515) 327-2777.

UNDERWRITING LIMITATION b/: $17,553,000.

SURETY LICENSES c,f/: AZ, IL, IA, MN, MO, NE, ND, SD, WI.

INCORPORATED IN: Iowa.

Indemnity Company of California

(NAIC #25550)

BUSINESS ADDRESS: P. O. BOX 19725, IRVINE, CA 92623 - 9725.

PHONE: (949) 263-3300.

UNDERWRITING LIMITATION b/: $574,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, DE, DC, GA, HI, ID, IN, KS, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NC, ND, OK, OR, PA, RI, SC, SD, TX, UT, VT, VA, WA, WV, WY. INCORPORATED IN: California.

Indemnity Insurance Company of North America

(NAIC #43575)

BUSINESS ADDRESS: 436 WALNUT STREET, P.O. Box 1000, Philadelphia, PA 19106. PHONE: (215) 640-1000.

UNDERWRITING LIMITATION b/: $15,341,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Pennsylvania.

Indemnity National Insurance Company

(NAIC #18468)

BUSINESS ADDRESS: 725 Cool Springs Blvd., Suite 600, Franklin, TN 37067.

PHONE: (865) 934-4360.

UNDERWRITING LIMITATION b/: $5,005,000.

SURETY LICENSES c,f/: AL, AZ, AR, CO, GA, IL, IN, KY, LA, MD, MS, MT, NV, NM, OH, OK, PA, SC, TN, TX, UT, VA, WV.

INCORPORATED IN: Mississippi.

Indiana Lumbermens Mutual Insurance Company

(NAIC #14265)

BUSINESS ADDRESS: 2005 Market Street, Suite 1200, Philadelphia, PA 19103. PHONE: (267) 825-9206.

UNDERWRITING LIMITATION b/: $1,658,000.

UNDERWRITING LIMITATION b/: $1,658,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Indiana.

Inland Insurance Company

(NAIC #23264)

BUSINESS ADDRESS: P.O. Box 80468 , Lincoln , NE 68501.

PHONE: (402) 435-4302. UNDERWRITING LIMITATION b/: $25,293,000.

SURETY LICENSES c,f/: AZ, CO, IA, KS, MN, MO, MT, NE, ND, OK, SD, WY.

INCORPORATED IN: Nebraska.

Insurance Company Of North America

(NAIC #22713)

BUSINESS ADDRESS: 436 WALNUT STREET, P.O. Box 1000, Philadelphia, PA 19106. PHONE: (215) 640-1000.

UNDERWRITING LIMITATION b/: $34,819,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Pennsylvania.

Insurance Company of the State of Pennsylvania (The)

(NAIC #19429
BUSINESS ADDRESS: 175 WATER STREET, 18TH FLOOR, NEW YORK, NY 10038.

PHONE: (212) 770-7000.

UNDERWRITING LIMITATION b/: $5,486,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

Insurance Company of the West

(NAIC #27847)

BUSINESS ADDRESS: P.O. BOX 509039, SAN DIEGO, CA 92150.

PHONE: (858) 350-2400 x-2550.

UNDERWRITING LIMITATION b/: $83,454,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: California.

Insurors Indemnity Company

(NAIC #43273)

BUSINESS ADDRESS: P.O. Box 2683 , Waco , TX 76702 - 2683.

PHONE: (254) 759-3727.

UNDERWRITING LIMITATION b/: $2,106,000.

SURETY LICENSES c,f/: AR, NM, OK, TX.

INCORPORATED IN: Texas.

INTEGRAND ASSURANCE COMPANY

(NAIC #26778)

BUSINESS ADDRESS: PO Box 70128, San Juan , PR 00936 - 8128.

PHONE: (787) 781-0707 x-200.

UNDERWRITING LIMITATION b/: $5,072,000.

UNDERWRITING LIMITATION b/: $5,072,000.

SURETY LICENSES c,f/: PR, VI.

INCORPORATED IN: Puerto Rico.

Integrity Mutual Insurance Company

(NAIC #14303)

BUSINESS ADDRESS: P.O. Box 539, Appleton, WI 54912 - 0539.

PHONE: (920) 734-4511.

UNDERWRITING LIMITATION b/: $5,374,000.

SURETY LICENSES c,f/: IL, IA, MN, OH, WI.

INCORPORATED IN: Wisconsin.

International Fidelity Insurance Company

(NAIC #11592[2])
BUSINESS ADDRESS: One Newark Center , Newark , NJ 07102 - 5207.

PHONE: (973) 624-7200.

UNDERWRITING LIMITATION b/: $7,161,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: New Jersey.

IRONSHORE INDEMNITY INC.

(NAIC #23647[3])

BUSINESS ADDRESS: P.O. BOX 3407, NEW YORK, NY 10008.

PHONE: (617) 357-9500. UNDERWRITING LIMITATION b/: $9,923,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Minnesota.

ISLAND INSURANCE COMPANY, LIMITED

(NAIC #22845)

BUSINESS ADDRESS: P.O. Box 1520, Honolulu, HI 96806 - 1520.

PHONE: (808) 564-8200.

UNDERWRITING LIMITATION b/: $11,553,000.

SURETY LICENSES c,f/: HI. INCORPORATED IN: Hawaii. INCORPORATED IN: Hawaii.

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LEXINGTON NATIONAL INSURANCE CORPORATION

(NAIC #37940)

BUSINESS ADDRESS: P.O. BOX 6098, LUTHERVILLE, MD 21094.

PHONE: (410) 625-0800. UNDERWRITING LIMITATION b/: $1,930,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Florida.

Lexon Insurance Company

(NAIC #13307)

BUSINESS ADDRESS: 10002 Shelbyville Rd, Suite 100, Louisville, KY 40223.

PHONE: (615) 553-9500.

UNDERWRITING LIMITATION b/: $6,805,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NJ, NM, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Texas.

Liberty Insurance Corporation

(NAIC #42404)

BUSINESS ADDRESS: 175 Berkeley Street, Boston, MA 02116.

PHONE: (617) 357-9500. UNDERWRITING LIMITATION b/: $24,507,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

Liberty Mutual Fire Insurance Company

(NAIC #23035)

BUSINESS ADDRESS: 175 Berkeley Street, Boston, MA 02116.

PHONE: (617) 357-9500. UNDERWRITING LIMITATION b/: $131,117,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Wisconsin.

Liberty Mutual Insurance Company

(NAIC #23043)

BUSINESS ADDRESS: 175 Berkeley Street, Boston, MA 02116.

PHONE: (617) 357-9500. UNDERWRITING LIMITATION b/: $1,122,392,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Massachusetts.

LM Insurance Corporation

(NAIC #33600)
BUSINESS ADDRESS: 175 Berkeley Street, Boston, MA 02116.

PHONE: (617) 357-9500. UNDERWRITING LIMITATION b/: $11,649,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

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Manufacturers Alliance Insurance Company

(NAIC #36897)

BUSINESS ADDRESS: P.O. Box 3031, Blue Bell, PA 19422 - 0754.

PHONE: (610) 397-5000.

UNDERWRITING LIMITATION b/: $7,584,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, CT, DE, DC, ID, IN, KS, KY, LA, ME, MD, MI, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, OH, PA, RI, SC, SD, TN, UT, VT, VA, WA.

INCORPORATED IN: Pennsylvania.

MARKEL INSURANCE COMPANY

(NAIC #38970)

BUSINESS ADDRESS: 4521 Highwoods Parkway, Glen Allen, VA 23060.

PHONE: (800) 431-1270 x-3888.

UNDERWRITING LIMITATION b/: $40,924,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

Massachusetts Bay Insurance Company

(NAIC #22306)

BUSINESS ADDRESS: 440 LINCOLN STREET, WORCESTER, MA 01653 - 0002.

PHONE: (508) 853-7200.

UNDERWRITING LIMITATION b/: $6,516,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New Hampshire.

Merchants Bonding Company (Mutual)

(NAIC #14494)

BUSINESS ADDRESS: P.O BOX 14498, DES MOINES, IA 50306 - 3498.

PHONE: (515) 243-8171.

UNDERWRITING LIMITATION b/: $11,213,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Iowa.

Merchants National Bonding, Inc.

(NAIC #11595)

BUSINESS ADDRESS: P.O. Box 14498, DES MOINES, IA 50306 - 3498.

PHONE: (515) 243-8171.

UNDERWRITING LIMITATION b/: $1,557,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Iowa.

Michigan Millers Mutual Insurance Company

(NAIC #14508)

BUSINESS ADDRESS: P. O. Box 30060, Lansing, MI 48909 - 7560.

PHONE: (517) 482-6211 x-5115.

UNDERWRITING LIMITATION b/: $5,999,000.

SURETY LICENSES c,f/: AZ, AR, CA, CO, GA, ID, IL, IN, IA, KS, KY, MI, MN, MO, MT, NE, NY, NC, ND, OH, OK, OR, PA, SD, TN, VA, WA, WI, WY.

INCORPORATED IN: Michigan.

Mid-Century Insurance Company

(NAIC #21687)

BUSINESS ADDRESS: P.O. BOX 4402, WOODLAND HILLS, CA 91365.

PHONE: (323) 932-3200. UNDERWRITING LIMITATION b/: $107,758,000.

SURETY LICENSES c,f/: AL, AZ, AR, CA, CO, FL, GA, HI, ID, IL, IN, IA, KS, MA, MI, MN, MS, MO, MT, NE, NV, NJ, NM, NY, NC, ND, OH, OK, OR, PA, SD, TN, TX, UT, VT, VA, WA, WI, WY.

INCORPORATED IN: California.

MID-CONTINENT CASUALTY COMPANY

(NAIC #23418)

BUSINESS ADDRESS: P.O. Box 1409, Tulsa, OK 74101.

PHONE: (918) 587-7221. UNDERWRITING LIMITATION b/: $16,224,000.

SURETY LICENSES c,f/: AL, AZ, AR, CO, CT, IL, IN, IA, KS, KY, LA, ME, MN, MS, MO, MT, NE, NJ, NM, NC, OH, OK, PA, SC, TN, TX, UT, VA, WA, WY.

INCORPORATED IN: Ohio.

Motorists Commercial Mutual Insurance Company

(NAIC #13331)

BUSINESS ADDRESS: 471 East Broad Street, Columbus, OH 43215.

PHONE: (614) 225-8211.

UNDERWRITING LIMITATION b/: $14,747,000.

SURETY LICENSES c,f/: AZ, CA, CO, CT, DE, DC, GA, ID, IL, IN, IA, KS, KY, ME, MD, MA, MI, MN, MO, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

Motorists Mutual Insurance Company

(NAIC #14621)

BUSINESS ADDRESS: 471 East Broad Street, Columbus, OH 43215.

PHONE: (614) 225-8211.

UNDERWRITING LIMITATION b/: $46,067,000.

SURETY LICENSES c,f/: IN, KY, MI, OH, PA, WV.

INCORPORATED IN: Ohio.

Motors Insurance Corporation

(NAIC #22012)

BUSINESS ADDRESS: 500 WOODWARD AVE, 14TH FLOOR, DETROIT, MI 48226.

PHONE: (313) 656-5437.

UNDERWRITING LIMITATION b/: $86,776,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Michigan.

Munich Reinsurance America, Inc.

(NAIC #10227)

BUSINESS ADDRESS: 555 COLLEGE ROAD EAST, P.O. BOX 5241, PRINCETON, NJ 08543. PHONE: (609) 243-4200.

BUSINESS ADDRESS: 555 COLLEGE ROAD EAST - P.O. BOX 5241, PRINCETON, NJ 08543. PHONE: (609) 243-4200.

UNDERWRITING LIMITATION b/: $392,667,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY. INCORPORATED IN: Delaware.

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National American Insurance Company

(NAIC #23663)

BUSINESS ADDRESS: P.O. Box 9 , Chandler , OK 74834.

PHONE: (405) 258-0804. UNDERWRITING LIMITATION b/: $6,792,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MI, MN, MS, MO, MT, NE, NV, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, WA, WV, WI, WY.

INCORPORATED IN: Oklahoma.

National Casualty Company

(NAIC #11991)

BUSINESS ADDRESS: ONE WEST NATIONWIDE BLVD., 1-04-701, COLUMBUS, OH 43215 - 2220.

PHONE: (480) 365-4000.

UNDERWRITING LIMITATION b/: $14,077,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

NATIONAL FARMERS UNION PROPERTY AND CASUALTY COMPANY

(NAIC #16217)

BUSINESS ADDRESS: One General Drive, Sun Prairie, WI 53596.

PHONE: (608) 825-5160.

UNDERWRITING LIMITATION b/: $4,213,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, DE, DC, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Wisconsin.

National Fire & Marine Insurance Company

(NAIC #20079)

BUSINESS ADDRESS: 1314 Douglas Street, Suite 1400, Omaha, NE 68102 - 1944. PHONE: (402) 916-3000.

UNDERWRITING LIMITATION b/: $718,720,000.

UNDERWRITING LICENSES c,f/: NE.

INCORPORATED IN: Nebraska.

National Fire Insurance Company of Hartford

(NAIC #20478)

BUSINESS ADDRESS: 151 N. FRANKLIN ST., CHICAGO, IL 60606.

PHONE: (312) 822-5000. UNDERWRITING LIMITATION b/: $11,795,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

National Indemnity Company

National Indemnity Company

(NAIC #20087)

BUSINESS ADDRESS: 1314 Douglas Street, Suite 1400, Omaha, NE 68102 - 1944. PHONE: (402) 916-3000.

UNDERWRITING LIMITATION b/: $12,315,220,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MI, MN, MS, MO, MT, NE, NV, NH, NM, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Nebraska.

National Liability & Fire Insurance Company

(NAIC #20052)

BUSINESS ADDRESS: 1314 Douglas Street, Suite 1400, Omaha, NE 68102 - 1944. PHONE: (402) 916-3000.

UNDERWRITING LIMITATION b/: $124,627,000.

UNDERWRITING LICENSES c,f/: AL, AK, CA, CT, DE, DC, HI, ID, IL, IA, KS, KY, MD, MA, MI, MS, MO, NE, NH, NJ, NM, NY, ND, OH, OK, RI, SC, SD, TX, UT, VT, VA, WA, WY. INCORPORATED IN: Connecticut.

National Surety Corporation

(NAIC #21881)

BUSINESS ADDRESS: 225 W. WASHINGTON STREET, SUITE 1800, CHICAGO, IL 60606 - 3484.

PHONE: (888) 466-7883.

UNDERWRITING LIMITATION b/: $7,381,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY. INCORPORATED IN: Illinois.

NATIONAL TRUST INSURANCE COMPANY

(NAIC #20141)

BUSINESS ADDRESS: 6300 University Parkway, Sarasota, FL 34240 - 8424.

PHONE: (800) 226-3224.

UNDERWRITING LIMITATION b/: $3,781,000.

SURETY LICENSES c,f/: AZ, DC, FL, GA, IL, IN, IA, KY, LA, MD, MI, MS, MO, NE, NC, OK, PA, SC, TN, TX. INCORPORATED IN: Indiana.

National Union Fire Insurance Company of Pittsburgh, PA

(NAIC #19445)

BUSINESS ADDRESS: 175 WATER STREET, 18TH FLOOR, NEW YORK, NY 10038.

PHONE: (212) 770-7000.

UNDERWRITING LIMITATION b/: $643,116,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Pennsylvania.

Nationwide Agribusiness Insurance Company

(NAIC #28223)

BUSINESS ADDRESS: ONE WEST NATIONWIDE BLVD., 1-04-701, COLUMBUS, OH 43215 - 2220.

PHONE: (614) 249-1545.

UNDERWRITING LIMITATION b/: $19,163,000.

UNDERWRITING LICENSES c,f/: AL, AZ, AR, CA, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Iowa.

Nationwide Mutual Insurance Company

(NAIC #23787)

BUSINESS ADDRESS: ONE WEST NATIONWIDE BLVD., 1-04-701, COLUMBUS, OH 43215 - 2220.

BUSINESS ADDRESS: ONE WEST NATIONWIDE BLVD., 1-04-701, COLUMBUS, OH 43215 - 2220.

PHONE: (614) 249-7111.

UNDERWRITING LIMITATION b/: $1,142,701,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

NAVIGATORS INSURANCE COMPANY

(NAIC #42307)

BUSINESS ADDRESS: 400 Atlantic Street, 8th Floor, Stamford, CT 06901.

PHONE: (203) 905-6090.

UNDERWRITING LIMITATION b/: $105,656,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New York.

New Hampshire Insurance Company

(NAIC #23841)

BUSINESS ADDRESS: 175 WATER STREET, 18TH FLOOR, NEW YORK, NY 10038.

PHONE: (212) 770-7000.

UNDERWRITING LIMITATION b/: $6,296,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

NGM Insurance Company

(NAIC #14788)

BUSINESS ADDRESS: 55 WEST STREET, KEENE, NH 03431.

PHONE: (904) 380-7282. UNDERWRITING LIMITATION b/: $98,934,000.

SURETY LICENSES c,f/: AL, AZ, AR, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Florida.

NORTH AMERICAN SPECIALTY INSURANCE COMPANY

(NAIC #29874)

BUSINESS ADDRESS: 5200 METCALF AVENUE, OVERLAND PARK, KS 66202 - 1391.

PHONE: (913) 676-5200.

UNDERWRITING LIMITATION b/: $23,900,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: New Hampshire.

NOVA Casualty Company

(NAIC #42552)

BUSINESS ADDRESS: 440 LINCOLN STREET, WORCESTER, MA 01653 - 0002.

PHONE: (508) 853-7200.

UNDERWRITING LIMITATION b/: $8,858,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WI, WY.

INCORPORATED IN: New York.

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O

Ohio Casualty Insurance Company (The)

(NAIC #24074)

BUSINESS ADDRESS: 175 Berkeley Street, Boston, MA 02116.

PHONE: (617) 357-9500. UNDERWRITING LIMITATION b/: $158,673,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New Hampshire.

Ohio Farmers Insurance Company

(NAIC #24104)

BUSINESS ADDRESS: P.O. Box 5001, Westfield Center , OH 44251 - 5001.

PHONE: (330) 887-0101.

UNDERWRITING LIMITATION b/: $233,551,000.

SURETY LICENSES c,f/: AL, AZ, AR, CO, DC, DE, FL, GA, IL, IN, IA, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NJ, NM, NY, NC, ND, OH, OK, PA, RI, SC, SD, TN, TX, UT, VA, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

Ohio Indemnity Company

(NAIC #26565)

BUSINESS ADDRESS: 250 E. Broad St., 7th Floor, Columbus, OH 43215 - 0000. PHONE: (614) 228-2800.

UNDERWRITING LIMITATION b/: $4,546,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

Ohio Security Insurance Company

(NAIC #24082)

BUSINESS ADDRESS: 175 Berkeley Street, Boston, MA 02116.

PHONE: (617) 357-9500. UNDERWRITING LIMITATION b/: $1,498,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New Hampshire.

Oklahoma Surety Company

(NAIC #23426)

BUSINESS ADDRESS: P.O. Box 1409, Tulsa, OK 74101.

PHONE: (918) 587-7221. UNDERWRITING LIMITATION b/: $1,654,000.

SURETY LICENSES c,f/: AR, KS, OH, OK, TX.

INCORPORATED IN: Ohio.

OLD DOMINION INSURANCE COMPANY

(NAIC #40231)

BUSINESS ADDRESS: 55 WEST STREET, KEENE, NH 03431.

PHONE: (904) 380-7282. UNDERWRITING LIMITATION b/: $3,606,000.

SURETY LICENSES c,f/: CT, DE, FL, GA, ME, MD, MA, NH, NY, NC, PA, RI, SC, TN, VT, VA.

INCORPORATED IN: Florida.

Old Republic General Insurance Corporation

(NAIC #24139)

BUSINESS ADDRESS: 307 NORTH MICHIGAN AVENUE, CHICAGO, IL 60601.

PHONE: (312) 346-8100.

UNDERWRITING LIMITATION b/: $59,630,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

Old Republic Insurance Company

(NAIC #24147)

BUSINESS ADDRESS: P.O. Box 789, Greensburg, PA 15601 - 0789.

PHONE: (724) 834-5000.

UNDERWRITING LIMITATION b/: $114,117,000.

SURETY LICENSES c,f/: AL, AK, AS, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Pennsylvania.

Old Republic Surety Company

(NAIC #40444)

BUSINESS ADDRESS: P.O. BOX 1635, MILWAUKEE, WI 53201 - 1635.

PHONE: (262) 797-2640.

UNDERWRITING LIMITATION b/: $7,048,000.

SURETY LICENSES c,f/: AL, AZ, AR, CA, CO, DC, FL, GA, ID, IL, IN, IA, KS, MD, MN, MS, MO, MT, NE, NV, NM, NC, ND, OH, OK, OR, PA, SC, SD, TN, TX, UT, VA, WA, WV, WI, WY.

INCORPORATED IN: Wisconsin.

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P

Pacific Indemnity Company

(NAIC #20346[4])

BUSINESS ADDRESS: 202B Hall's Mill Road, Whitehouse Station, NJ 08889.

PHONE: (215) 640-1000.

UNDERWRITING LIMITATION b/: $315,850,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Wisconsin.

PACIFIC INDEMNITY INSURANCE COMPANY

(NAIC #18380)

BUSINESS ADDRESS: 348 WEST O'BRIEN DRIVE, HAGATNA, GU 96910.

PHONE: (671) 477-1663.

UNDERWRITING LIMITATION b/: $2,345,000.

SURETY LICENSES c,f/: GU, MP. INCORPORATED IN: Guam.

PARTNER REINSURANCE COMPANY OF THE U.S.

(NAIC #38636)

BUSINESS ADDRESS: 200 First Stamford Place, Suite 400, Stamford, CT 06902.

PHONE: (203) 485-4200.

UNDERWRITING LIMITATION b/: $122,636,000.

SURETY LICENSES c,f/: AL, AZ, CA, CO, DC, IL, KS, MI, MS, NE, NY, TX, UT, WA.

INCORPORATED IN: New York.

PARTNERRE INSURANCE COMPANY OF NEW YORK

(NAIC #10006)

BUSINESS ADDRESS: 200 First Stamford Place, Suite 400, Stamford, CT 06902.

PHONE: (203) 485-4200.

UNDERWRITING LIMITATION b/: $01,932,000.

SURETY LICENSES c,f/: AL, AZ, CA, CO, DE, DC, ID, IL, IN, IA, KS, KY, MD, MI, MN, MS, MT, NE, NJ, NM, NY, ND, OH, OK, OR, PA, RI, SC, SD, TX, UT, VT, VA, WA, WV, WI.

INCORPORATED IN: New York.

Pekin Insurance Company

(NAIC #24228)

BUSINESS ADDRESS: 2505 COURT STREET, PEKIN, IL 61558 - 0001.

PHONE: (309) 346-1161.

UNDERWRITING LIMITATION b/: $13,231,000.

SURETY LICENSES c,f/: AZ, IL, IN, IA, MI, OH, WI.

INCORPORATED IN: Illinois.

Pennsylvania Manufacturers Indemnity Company

(NAIC #41424)

BUSINESS ADDRESS: P.O. Box 3031, Blue Bell, PA 19422 - 0754.

PHONE: (610) 397-5000.

UNDERWRITING LIMITATION b/: $8,662,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, CT, DE, DC, ID, IN, KS, KY, LA, ME, MD, MI, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, OH, PA, RI, SC, SD, TN, UT, VT, VA, WA.

INCORPORATED IN: Pennsylvania.

Pennsylvania Manufacturers' Association Insurance Company

(NAIC #12262)

BUSINESS ADDRESS: P.O. Box 3031, Blue Bell, PA 19422 - 0754.

PHONE: (610) 397-5000.

UNDERWRITING LIMITATION b/: $34,384,000.

SURETY LICENSES c,f/: AL, AK, AR, CO, CT, DE, DC, FL, GA, HI, ID, IL, IA, KS, KY, LA, ME, MD, MA, MI, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, OH, OK, PA, RI, SC, SD, TN, TX, UT, VT, WA, WV.

INCORPORATED IN: Pennsylvania.

Pennsylvania National Mutual Casualty Insurance Company

(NAIC #14990)

BUSINESS ADDRESS: P. O. Box 2361, Harrisburg, PA 17105 - 2361.

PHONE: (717) 234-4941.

UNDERWRITING LIMITATION b/: $64,019,000.

SURETY LICENSES c,f/: AL, AS, AZ, AR, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NJ, NM, NY, NC

SURETY LICENSES c,f/: AL, AS, AZ, AR, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NJ, NM, NY, NC, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI.

INCORPORATED IN: Pennsylvania.

PHILADELPHIA INDEMNITY INSURANCE COMPANY

(NAIC #18058)

BUSINESS ADDRESS: One Bala Plaza East, Suite 100, Bala Cynwyd, PA 19004 - 1403.

PHONE: (610) 206-7836.

UNDERWRITING LIMITATION b/: $231,637,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Pennsylvania.

PLATTE RIVER INSURANCE COMPANY

(NAIC #18619)

BUSINESS ADDRESS: P.O. Box 5900, Madison, WI 53705 - 0900.

PHONE: (608) 829-4200.

UNDERWRITING LIMITATION b/: $4,827,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Nebraska.

Plaza Insurance Company

(NAIC #30945)

BUSINESS ADDRESS: 518 East Broad Street, Columbus, OH 43215.

PHONE: (614) 464-5000.

UNDERWRITING LIMITATION b/: $2,769,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Iowa.

ProCentury Insurance Company

(NAIC #21903)

BUSINESS ADDRESS: 550 Polaris Parkway, Westerville, OH 43082.

PHONE: (614) 895-2000.

UNDERWRITING LIMITATION b/: $5,833,000.

SURETY LICENSES c,f/: AK, AZ, AR, CA, DE, DC, GA, IL, IN, IA, KS, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NJ, NM, NY, ND, OK, OR, PA, SC, SD, TX, UT, WV, WI, WY.

INCORPORATED IN: Michigan.

Progressive Casualty Insurance Company

(NAIC #24260)

BUSINESS ADDRESS: P.O. BOX 89490, CLEVELAND, OH 44101 - 6490.

PHONE: (440) 461-5000.

UNDERWRITING LIMITATION b/: $212,481,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

Progressive Northwestern Insurance Company

(NAIC #42919)

BUSINESS ADDRESS: P.O. BOX 89490, CLEVELAND, OH 44101 - 6490.

PHONE: (440) 461-5000.

UNDERWRITING LIMITATION b/: $52,118,000.

SURETY LICENSES c,f/: AK, AZ, CA, CO, CT, DE, DC, GA, HI, ID, IN, IA, KS, KY, LA, ME, MD, MN, MS, MO, MT, NE, NV, NJ, NM, NY, NC, ND, OH, OK, OR, RI, SC, SD, TN, TX, UT, VA, WA, WV, WI.

INCORPORATED IN: Ohio.

Protective Insurance Company

(NAIC #12416)

BUSINESS ADDRESS: 111 Congressional Blvd., Suite 500, Carmel, IN 46032.

PHONE: (317) 636-9800 x-7433.

UNDERWRITING LIMITATION b/: $28,733,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Indiana.

Protective Property & Casualty Insurance Company

(NAIC #35769)

BUSINESS ADDRESS: 14755 North Outer Forty Rd., Suite 400, St. Louis, MO 63017. PHONE: (636) 536-5600.

UNDERWRITING LIMITATION b/: $16,992,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Missouri.

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Q

QBE Insurance Corporation

(NAIC #39217)

BUSINESS ADDRESS: One General Drive, Sun Prairie, WI 53596.

PHONE: (608) 825-5160.

UNDERWRITING LIMITATION b/: $67,799,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY. INCORPORATED IN: Pennsylvania.

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R

Regent Insurance Company

(NAIC #24449)

BUSINESS ADDRESS: One General Drive, Sun Prairie, WI 53596.

PHONE: (608) 825-5160.

UNDERWRITING LIMITATION b/: $3,221,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Wisconsin.

Republic - Franklin Insurance Company

(NAIC #12475)

BUSINESS ADDRESS: P. O. Box 530, Utica, NY 13503 - 0530.

PHONE: (315) 734-2000. UNDERWRITING LIMITATION b/: $5,450,000.

SURETY LICENSES c,f/: CT, DE, DC, GA, IL, IN, KS, MD, MA, MI, NH, NJ, NY, NC, OH, PA, RI, TN, TX, VA, WI.

INCORPORATED IN: Ohio.

RLI Insurance Company

(NAIC #13056)

BUSINESS ADDRESS: 9025 N. Lindbergh Drive, Peoria, IL 61615.

PHONE: (309) 692-1000.

UNDERWRITING LIMITATION b/: $73,602,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

Roche Surety and Casualty Company, Inc.

(NAIC #42706)

BUSINESS ADDRESS: 4107 N HIMES AVE 2ND FLOOR, TAMPA, FL 33607.

PHONE: (813) 623-5042.

UNDERWRITING LIMITATION b/: $979,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CT, DE, FL, GA, HI, ID, IN, IA, KS, LA, MD, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, SC, SD, TN, TX, UT, VT, VA, WA. INCORPORATED IN: Florida.

Rockwood Casualty Insurance Company

(NAIC #35505)

BUSINESS ADDRESS: 654 Main Street, Rockwood, PA 15557.

PHONE: (814) 926-4661. UNDERWRITING LIMITATION b/: $12,001,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Pennsylvania.

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S

SAFECO Insurance Company of America

(NAIC #24740)

BUSINESS ADDRESS: 175 Berkeley Street, Boston, MA 02116

BUSINESS ADDRESS: 175 Berkeley Street, Boston, MA 02116.

PHONE: (617) 357-9500. UNDERWRITING LIMITATION b/: $150,329,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New Hampshire.

Safety National Casualty Corporation

(NAIC #15105)

BUSINESS ADDRESS: 1832 Schuetz Road, St. Louis, MO 63146 - 3540.

PHONE: (314) 995-5300.

UNDERWRITING LIMITATION b/: $208,192,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Missouri.

Sagamore Insurance Company

(NAIC #40460)

BUSINESS ADDRESS: 111 Congressional Blvd., Suite 500, Carmel, IN 46032.

PHONE: (317) 636-9800 x-7433.

UNDERWRITING LIMITATION b/: $13,304,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, CO, CT, DE, DC, GA, HI, ID, IL, IN, IA, KS, KY, ME, MD, MA, MI, MN, MS, MO, MT, NE, NJ, NM, NY, NC, OH, OR, PA, RI, SC, SD, TN, TX, UT, VT, WA, WV, WI, WY.

INCORPORATED IN: Indiana.

SECURA INSURANCE, A Mutual Company

(NAIC #22543)

BUSINESS ADDRESS: P.O. Box 819 , Appleton , WI 54912 - 0819.

PHONE: (920) 739-3161.

UNDERWRITING LIMITATION b/: $43,174,000.

SURETY LICENSES c,f/: AZ, AR, CO, ID, IL, IN, IA, KS, KY, MI, MN, MO, MT, NE, NV, NM, ND, OH, OK, OR, PA, SD, TN, UT, WA, WI, WY.

INCORPORATED IN: Wisconsin.

Selective Insurance Company of America

(NAIC #12572)

BUSINESS ADDRESS: 40 WANTAGE AVENUE, BRANCHVILLE, NJ 07890.

PHONE: (973) 948-3000.

UNDERWRITING LIMITATION b/: $60,967,000.

SURETY LICENSES c,f/: AL, AK, AZ, CT, DE, DC, GA, IL, IN, IA, KS, KY, MD, MA, MI, MN, MS, MO, MT, NE, NJ, NY, NC, ND, OH, OR, PA, RI, SC, SD, TN, TX, VA, WA, WV, WI, WY.

INCORPORATED IN: New Jersey.

Seneca Insurance Company, Inc.

(NAIC #10936)

BUSINESS ADDRESS: 160 Water Street, New York, NY 10038 - 4922.

PHONE: (212) 344-3000.

UNDERWRITING LIMITATION b/: $14,249,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New York.

Sentry Insurance A Mutual Company

Sentry Insurance A Mutual Company

(NAIC #24988)

BUSINESS ADDRESS: 1800 NORTH POINT DRIVE, STEVENS POINT, WI 54481-8020.

PHONE: (715) 346-6000.

UNDERWRITING LIMITATION b/: $491,451,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Wisconsin.

Sentry Select Insurance Company

(NAIC #21180)

BUSINESS ADDRESS: 1800 NORTH POINT DRIVE, STEVENS POINT, WI 54481-8020.

PHONE: (715) 346-6000.

UNDERWRITING LIMITATION b/: $22,674,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Wisconsin.

SERVICE INSURANCE COMPANY

(NAIC #36560)

BUSINESS ADDRESS: 702 OBERLIN ROAD, RALEIGH, NC 27605 - 0800.

PHONE: (919) 833-1600.

UNDERWRITING LIMITATION b/: $4,732,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Florida.

SERVICE INSURANCE COMPANY INC. (THE)

(NAIC #28240)

BUSINESS ADDRESS: 80 MAIN STREET, WEST ORANGE, NJ 07052.

PHONE: (973) 731-7650.

UNDERWRITING LIMITATION b/: $829,000.

SURETY LICENSES c,f/: CT, DE, DC, FL, MD, MA, NH, NJ, NY, NC, PA, RI, VA.

INCORPORATED IN: New Jersey.

SIRIUS AMERICA INSURANCE COMPANY

(NAIC #38776)

BUSINESS ADDRESS: 140 BROADWAY - 32ND FLOOR, NEW YORK, NY 10005 - 1108.

PHONE: (212) 312-2500.

UNDERWRITING LIMITATION b/: $52,181,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, DE, DC, GA, HI, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY. INCORPORATED IN: New York.

SOUTHWEST MARINE AND GENERAL INSURANCE COMPANY

(NAIC #12294)

BUSINESS ADDRESS: 412 Mt. Kemble Ave, Suite 300C, Morristown, NJ 07960.

PHONE: (800) 774-2755.

UNDERWRITING LIMITATION b/: $6,330,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Arizona.

St. Paul Fire and Marine Insurance Company

(NAIC #24767)

BUSINESS ADDRESS: ONE TOWER SQUARE, HARTFORD, CT 06183.

PHONE: (860) 277-0111. UNDERWRITING LIMITATION b/: $416,522,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

ST. PAUL GUARDIAN INSURANCE COMPANY

(NAIC #24775)

BUSINESS ADDRESS: One Tower Square, Hartford, CT 06183.

PHONE: (860) 277-0111. UNDERWRITING LIMITATION b/: $2,314,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

St. Paul Mercury Insurance Company

(NAIC #24791)

BUSINESS ADDRESS: One Tower Square, Hartford, CT 06183.

PHONE: (860) 277-0111. UNDERWRITING LIMITATION b/: $11,601,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

Standard Fire Insurance Company (The)

(NAIC #19070)

BUSINESS ADDRESS: ONE TOWER SQUARE, HARTFORD, CT 06183.

PHONE: (860) 277-0111. UNDERWRITING LIMITATION b/: $118,948,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

Star Insurance Company

(NAIC #18023)

BUSINESS ADDRESS: 26255 American Drive, Southfield, MI 48034.

PHONE: (248) 358-1100.

UNDERWRITING LIMITATION b/: $46,630,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Michigan.

StarNet Insurance Company

(NAIC #40045)

BUSINESS ADDRESS: PO BOX 9190, DES MOINES, IA 50306 - 9190.

PHONE: (515) 473-3000.

UNDERWRITING LIMITATION b/: $11,706,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Delaware.

Starr Indemnity & Liability Company

(NAIC #38318)

BUSINESS ADDRESS: 399 Park Avenue, 8th Floor, New York, NY 10022.

PHONE: (646) 227-6400.

UNDERWRITING LIMITATION b/: $187,529,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Texas.

State Auto Property and Casualty Insurance Company

(NAIC #25127)

BUSINESS ADDRESS: 518 EAST BROAD STREET, COLUMBUS, OH 43215.

PHONE: (614) 464-5000.

UNDERWRITING LIMITATION b/: $68,704,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NJ, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WV, WI, WY.

INCORPORATED IN: Iowa.

State Automobile Mutual Insurance Company

(NAIC #25135)

BUSINESS ADDRESS: 518 EAST BROAD STREET, COLUMBUS, OH 43215.

PHONE: (614) 464-5000.

UNDERWRITING LIMITATION b/: $49,057,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

State Farm Fire and Casualty Company

(NAIC #25143)

BUSINESS ADDRESS: ONE STATE FARM PLAZA, BLOOMINGTON, IL 61710.

PHONE: (309) 766-2311.

UNDERWRITING LIMITATION b/: $1,771,019,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

Stillwater Property and Casualty Insurance Company

(NAIC #16578)

BUSINESS ADDRESS: P. O. Box 45126, Jacksonville, FL 32232 - 5126.

PHONE: (800) 849-6140.

UNDERWRITING LIMITATION b/: $12,837,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, CT, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: New York.

SureTec Insurance Company

(NAIC #10916)

BUSINESS ADDRESS: 1330 POST OAK BLVD, SUITE 1100, HOUSTON, TX 77056.

PHONE: (713) 812-0800.

UNDERWRITING LIMITATION b/: $10,206,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Texas.

SURETY BONDING COMPANY OF AMERICA

(NAIC #24047)

BUSINESS ADDRESS: 151 N. FRANKLIN ST., CHICAGO, IL 60606.

PHONE: (312) 822-5000. UNDERWRITING LIMITATION b/: $764,000.

SURETY LICENSES c,f/: AL, AZ, AR, CA, CO, DE, DC, GA, ID, IL, IN, KS, MN, MO, MT, NE, NV, NM, NY, ND, OK, OR, SC, SD, TN, TX, UT, WV, WY.

INCORPORATED IN: South Dakota.

Swiss Reinsurance America Corporation

(NAIC #25364)

BUSINESS ADDRESS: 175 KING STREET, ARMONK, NY 10504 - 1606.

PHONE: (914) 828-8000.

UNDERWRITING LIMITATION b/: $334,995,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WI.

INCORPORATED IN: New York.

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TRANSATLANTIC REINSURANCE COMPANY

(NAIC #19453)

BUSINESS ADDRESS: One Liberty Plaza, 165 Broadway, NEW YORK, NY 10006.

PHONE: (212) 365-2200.

UNDERWRITING LIMITATION b/: $47**9**,895,000.

SURETY LICENSES c,f/: AK, AZ, AR, CA, CO, DE, DC, GA, ID, IL, IN, IA, KS, KY, LA, MI, MN, MS, NE, NV, NJ, NM, NY, OH, OK, PA, SD, UT, WA, WI.

INCORPORATED IN: New York.

Travelers Casualty and Surety Company

(NAIC #19038)

BUSINESS ADDRESS: ONE TOWER SQUARE, HARTFORD, CT 06183.

PHONE: (860) 277-0111. UNDERWRITING LIMITATION b/: $423,498,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

Travelers Casualty and Surety Company of America

(NAIC #31194)

BUSINESS ADDRESS: ONE TOWER SQUARE, HARTFORD, CT 06183.

PHONE: (860) 277-0111. UNDERWRITING LIMITATION b/: $201,664,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

Travelers Casualty Insurance Company of America

(NAIC #19046)

BUSINESS ADDRESS: ONE TOWER SQUARE, HARTFORD, CT 06183.

PHONE: (860) 277-0111. UNDERWRITING LIMITATION b/: $53,209,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

Travelers Indemnity Company (The)

(NAIC #25658)

BUSINESS ADDRESS: ONE TOWER SQUARE, HARTFORD, CT 06183.

PHONE: (860) 277-0111. UNDERWRITING LIMITATION b/: $682,022,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

TRAVELERS INDEMNITY COMPANY OF AMERICA (THE)

(NAIC #25666)

BUSINESS ADDRESS: ONE TOWER SQUARE, HARTFORD, CT 06183.

PHONE: (860) 277-0111. UNDERWRITING LIMITATION b/: $17,806,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, CT, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

Travelers Indemnity Company of Connecticut (The)

(NAIC #25682)

BUSINESS ADDRESS: ONE TOWER SQUARE, HARTFORD, CT 06183.

PHONE: (860) 277-0111. UNDERWRITING LIMITATION b/: $33,251,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

Travelers Property Casualty Company of America

(NAIC #25674)

BUSINESS ADDRESS: ONE TOWER SQUARE, HARTFORD, CT 06183.

PHONE: (860) 277-0111. UNDERWRITING LIMITATION b/: $43,502,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

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U.S. Specialty Insurance Company

(NAIC #29599)

BUSINESS ADDRESS: 13403 Northwest Freeway, Houston, TX 77040.

PHONE: (713) 462-1000.

UNDERWRITING LIMITATION b/: $58,704,000.

SURETY LICENSES c,f/: AL, AK, AS, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Texas.

UNITED CASUALTY AND SURETY INSURANCE COMPANY

(NAIC #36226[5])

BUSINESS ADDRESS: 292 Newbury Street, Suite 105. Boston, MA 02115 PHONE: (617) 471-1112. UNDERWRITING LIMITATION b/: $800,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Massachusetts.

United Fire & Casualty Company

(NAIC #13021)

BUSINESS ADDRESS: P. O. BOX 73909, CEDAR RAPIDS, IA 52407 - 3909.

PHONE: (319) 399-5700.

UNDERWRITING LIMITATION b/: $64,150,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NJ, NM, NY, NC, ND, OH, OK, OR, PA, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Iowa.

UNITED FIRE & INDEMNITY COMPANY

(NAIC #19496)

BUSINESS ADDRESS: P.O. BOX 73909, CEDAR RAPIDS, IA 52407 - 3909.

PHONE: (319) 399-5700.

UNDERWRITING LIMITATION b/: $1,835,000.

SURETY LICENSES c,f/: AL, CO, IN, KY, LA, MS, MO, NM, TX.

INCORPORATED IN: Texas.

United States Fidelity and Guaranty Company

(NAIC #25887)

BUSINESS ADDRESS: ONE TOWER SQUARE, HARTFORD, CT 06183.

PHONE: (860) 277-0111. UNDERWRITING LIMITATION b/: $98,582,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Connecticut.

United States Fire Insurance Company

(NAIC #21113)

BUSINESS ADDRESS: 305 Madison Avenue, Morristown, NJ 07962.

PHONE: (973) 490-6600.

UNDERWRITING LIMITATION b/: $130,226,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Delaware.

United States Surety Company

(NAIC #10656)

BUSINESS ADDRESS: One Texas Station Court, Suite 230, Timonium, MD 21093.

PHONE: (410) 453-9522.

UNDERWRITING LIMITATION b/: $5,126,000.

SURETY LICENSES c,f/: CT, DE, DC, FL, GA, ME, MD, MA, NH, NJ, NY, NC, OH, PA, RI, SC, TN, VT, VA, WV. INCORPORATED IN: Maryland.

UNITED SURETY AND INDEMNITY COMPANY

(NAIC #44423)

BUSINESS ADDRESS: P.O. BOX 2111, SAN JUAN, PR 00922 - 2111.

PHONE: (787) 625-1105.

UNDERWRITING LIMITATION b/: $6,425,000.

SURETY LICENSES c,f/: PR. INCORPORATED IN: Puerto Rico.

Universal Surety Company

(NAIC #25933)

BUSINESS ADDRESS: P.O. Box 80468, Lincoln, NE 68501.

PHONE: (402) 435-4302. UNDERWRITING LIMITATION b/: $19,154,000.

SURETY LICENSES c,f/: AZ, AR, CO, ID, IL, IN, IA, KS, KY, MI, MN, MO, MT, NE, NM, ND, OH, OK, SC, SD, TX, UT, WA, WI, WY.

INCORPORATED IN: Nebraska.

UNIVERSAL UNDERWRITERS INSURANCE COMPANY

(NAIC #41181)

BUSINESS ADDRESS: 1299 ZURICH WAY, 5TH FLOOR, SCHAUMBURG, IL 60196 - 1056. PHONE: (847) 605-6000.

UNDERWRITING LIMITATION b/: $32,037,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Illinois.

Utica Mutual Insurance Company

(NAIC #25976)

BUSINESS ADDRESS: POST OFFICE BOX 530, UTICA, NY 13503 - 0530.

PHONE: (315) 734-2000.

UNDERWRITING LIMITATION b/: $87,857,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New York.

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V

VerTerra Insurance Company

(NAIC #10024)

BUSINESS ADDRESS: P.O. BOX 509039, SAN DIEGO, CA 92150.

PHONE: (858) 350-2400. UNDERWRITING LIMITATION b/: $5,609,000.

SURETY LICENSES c,f/: TX. INCORPORATED IN: Texas.

Vigilant Insurance Company

(NAIC #20397)

BUSINESS ADDRESS: 202B Hall's Mill Road, Whitehouse Station, NJ 08889.

PHONE: (215) 640-1000.

UNDERWRITING LIMITATION b/: $33,198,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: New York.

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Washington International Insurance Company

(NAIC #32778)

BUSINESS ADDRESS: 5200 METCALF, OVERLAND PARK, KS 66202-1391.

PHONE: (913) 676-5200.

UNDERWRITING LIMITATION b/: $8,244,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: New Hampshire.

West American Insurance Company

(NAIC #44393)

BUSINESS ADDRESS: 175 Berkeley Street, Boston, MA 02116.

PHONE: (617) 357-9500. UNDERWRITING LIMITATION b/: $5,122,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, WA, WV, WI, WY.

INCORPORATED IN: Indiana.

WEST BEND MUTUAL INSURANCE COMPANY

(NAIC #15350)

BUSINESS ADDRESS: 1900 South 18th Avenue, West Bend, WI 53095.

PHONE: (262) 334-5571.

UNDERWRITING LIMITATION b/: $104,114,000.

SURETY LICENSES c,f/: IL, IN, IA, KS, KY, MI, MN, MO, NE, OH, PA, TN, WI.

INCORPORATED IN: Wisconsin.

Westchester Fire Insurance Company

(NAIC #10030)

BUSINESS ADDRESS: 436 Walnut Street, P.O.Box 1000, Philadelphia, PA 19106. PHONE: (215) 640-1000.

UNDERWRITING LIMITATION b/: $22,345,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY. INCORPORATED IN: Pennsylvania.

Western National Mutual Insurance Company

(NAIC #15377)

BUSINESS ADDRESS: PO. BOX 1463, MINNEAPOLIS, MN 55440.

PHONE: (952) 835-5350. UNDERWRITING LIMITATION b/: $46,998,000.

SURETY LICENSES c,f/: AK, AZ, AR, CA, CO, DE, ID, IL, IN, IA, KS, KY, MD, MI, MN, MO, MT, NE, NV, NJ, NM, ND, OH, OK, OR, PA, RI, SD, TX, UT, WA, WI, WY.

INCORPORATED IN: Minnesota.

Western Surety Company

(NAIC #13188)

BUSINESS ADDRESS: 151 N. FRANKLIN ST., CHICAGO, IL 60606.

PHONE: (312) 822-5000. UNDERWRITING LIMITATION b/: $151,958,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: South Dakota.

Westfield Insurance Company

(NAIC #24112)

BUSINESS ADDRESS: P. O. Box 5001 , Westfield Center , OH 44251 - 5001.

PHONE: (330) 887-0101.

UNDERWRITING LIMITATION b/: $127,843,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, ND, NE, NV, NH, NJ, NM, NY, NC, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: Ohio.

Westfield National Insurance Company

(NAIC #24120)

BUSINESS ADDRESS: P. O. Box 5001 , Westfield Center , OH 44251 - 5001.

PHONE: (330) 887-0101.

UNDERWRITING LIMITATION b/: $31,722,000.

SURETY LICENSES c,f/: AL, AZ, AR, CA, CO, DE, FL, GA, IL, IN, IA, KY, MD, MI, MN, NM, NC, ND, OH, OK, PA, SC, SD, TN, TX, VA, WV, WI.

INCORPORATED IN: Ohio.

Westport Insurance Corporation

(NAIC #39845)

BUSINESS ADDRESS: 5200 METCALF AVENUE, OVERLAND PARK, KS 66202 - 1391.

PHONE: (913) 676-5200.

UNDERWRITING LIMITATION b/: $121,403,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Missouri.

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XL Reinsurance America Inc.

(NAIC #20583)

BUSINESS ADDRESS: 70 SEAVIEW AVENUE, STAMFORD, CT 06902.

PHONE: (203) 964-5200. UNDERWRITING LIMITATION b/: $173,303,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY.

INCORPORATED IN: New York.

XL Specialty Insurance Company

(NAIC #37885)

BUSINESS ADDRESS: 70 SEAVIEW AVENUE, STAMFORD, CT 06902.

PHONE: (203) 964-5200. UNDERWRITING LIMITATION b/: $31,352,000.

SURETY LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY.

INCORPORATED IN: Delaware.

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Z

Zurich American Insurance Company

(NAIC #16535)

BUSINESS ADDRESS: 1299 ZURICH WAY, 5TH FLOOR, SCHAUMBURG, IL 60196 - 1056. PHONE: (847) 605-6000.

UNDERWRITING LIMITATION b/: $694,296,000.

UNDERWRITING LICENSES c,f/: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, GU, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MP, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, VI, WA, WV, WI, WY. INCORPORATED IN: New York.

Last modified 12/12/18

Surety Bonds

A program of the Bureau of the Fiscal Service

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SECTION D

GENERAL CONDITIONS

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SECTION D

GENERAL CONDITIONS

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SECTION D

GENERAL CONDITIONS

1.0 CONTRACT AND CONTRACT DOCUMENTS

1.1 The Project to be constructed pursuant to this Contract will be financed with assistance from the State of Florida Department of Economic Opportunity and is subject to all applicable state and federal laws and regulations.

1.2 The Plans, Specifications and Addenda, hereinafter enumerated in Paragraph 3.0 of the Supplemental General Conditions shall form a part of this Contract and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth. The table of contents, titles, headings, running headlines, and marginal notes contained herein and in said documents are solely to facilitate reference to various provisions of the contract documents and in no way affect, limit or cast light on the interpretation of the provisions to which they refer.

2.0 DEFINITIONS

2.1 The following terms are used in this Contract are respectively defined as follows:

2.1.1 "Bidder": Any person, firm, or corporation submitting a bid for the work contemplated, or his/her duly authorized representative.

2.1.2 "Bonds": Bid, performance, and payment bonds, and other instruments of security, furnished by the Contractor and his/her surety in accordance with the documents.

2.1.3 "Contract": The agreement executed by the Owner and the Contractor for performance of the work.

2.1.4 "Contract Documents": The Advertisement for Bids; Information For Bidders; General Conditions; Supplemental General Conditions; Specifications; Plans; Accepted Proposal; including acknowledged Addenda, Notice of Award; Contract; and Change Orders; Noncollusion Affidavit of Prime Bidder; Performance Bond; Payment Bond; Certification of Bidder Regarding Equal Employment Opportunity; Certification of Proposed Subcontractor Regarding Equal Employment Opportunity; Certification of Bidder Regarding Section 3 and Segregated Facilities; Certification of Proposed Subcontractor Regarding Section 3 and Segregated Facilities; Certification of Bidder (Contractor) Concerning Labor Standards and Prevailing Wage Requirements; Certification of Proposed Subcontractor Concerning Labor Standards and Prevailing Wage

Requirements; Certification of Owner's Attorney; Contractor Section 3 Plan; Certification Regarding Debarment, Suspension and Other Responsibility Matters Primary Covered Transactions; Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion Lower Tier Covered Transactions; and Affidavit by General Contractor.

2.1.5 "Contractor": The person, firm or corporation with whom the Owner may enter into Contract for execution of work specified.

2.1.6 "Engineer": Madison Engineering
269 NE Ridge Loop
Madison, FL 32340
Attn: T. Brent Whitman, P. E.
850.973.7864

2.1.7 "Grant Administrator": North Central Florida Regional Planning Council
2009 NW 67th Place
Gainesville, FL 32653-1603
Attn: Scott R. Koons
Executive Director
352.955.2200

2.1.8 "Owner": City of Madison, Florida.

2.1.9 "Plans": The officially approved Plans, or exact reproduction thereof, which show the location, character, dimensions, and details of the work to be done. "Drawings" shall be synonymous with "Plans".

2.1.10 "Specifications": Those portions of the contract documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the work.

2.1.11 "Subcontractor": Any person, firm, or corporation, other than the Contractor, supplying labor, equipment, or material for work at the site of the Project.

2.1.12 "Surety": Any person, firm, or corporation which is bound by contract bond with and to the Contractor and which engages to be responsible for his/her acceptable performance of the work and for payment of all debts pertaining thereto.

2.1.13 "Work": Any and all obligations, duties, and responsibilities necessary to the successful completion of the Project assigned to or undertaken by the Contractor under the contract documents, including all labor, materials, equipment, and other incidentals, and the furnishing thereof.

3.0 ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

3.1 The Contractor will be furnished additional instructions and detail drawings as necessary to carry out the work included in the Contract. The additional drawings and instructions thus supplied to the Contractor will coordinate with the Contract Documents and will be so prepared that they can be reasonably interpreted as part thereof. The Contractor shall carry out the work in accordance with the additional detail drawings and instructions. The Contractor and the Engineer will prepare jointly a schedule, fixing the dates at which special detail drawings will be required, such drawings, if any, to be furnished by the Engineer in accordance with said schedule, and a schedule fixing the respective dates for the submission of shop drawings and the completion of the various parts of the Project, which shall be subject to change from time to time in accordance with the progress of the Project. The Contractor will be responsible for delays rising from his/her failure to comply with provisions of this Section. The Contractor shall provide the Grant Administrator with a copy of the two (2) schedules.

3.2 The Contractor shall carefully study and compare all Drawings, Specifications, and other instructions; shall test all figures on the Drawings before laying out the work; shall notify the Engineer of all errors, inconsistencies or omissions which he/she may discover; and shall obtain specific instructions before proceeding with the work. The Contractor shall not take advantage of any error or omission which may be found. Corrections therein and interpretations thereof as the Engineer may deem necessary for the fulfillment of the intent of the Contract Documents, and his/her interpretation shall be final. The Contractor shall be responsible for all errors in construction which could have been avoided by such examination and notification and shall correct at his/her own expense all work improperly constructed through failure to notify the Engineer.

3.3 In the event of any discrepancy between any Drawing and the figures written thereon, the figures, unless obviously incorrect, shall be taken as correct.

3.4 When measurements are affected by conditions already established or where items are to be fitted into constructed conditions, it shall be the Contractor's responsibility to verify all such dimensions at the site and the actual job dimensions shall take precedence over scale and figure dimensions on the Drawings.

3.5 Whenever a stock size of manufactured item or piece of equipment is specified by its nominal size, it shall be the responsibility of the Contractor to determine the actual space requirements for setting and for entrance to the setting space and to make all necessary allowances and adjustments therefore in his/her work without additional cost to the Owner

4.0 SHOP OR SETTING DRAWINGS

4.1 The Contractor shall submit promptly to the Engineer a minimum of two (2) copies and to the Grant Administrator a minimum of two (2) copies of each shop or setting drawing to include the manufacturer's detailed specifications with full information on type, performance characteristics, and all other pertinent information as required. Each shop or setting drawing shall be prepared in accordance with the schedule predetermined as aforesaid. After examination of such drawings by the Engineer and the return thereof, the Contractor shall make such corrections to the drawings as have been indicated and shall furnish the Engineer, with two (2) corrected copies and the Grant Administrator with two (2) corrected copies. If requested by the Engineer, the Contractor must furnish additional copies.

4.2 Any drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him/her for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variations in his/her letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of contract price and/or time. Otherwise, the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.

5.0 MATERIALS, SERVICES, AND FACILITIES

5.1 It is understood that except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to execute, complete and deliver the work within the specified time. Such materials incorporated into the job shall be new and of the best grade of the respective kinds for the purpose.

5.2 Any work necessary to be performed after regular working hours, on Sundays or legal holidays shall be performed without additional expense to the Owner.

6.0 CONTRACTOR'S TITLE TO MATERIALS

6.1 No materials or supplies for the work shall be purchased by the Contractor or any Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants that he/she has good title to all materials and supplies used by him/her in the work, free from all liens, claims or encumbrances.

7.0 INSPECTION AND TESTING OF MATERIALS

7.1 Owner will employ and pay for the service of an independent testing laboratory to perform testing specifically indicated on the Contract Documents and may at any other time elect to have materials and equipment tested for conformity with the Contract Documents.

7.1.1 Contractor shall cooperate with the laboratory to facilitate the execution of its required services.

7.1.2 Employment of the laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract.

7.2 If the test results indicate the material or equipment complies with the Contract Documents, the Owner shall pay for the cost of the testing laboratory. If the tests and any subsequent retests indicate the materials and equipment fail to meet the requirements of the Contract Documents, the Contractor may pay for the laboratory costs directly to the testing firm or the total of such costs shall be deducted from any payments due the Contractor.

8.0 "OR EQUAL" CLAUSE

8.1 Whenever a material, product, article, or piece of equipment is specified or described in these Contract Documents by using the name of a proprietary product of the name of a particular manufacturer or vendor and catalog number, it is understood and agreed that the specific item is named for the purpose of establishing the type, function, dimension, appearance, quality, durability, performance, or other salient requirements and that other materials, products, articles, or pieces of equipment of equal capacities, quality, and function will be considered. The Contractor may request the substitution of a material, product, article, or piece of equipment of equal substance and function for those designated in these Contract Documents. The Contractor shall request substitution in writing to the Engineer stating in detail how the substituted product differs in composition and performance from the designated product and furnishing suitable complete data on which the Engineer may make the determination on the merits of the proposed substitution. If, in the opinion of the Engineer, such material, article, or piece of equipment is of equal substance and function to that designated, the Engineer may approve its substitution and use by the Contractor. Any cost differential shall be deductible from the contract price and the Contract Documents shall be appropriately modified by a Change Order. The Contractor warrants that if substitutes are approved, no major changes in the function or general design of the project will result. Incidental changes or extra component parts required to accommodate the substitute shall be made by the Contractor without a change in the contract price or contract time. Requests relative to substitutions for materials, products, articles or pieces of equipment specifically designated on the Drawings or in the Specifications will not be considered until after the award of the Contract.

9.0 PATENTS

9.1 The Contractor shall hold and save the Owner and its officers, agents, and employees harmless from liability of any nature or kind, including cost and expenses for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the Owner, unless otherwise specifically stipulated in the Contract Documents.

9.2 License or Royalty Fees: License and/or Royalty Fees for the use of a process which is authorized by the Owner of the Project must be reasonable, and paid to the holder of the patent, or his/her authorized licensee, direct by the Owner and not by or through the Contractor.

9.3 If the Contractor uses any design, device or materials covered by letters, patent or copyright, he/she shall provide for such use by suitable agreement with the Owner of such patented or copyrighted design, device or material. It is mutually agreed and understood, that, without exception, the contract process shall include all royalties or costs arising from the use of such design, device or materials, in any way involved in the work. The Contractor and/or his/her Sureties shall indemnify and save harmless the Owner of the Project from any and all claims for infringement by reason of the use of such patented or copyrighted design, device or materials or any trademark or copyright in connection with work agreed to be performed under this Contract, and shall indemnify the Owner for any cost, expense or damage which it may be obliged to pay by reason of such infringement at any time during the prosecution of the work or after completion of the work.

10.0 SURVEYS, PERMITS AND REGULATIONS

10.1 Unless otherwise expressly provided for in the Specifications, the Contractor will furnish all surveys necessary for the execution of the work.

10.2 The Contractor shall procure and pay all permits, licenses, and approvals necessary for the execution of his/her Contract.

10.3 The Contractor shall comply with all laws, ordinances, rules, orders and regulations relating to the performance of the work, the protection of adjacent property, and the maintenance of passageways, guard fences or other protection facilities.

11.0 CONTRACTOR'S OBLIGATIONS

11.1 The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required by this Contract, within the time herein specified, in accordance with the provisions of this Contract and said Specifications and in accordance with the Plans and Drawings covered by this Contract any and all Supplemental Plans and Drawings, and in accordance with the directions of the Engineer as given from time to time during the progress of the work. The Contractor shall furnish, erect, maintain and remove such construction plant and such temporary works as may be required.

11.2 The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements and limitations of the Contract and Specifications, and shall do, carry on and complete the entire work to the satisfaction of the Engineer and the Owner.

11.3 This Contract does not require the Contractor to furnish office space for a Resident Observer.

12.0 WEATHER CONDITIONS

12.1 In the event of temporary suspension of work, or during inclement weather or whenever the Engineer shall direct, the Contractor will and will cause his/her Subcontractors to protect carefully his/her and their work and materials against damage or injury from the weather. If, in the opinion of the Engineer, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of his/her Subcontractors so to protect his/her work, such materials shall be removed and replaced at the expense of the Contractor.

13.0 PROTECTION OF WORK AND PROPERTY - EMERGENCY

13.1 The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this Contract. He/she shall at all times safely guard and protect his/her own work, and that of adjacent property from damage. The Contractor shall replace or make good any such damage, loss or injury unless such be caused directly by errors contained in the Contract or by the Owner, or his/her duly authorized representatives.

13.2 In case of an emergency which threatens loss or injury of property, and/or safety of life, the Contractor will be allowed to act, without previous instructions from the Engineer, in a diligent manner. He/she shall notify the Engineer immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Engineer for approval.

13.3 Where the Contractor has not taken action but has notified the Engineer of an emergency threatening injury to persons or damage to the work or any adjoining property, he/she shall act as instructed or authorized by the Engineer.

13.4 The amount of reimbursement claimed by the Contractor on account of any emergency action shall be determined in the manner provided in Paragraph 17.0 of the General Conditions.

13.5 The Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the work, all necessary safeguards, including sufficient lights and danger signals on or near the work; he/she shall erect suitable railings, barricades, covers, or other protection devices about unfinished work, open trenches, holes, embankments or other hazards and obstructions where hazards to workmen or the public exist. The Contractor shall provide at all times all necessary watchmen on the project for the safety of employees, delivery personnel and the general public; and to diligently guard and protect all work and materials, including Owner-furnished equipment. Construction equipment shall be suitably night-marked and lighted as necessary for safety considerations. No separate payment will be made for providing lights on vehicles and equipment, signs, barricades, lights, flags, watchmen and other protective devices, and the costs thereof shall be included in the contract price(s).

13.6 The Contractor shall comply with all applicable provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc., and shall maintain an accurate record of all cases of death and all cases of occupational disease and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on the work under these Contract Documents. The Contractor shall be solely responsible for the safety, efficiency, and adequacy of his/her plant, appliances and methods, and for any damage which may result from their failure or their improper construction, maintenance or operation.

13.7 The Contractor shall conduct his/her operations in a manner that will offer the least possible obstruction and inconvenience to the public, and he/she shall not have under construction an amount of work greater than he/she can prosecute properly with due regard to the rights of the public. Construction operations shall be conducted in a manner that will cause as little inconvenience as possible to abutting property owners. Convenient access to driveways, houses, buildings or other facilities in the vicinity of the work shall be maintained and temporary access facilities for public roadways shall be provided and maintained in satisfactory condition.

14.0 INSPECTION

14.1 The authorized representatives and agents, of the State of Florida Department of Economic Opportunity, U. S. Department of Housing and Urban Development, and the Owner, shall be permitted to inspect all work, materials and other relevant data and records, for which said records shall be maintained for a period of not less than six (6) years from the date of the final approval of work completed under this Contract by the Contractor.

14.2 The Owner has the right to reject defective materials and workmanship and require its correction or replacement. The Contractor must notify the Owner to allow for proper inspection before the concealing of the work. Should the Contractor fail to do so, he/she shall be required to uncover for inspection and recover such facilities all at his/her own expense.

15.0 REPORTS, RECORDS AND DATA

15.1 The Contractor shall maintain his/her reports, records and data for this project for a period of six (6) years from the date of the final approval of work completed under this Contract and shall submit to the Owner and the Grant Administrator such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the Owner and the Grant Administrator may request concerning work performed or to be performed under this Contract.

16.0 SUPERINTENDENCE BY CONTRACTORS

16.1 At the site of the work, the Contractor shall employ a construction superintendent or foreman who shall have full authority to act for the Contractor. It is understood that such representative shall be acceptable to the Engineer and shall be one (1) who can be continued in that capacity for the Project unless he/she ceases to be on the Contractor's payroll.

17.0 CHANGES IN WORK

17.1 No changes in the work covered by the approved Contract Documents shall be made without having prior written approval of the Owner. Charges or credits for the work covered by the approved change shall be determined by (1) unit bid prices contained in the Contract; or (2) if unit bid prices, which are applicable for the work covered by the approved change are not contained in the Contract, then an agreed lump sum.

18.0 EXTRAS

18.1 Without invalidating the Contract, the Owner may order extra work or make changes by altering, adding to or deducting from the work, the Contract sum being adjusted accordingly, and the consent of the Surety being first obtained where necessary or desirable. All the work for the kind bid upon shall be paid for at the price stipulated in the proposal, and no claims for any extra work or materials shall be allowed unless the work is ordered in writing by the Owner or its Engineer, acting officially for the Owner, and the price is stated in such order.

19.0 TIME FOR COMPLETION AND LIQUIDATED DAMAGES

19.1 It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the date of beginning and the time for completion as specified in the Contract of the work to be done hereunder are ESSENTIAL CONDITIONS of this Contract; and it is further mutually understood and agreed that the work embraced in this Contract shall be commenced on a date to be specified in the "Notice to Proceed".

19.2 The Contractor agrees that said work shall be prosecuted regularly, diligently and uninterruptedly at such rate of progress as will ensure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for completion of the work described herein is a reasonable time for the completion of same, taking into consideration the average climatic range and usual conditions prevailing in this locality.

19.3 If the said Contractor shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as a part consideration for the awarding of this Contract, to pay to the Owner the amount specified in the Contract, not as a penalty but as liquidated damages for such breach of Contract as hereinafter set forth, for each and every calendar day the Contractor shall be in default after the time stipulated in the Contract for completing the work.

19.4 The said amount is fixed and agreed upon by the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain and said amount shall be retained from time to time by the Owner from current periodical estimates.

19.5 It is further agreed that time is of the essence of each and every portion of this Contract and of the Specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this Contract; Provided, that the Contractor shall not be charged with liquidated damages or any excess cost when the Owner determines that the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the Owner; Provided further, that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due (1) to any preference, priority, or allocation order duly issued by the State of Florida and/or the U. S. Government; (2) to unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God, or of the public enemy, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, fires, flood, epidemics, quarantine restrictions, strikes, freight embargoes and severe weather; and (3) to any delays of subcontractors or suppliers occasioned by any of the causes specified in parts (1) and (2) of this sentence; Provided further, that the Contractor shall within ten (10) days from the beginning of such delay, unless the Owner shall grant a further period of time prior to the date of final settlement of the Contract, notify the Owner, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify the Contractor within a reasonable time of its decision in the matter.

20.0 CORRECTION OF WORK

20.1 All work, all materials, whether incorporated in the work or not, all processes of manufacture, and all methods of construction shall be at all times and places be subject to the inspection of the Engineer who shall be the final judge of the quality and suitability of the work, materials, processes of manufacture and methods of construction for the purposes for which they are used. Should they fail to meet his/her approval they shall be forthwith reconstructed, made good, replaced and/or corrected, as the case may be, by the Contractor at his/her own expense. Rejected materials shall immediately be removed from this site. If, in the opinion of the Engineer, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the work injured or not performed in accordance with the Contract Documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as in the judgment of the Engineer shall be equitable.

21.0 SUBSURFACE CONDITIONS FOUND DIFFERENT

21.1 Should the Contractor encounter subsurface and/or latent conditions at the site materially differing from those shown on the Plans or indicated in the Specifications, he/she shall immediately give notice to the Engineer of such conditions before they are disturbed. The Engineer will thereupon promptly investigate the conditions, and if he/she finds they materially differ from those shown on the Plans or indicated in the Specifications, he/she will at once make such changes in the Plans and/or Specifications as he/she may find necessary, any increase or decrease of cost resulting from such changes to be adjusted in the manner provided in Paragraph 17.0 of the General Conditions.

22.0 CLAIMS FOR EXTRA COST

22.1 No claim for extra work or cost shall be allowed unless the same was done in pursuance of a written order of the Engineer approved by the Owner, as aforesaid, and the claim presented with the first estimate after the changed or extra work is done.

23.0 TERMINATION OF CONTRACT

23.1 Termination for Cause - In the event that any of the provisions of this Contract are violated by the Contractor, or by any of his/her Subcontractors, the Owner may serve written notice upon the Contractor and the Surety of its intention to terminate the Contract, such notices to contain the reasons for such intention to terminate the Contract, and unless within ten (10) days after the serving of such notice upon the Contractor, such violation or delay shall cease and satisfactory arrangements of correction be made, the Contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor and the Surety shall have the right to take over and perform the Contract: Provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date the mailing to such Surety of notice of termination, the Owner may take over the work and prosecute the same to completion by Contract or by force account for the account and at the expense of the Contractor and the Contractor and his/her Surety shall be liable to the Owner for any excess cost occasioned by the Owner thereby, and in such event the Owner may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work and necessary therefore. If this Contract is terminated by the Owner as provided herein, the Contractor will be paid for work completed up to the termination date as provided for in Paragraph 25.8 herein.

23.2 Termination for Convenience of the Owner - The Owner may terminate this Contract at any time by giving at least ten (10) days notice in writing to the Contractor. If this Contract is terminated by the Owner as provided herein, the Contractor will be paid for work completed up to the termination date as provided for in Paragraph 25.8 herein.

23.3 Termination by Contractor - The Contractor may terminate this Contract at any time because of circumstances beyond the control of the Contractor by giving at least ten (10) days notice in writing to Owner. If this Contract is terminated by the Contractor as provided herein, the Contractor will be paid for work completed up to the termination date as provided for in Paragraph 25.8 herein.

24.0 CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

24.1 Immediately after execution and delivery of the Contract, and before the first partial payment is made, the Contractor shall deliver to the Owner an estimated construction progress schedule as required in Paragraph 3.0 hereof in form satisfactory to the Owner, showing the proposed dates of commencement and completion of each of the various parts of work required under the Contract Documents and the anticipated amount of each monthly payment that will become due the Contractor in accordance with the progress schedule.

25.0 PAYMENTS TO CONTRACTOR

25.1 The Contractor shall prepare his/her requisition for partial payment as of the last day of the month and submit four (4) copies, with original signatures, to the Engineer for his/her approval. The amount of the payments due the Contractor shall be determined by adding to the total value of acceptable work completed to date, the value of materials properly and securely stored on the site and deducting (1) ten percent (10%) of the total amount, to be retained until final payment; and (2) the amount of all previous payments. The total value of work completed to date shall be based on the estimated quantities of work completed to date on each item and the unit prices contained in the Contract and adjusted in accordance with the value of work completed to date on approved change orders. The value of materials properly and securely stored on the site shall be based upon the estimated quantities of such materials and the invoice prices. Copies of all invoices shall be submitted to the Engineer.

25.2 The Contractor shall also submit on a weekly basis both his/her payrolls and those of his/her Subcontractor which cover the work performed on the Project to the Owner and the Grant Administrator as specified in the Supplemental General Conditions of the Contract. Partial payment shall be withheld by the Owner unless these payrolls are provided on a weekly basis.

25.3 Partial Payments made by the Owner to the Contractor are funds advanced for the purpose of assisting the Contractor to expedite the work of the construction. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the Owner. Such payments shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the Owner in all details.

25.4 After final inspection and acceptance by the Owner of all work under the Contract, the Contractor shall prepare his/her requisition for final payment. The total amount of the final payment due the Contractor under this Contract shall be the sum as determined by multiplying the Contract unit price for each division of work by the quantity of work performed as determined by the Engineer and as adjusted by approved change orders less all previous payments. Final payments to the Contractor shall be made subject to his/her furnishing the Owner with a release in satisfactory form of all claims against the Owner arising under and by virtue of his/her Contract.

25.5 The Owner, before paying the final estimate, shall require the Contractor to furnish releases or receipts from all Subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor, in order to protect the Owner's interest.

25.6 Withholding of any amount due the Owner under Paragraphs 19.1 through 19.5, entitled "Liquidated Damages", under General Conditions, shall be deducted from the final payment due the Contractor.

25.7 The Owner may withhold from any payment otherwise due the Contractor so much as may be necessary to protect the Owner and if it so elects, may also withhold any amounts due from the Contractor to any Subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Owner and will not require the Owner to determine or adjust any claims or disputes between the Contractor and his/her Subcontractors or material dealers, or to withhold any funds for their protection unless the Owner elects to do so. The failure or refusal of the Owner to withhold any funds from the Contractor shall in no way reduce the obligations of any Surety or Sureties under bond or bonds furnished under this Contract.

25.8 If the Contract is terminated by either the Owner or the Contractor, the Contractor shall prepare his/her requisition for payments as of the last day work on the Project was done and submit four (4) copies, with original signatures, to the Engineer for his/her approval. The amount of the payment due the Contractor shall be determined by adding to the total value of work completed to date, the

value of materials properly and securely stored on the site and deducting the amount of all previous payments. The total value of work completed to date shall be based on the estimated quantities of work completed to date on each item and the unit prices contained on the Contract and adjusted in accordance with the value of work completed to date on approved change orders. The value of materials properly and securely stored on the site shall be based upon the estimated quantities of such materials and the invoice prices. In addition, the Contractor will be paid for all termination expenses. Termination expenses mean expenses directly attributable to termination. Copies of all invoices shall be submitted to the Engineer.

25.9 A format has been provided for the Contractor to use in his/her monthly partial payment requests, and is included in Paragraph 52.0 of these General Conditions.

26.0 ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

26.1 The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor for all things done or furnished in connection with this work and for every act and neglect of the Owner and others relating to or arising out of this work. No payment, however, final or otherwise, shall operate to release the Contractor or his/her Sureties from any obligations under this Contract, the Performance Bond or the Payment Bond.

27.0 PAYMENTS BY CONTRACTOR

27.1 The Contractor shall pay (1) for all transportation and utility services not later than the twentieth (20th) day of the calendar month following that in which services are rendered; (2) for all materials, tools and other expendable equipment to the extent of ninety percent (90%) of the cost thereof, not later than the twentieth (20th) day of the calendar month following that in which such materials, tools and equipment are delivered at the site of the Project, and the balance of the cost thereof, not later than the thirtieth (30th) day following the completion of that part of the work in or on which such materials, tools and equipment are incorporated or used; and (3) to each of his/her Subcontractors, not later than the fifth (5th) day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by his/her Subcontractors to the extent of each Subcontractor's interest therein.

28.0 INSURANCE

28.1 The Contractor shall not commence work under this Contract until he/she has obtained all the insurance required under this Paragraph and such insurance has been approved by the Owner, nor shall the Contractor allow any Subcontractor to commence work on his/her Subcontract until the insurance required of the Subcontractor has been so obtained and approved.

28.1.1 Compensation Insurance: The Contractor shall procure and shall maintain during the life of this Contract Workman's Compensation Insurance as required by applicable State law for all of his/her employees to be engaged in work at the site of the Project under this Contract and, in case of any such work sublet, the Contractor shall require the Subcontractor similarly to provide Workman's Compensation Insurance for all of the latter's employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Workmen's Compensation Insurance. In case any class of employees engaged in hazardous work on the Project under this Contract is not protected under the Workmen's Compensation Statute, the Contractor shall provide and shall cause each Subcontractor to provide adequate employer's liability insurance for the protection of such of his/her employees as are not otherwise protected.

28.1.2 Contractor's Public Liability and Property Damages Insurance and Vehicle Liability Insurance: The Contractor shall procure and shall maintain during the life of this Contract Contractor's Public Liability Insurance, Contractor's Property Damage Insurance, and Vehicle Liability Insurance in the amounts specified in Paragraph 18.1 the Supplemental General Conditions.

28.1.3 Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance: The Contractor shall either (1) require each of his/her Subcontractors to procure and to maintain during the life of his/her Subcontract, Subcontractor's Public Liability and Property Damage Insurance, and Vehicle Liability Insurance of the type and in the amounts specified in the Supplemental General Conditions specified in Paragraph 18.2 hereof or, (2) insure the activities of his/her Subcontractors in his/her policy, specified in Paragraph 28.1.2 hereof.

28.1.4 Scope of Insurance and Special Hazards: The insurance required under Paragraphs 28.1.2. and 28.1.3 hereof shall provide adequate protection for the Contractor and his/her Subcontractors, respectively, against damage claims which may arise from operations under this Contract, whether such operations be by the insured or by anyone directly or indirectly employed by him/her and, also against any of the special hazards which may be encountered in the performance of this Contract as enumerated in the Supplemental General Conditions.

28.1.5 Proof of Carriage of Insurance: The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates, and date of expiration of policies for both the Contractor and his/her Subcontractors. If the Contractor insures the activities of his/her Subcontractors in the Contractor's policies, certification of such coverage shall be furnished to the Owner. Such certificates shall also contain substantially the following statement: "If the insurance covered by this certificate is canceled or materially altered, the issuing company will endeavor to mail ten (10) days written notice to the Owner."

29.0 CONTRACT SECURITY

29.1 The Contractor shall furnish a Performance Bond and a Payment Bond in amounts at least equal to one hundred percent (100%) of the Contract prices or in a penal sum not less than that prescribed by State or local law, as security for the payment of all persons performing labor on the Project under this Contract and furnishing materials in connection with this Contract. Sureties used for obtaining bonds must appear as acceptable on the Department of Treasury Circular 570.

30.0 ADDITIONAL OR SUBSTITUTE BOND

30.1 If at any time the Owner for justifiable cause shall be or become dissatisfied with any Surety or Sureties, upon receipt by the Owner of the Performance Bond or Payment Bond, the Contractor shall within five (5) days after notice from the Owner so to do, substitute an acceptable bond (or bonds) in such form and sum and signed by such other Surety or Sureties as may be satisfactory to the Owner. The premiums on such bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new Surety or Sureties shall have furnished such an acceptable bond to the Owner. Sureties used for obtaining bonds must appear as acceptable on the Department of the Treasury Circular 570.

31.0 ASSIGNMENTS

31.1 The Contractor shall not assign the whole or any part of this Contract or any funds due or to become due hereunder without written consent of the Owner. In case

the Contractor assigns all or any part of any funds due or to become due under this Contract, the instrument of assignments shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any funds due or to become due to the Contractor shall be subject to prior claims of all persons, firms and corporations of services rendered or materials supplied for the performance of the work called for in this Contract.

32.0 MUTUAL RESPONSIBILITY OF CONTRACTOR

32.1 If, through acts of neglect on the part of the Contractor, any Subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other Subcontractor by agreement or arbitration if such other Subcontractor will so settle. If such other Subcontractor shall assert any claim against the Owner on account of the damage alleged to have been sustained, the Owner shall notify the Contractor, who shall indemnify and save harmless the Owner against any such claim.

33.0 SUBCONTRACTING

33.1 The Contractor may utilize the services of specialty Subcontractors on those parts of the work which, under normal contracting practices, are performed by special Subcontractors.

33.2 The Contractor shall not award any work to any Subcontractor without prior written approval of the Owner, which approval will not be given until the Contractor submits to the Owner a written statement concerning the proposed award to the Subcontractor, which statement shall contain such information as the Owner may require.

33.3 The Contractor shall be as fully responsible to the Owner for acts and omissions of persons directly employed by him/her.

33.4 The Contractor shall cause appropriate provisions to be inserted in all Subcontracts relative to the work to bind Subcontractors to the Contractor by the terms of the General Conditions and other Contract Documents insofar as applicable to the work of Subcontractors and to give the Contractor the same power as regards terminating any Subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.

33.5 Nothing contained in this Contract shall create any contractual relation between any Subcontractor and the Owner.

34.0 ENGINEER'S AUTHORITY

34.1 The Engineer shall give all orders and directions contemplated under this Contract and Specifications, relative to the execution of the work. The Engineer shall determine the amount, quality, acceptability and fitness of the several kinds of work and materials which are to be paid for under this Contract and shall decide all questions which may arise in relation to said work and the construction thereof. The Engineer's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any question shall arise between the parties hereto relative to said Contract or Specifications, the determination or decision of the Engineer shall be a condition precedent to the right of the Contractor to receive any funds or payment for work under this Contract affected in any manner or to any extent by such question.

34.2 The Engineer shall decide the meaning and intent of any portion of the Specifications and of any Plans or Drawings where the same may be found obscure or be in dispute.

35.0 STATED ALLOWANCES

35.1 The Contractor shall include in his/her Proposal the cash allowance stated in the Supplemental General Conditions. The Contractor shall purchase the "Allowed Materials" as directed by the Owner on the basis of lowest and best bid of at least three (3) competitive bids. If the actual price for purchasing the "Allowed Materials" is more or less than the "Cash Allowance," the Contract price shall be adjusted accordingly. The adjustment in Contract price shall be made on the basis of the purchase price without additional charges for overhead, profit, insurance or any other incidental expenses. The cost of installation of the "Allowed Materials" shall be included in the applicable sections of the Contract Documents covering this work.

35.2 The Contractor shall refer to Section E, Supplemental General Conditions of these Specifications to determine if stated allowances are applicable to this Project.

36.0 USE OF PREMISES AND REMOVAL OF DEBRIS

36.1 The Contractor expressly undertakes at his/her own expense:

36.1.1 To take every precaution against injuries to persons or damage to his/her property;

36.1.2 To store his/her apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his/her work;

36.1.3 To clean up frequently all refuse, rubbish, scrap materials, and debris caused by his/her operations, to the end that at all times the site of the work shall present a neat, orderly and workmanlike appearance; and

36.1.4 Before final payment to remove all surplus material, false work, temporary structures, including foundations thereof, plant of any description and debris of any nature resulting from his/her operations, and to put the site in a neat, orderly condition.

37.0 QUANTITIES OF ESTIMATE

37.1 Wherever the estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of the documents including the Proposal, they are given for use in comparing bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the work contemplated by this Contract, and such increase or diminution shall in no way vitiate this Contract, nor shall any such increase or diminution give cause for claims or liability for damages.

38.0 LANDS AND RIGHTS-OF-WAY

38.1 It is explicitly understood by the Contractor, prior to the start of construction, that the Owner may or may not have legal possession of all lands and rights-of-ways necessary for the completion of work to be performed under this Contract. The Contractor shall be responsible for determining from the Owner the ownership status of all lands involved in the construction prior to the commencement of work. The Contractor shall understand that the Owner will make a good faith effort to acquire all needed lands. However, legal proceedings, title problems and other matters may delay the Owner from obtaining all needed lands. It shall be understood that Paragraph 50.1 of these General Conditions shall apply in the event such delays suspend or prevent work.

39.0 GENERAL GUARANTY

39.1 Neither the final certificate of payment nor any provision in the Contract Documents, shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall remedy any defects in the work and pay for any damage to other work resulting there from, which shall appear within a period of one (1) year from the date of final acceptance of the work unless a longer period is specified. The Owner will give notice of observed defects with reasonable promptness.

40.0 CONFLICTING CONDITIONS

40.1 Any provisions in any of the Contract Documents, other than those contained in Supplemental General Conditions, which may be in conflict or inconsistent with any of the paragraphs in these General Conditions shall be void to the extent of such conflict or inconsistency.

41.0 NOTICE AND SERVICE THEREOF

41.1 Any notice to the Contractor from the Owner relative to any part of this Contract shall be in writing and considered delivered and the service thereof completed, when said notice is posted, via certified mail, return receipt requested, to the Contractor at his/her last given address, or delivered in person to the Contractor or his/her authorized representative at the work site.

42.0 PROVISIONS REQUIRED BY LAW DEEMED INSERTED

42.1 Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the Contract shall forthwith be physically amended to make such insertion or correction.

43.0 PROTECTION OF LIVES AND HEALTH

43.1 The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his/her prosecution of the work. The safety provisions of applicable laws and building and construction codes, in addition to specific safety and health regulations described by Chapter XIII, Bureau of Labor Standards, Department of Labor, Part 1518, Safety and Health Regulations for Construction, Title 29 - Code of Federal Regulations, shall be observed and the Contractor shall take or cause to be taken such additional safety and health measures as the Owner may determine to be reasonably necessary.

44.0 SUBCONTRACTS

44.1 The Contractor will insert in any Subcontracts the Federal Labor Standards Provisions contained herein and such other clauses as the Owner, the U. S. Department of Housing and Urban Development or Florida Department of Economic Opportunity may, by instructions require, and also a clause requiring the Subcontractors to include these clauses in any lower tier Subcontracts which they may enter into, together with a clause requiring this insertion in any further Subcontracts that may in turn be made.

45.0 EQUAL EMPLOYMENT OPPORTUNITY

45.1 The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Contractor shall take affirmative action to ensure that applicants for employment are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to, the following: 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.

45.2 The Contractor shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Owner setting forth the provisions of this nondiscrimination clause. The Contractor shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

45.3 Contractors shall incorporate the foregoing requirements in all Subcontracts.

46.0 INTEREST OF MEMBER OF OR DELEGATE TO THE LEGISLATURE OF THE STATE OF FLORIDA OR CONGRESS OF THE UNITED STATES OF AMERICA

46.1 No member of or Delegate to the Legislature of the State of Florida or Congress of the United States of America, or Resident Commissioner, shall be admitted to any share or part of this Contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this Contract if made with a corporation for its general benefit.

47.0 OTHER PROHIBITED INTERESTS

47.1 No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept or approve, or to take part in negotiating, making, accepting or approving any engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the Project, shall become directly or indirectly interested personally in this Contract or in any part hereof. No officer, employee, attorney, engineer or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the Project, shall become directly or indirectly interested personally in this Contract in any part thereof, any material supply contract, subcontract, insurance contract or any other contract pertaining to the Project.

48.0 USE PRIOR TO ACCEPTANCE BY OWNER

48.1 The Contractor agrees to the use and occupancy of a portion or unit of the Project before formal acceptance by the Owner, provided the Owner:

48.1.1 Secures written consent of the Contractor except in the event, in the opinion of the Engineer, the Contractor is chargeable with unwarranted delay in final clean up of punch list items or other Contract requirements; and

48.1.2 Secures consent of the Surety permitting use of the Project during the remaining period of construction.

49.0 PHOTOGRAPHS AND/OR VIDEOTAPES OF THE PROJECT

49.1 If required by the Owner, the Contractor shall furnish photographs and/or videotapes of the Project, in the quantities and as described in the Supplemental General Conditions. The Contractor shall refer to the Supplemental General Conditions of these Specifications to determine if photographs and/or videotapes are required for this Project.

50.0 SUSPENSION OF WORK

50.1 Should the Owner be prevented or enjoined from proceeding with work either before or after the start of construction by reason of any litigation or other reason beyond the control of the Owner, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay; but time for completion of the work will be extended to such reasonable time as the Owner may determine will compensate for time lost in such delay with such determination to be set forth in writing.

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A.1. (I) Minimum Wages. All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project, will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met.

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) lf the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and

wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 12150140).

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate). HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140).

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing

Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (I) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(b) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CAR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated as providing benefits under a plan or program described in Section 1(b)(2)(b) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits as enforceable, that the plan or program is financially responsible and that the plan or program has been communicated in writing to the laborers or mechanics affected and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017).

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(I). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149).

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5(a)(3)(I) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph A3(ii)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph A3(I) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

4. (I) Apprentices and Trainees. Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice as such in an apprenticeship program, who is not individually registered in the program, but who has been ordained by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage ratio, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly ratio) specified in the contractor's or subcontractor's

registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will not longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainers and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR 5 Part 3 which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(I) through (10) and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any

lower tier subcontracts. This prime contractor shall be responsible for the compliance by a subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. Contracts termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning Labor Standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the department of Labor set fort in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10 (I) Certification of Eligibility. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C., "Federal Housing Administration transactions", provides in part "Whoever, for the purpose of ...influencing in any way the action of such Administration... makes, utters or publishes any statement, knowing the same to be false...shall be fined not more than $5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages.

In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of eight hours or in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96).

(3) The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

ATTACHMENT TO FEDERAL LABOR STANDARDS PROVISIONS

SO-CALLED "ANTI-KICKBACK ACT" AND REGULATIONS PROMULGATED PURSUANT THERETO BY THE SECRETARY OF LABOR, UNITED STATES DEPARTMENT OF LABOR

TITLE 18, U.S.C., Section 874

(Replaces Section 1 of the Act of June 13, 1934 (48 Stat. 948, 40 U.S.C., Sec. 276b) pursuant to the Act of June 25, 1948, 62 Stat. 862)

KICKBACKS FROM PUBLIC WORKS EMPLOYEES

whoever, by force, intimidation, or threat of procuring dismissal from employment, or by any other manner whatsoever induces any person employed in the construction, prosecution, completion or repair of any public building, public work, or building or work financed in whole or in part by loans or grants from the United States, to give up any part of the compensation to which he is entitled under this Contract of employment, shall be fined not more that $5,000 or imprisoned not more than five years, or both.

SECTION 2 OF THE ACT OF JUNE 13, 1934, AS AMENDED (48 Stat. 948, 62 Stat. 862, 63 Stat. 108, 72 Stat. 967, 40 U.S.C., Sec. 276c)

The Secretary of Labor shall make reasonable regulations for contractors and subcontractors engaged in the construction, prosecution, completion or repair of public buildings, public works or buildings or works financed in whole or in part by loans or grants from the United States, including a provision that each contractor and subcontractor shall furnish weekly a statement with respect to the wages paid each employee during the preceding week. Section 1001 of Title 18 (United States Code) shall apply to such statements.

---XXX---

Pursuant to the aforesaid Anti-Kickback Act, the Secretary of Labor, United States Department of Labor has promulgated the regulations hereinafter set forth, which regulations are found in Title 29, Subtitle A,2 Code of Federal Regulations, Part 3. The term "this part" as used in the regulations hereinafter set forth, refers to Part 3 last above mentioned. Said regulations are as follows:

TITLE 29 - LABOR

Subtitle A - Office of the Secretary of Labor

PART 3 - CONTRACTORS AND SUBCONTRACTORS ON PUBLIC BUILDING OR PUBLIC WORK FINANCED IN WHOLE OR IN PART BY LOANS OR GRANTS FROM THE UNITED STATES.

Section 3.1 Purpose and Scope

This part prescribes "anti-kickback" regulations under Section 2 of the Act of June 13, 1934, as amended (40 U.S.C. 276c), popularly known as the Copeland Act. This part applies to any contract which is subject to Federal wage standards and which is in for the construction, prosecution, completion, or repair of public buildings, public works or buildings or works financed in whole or in part by loans or grants from the United States. This part is intended to aid in the enforcement of the minimum wage provisions of the Davis-Bacon Act and the various statutes dealing with Federally-assisted construction that contain similar minimum wage provisions, including those provisions which are not subject to Reorganization Plan No. 14 (e.g., the College Housing Act of 1950, the Federal Water Pollution Control Act, and the Housing Act of 1959), and in the enforcement of the overtime provisions of the Contract Work Hours Standards Act whenever they are applicable to construction work. This part details the obligation of contractors and subcontractors relative to the weekly submission of statements regarding the wages paid on work covered thereby; sets forth the circumstances and procedures governing the making of payroll deductions from the wages of those employed on such work; and delineates the methods of payment permissible on such work.

Section 3.2 Definitions

As used in the regulations in this part:

(a) The terms "building" or "work" generally include construction activity as distinguished from manufacturing, furnishing of materials, or servicing and maintenance work. The terms include without limitation, buildings, structures, and improvements of all types, such as bridges, dams, plats, highways, parkways, streets, subways, tunnels, sewers, mains, powerlines, pumping stations, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, and canals; dredging, shoring, scaffolding, drilling, blasting, excavating, clearing, and landscaping. Unless conducted in connection with and at the site of such a building or work as is described in the foregoing sentence, the manufacture or furnishing of materials, articles, supplies, or equipment (whether or not a Federal or State agency acquires title to such materials, articles, supplies, or equipment during the course of the manufacture or furnishing, or owns the materials from which they are manufactured or furnished) is not a "building" or "work" within the meaning of the regulations in this part.

(b) The terms "construction", "prosecution", "completion", or "repair" mean all types of work done on a particular building or work at the site thereof, including, without limitation, altering, remodeling, painting and decorating, the transporting of materials and supplies to or from the building or work by the employees of the construction contractor or construction subcontractor and the manufacturing or furnishing of materials, articles, supplies, or equipment on the site of the building or work, by persons employed at the site by the contractor or subcontractor.

(c) The terms "public building" or "public work" include building or work for whose construction, prosecution, completion, or repair, as defined above, a Federal agency is a contracting party, regardless of whether title thereof is in a Federal agency.

(d) The term "building or work financed in whole or in part by loans or grants from the United States" includes building or work for whose construction, prosecution, completion, or repair, as defined above, payment or part payment is made directly or indirectly from funds provided by loans or grants by a Federal agency. The term does not include building or work for which Federal assistance is limited solely to loan guarantees or insurance.

(e) Every person paid by a contractor or subcontractor in any manner for his labor in the construction, prosecution, completion, or repair of a public building or public work or building or work financed in whole or in part by loans or grants from the United States is "employed" and receiving "wages", regardless of any contractual relationship alleged to exist between him and the real employer.

(f) The term "any affiliated person" includes a spouse, child, parent, or other close relative of the contractor or subcontractor; a partner or officer of the contractor or subcontractor; a corporation closely connected with the contractor or subcontractor as parent, subsidiary or otherwise, and an officer or agent of such corporation.

(g) The term "Federal agency" means the United States, the District of Columbia, and all executive departments, independent establishments, administrative agencies, and instrumentalities of the United States and of the District of Columbia, including corporations, all or substantially all of the stock of which is beneficially owned by the United States, by the District of Columbia, or any of the foregoing departments, establishments, agencies, and instrumentalities.

Section 3.3 Weekly Statement with Respect to Payment of Wages

(a) As used in this section, the term "employee" shall not apply to persons in classifications higher than that of laborer or mechanic and those who are the immediate supervisors of such employees.

(b) Each contractor or subcontractor engaged in the construction, prosecution, completion, or repair of any public building or public work, or building or work financed in whole or in part by loans or grants from the United States, shall furnish each week a statement with respect to the wages paid each of its employees engaged on work covered by 29 CFR Parts 3 and 5 using the preceding weekly payroll period. This statement shall be executed by the contractor or subcontractor or by an authorized officer or employee of the contractor or subcontractor who supervises the payment of wages, and shall be on form WH 348, "Statement of Compliance", or on an identical form on the back of WH 347 "Payroll (For Contractors Optional Use)" or on any form with identical wording. Sample copies of WH 347 and WH 348 may be obtained from the Government contracting or sponsoring agency, and copies of these forms may be purchased at the Government Printing Office.

(c) The requirements of this section shall not apply to any contract of $2,000 or less.

(d) Upon written finding by the head of a Federal agency, the Secretary of Labor may provide reasonable limitations, variations, tolerances, and exemptions from the requirements of this section subject to such conditions as the Secretary of Labor may specify.

[29 F.R. 95, Jan. 4, 1964, as amended at 33 F.R. 10186, July 17, 1968]

Section 3.4 Submission of Weekly Statements and the Preservation and Inspection of Weekly Payroll Records

(a) Each weekly statement required under Section 3.3 shall be delivered by the contractor or subcontractor, within seven days after the regular payment date of the payroll period, to a representative of the Owner in charge at the site of the building or work. After such examination and check as may be made, such statement, or a copy thereof, shall be kept available, or shall be transmitted together with a report of any violation, in accordance with applicable procedures prescribed by the United States Department of Labor.

(b) Each contractor or subcontractor shall preserve his weekly payroll records for a period of three years form date of completion of the contract. The payroll records shall set out accurately and completely the name and address of each laborer and mechanic, his correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid. Such payroll records shall be made available at all times for inspection by the contracting officer (Owner) or his authorized representative, and by authorized representatives of the Department of Labor.

Section 3.5 Payroll Deductions Permissible Without Application to or Approval of the Secretary of Labor

Deductions made under the circumstances or in the situations described in the paragraphs of this section may be made without application to and approval of the Secretary of Labor:

(a) Any deductions made in compliance with the requirements of Federal, State, or local law, such as Federal or State withholding income taxes and Federal social security taxes.

(b) Any deduction of sums paid to the employee as a bona fide payment of wages when such prepayment is made without discount or interest. A "bona fide prepayment of wages" is considered to have been made only when cash or its equivalent has been advanced to the person employed in such manner as to give him complete freedom of disposition of the advanced funds.

(c) Any deduction of amounts required by court process to be paid to another, unless the deduction is in favor of the Contractor, Subcontractor, or any affiliated person or when collusion or collaboration exists.

(d) Any deduction constituting a contribution on behalf of the person employed to funds established by the employer or representatives of employees, or both, for the purpose of providing either from principle or income, or both, medical or hospital care, pensions or annuities on retirement, death benefits, compensation for injuries, illness, accidents, sickness, or disability, or for insurance to provide any of the foregoing, or unemployment benefits, vacation pay, savings account, or similar payments for the benefit of employees, their families and dependents: Provided, however, that the following standards are met: (1) the deduction is not otherwise prohibited by law; (2) it is either: (i) voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of or for the continuation of employment, or (ii) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; (3) no profit or other benefit is otherwise obtained, directly or indirectly, by the contractor or subcontractor, or any affiliated person in the form of commission, dividend, or otherwise; and (4) the deductions shall serve the convenience and interest of the employee.

(e) Any deduction contributing toward the purchase of United States Defense Stamps and Bonds when voluntarily authorized by the employee.

(f) Any deduction requested by the employee to enable him to repay loans or to purchase shares in credit unions organized and operated in accordance with Federal and State credit union statutes.

(g) Any deduction voluntarily authorized by the employee for the making of contributions to

governmental or quasi-governmental agencies, such as the American Red Cross.

(h) Any deductions voluntarily authorized by the employee for the making of contributions to Community Chests, United Givers Funds, and similar charitable organizations.

(i) Any deductions to pay regular union initiation fees and membership dues, not including fines or special assessments: Provided, however, that a collective bargaining agreement between the contractor or subcontractor and representatives of its employees provides for such deductions and the deductions are not otherwise prohibited by law.

(j) Any deduction not more than for the "reasonable cost" of board, lodging, or other facilities meeting the requirements of Section 3(m) of the Fair Labor Standards Act of 1938, as amended, and Part 531 of this title. When such a deduction is made the additional records required under Section 516.27(a) of this title shall be kept.

Section 3.6 Payroll Deductions Permissible With the Approval of the Secretary of Labor

Any contractor or subcontractor may apply to the Secretary of Labor for permission to make any deduction as permitted under Section 3.5. The Secretary may grant permission whenever he finds that:

(a) The contractor, subcontractor, or any affiliated person does not make a profit or benefit directly or indirectly from the deduction either in form of a commission, dividend, or otherwise.

(b) The deduction is not otherwise prohibited by law.

(c) The deduction is either (1) voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance, or (2) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; and

(d) The deduction serves the convenience and interest of the employee.

Section 3.7 Applications for the Approval of the Secretary of Labor

Any application for the making of payroll deductions under Section 3.6 shall comply with the requirements prescribed in the following paragraphs of this section:

(a) The application shall be in writing and shall be addressed to the Secretary of Labor.

(b) The application shall identify the contract or contracts under which the work in question is to be performed. Permission will be given for deductions only on specific, identified

contracts, except upon a showing of exceptional circumstances.

(c) The application shall state affirmatively that there is compliance with the standards set forth in the provisions of Section 3.6. The affirmation shall be accompanied by a full statement of the facts indicating such compliance.

(d) The application shall include a description of the proposed deduction, the purpose to be served thereby, and the classes of laborers or mechanics from whose wages the proposed deductions would be made.

(e) The application shall state the name and business of any third person to whom any funds obtained from the proposed deductions are to be transmitted and the affiliation of such person, if any, with the applicant.

Section 3.8 Action by the Secretary of Labor upon Application

The Secretary of Labor shall decide whether or not the requested deduction is permissible under provisions of Section 3.6; and shall notify the applicant in writing of his decision.

Section 3.9 Prohibited Payroll Deductions

Deductions not elsewhere provided for by this part and which are not found to be permissible under Section 3.6 are prohibited.

Section 3.10 Methods of Payment of Wages

The payment of wages shall be by cash, negotiable instruments payable on demand, or the additional forms of compensation for which deductions are permissible under this part. No other methods of payment shall be recognized on work subject to the Copeland Act.

Section 3.11 Regulations Part of Contract

All contracts made with respect to the construction, prosecution, completion, or repair of any public building or public work or building or work financed in whole or in part by loans or grants from the United States covered by the regulations in this part shall expressly bind the contractor or subcontractor to comply with such of the regulations in this part as may be applicable. In this regard, see Section 5.5(a) of this subtitle.

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52.0 REQUEST FOR PAYMENT FORM Page ____ of _____

Partial Payment Estimate Summary Sheet

Periodic Estimate Number _____

Sanitary Sewer Improvements
for
City of Madison
FY 2016
Community Development Block Grant
DEO Contract No. 18DB-OM-03-50-02-N 33

PERIOD FROM _____, 20___ TO _____, 20___.

Contractor:

Surety:

Engineer: T. Brent Whitman, P. E.
Madison Engineering
269 NE Ridge Loop
Madison, FL 32340
850.973.7864

Notice to Proceed:
Date Work Started:
Original Scheduled Completion Date:
Current Scheduled Completion Date:
Original Contract Time for Completion (Calendar Days):
Contract Time Added by Change Order (Calendar Days):
Time Remaining for Completion (Calendar Days):
Percent of Time Used:
Liquidated Damages: $500.00 per day for Substantial Completion
$1,000.00 per day for Completion

Original Contract Amount:
Net Amount of Change Orders to Date:
Current Contract Amount:
Work Completed to Date (Dollars):
Work Completed Percent of Contract:

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	Weather*	Holiday	Weekends**	Work***	Total
Days Lost This Period:					
Total Days Lost to Date:					

*Include in this column the number of days that no work was attempted because the weather was too cold, because it was raining, etc.

**Include in this column the number of Saturdays and/or Sundays that no work was attempted at the discretion of the Contractor.

***Include in this column the number of days that no work was attempted at the discretion of the Contractor, such as inactive periods between phases of construction, etc.

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Project Name: City of Madison FY16 CDBG Program Project No. 18DB-OM-03-50-02-N 33 Periodic Est. No.: ____Page ___ of ___
Contractor: _____ Address: _____
Period From: _____, 20__ To: _____, 20__ Job No. _____

1. COST OF WORK COMPLETED TO DATE UNDER ORIGINAL CONTRACT ONLY:
ENTRIES MUST BE LIMITED TO WORK AND COSTS UNDER THE ORIGINAL CONTRACT ONLY.
(WORK AND COST DATA UNDER CHANGE ORDER MUST BE SHOWN ON PART 3 OF THIS FORM.)

ACTIVITY NO. 03J	SEWER LINES AND COMPONENTS **CDBG FUNDED**										
			CONTRACT			COMPLETED UNDER PREVIOUS ESTIMATES TO DATE		COMPLETED THIS PERIODIC ESTIMATE		COMPLETED TO DATE	
(1)	DESCRIPTION (2)	UNIT (3)	QUANTITY (4)	COST/ UNIT (5)	TOTAL COST OF ITEM (6)	QUANTITY (7)	TOTAL COST OF ITEM (8)	QUANTITY (9)	TOTAL COST OF ITEM (10)	QUANTITY (11)	TOTAL COST OF ITEM (12)
	TOTAL										

Project Name: City of Madison FY16 CDBG Program Project No. 18DB-OM-03-50-02-N 33 Periodic Est. No.: ____Page ___ of ___
Contractor: _____ Address: _____
Period From: _____, 20__ To: _____, 20__ Job No. _____

1. COST OF WORK COMPLETED TO DATE UNDER ORIGINAL CONTRACT ONLY:
ENTRIES MUST BE LIMITED TO WORK AND COSTS UNDER THE ORIGINAL CONTRACT ONLY.
(WORK AND COST DATA UNDER CHANGE ORDER MUST BE SHOWN ON PART 3 OF THIS FORM.)

ACTIVITY NO. 03J	SEWER LINES AND COMPONENTS **CITY FUNDED**										
			CONTRACT			COMPLETED UNDER PREVIOUS ESTIMATES TO DATE		COMPLETED THIS PERIODIC ESTIMATE		COMPLETED TO DATE	
(1)	DESCRIPTION (2)	UNIT (3)	QUANTITY (4)	COST/ UNIT (5)	TOTAL COST OF ITEM (6)	QUANTITY (7)	TOTAL COST OF ITEM (8)	QUANTITY (9)	TOTAL COST OF ITEM (10)	QUANTITY (11)	TOTAL COST OF ITEM (12)
	TOTAL										

Project Name: City of Madison FY16 CDBG Program Project No. 18DB-OM-03-50-02-N 33 Periodic Est. No.: ____Page ___ of ___
Contractor: _____ Address: _____
Period From: _____, 20__ To: _____, 20__ Job No. _____

1. COST OF WORK COMPLETED TO DATE UNDER ORIGINAL CONTRACT ONLY:
ENTRIES MUST BE LIMITED TO WORK AND COSTS UNDER THE ORIGINAL CONTRACT ONLY.
(WORK AND COST DATA UNDER CHANGE ORDER MUST BE SHOWN ON PART 3 OF THIS FORM.)

ACTIVITY NO. 03K	STREET IMPROVEMENTS - REPAVING **CDBG FUNDED**										
			CONTRACT			COMPLETED UNDER PREVIOUS ESTIMATES TO DATE		COMPLETED THIS PERIODIC ESTIMATE		COMPLETED TO DATE	
(1)	DESCRIPTION (2)	UNIT (3)	QUANTITY (4)	COST/ UNIT (5)	TOTAL COST OF ITEM (6)	QUANTITY (7)	TOTAL COST OF ITEM (8)	QUANTITY (9)	TOTAL COST OF ITEM (10)	QUANTITY (11)	TOTAL COST OF ITEM (12)
	TOTAL										

Project Name: City of Madison FY16 CDBG Program Project No. 18DB-OM-03-50-02-N 33 Periodic Est. No.: ____Page ___ of ___
Contractor: _____ Address: _____
Period From: _____, 20__ To: _____, 20__ Job No. _____

1. COST OF WORK COMPLETED TO DATE UNDER ORIGINAL CONTRACT ONLY:
ENTRIES MUST BE LIMITED TO WORK AND COSTS UNDER THE ORIGINAL CONTRACT ONLY.
(WORK AND COST DATA UNDER CHANGE ORDER MUST BE SHOWN ON PART 3 OF THIS FORM.)

ACTIVITY NO. 03J	SEWER HOOKUPS **CDBG FUNDED**										
			CONTRACT			COMPLETED UNDER PREVIOUS ESTIMATES TO DATE		COMPLETED THIS PERIODIC ESTIMATE		COMPLETED TO DATE	
(1)	DESCRIPTION (2)	UNIT (3)	QUANTITY (4)	COST/ UNIT (5)	TOTAL COST OF ITEM (6)	QUANTITY (7)	TOTAL COST OF ITEM (8)	QUANTITY (9)	TOTAL COST OF ITEM (10)	QUANTITY (11)	TOTAL COST OF ITEM (12)
	TOTAL										

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2. MATERIALS STORED ON SITE

Materials Received this Period Must be Supported by Invoices
Materials Must be Stored on the Site, Unless Otherwise Approved

Periodic Estimate No. _____ for period _____, 20__ to _____, 20__

Activity
No. 03J Sewer Lines and Components - **COMMUNITY DEVELOPMENT BLOCK GRANT FUNDED**

ITEM NO.	SUPPLIER AND DESCRIPTION	UNIT	NO. UNITS ON HAND END OF LAST PERIOD	NO. UNITS RECEIVED THIS PERIOD	NO. UNITS INSTALLED THIS PERIOD	NO. UNITS ON HAND THIS PERIOD	UNIT PRICE	COST OF UNITS ON HAND THIS PERIOD
								TOTAL:

NOTE: If no materials are stored on site, complete form and indicate “None.”

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3. SCHEDULE OF CONTRACT CHANGE ORDERS

List Every Change Order Issued to Date of this Request Even if No Work Has Been Done Under One or More Such Orders

COMMUNITY DEVELOPMENT BLOCK GRANT FUNDED

Periodic Estimate No. _____ for period _____, 20__ to _____, 20__

CONTRACT CHANGE ORDER NUMBER/DATE	DESCRIPTION	UNIT	TOTAL COST OF ITEMS ADDED BY CHANGE ORDER	TOTAL COST OF DEDUCTIONS FROM CONTRACT PRICE AS SHOWN ON CHANGE ORDERS	COST OF CHANGE ORDER ITEMS COMPLETED UNDER PREVIOUS PERIODIC ESTIMATE TO DATE	COST OF CHANGE ORDER ITEMS COMPLETED THIS PERIODIC ESTIMATE	COST OF CHANGE ORDER ITEMS COMPLETED TO DATE
							TOTAL:

NOTE: If no change orders have been listed for this project, complete form and indicate “None.”

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Periodic Estimate No._____

Period _____,20___ to _____,20___.

4. Analysis of Adjusted Contract Amount to Date

(a) Original Contract amount (Col. 6 - Page 1).....$_____
(b) Plus: Additions (from Change Order Schedule-Attached) .....$_____
(c) Less: Deductions (from Change Order Schedule-Attached) .....$_____
(d) Adjusted Contract amount to date.....$_____

5. Analysis of Work Performed

(a) Cost of contract original work performed to date (Col. 8 - Part 1) .....$_____
(b) Extra work performed to date (from Change Order Schedule).....$_____
(c) Total cost of work performed to date.....$_____
(d) Add: Materials stored at close of this period (Attach detailed schedule) .....$_____
(e) Subtotal of (c) and (d).....$_____
(f) Less: Amount retained in accordance with contract terms (10%) .....$_____
(g) Net amount earned on contract work to date .....$_____
(h) Less: Amount of previous Partial Payment Estimates.....$_____
(i) Less: Liquidated Damages ($_____ per day) .....$_____
(j) BALANCE DUE THIS PAYMENT .....$_____

6. Certification of Contractor

As authorized agent for the Contractor, I, the undersigned, hereby certify that to the best of my knowledge and belief, this is a true and correct statement of work performed and materials delivered. I further certify that the Contractor has good title for all materials delivered under this Partial Payment Estimate and there are no vendor liens, mechanic liens, or other liens or rights to liens against this job, and that all previous Partial Payments received under this Contract have been applied to discharge in full all of the Contractor's obligations, reflected in prior Partial Payment requests, and that hourly wages paid to all employees on this Project for the period of this estimate are in accordance with the wage scale determination contained in the Contract Documents.

_____ _____Signature
Date

_____ _____
Name and Title (Print or Type) Name of Contractor (Print or Type)

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7. Certification of Engineer

I certify that I have verified the quantities of work performed and stored materials claimed on this Periodic Estimate and to the best of my knowledge and belief it is a true and correct representation by the Contractor.

Madison Engineering
(Engineer)

_____ _____
Signature Date

T. Brent Whitman, P. E.
Name and Title (Print or Type)

8. Approval for Payment

City of Madison
(Owner)

_____ _____
Signature Date

Jerome Wyche, City Manager
Name and Title (Print or Type)

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SECTION E

SUPPLEMENTAL GENERAL CONDITIONS

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SECTION E

SUPPLEMENTAL GENERAL CONDITIONS

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SECTION E

SUPPLEMENTAL GENERAL CONDITIONS

1.0 SCOPE

1.1 The Supplemental General Conditions contained in this Section are intended to cooperate with, to supplement or to modify the General Conditions and in case of disagreement, the intent of the Supplemental General Conditions shall govern.

2.0 DESCRIPTION OF WORK

2.1 The purpose and intent of the Contract Documents is to provide for the furnishing of all materials and all other services necessary for the prosecution and completion of the work to construct in accordance with the Plans and Specifications, City of Madison, Neighborhood Revitalization Fiscal Year 2016, Florida Department of Economic Opportunity Contract No. 18DB-OM-03-50-02-N 33.

2.2 The work is generally described, but not limited to the following:

2.2.1 Base Bid:

Refer to Section F - Contract Documents starting on Page F-1.

2.2.2 Deduct Alternates:

Refer to Section F - Contract Documents starting on Page F-1.

2.2.3 Add Alternates:

Refer to Section F - Contract Documents starting on Page F-1.

3.0 ENUMERATION OF PLANS, SPECIFICATIONS AND ADDENDA

3.1 Following are the Plans, Specifications and Addenda which form part of this Contract, as set forth in Paragraph 1.0 of the General Conditions, "Contract and Contract Documents":

PLANS: The Plans which pertain to the work accompanying these specifications are entitled: Sewer Lines Improvements, City of Madison FY2016 Community Development Block Grant Project, Florida Department of Economic Opportunity Contract No. 18DB-OM-03-50-02-N 33.

3.2 SPECIFICATIONS:

Refer to Technical Specifications document.

3.3 ADDENDA:

Refer to Section F - Contract Documents starting on page F-1.

4.0 STATED ALLOWANCES

4.1 Pursuant to Paragraph 35.1 of the General Conditions, the Contractor shall include the following cash allowances in his/her Proposal:

STATED ALLOWANCES ARE NOT APPLICABLE TO THIS PROJECT.

5.0 BASIS FOR PAYMENT

5.1 General

5.1.1 Total payment for each division of the work presented by the Contractor shall be determined by the estimated value of acceptable work performed, as determined by the Engineer, based on the Schedule of Values submitted by the Contractor as required in Paragraph 5.3. This shall constitute the total payment allowed for each division of work, except as modified by written Change Order.

5.1.2 The sum total of payments for all divisions of work contained in the Contract shall constitute payment for the entire scope of work presented in the Plans and Specifications, except as modified by written Change Order.

5.2 Determination of Quantities

Except as modified by written Change Order, determination of final payment for each division of work contained in the Contract shall be based upon the Schedule of Values. The work must be complete and be inspected and accepted by the Engineer and the Owner. Before the approval of the final payment, the Contractor shall submit evidence satisfactory to the Owner that all payrolls, material bills and outstanding indebtedness in connection with this Contract have been paid.

5.3 Schedule of Values

Before the first Application for Payment, the Contractor shall submit to the Engineer 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 Engineer may require. This schedule, unless objected to by the Engineer, shall be the basis for reviewing the Contractor's Requests for Payment.

6.0 STORAGE

6.1 The Contractor shall provide his/her own space for storing materials and equipment. The Contractor may, however, at his/her own risk, store equipment and materials within the right-of-way, provided said storage in no way endangers or disrupts traffic or inconveniences local residents. The Contractor shall indemnify, pay the cost of the defense and hold harmless the Owner and Engineer from all suits, actions or claims of any character resulting from said storage.

7.0 LOCATIONS OF UTILITIES

7.1 The Engineer has shown the approximate locations and elevations of the utilities believed to be within the construction area based upon information provided by others. The Engineer accepts no responsibility for actual location or elevation of such utilities differing from that indicated or for not having indicated any utilities which may be encountered during construction.

7.2 The Contractor shall be responsible for determining the actual locations and elevations of all utilities within the construction area and for any damage to these utilities as specified elsewhere herein.

7.3 The Contractor shall notify the owners of all utilities determined to be within the construction area as to any line and grade conflicts between the proposed work and the existing utility locations.

8.0 CONSTRUCTION OFFICE

8.1 No construction office is required by this Contract. If the Contractor wishes the use of office facilities, however, he/she shall provide his/her own as none will be made available by the Owner.

9.0 SANITATION

9.1 Sanitary conveniences for the use of persons employed on the work shall be erected and maintained free from nuisance by the Contractor in a manner and at locations satisfactory to the Owner and their use shall be strictly enforced. Upon completion of the work, they shall be removed, leaving the premises clean.

10.0 WORKMANSHIP

10.1 All materials and equipment shall be installed in a neat and first class workmanlike manner.

10.2 The Engineer reserves the right to direct the removal and replacement of any items which, in his/her opinion, do not present an orderly and reasonably neat or workmanlike appearance, provided such an orderly installation can be made using customary trade methods. The removal and replacement shall be done when directed in writing by the Engineer at the Contractor's own expense and without additional expense to the Owner.

11.0 ORDINANCES, REGULATIONS, STANDARDS AND CODES

11.1 The work shall conform with all State and local ordinances or regulations governing the installation of such improvements. If work as laid out, indicated or specified is contrary to or conflicts with State and local ordinances or regulations, the Contractor shall report the same to the Engineer before submitting his/her bid. The Engineer will then issue instructions as to procedure.

11.2 If the Contractor fails to notify the Engineer of conflicts or omissions as noted above, all changes required to comply with the ordinances and regulations shall be made without additional expense to the Owner.

12.0 AS-BUILT DRAWINGS

12.1 The Contractor shall keep accurate records in the form of as-built drawings of any deviation from the plans. As-built drawings shall be made with red pencil on blue line prints and shall be submitted to the Engineer upon completion of the work.

12.2 The Contractor shall specifically record, on the as-built drawings, all dimensions and construction details necessary for future location and/or service of any item used on this Project.

13.0 CONNECTING TO WORK OF OTHERS

13.1 Before starting his/her work and from time to time as his/ her work progresses, the Contractor and each Subcontractor shall examine the work and materials installed by others insofar as they apply to his/her own work and shall notify the Engineer immediately in writing if any conditions exist which will prevent satisfactory results. Should the Contractor or Subcontractor start his/her work without such notification it shall be construed as an acceptance by him/her of all claims or questions as to the suitability of the work of others to receive his/her work. He/she shall remove and/or replace, at his/her own expense, all work under this Contract which may have to be removed on account of such defects.

14.0 CLEANING UP

14.1 The Contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by his/her employees or work, and at the completion of the work he/she shall remove all his/her rubbish from and about the work area and all surplus materials and shall leave his/her work “broom clean,” “rake clean” or its equivalent, unless more exactly specified. In case of dispute, the Owner may remove the rubbish and charge the cost to the Contractor as the Engineer shall determine to be just.

14.2 On-site burning of waste material will not be permitted.

14.3 All damage to existing areas shall be restored as the Engineer directs. Payments may be withheld until such work is accomplished.

15.0 HOURS OF WORK

15.1 The Contractor shall submit to the Engineer for approval his/her proposed working hours.

15.2 The approved working hours shall be utilized by all the Contractor's personnel and all Subcontractor's personnel.

15.3 Any subsequent proposed changes in working hours shall be submitted for approval.

15.4 The Contractor shall notify the Engineer of any change in working hours at least twenty-four (24) hours in advance of any such change. Failure by the Contractor to provide such notice to the Engineer shall result in the Contractor being liable for the Engineer’s costs for inspection services associated with such change in work hours.

16.0 TESTING

16.1 See General Conditions, Paragraph 7.0 Inspection and Testing of Materials.

17.0 SPECIAL HAZARDS

17.1 The Contractor's and his/her Subcontractor's Public Liability and Property Damage Insurance shall provide adequate protection against the following special hazards:

NONE ABOVE THE NORMAL HAZARDS ASSOCIATED WITH THIS TYPE OF CONSTRUCTION.

18.0 CONTRACTOR'S AND SUBCONTRACTOR'S PUBLIC LIABILITY, VEHICLE LIABILITY AND PROPERTY DAMAGE INSURANCE

18.1 As required under Paragraph 28.0 of the General Conditions, the Contractor's Public Liability Insurance, Vehicle Liability Insurance and Property Damage Insurance shall be in an amount not less than $250,000 for injuries, including accidental death, to any one (1) person, and subject to the same limit for each person, in an amount not less than $500,000 on account of one (1) accident, and Contractor's Property Damage Insurance in an amount not less than $250,000/500,000.

18.2 The Contractor shall either: (1) require each of his/her Subcontractors to procure and to maintain during the life of his/her Subcontract, Subcontractor's Public Liability Insurance, Vehicle Liability Insurance and Property Damage Insurance of the type and in the same amounts as specified in the preceding paragraph; or (2) insure the activities of his/her Subcontractor in his/her own policy.

19.0 PHOTOGRAPHS AND/OR VIDEOTAPES OF PROJECT

19.1 As provided in Paragraph 49.0 of the General Conditions, the Contractor shall furnish photographs and/or videotapes for the number, type and stage as enumerated below:

NONE REQUIRED

20.0 SCHEDULE OF OCCUPATIONAL CLASSIFICATIONS AND MINIMUM HOURLY WAGE RATES ARE REQUIRED UNDER PARAGRAPH 51.0 OF THE GENERAL CONDITIONS

20.1 See SECTION G.

21.0 SPECIAL EQUAL OPPORTUNITY PROVISIONS

21.1 Activities and Contracts Not Subject to Executive Order 11246, as Amended

(Applicable to Federally assisted construction contracts and related subcontracts $10,000 and under.)

During the performance of this Contract, the Contractor agrees as follows:

21.1.1 The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Contractor shall take affirmative action to ensure that applicants for employment are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; and selection for training, including apprenticeship.

21.1.2 The Contractor shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Owner setting forth the provisions of this nondiscrimination clause. The Contractor shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

21.1.3 Contractors shall incorporate the foregoing requirements in all Subcontracts.

21.2 Activities and Contracts Subject to Executive Order 11246, as Amended

(Applicable to Federally assisted construction contracts and related subcontracts above $10,000).

21.2.1 Section 202 Equal Opportunity Clause

During the performance of this Contract, the Contractor agrees as follows:

21.2.1.1 The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: 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 to be provided setting forth the provisions of this nondiscrimination clause.

21.2.1.2 The Contractor will, in all solicitations or advertisement for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration without regard to race, color, religion, sex or national origin.

21.2.1.3 The Contractor will send to each labor union or representative of workers with which he/she has a collective bargaining agreement or other contract or understanding, a notice to be provided by the Owner advising said labor union or worker's representatives of the Contractor's commitment under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

21.2.1.4 The Contractor will comply with all provisions of the Executive Order 11246 of September 24, 1965, and the rules, regulations, and relevant orders of the U.S. Secretary of Labor.

21.2.1.5 The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations and orders of the U.S. Secretary of Labor, or pursuant thereto, and will permit access to his/her books, records and accounts by the Owner, the State of Florida Department of Economic Opportunity, the

U.S. Department of Housing and Urban Development, and the U.S. Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

21.2.1.6 In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of the said rules, regulations or orders, this Contract may be canceled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the U.S. Secretary of Labor, or as otherwise provided by law.

21.2.1.7 The Contractor will include the provisions of the sentence immediately preceding Paragraph 21.2.1.1 and the provisions of Paragraphs 21.2.1.1 through 21.2.1.7 in every Subcontract or purchase order unless exempted by rules, regulations or orders of the U.S. Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that each provision will be binding upon each Subcontractor or vendor. The Contractor will take such action with respect to any Subcontract or purchase order as the State of Florida Department of Economic Opportunity, the U.S. Department of Housing and Urban Development may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a Subcontractor or vendor as a result of such direction by the U.S. Department of Housing and Urban Development, the Contractor may request the United States to enter into such litigation to protect the interest of the United States.

21.2.1.7.1. The Owner further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in State of Florida and/or Federally-assisted construction work: Provided, that if the Owner so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such

government which does not participate in work on or under the Contract.

21.2.1.7.2 The Owner agrees that it will assist and cooperate actively with the State of Florida Department of Economic Opportunity, the U.S. Department of Housing and Urban Development, and the U.S. Secretary of Labor in obtaining the compliance of Contractors and Subcontractors with relevant orders of the U.S. Secretary of Labor, that it will furnish the State of Florida Department of Economic Opportunity, and the U.S. Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the State of Florida Department of Economic Opportunity in the discharge of the agency's primary responsibility for securing compliance.

21.2.1.7.3 The Owner further agrees that it will refrain from entering into any Contract or Contract modification subject to Executive Order 11246 of September 24, 1965, with a Contractor debarred from, or who has not demonstrated eligibility for Government contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon Contractors and Subcontractors by the U.S. Department of Housing and Urban Development, and the U.S. Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the Owner agrees that if it fails or refuses to comply with these undertakings, the Florida Department of Economic Opportunity may take any or all of the following actions: Cancel, terminate or suspend in whole or in part its Community Development Block Grant with the Owner, refrain

from extending any further assistance to the Owner under the program with respect to which the failure or refund occurred until satisfactory assurances of future compliance has been received from such Owner, and refer the case to the U.S. Department of Justice for appropriate legal proceedings.

21.2.1.8 Each nonexempt Contractor or his/her Subcontractor shall include the equal opportunity clause in each of his/her nonexempt Subcontracts.

21.2.2 Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity

21.2.2.1 The Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

21.2.2.1.1 The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation	Goals for female participation
29.5%	6.9%

21.2.2.1.2 These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area.

21.2.2.1.3 If the Contractor performs construction work in a geographic area located outside of the covered area, it shall apply the goals established for such geographic area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally

involved and nonfederally involved construction.

21.2.2.1.4 The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the Contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the Contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

21.2.2.2 The Contractor shall provide written notification to the Owner, the State of Florida Department of Economic Opportunity, and the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction Subcontract in excess of $10,000 at any tier for construction work under the Contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the Subcontractor; employer identification number, estimated dollar amount of the Subcontract, estimated starting and completion dates of the Subcontract and the geographical area in which the Contract is to be performed.

21.2.2.3 As used in this Notice, and in the Contract resulting from this solicitation, the "covered area" is State of Florida,

Madison County.

21.2.3 Standard Federal Equal Employment Opportunity Construction Contract Specifications

21.2.3.1 As used in these Specifications:

21.2.3.1.1 "Covered area" means the geographical area described in the solicitation from which this Contract resulted.

21.2.3.1.2 "Director" means Director, Office of Federal Contractor Compliance Programs, U.S. Department of Labor, or any person to whom the Director delegates authority.

21.2.3.1.3 "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

21.2.3.1.4 "Minority" includes:

21.2.3.1.4.1 Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

21.2.3.1.4.2 Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

21.2.3.1.4.3 Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeastern Asia, the Indian Subcontinent, or the Pacific Islands); and

21.2.3.1.4.4 American Indian or Alaskan

Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

21.2.3.2 Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each Subcontract in excess of $10,000 the provisions of these specifications and the notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this Contract resulted.

21.2.3.3 If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations and under the Equal Employment Opportunity (EEO) clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals.

21.2.3.4.1 The Contractor shall implement the specific affirmative action standards provided in Paragraphs 21.2.3.7.1 through 21.2.3.7.16 of these Supplemental General Conditions. The goals set forth in the solicitation from which this Contract resulted are expressed as percentages of the total hours of employment and training

of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

21.2.3.4.2 Covered construction contractors performing contracts in geographical areas where they do not have a federal or federally-assisted construction contract shall apply the minority and female goals established for the geographic area where the contract is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any office of Federal Contract Compliance Programs Office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

21.2.3.5 Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these Supplemental General Conditions, Executive Order 11246, or the regulations promulgated pursuant thereto.

21.2.3.6 In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the State of Florida and the U.S. Department of Labor.

21.2.3.7 The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specific actions shall be based upon its effort to achieve maximum results from its actions. The Contractor is referred to Section H for a listing of minority and female contractor associations, contractors and subcontractors. This list is provided by the Owner to assist the Contractor in implementing affirmative actions to ensure equal employment opportunity. The Contractor shall document his/her compliance efforts fully, and shall implement affirmative action steps at least as extensive as the following:

21.2.3.7.1 Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two (2) or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendent and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

21.2.3.7.2 Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

21.2.3.7.3 Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what

action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union, or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

21.2.3.7.4 Provide immediate written notification to the Owner, the State Department of Economic Opportunity and the Director of the Office of Federal Contract Compliance Programs when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

21.2.3.7.5 Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the State of Florida and the U.S. Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 21.2.3.7.3 above.

21.2.3.7.6 Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report,

etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

21.2.3.7.7 Review, at least annually, the company's EEO policy and affirmative action obligations under these Supplemental General Conditions with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed and disposition of the subject matter.

21.2.3.7.8 Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

21.2.3.7.9 Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one (1) month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the

Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

21.2.3.7.10 Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

21.2.3.7.11 Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

21.2.3.7.12 Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

21.2.3.7.13 Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these Supplemental General Conditions are being carried out.

21.2.3.7.14 Ensure that all facilities and company activities are nonsegregated except that separate facilities or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

21.2.3.7.15 Document and maintain a record of all solicitations of offers for Subcontracts from minority and female construction contractors and suppliers, including

circulation of solicitations to minority and female contractor associations and other business associations.

21.2.3.7.16 Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

21.2.3.8 Contractors are encouraged to participate in voluntary associations which assist in fulfilling one (1) or more of their affirmative action obligations (Paragraphs 21.2.3.7.1 through 21.2.3.7.16). The efforts of a contractor association, joint contractor-union, contractor-community or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one (1) or more of its obligations under Paragraphs 21.2.3.7.1 through 21.2.3.7.16 of these Supplemental General Conditions provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation shall not be a defense for the Contractor's noncompliance.

21.2.3.9 A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even through the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

21.2.3.10 The Contractor shall not use the goals or affirmative action standards to discriminate against any person because of race,

color, religion, sex or national origin.

21.2.3.11 The Contractor shall not enter into any Subcontract with any person or firm debarred from U.S. Government Assisted Contracts or U.S. Government Contracts pursuant to Executive Order 11246.

21.2.3.12 The Contractor shall carry out such sanctions and penalties for violation of these Supplemental General Conditions and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing Subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations by the Owner, the Florida Department of Economic Opportunity or the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these Supplemental General Conditions and Executive Order 11246, as amended.

21.2.3.13 The Contractor, fulfilling its obligations under these Supplemental General Conditions, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in Paragraph 21.2.3.7 of these Supplemental General Conditions, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations or these Supplemental General Conditions, the Director shall proceed in accordance with 41 CFR 60-4.8.

21.2.3.14 The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company's EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Florida Department of Economic Opportunity and the U.S. Government and to keep records. Records shall at least include for each employee the name, address, telephone number, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay and location at which the work was performed. Records shall be

maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, the Contractor shall not be required to maintain separate records.

21.2.3.15 Nothing herein shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents.

21.2.4 Certification of Nonsegregated Facilities

(Applicable to Federally assisted construction contracts and related subcontracts exceeding $10,000).

21.2.4.1 By the submission of this bid, the Bidder, offeror, applicant or Subcontractor certifies that he/she does not maintain or provide for his/her employees any segregated facility at any of his/her establishments, and that he/she does not permit employees to perform their services at any location, under his/her control, where segregated facilities at any of his/her establishments, and he/she will not permit employees to perform their services at any location under his/her control where segregated facilities are maintained. The Bidder, offeror, applicant or Subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause of this Contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion or national origin, because of habit, local custom, or otherwise. He/she further agrees that (except where he/she has obtained identical certifications from proposed Subcontractors for specific time periods) he/she will obtain identical certification from proposed Subcontractors prior to the award of Subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause; that he/she will retain such certifications in his/her files; and that he/she will forward the notice contained in Paragraph 21.2.5.1 to such proposed Subcontractors (except where proposed Subcontractors have submitted identical certification for specific time periods).

21.2.5 Civil Rights Act of 1964

21.2.5.1 Under Title VI of the Civil Rights Act of 1964, no person shall, on the grounds of race, color, sex or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

21.2.6 Section 109 of the Housing and Community Development Act of 1974

21.2.6.1 No person in the United States shall on the grounds of race, color, sex or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this title.

21.2.7. "Section 3" Compliance in the Provision of Training, Employment and Business Opportunities

21.2.7.1 The work to be performed under this Contract is on a project assisted under a program providing direct Federal financial assistance from the U.S. Department of Housing and Urban Development and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 170lu. Section 3 requires that to the greatest extent feasible opportunities for training and employment be given lower income residents of the Project area and Contracts for work in connection with the Project be awarded to business concerns which are located in, or owned in substantial part by persons residing in the area of the Project.

21.2.7.2 The parties to this Contract will comply with the provisions of said Section 3 and the regulations issued pursuant thereto by the U.S. Department of Housing and Urban Development and as set forth in 24 CFR 135, and all applicable rules and orders of the U.S. Department of Housing and Urban Development issued thereunder prior to the execution of this Contract. The parties to this Contract certify and agree that they are under no contractual or other disability which would prevent them from complying with these requirements.

21.2.7.3 The Contractor will send to each labor organization or representative of workers with which he/she has a collective

bargaining agreement or other contract or understanding, if any, a notice advising the said labor organization or workers' representative of his/her commitments under this Section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment or training.

21.2.7.4 The Contractor will include this Section 3 clause in every Subcontract for work in connection with the Project and will, at the direction of the Owner, take appropriate action pursuant to the Subcontract upon a finding that the Subcontractor is in violation of regulations issued by the U.S. Secretary of Housing and Urban Development, 24 CFR Part 135. The Contractor will not subcontract with any Subcontractor where it has notice or knowledge that the latter has been found in violation of regulations under 24 CFR Part 135 and will not let any Subcontract unless the Subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.

21.2.7.5 The Contractor will take specific affirmative actions to assist the Owner to meet its (the Owner's) Section 3 Plan. Refer to Section I for a copy of the Owner's Section 3 Plan. The Contractor will also adopt a Section 3 Plan and take specific affirmative actions to meet that Plan.

21.2.7.6 Compliance with the provisions of Section 3, the regulations set forth in 24 CFR Part 135, and all applicable rules and orders of the U.S. Department of Housing and Urban Development issued hereunder prior to the execution of the Contract, shall be a condition of the Federal financial assistance provided to the Project by the Florida Department of Economic Opportunity, binding upon the Owner, its Contractors and Subcontractors, its successors and assigns to those sanctions specified by the grant agreement through which Federal assistance is provided by the Florida Department of Economic Opportunity, and to such sanctions as are specified by 24 CFR Part 135.

22.0 CERTIFICATION OF COMPLIANCE WITH AIR AND WATER ACTS

(Applicable to Federally assisted construction contracts and related subcontracts exceeding $100,000).

22.1 During the performance of this Contract, the Contractor and all Subcontractors shall comply with the requirements of the Clean Air Act, as amended, 42 USC 1857 et seq. and the Federal Water Pollution Control Act, as amended, 33 USC 1251 et seq., the regulations of the U.S. Environmental Protection Agency with respect thereto, at 40 CFR Part 15, as amended, the Clean Water Act, as amended, 33 U.S.C. 1368 and Executive Order 11738.

In addition to the foregoing requirements, all nonexempt Contractors and Subcontractors shall furnish to the Owner, the following:

22.1.1 A stipulation by the Contractor or Subcontractors, that any facility to be utilized in the performance of any nonexempt Contract or Subcontract, is not listed on the List of Violating Facilities issued by the U.S. Environmental Protection Agency pursuant to 40 CFR 15.20.

22.1.2 Agreement by the Contractor to comply with all the requirements of Section 114 of the Clean Air Act, as amended, (42 USC 1857c-8) and Section 308 of the Federal Water Pollution Control Act, as amended (33 USC 1318) relating to inspection, monitoring, entry, reports and information, as well as all other requirements specified in said Section 114 and Section 308, and all regulations and guidelines issued thereunder.

22.1.3 A stipulation that as a condition for the award of the Contract, prompt notice will be given of any notification received from the Director, Office of Federal Activities, U.S. Environmental Protection Agency, indicating that a facility is under consideration to be listed on the U.S. Environmental Protection Agency List of Violating Facilities.

22.1.4 Agreement by the Contractor that he/she will include, or cause to be included, the criteria and requirements in Paragraphs 22.1.1 through 22.1.4 in every nonexempt Subcontract and requiring that the Subcontractor will take such action as the Government may direct as a means of enforcing such provisions.

23.0 SPECIAL CONDITIONS PERTAINING TO HAZARDS, SAFETY STANDARDS AND ACCIDENT PREVENTION

23.1 Use of Explosives

23.1.1 When the use of explosives is necessary for the prosecution of the work, the Contractor shall observe all local, State and Federal laws in purchasing and handling explosives. The Contractor shall take all necessary precaution to protect completed work, neighboring property, water lines or other underground structures. Where there is danger to structures or property from blasting, the charges shall be reduced and the material shall be covered with suitable timber, steel or rope mats.

23.1.2 The Contractor shall notify all owners of public utility property of his/her intention to use explosives at least eight (8) hours before blasting is done, close to such property. Any supervision or direction of use of explosives by the Engineer, does not in any way reduce the responsibility of the Contractor or his/her Surety for damages that may be caused by such use.

23.2 Safety and Protection

23.2.1 To protect persons, including the workmen, from injury and to avoid property damage and damage to the work, adequate barricades, construction signs, torches, lanterns and guards as required shall be placed and maintained by the Contractor during the progress of the construction work and in the case of work on or near traveled roadways until it is safe for traffic to use the highway. All materials, piles, equipment, pipe, excavations and mounds of earth which may serve as obstruction to traffic shall be enclosed by fences or barricades and shall be protected by proper lights when the visibility is poor. The rules and regulations of the local authorities respecting safety provisions shall be observed.

23.2.2 The Contractor shall carry on work in a manner which will cause the least interruption to both vehicular and pedestrian traffic.

23.2.3 The Contractor shall provide safe and proper means of ingress and egress to and from all public and private properties for the duration of construction. Where traffic must cross open trenches, suitable bridges shall be provided at all public and private crossings.

23.2.4 The Contractor shall be held liable for any property damage and/or personal injury resulting from his/her failure to take adequate safety precautions. He/she shall indemnify the Owner and Engineer from all claims arising from such negligence.

23.2.5 Temporary support, adequate protection and maintenance of all underground and surface structures, utilities, drains, sewers and other obstructions encountered in the progress of the work shall be installed at no additional cost to the Owner. The structure which may have been disturbed shall be restored as soon as possible.

23.2.6 The Contractor shall be entirely responsible for all obstructions, regardless of whether or not shown on the Plans. Any obstructions encountered at any time and in any location shall be provided for in the most practical manner. In the case of utilities, they shall be kept in operation unless written permission from the Owner of the utilities allowing temporary interruption of service is obtained. Should it become necessary to install temporary lines, temporary pumps, temporary support, temporary protection or other means be provided for the continuous operation of utilities, all this work shall be done, maintained, operated and removed upon completion, at no additional cost to the Owner. No trees are to be removed, pruned or have roots cut, except when approved by the Engineer. The Contractor shall be responsible for damage to trees, shrubs, grass, plants, etc., due to construction or related activity.

23.2.7 The Contractor will not be required to move or remove any privately owned utilities, such as gas mains and services, electric transmission lines and poles, telephone cables, etc., or to move or remove any publicly owned utilities except as specifically required in the Plans and Specifications.

24.0 WATER

24.1 Water for testing, sterilization and other purposes connected with the work shall be secured and purchased by the Contractor.

25.0 ELECTRICITY

25.1 Electricity as may be required for construction and other purposes connected with this Project shall be secured and purchased by the Contractor.

26.0 PERMITS AND LICENSES

26.1 The Contractor shall be required to be registered to do business in the State of Florida.

27.0 LINES AND GRADES

27.1 The Contractor shall furnish and set all necessary stakes to establish the line and grade as shown on the Plans, and lay out each portion of the work of his/her Contract. The Contractor shall be responsible for the layout of all such lines and grades, which will be checked and verified by the Engineer.

28.0 SALVAGE

28.1 All material salvaged from connections or cut-ins to existing systems, removal of existing facilities, etc., shall remain the property of the Owner. The Contractor shall remove all salvaged materials from the construction sites as work progresses and store them in a place designated by the Owner for this purpose.

28.2 Under no circumstances are salvaged materials to be re-used in this Project unless indicated on the Plans and/or specified herein or directed by the Owner for this purpose.

29.0 DISRUPTION OF UTILITIES

29.1 The Contractor is hereby notified that his/her work shall be so scheduled and performed as to provide a minimum of interference with any and all utility services. If, because of construction operations, it is necessary to interrupt such utility services, a designated representative of the owner of the utility involved shall be advised in writing not less than forty-eight (48) hours advance of such interruption. Work of this type shall be scheduled to be performed during periods of minimum demand on the utility involved and within the time limit established by the owner's representative. Periods of shutdown longer than those established as the maximum by the owner of the utility involved will not be permitted. If such shutdowns occur, the Contractor will be considered liable for damages resulting from this cause.

30.0 UNDERGROUND OBSTRUCTIONS

30.1 The Contractor shall anticipate all underground obstructions such as water lines, gas lines, sewer lines, utility lines, concrete and debris. No extra payment will be allowed for the removal, replacement, repair or possible increased cost caused by underground obstructions. Any such lines or obstructions indicated on the map show only the approximate location and must be verified in the field by the Contractor. The Owner and Engineer will endeavor to familiarize the Contractor with all known underground utilities and obstructions, but this will not relieve the Contractor from full responsibility in anticipating all underground obstructions.

31.0 LABOR PROVISIONS

31.1 The Contractor and his/her Subcontractors shall discharge whenever ordered to do so by the Engineer, any employee who is disorderly or whose conduct in the opinion of the Engineer is detrimental to the prosecution of the work.

31.2 No person whose age or physical condition is such as to make his/her employment dangerous to his/her health and safety or to the health and safety of others shall be employed on the work, and in no event shall any person under the age of sixteen (16) years be employed.

31.3 Should the Contractor fail to remove such person or persons ordered discharged under the provisions of this Paragraph or fail to furnish suitable or sufficient machinery, equipment or force for the proper prosecution of the work, the Engineer may withhold all estimates which are, or may become due, or may suspend the work until compliance with such orders is achieved by the Contractor.

31.4 The equipment used on any portion of the work shall be such that no injury to adjacent property, or to streets or highways will result from its use, equipment shall be modern, in good condition, and adequate in size to perform the work in satisfactory time intervals. No item of machinery or equipment, after once being placed on the work, shall be removed without the consent of the Engineer.

32.0 USE OF PREMISES

32.1 The Contractor shall confine his/her apparatus, storage of materials and construction operations to such limits as may be directed by the Owner and shall not unreasonably encumber the premises with his/her materials.

32.2 The Contractor shall not load or permit any part of any structure to be loaded to such an extent as to endanger its safety.

32.3 Unless otherwise expressly stipulated herein, the use of explosives is not contemplated in the prosecution of this Contract, and in no case will their use be permitted without the written permission of the Owner.

32.4 Where such permission for the use of explosives is obtained, the Contractor shall use the utmost care so as not to endanger life or property, and whenever directed the number and size of the charges shall be reduced. All explosives shall be stored in a secure manner, and all such storage places shall be marked clearly, "DANGEROUS EXPLOSIVES", and shall be in care of competent watchmen.

32.5 It shall be the responsibility of the Contractor to contact in writing the Fire and Police Departments having jurisdiction in the area where the work is being performed to obtain from them a summary of the information which should be provided to them while work is in progress. It shall then be the Contractor's responsibility to provide them with all such data.

33.0 UPDATED CONSTRUCTION SCHEDULES

33.1 With each Partial Payment Estimate submitted as required under Paragraph 25.0, of the General Conditions, the Contractor shall submit an updated construction schedule showing the relationship between work actually accomplished to date versus the original construction schedule submitted as required by Paragraph 24.0 of the General Conditions.

34.0 PROOF OF PAYMENT FOR MATERIALS STORED

34.1 With each Partial Payment Estimate submitted as required under Paragraph 25.0, of the General Conditions, the Contractor shall provide proof of payment as provided for in Paragraph 25.0 of the General Conditions for materials stored for which the Contractor has been paid in the previous month's estimate. Proof of payment will be acceptable in the form of receipted invoices, canceled checks or signed statements from the suppliers. Signed affidavits by the Contractor will not be acceptable as proof of payment. Failure on the part of the Contractor to provide acceptable evidence of proof of payment will be cause for withholding further payment for materials stored.

35.0 EXPERIENCE CLAUSES

35.1 Equipment and/or manufacturers which do not meet the specified experience period will be considered if the equipment supplier or manufacturer provides a bond which will guarantee replacement in the event of failure of the equipment or process. The period of time for the guarantee bond shall be the same as that specified for the experience record.

36.0 ACCESS TO PROPERTY

36.1 The Contractor shall maintain or provide access to property normally entered via the job site during progress of the work. Bridges or other suitable crossings over ditches shall be provided as required and subject to approval by the Engineer.

37.0 WORKING DRAWINGS AND PLANS

37.1 It is expressly understood that approval by the Engineer of the Contractor's working drawings does not relieve the Contractor of any responsibility for accuracy of dimensions and details. It is mutually agreed that the Contractor shall be responsible for agreement and conformity of his/her working drawings with the approved Plans and Specifications. The Contractor shall not attempt to construct the parts of the work for which such detailed drawings are required until he/she has received them with written approval of the Engineer.

37.1.1 The contract price shall include the cost of furnishing all working drawings and the Contractor will be allowed no extra compensation for such drawings.

37.2 Where the word "similar" occurs on the Plans, it shall be interpreted in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection to other parts of the work.

37.3 Where on any of the Plans a portion of the work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other like portions of the work. Where ornament or other detail is indicated by starting only, such detail shall be continued throughout the courses or parts in which it occurs and shall also apply to all other similar parts in the work, unless otherwise indicated.

38.0 SHOP DRAWINGS

38.1 It shall be the Contractor's responsibility to submit shop drawings to the Engineer for approval as set forth in the provisions of the General Conditions, and/or as required by the Specifications. Two (2) copies of shop drawings shall be submitted to the Engineer and two (2) copies of shop drawings shall be submitted to the Grant Administrator. Shop drawings shall be adequately prepared to properly indicate the manufacturer; the type, size and related capacity of the item; the materials of which it is fabricated; and sufficient assembly details to determine if the product meets the stipulated specification.

38.2 Submittals on Thermofax or other instant copy reproduction methods that are subject to fading will not be acceptable. Submittal of brochures, catalog pages or other material listing more than one size, color, model, capacity, etc., shall be marked to indicate the exact item offered for approval.

38.3 The Contractor shall submit all drawings and schedules sufficiently in advance of construction requirements to allow ample time for checking, correcting, resubmitting and rechecking. No claim by the Contractor for delays arising from his/her failure in this respect shall be allowed.

38.4 All shop drawings submitted must bear the stamp of approval of the Contractor as evidence that the drawings have been checked by the Contractor. Any drawings submitted without this stamp of approval shall not be considered and will be returned to the Contractor for resubmission. If the shop drawings show variations from the requirements of the Specifications because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his/her letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment; otherwise, the Contractor shall not be relieved of the responsibility for executing the work in accordance with the Specifications even though such shop drawings have been approved.

38.5 Where a shop drawing as submitted by the Contractor indicates a departure from the Contract which the Engineer deems to be a minor adjustment in the interest of the Owner and which does not involve a change in the Contract Price or extension of time, the Engineer may approve the drawing.

38.6 The approval by the Engineer of shop drawings will be general and shall not relieve the Contractor from the responsibility for adherence to the Contract, nor shall it relieve him/her of the responsibility for any error which may exist.

39.0 MANUFACTURER'S CERTIFICATE OF COMPLIANCE

39.1 Certain items to be furnished under this Contract are specified in the Specifications to conform to a standard specification. Approval of use of these items requires submission to the Engineer of the manufacturer's certificate verifying compliance with the indicated specification. This is to be submitted in addition to the required shop drawings as specified in the Paragraph 4.0 of the General Conditions.

40.0 CONTRACTOR SERVICES

40.1 The Contractor shall provide qualified persons to assist the Engineer in making field checks, measurements, as-built checks, inspections, test runs and the necessary work related to the project work.

41.0 WAIVER

41.1 It is expressly understood and agreed that any waiver granted by the Engineer or the Owner of any term, provision or covenant of this Contract shall not constitute a precedent nor breach of the same or any other terms, provisions or covenants of this Contract.

42.0 CONTRACTOR'S RESPONSIBILITY FOR WORK

42.1 Until acceptance of the work by the Owner, it shall be under the charge and care of the Contractor and he/she shall take every necessary precaution against injury or damage to the work by the action of the elements or from any other cause whatsoever, including but without being limited to injury or damage arising from the execution or from the nonexecution of the work. The Contractor shall rebuild, repair, restore and make good, at his/her own expense, all injuries or damages to any portion of the work occasioned by any of the above causes before its completion and acceptance.

43.0 ACCEPTANCE

43.1 Final inspection and acceptance of the work shall be made for the Owner by the Engineer. Such inspection shall be made as soon as practical after the Contractor has notified the Owner in writing that the work is ready for such inspection.

44.0 FINAL ESTIMATES

44.1 Upon the completion and acceptance of the work, the Engineer shall issue a certificate that the whole work provided for in this Contract has been completed and accepted by him/her under the conditions and terms thereof and shall make the final estimate of the work. After issuance of the certificate, the entire balance found to be due the Contractor, including said retained percentage but excepting such sums as may be retained lawfully by said Owner, shall be paid to the Contractor by the Owner in accordance with existing State laws. Before the approval of the final estimate, the Contractor shall submit evidence satisfactory to the Owner that all payrolls, material bills and outstanding indebtedness in connection with this Contract have been paid.

45.0 RIGHT OF RECOVERY

45.1 Should an error be discovered in the partial or final estimates after the final payment has been made, the Owner reserves the right to claim and recover by process of law such sums as may be sufficient to correct the error.

46.0 CHEMICALS

46.1 All chemicals used during Project construction or furnished for Project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either U.S. Environmental Protection Agency or U.S. Department of Agriculture. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

47.0 SILTATION AND EROSION

47.1 The Contractor shall take steps and make suitable provisions to minimize siltation and erosion which may result from, or as a result of, his/her operations during the course of construction of this Project.

48.0 CERTIFICATES OF INSURANCE

48.1 Certificates of Insurance acceptable to the Owner shall be filed by the Contractor with the Owner prior to commencement of the work. These certificates shall contain a provision that should coverages afforded under the policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail ten (10) days written notice to the Owner.

48.2 The Contractor shall either (1) require each of his/her Subcontractors to procure and to maintain during the life of his/her Subcontract, Subcontractor's Public Liability, Vehicle Liability and Property Damage of the type and in the same amounts as specified in the subsequent paragraphs, or (2) insure the activities of his/her Subcontractors in his/her own policy.

48.3 Insurance and bonds as specified in Paragraph 18.0 of the General Conditions, shall conform to and shall be issued by companies meeting the following requirements:

(a) The company must be admitted to do business in the State of Florida, shall have been in business and have a record of successful, continuous operation for at least five (5) years, and shall be listed in the latest edition of the U.S. Department of the Treasury Circular No. 570. A copy of the latest edition of Treasury Circular No. 570 is included in Section C.

(b) The surety company shall have at least the following minimum rating as listed in Best's financial rating:

Contract Amount	Required Financial Rating	Required Minimum Surplus
less than $500,000	BBBB+	$3,750,000
$500,000 to $1,000,000	AA	$5,999,000

(c) Insurance and bonds shall be secured through an agent doing business in the State of Florida.

(d) The Contractor shall not commence work under this Contract nor shall he/she allow any Subcontractor to commence work until the Contractor has obtained all the insurance required under Paragraph 18.0 of the General Conditions, and such insurance has been approved by the Owner.

49.0 COMMUNICATIONS

49.1 All notices, demands, requests, instructions, approvals, proposals and claims must be in writing.

49.2 Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may from time to time designate in writing to the Owner) or if deposited in the United States mail in a sealed, postage-prepaid envelope addressed to such office.

49.3 All papers required to be delivered to the Owner shall, unless otherwise specified in writing to the Contractor, be delivered to the Jerome Wyche, City Manager, at the 321 Southwest Rutledge Street, Madison, FL 32340, and any notice to or demand upon the Owner shall be sufficiently given if so delivered, or if deposited in the United States mail in a sealed, postage prepaid envelope to said Owner at such address, or to such other address as the Owner may subsequently specify in writing to the Contractor for such purpose.

49.4 Any such notice shall be deemed to have been given as of the time of actual delivery or (in the case of mailing when the same should have been received in due course of post, as the case may be).

49.5 Copies of all written communications including but not limited to all required documents, certifications, payrolls, schedules and plans, submitted by the Contractor to the Owner or Engineer must also be copied to the Grant Administrator and addressed as follows: North Central Florida Regional Planning Council, Attention: Scott R. Koons, Executive Director, AICP, 2009 NW 67th Place, Gainesville, FL 32653-1603.

50.0 AGE DISCRIMINATION ACT OF 1975

50.1 Under 42 U.S.C. et. seq. and 45 CFR 9l, no person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or actively receiving Federal financial assistance.

51.0 REHABILITATION ACT OF 1973 (SECTION 504)

51.1 Under 29 U.S.C. 794 and 45 CFR 84, no otherwise qualified handicapped individual shall, solely by reason of his/her handicap, be denied the benefits of, be excluded from participation in, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

52.0 ARCHITECTURAL BARRIERS ACT OF 1968

52.1 Under the Architectural Barriers Act of 1968 all Federal funded construction shall be so designed as to be accessible to the physically handicapped. This Act shall be applicable to any building or facility, the intended use of which either will require that it (a) be accessible to the public or (b) result in the employment or residence therein of a physically handicapped persons.

53.0 LEAD-BASED PAINT POISONING PREVENTION ACT

53.1 Under P.L. 91-695 as amended by P.L. 93-151 and P.L. 94-317, no lead based paint shall be used in the course of work done under the Community Development Block Grant Program.

54.0 TITLE VIII OF THE CIVIL RIGHTS ACT OF 1968

54.1 Under P.L. 90-284, as amended, there shall be no discrimination on the basis of race, color, religion, sex or national origin in the sale or rental of housing.

55.0 EXECUTIVE ORDER 11063, EQUAL OPPORTUNITY IN HOUSING

55.1 Under Executive Order 11063, which is amended by Executive Order 12259, no person shall be discriminated against because of race, color, creed or national origin in housing owned or operated by the Federal government or provided with federal assistance.

56.0 PROTECTION OF WETLANDS AND FLOOD PLAIN MANAGEMENT

56.1 Flood Disaster Protection Act of 1973: None

56.2 National Flood Insurance Act of 1968: None

57.0 TRAFFIC CONTROL PLAN

If any part of the Project as described within the Contract Documents is to be undertaken within Florida Department of Transportation right-of-way, a Traffic Control Plan as hereinafter described shall be required of the Contractor. Within ten (10) calendar days of execution of the Contract, the Contractor shall submit to the Engineer for review and approval a Traffic Control Plan prepared, signed and sealed by a Professional Engineer registered in the State of Florida. Failure by the Contractor to submit said Traffic Control Plan to the Engineer within ten (10) calendar days of execution of the Contract shall result in the Contractor being subject to the assessment by the Owner of liquidated damages in the sum of Five Hundred Dollars and No Cents ($500.00) for each calendar day thereafter. The Traffic Control Plan shall be prepared in accordance with the requirements guidance and standards set forth in the Florida Department of

Transportation Roadway and Traffic Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System, Latest Edition. The Traffic Control Plan shall be based on Indexes 600-660 Traffic Control Through Work Zones. The Traffic Control Plan shall be submitted by the Engineer to the Florida Department of Transportation for review, comment and approval. The Contractor shall not proceed with the work until the Florida Department of Transportation has approved the Traffic Control Plan.

58.0 ENERGY EFFICIENCY

The contractor shall comply with any mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

59.0 CULTURAL RESOURCES PLAN

The contractor shall comply with the City Community Development Block Grant Program Cultural Resource Plan, which requires that any cultural resource, defined as prehistoric or historic artifacts or physical remains associated with Native American cultures or early colonial or American settlement, found during excavation, demolition or construction of the project site shall require the contractor, or his agents, to immediately notify the City Manager. In addition, any unmarked human remains found shall be handled in conformance with Section 872.05, Florida Statutes, which requires the immediate notification of local law enforcement.

60.0 CONFLICTING CONDITIONS

Any provisions in any of the Contract Documents which may be in conflict or inconsistent with any of the paragraphs in these Supplemental General Conditions shall be void to the extent of such conflict or inconsistency.

61.0 BUY AMERICAN

The Contractor acknowledges to and for the benefit of the City of Madison that it understands the goods and services under this Agreement are being funded with monies made available by the American Reinvestment and Recovery Act of 2009 (Recovery Act) and section 1605 of such law contains provisions commonly known as “Buy American.” The Buy American requirement prohibits the use of Recovery Act funds for a project for the construction, alteration, maintenance, or repair of a public building or public work unless all of the iron, steel, and manufactured goods used in the project are produced in the United States (“Buy American requirement”) including iron, steel, and manufactured goods provided by the Contractor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the HUD grantee that (a) the Contractor has reviewed and understands the Buy American requirement, (b) all of the iron, steel, and manufactured goods used in the project will be and/or have been produced in the United States in a manner that complies with the Buy American requirement, unless an exception to the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of

compliance with this paragraph, or information necessary to support an exception to the Buy American requirement, as may be requested by the HUD grantee or HUD. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the HUD grantee to recover as damages against the Contractor any loss, expense or cost (including without limitation attorney's fees) incurred by the HUD grantee resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part from HUD). Neither this paragraph (nor any provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the HUD grantee.

Sample Certification that HUD grantees may require from a contractor or bidder

1. Identification of American-made Iron, Steel, and Manufactured Goods: Consistent with the terms of the HUD grantee's bid solicitation and the provisions of Section 1605 of the Recovery Act, the Bidder certifies that this bid reflects the Bidder's best, good faith effort to identify domestic sources of iron, steel, and manufactured goods for every component contained in the bid solicitation where such American-made components are available on the schedule and consistent with the deadlines prescribed in or required by the bid solicitation.

2. Verification of U.S. Production: The Bidder certifies that all components contained in the bid solicitation that are American-made have been so identified, and if this bid is accepted, the Bidder agrees that it will provide reasonable, sufficient, and timely verification to the HUD grantee of the U.S. production of each component so identified.

3. Documentation Regarding Non-American-made Iron, Steel, or Manufactured Goods: The Bidder certifies that for any component or components that are not American-made and are so identified in this bid, the Bidder has included in or attached to this bid one or both of the following, as applicable:

   I. Identification of and citation to a categorical exception published by HUD (or another Federal agency) in the Federal Register that is applicable to such component or components, and an analysis that supports its applicability to the component or components;

   II. Verifiable documentation sufficient to the HUD grantee, as required in the bid solicitation or otherwise, that the Bidder has sought to secure American-made components but has determined that such components are not available on schedule and consistent with the deadlines prescribed in the bid solicitation, with assurance adequate from the Bidder under applicable conditions stated in the bid solicitation or otherwise.

4. Information and Detailed Justification Regarding Non-American-made Iron, Steel, or Manufactured Goods: The Bidder certifies that for any such component or components

that are not so available, the Bidder has also provided in or attached to this bid information, including but not limited to the verifiable documentation and a full description of the bidder's efforts to secure any such American-made component or components, that the Bidder believes are sufficient to provide and as far as possible constitute the detailed justification required for an exception under section 1605 with respect to such component or components. The Bidder further agrees that, if this bid is accepted, it will assist the HUD grantee in amending, supplementing or further supporting such information as required by the HUD grantee to request and, as applicable, implement the terms of an exception with respect to any such component or components.

The supplemental conditions contained in this section are intended to cooperate with, to supplement, and to modify the general conditions and other specifications. In case of disagreement with any other section of this contract, the Supplemental Conditions shall govern.

1. Termination (Cause and Convenience)
2. Access to Records
3. Retention of Records
4. Remedies
5. Environmental Compliance (Clean Air Act and Clean Water Act)
6. Energy Efficiency
7. Special Equal Opportunity Provisions
8. Conflict of Interest
9. Utilization of Minority and Women's Businesses
10. Federal Labor Standards Provisions (Davis-Bacon, Copeland, and Contract Work Hours Act)
11. Guidance to Contractor for Compliance with Labor Standards Provisions
12. E-Verify

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1. Termination (Cause and Convenience)

A. This contract may be terminated in whole or in part in writing by either party in the event of substantial failure by the other party to fulfill its obligations under this contract through no fault of the terminating party, provided that no termination may be effected unless the other party is given:

(1) not less than ten (10) calendar days written notice (delivered by certified mail, return receipt requested) of intent to terminate; and

(2) an opportunity for consultation with the terminating party prior to termination.

B. This contract may be terminated in whole or in part in writing by the local government for its convenience, provided that the other party is afforded the same notice and consultation opportunity specified in l(a) above.

C. If termination for default is effected by the local government, an equitable adjustment in the price for this contract shall be made, but

(l) no amount shall be allowed for anticipated profit on unperformed services or other work, and

(2) any payment due to the contractor at the time of termination may be adjusted to cover any additional costs to the local government because of the contractor's default.

If termination for convenience is effected by the local government, the equitable adjustment shall include a reasonable profit for services or other work performed for which profit has not already been included in an invoice.

For any termination, the equitable adjustment shall provide for payment to the contractor for services rendered and expenses incurred prior to receipt of the notice of intent to terminate, in addition to termination settlement costs reasonably incurred by the contractor relating to commitments (e.g., suppliers, subcontractors) which had become firm prior to receipt of the notice of intent to terminate.

D. Upon receipt of a termination action under paragraphs (a) or (b) above, the contractor shall (1) promptly discontinue all affected work (unless the notice directs otherwise) and (2) deliver or otherwise make available to the local government all data, drawings, reports specifications, summaries and other such information, as may have been accumulated by the contractor in performing this contract, whether completed or in process.

E. Upon termination, the local government may take over the work and may award another party a contract to complete the work described in this contract.

F. If, after termination for failure of the contractor to fulfill contractual obligations, it is determined that the contractor had not failed to fulfill contractual obligations, the termination shall be deemed to have been for the convenience of the local government. In such event, adjustment of the contract price shall be made as provided in paragraph (c) above.

2. **Access to Records**

The local government, the Florida Department of Economic Opportunity, the U.S. Department of Housing and Urban Development, the Comptroller General of the United States, the Chief Financial Officer of the State of Florida, the Auditor General of the State of Florida, the Florida Office of Program Policy Analysis and Government Accountability, and any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the contractor which are directly pertinent to this contract for the purpose of making audit, examination, excerpts, and transcriptions.

3. **Retention of Records**

The contractor shall retain all records relating to this contract for six years after the local government makes final payment and all other pending matters are closed.

4. **Remedies**

Unless otherwise provided in this contract, all claims, counter-claims, disputes and other matters in question between the local government and the contractor, arising out of or relating to this contract, or the breach of it, will be decided by arbitration, if the parties mutually agree, or in a Florida court of competent jurisdiction.

5. **Environmental Compliance**

If this contract exceeds $100,000, the contractor shall comply with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 USC 1857(h), section 508 of the Clean Water Act (33 USC 1368), Executive Order 11738, and U.S. Environmental Protection Agency regulations (40 CFR Part 15). The contractor shall include this clause in any subcontracts over $100,000.

6. **Energy Efficiency**

The contractor shall comply with any mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

7. **Special Equal Opportunity Provisions**

A. Activities and Contracts Not Subject to Executive Order 11246, as Amended

(Applicable to Federally assisted construction contracts and related subcontracts $10,000 and under.)

During the performance of this contract, the contractor agrees as follows:

(1) The contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor shall take affirmative action to ensure that applicants for employment are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to, the following: 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.

(2) The contractor shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by Contracting Officer seeking forth the provisions of this nondiscrimination clause. The contractor shall state that all qualified applicants be considered without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) Contractors shall incorporate foregoing requirements in all subcontracts.

B. Executive Order 11246, as Amended (through 2014), Section 202 Equal Opportunity Clause (Applicable to contracts/subcontracts above $10,000)

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: 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 to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advancements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information."

(4) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The contractor will comply with all provisions of Executive Order No. 11246 of Sept. 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of Sept. 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The contractor will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

(C) Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246). (Applicable to contracts/subcontracts exceeding $10,000.)

(a) The Offerer's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

(b) The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Female participation: 6.9% (statewide)

Minority participation (See Appendix at CDBG-25 for goals for each county)

These goals are applicable to all Contractor's construction work (whether or not it is federally-assisted) performed in the covered area. If the Contractor performs construction work in a geographic area located outside of the covered area, it shall apply the goals established for such geographic area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a), and its efforts to meet the goals established or the geographic area where the contract resulting from his solicitation is to be performed. The hours of minority and female employment or training must be substantially uniform throughout the length of the contract and in each trade the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

(c) The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

(d) As used in this Notice, and in the contract resulting from the solicitation, the "covered area" is the county in which the contract work is being undertaken.

(D) **41 CFR 60-4.3. Equal Opportunity Clauses**

(a) The equal opportunity clause published at 41 CFR 60-1.4(a) of this chapter is required to be included in, and is part of, all nonexempt Federal contracts and subcontracts, including construction contracts and subcontracts. The equal opportunity clause published at 41 CFR 60-1.4(b) is required to be included in, and is a part of, all nonexempt federally assisted construction contracts and subcontracts. In addition to the clauses described above, all Federal contracting officers, all applicants and all nonconstruction contractors, as applicable, shall include the specifications set forth in this section in all Federal and federally assisted construction contracts in excess of $10,000 to be performed in geographical areas designated by the Director pursuant to § 60-4.6 of this part and in construction subcontracts in excess of $10,000 necessary in whole or in part to the performance of nonconstruction Federal contracts and subcontracts covered under the Executive order.

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246).

1. As used in these specifications:

   A. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

   B. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

   C. "Employer identification number" means the Federal Social Security number used on the Employer's quarterly Federal Tax Return, U. S. Treasury Department Form 941.

   D. "Minority" includes:

      (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

      (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

      (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Island); and

      (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The contractor shall implement the specific affirmative action standards provided in paragraphs 7.A. through P. of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in geographical areas where they do not have a federal or federally-assisted construction contract shall apply the minority and female goals established for the geographic area where the contract is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

   (a) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

   (b) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

   (c) Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the contractor may have taken.

   (d) Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or woman sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

(e) Develop on-the-job training opportunities and/or participate in training programs for the areas which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7.(b) above.

(f) Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

(g) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with on-site supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(h) Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

(i) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female recruitment students and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(j) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a contractor's work force.

(k) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR 60-3.

(l) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

(m) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

(n) Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

(o) Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(p) Conduct a review, at least annually, of all supervisors' adherence to and performance under the contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations 7.(a) through (p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7.(a) through (p) of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

9. A single goal for minorities and separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally, the contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The contractor shall not enter into any subcontract with any person or firm debarred from government contracts pursuant to Executive Order 11246.

12. The contractor shall carry out sections and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensively as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its effort to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee, the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance and upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

E. Certification of Non-Segregated Facilities (Contracts over $10,000)

The contractor does not maintain or provide for its employees any segregated facilities at any of its establishments, and does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The contractor certifies further that it will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it will not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract.

As used in this certification, "segregated facilities" mean any waiting rooms, work areas, rest rooms and wash rooms, restaurants, and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise.

The contractor further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) it will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause; that it will retain such certifications in its files; and that it will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods) .

F. Civil Rights Act of 1964

Under Title VI of the Civil Rights Act of 1964, no person shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

G. Section 109 of the Housing and Community Development Act of 1974

No person in the United States shall on the grounds of race, color, national original, religion or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this title.

H. "Section 3" Compliance in the Provision of Training, Employment and Business Opportunities

(1) The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 USC 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

(2) The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 135 regulations.

(3) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

(4) The contractor agrees to include this Section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 135.

(5) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 135.

(6) Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

(7) With respect to work performed in connection with Section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 USC 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with Section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

I. Section 503 Handicapped (Contracts $2,500 or more)

(1) The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as the following: employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

(2) The Contractor agrees to comply with the rules, regulations and relevant orders of the Secretary of Labor issued pursuant to the Act.

(3) In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(4) The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the contracting officer. Such notices shall state the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped employees and applicants for employment, and the rights of applicants and employees.

(5) The contractor will notify each labor union or representative of workers with which it has a collective bargaining agreement or their contract understanding, that the contractor is bound by the terms of Section 503 of the Rehabilitation Act of 1973, and is committed to take affirmative action to employ and advance in employment physically and mentally handicapped individuals.

(6) The contractor will include the provisions of this clause in every subcontract or purchase order of $2,500 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to Section 503 of the Act, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for noncompliance.

J. Age Discrimination in Employment Act of 1967, as Amended

It shall be unlawful for an employer-

(1) to fail or refuse to hire or to discharge any individual or otherwise discriminate against any individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's age;

(2) to limit, segregate, or classify his employees in any way which would deprive or tend to deprive any individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's age; or

(3 to reduce the wage rate of any employee in order to comply with this chapter.

K. Title II of the Genetic Information Nondiscrimination Act of 2008 (GINA)

(1) Under Title II of the Genetic Information Nondiscrimination Act, it is illegal to discriminate against employees or applicants because of genetic information. Employers are prohibited from using genetic information in making employment decisions. GINA restricts employers and other entities covered by Title II (employment agencies, labor organizations and joint labor-management training and apprenticeship programs - referred to as "covered entities") from requesting, requiring or purchasing genetic information, and strictly limits the disclosure of genetic information.

The law forbids discrimination on the basis of genetic information when it comes to any aspect of employment, including hiring, firing, pay, job assignments, promotions, layoffs, training, fringe benefits, or any other term or condition of employment.

(2) "Genetic information" includes information about an individual's genetic tests and the genetic tests of an individual's family members, as well as information about the manifestation of a disease or disorder in an individual's family members (i.e. family medical history). Family medical history is included in the definition of genetic information because it is often used to determine whether someone has an increased risk of getting a disease, disorder, or condition in the future.

8. <u>Conflict of Interest of Officers or Employees of the Local Jurisdiction, Members of the Local Governing Body, or Other Public Officials</u>

No officer or employee of the local jurisdiction or its designees or agents, no member of the governing body, and no other public official of the locality who exercises any function or responsibility with respect to this contract, during his/her tenure or for one year thereafter, shall have any interest, direct or indirect, in any contract or subcontract, or the proceeds thereof, for work to be performed. Further, the contractor shall cause to be incorporated in all subcontracts the language set forth in this paragraph prohibiting conflict of interest.

9. Utilization of Minority and Women Firms (M/WBE)

The contractor shall take all necessary affirmative steps to assure that M/WBE firms are utilized when possible as suppliers and/or subcontractors, as applicable. Prior to contract award, the contractor shall document efforts to utilize M/WBE firms, including identifying what firms were solicited as suppliers and/or subcontractors, as applicable. Information regarding certified M/WBE firms can be obtained from:

- Florida Department of Management Services, Office of Supplier Diversity,
- Florida Department of Transportation (construction services, particularly highway),
- Minority Business Development Center in most major cities, and
- Local government M/WBE programs in many large counties and cities.

A firm recognized as an M/WBE by any of the above agencies is acceptable for the CDBG program.

10. Federal Labor Standards Provisions

(Davis-Bacon Act, Copeland Act, and Contract Works Hours & Safety Standards Act) The Project to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. (1) (a) Minimum Wages. All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(b) (i) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits; therefore, only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(ii) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, employment Standards Administration, U. S. Department of Labor, Washington, D. C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(iii) In the event that the Contractor, the laborers or mechanics to be employed in the Classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designed for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that the additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(iv) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (b)(ii) or (iii) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(c) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(d) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(2) Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, HUD, or its designee may, after written notice to the contractor, sponsor, applicant, or owners, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

(3) (a) Payrolls and Basic Records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017).

(b) (i) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owners, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(I). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U. S. Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149).

(ii) Each payroll submitted shall be accompanied by a "Statement of Compliance", signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5 (a)(3)(I) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(iii) The weekly submission of a properly executed certification set forth on the reverse side of Option Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph A(3)(b)(ii) of this section.

(iv) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(c) The contractor or subcontractor shall make the records required under paragraph A(3)(a) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

(4) (a) Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program, shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with the determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U. S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program the contract will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(5) Compliance with Copeland Act Requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contract shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

(7) Contract Termination, Debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3 and 5 are herein incorporated by referenced in this contract.

(9) Disputes Concerning Labor Standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U. S. Department of Labor (USDOL)set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the USDOL, or the employees or their representatives.

(10) (a) Certification of Eligibility. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(b) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(c) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 USC 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, USC, "Federal Housing Administration transactions", provides in part "Whoever, for the purpose of ... influencing in any way the action of such Administration ... makes, utters or publishes any statement, knowing the same to be false ... shall be fined not more than $5,000 or imprisoned not more than two years, or both."

(11) Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this contract are applicable shall be discharged or in any other manner discriminated against by the contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this contract to his employer.

B. Contract Work Hours and Safety Standards Act. As used in the paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act , which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54.83 State 96).

(3) The contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

11. Guidance to Contractor for Compliance with Labor Standards Provisions

A. Contracts with Two Wage Decisions

If the contract includes two wage decisions, the contractor, and each subcontractor who works on the site, must submit either two separate payrolls (one for each wage decision) or one payroll which identifies each worker twice and the hours worked under each wage decision. One single payroll, reflecting each worker once, may be submitted provided the Contractor uses the higher rate in the wage decisions for each identical job classification. However, where a job classification is not listed in a wage decision and is needed for that portion of the work, the classification **must** be added to the wage decision. A worker may not be paid at the rate for a classification using the hourly rate for that same classification in another wage decision. After the additional classification is approved, the contractor may pay the higher of the two rates and submit one payroll, if desired.

B. Complying with Minimum Hourly Amounts

(1) The minimum hourly amount due to a worker in each classification is the total of the amounts in the "Rates" and "Fringe Benefits" (if any) columns of the applicable wage decision.

(2) The contractor may satisfy this minimum hourly amount by any combination of cash and bona fide fringe benefits, regardless of the individual amounts reflected in the "Rates" and "Fringe Benefits" columns.

(3) A contractor payment for a worker which is required by law is not a fringe benefit in meeting the minimum hourly amount due under the applicable wage decision. For example, contractor payments for FICA or unemployment insurance are not a fringe benefit; however, contractor payments for health insurance or retirement are a fringe benefit. Generally, a fringe benefit is bona fide if (a) it is available to most workers and (b) involves payments to a third party.

(4) The hourly value of the fringe benefit is calculated by dividing the contractor's annual cost (excluding any amount contributed by the worker) for the fringe benefit by 2080. Therefore, for workers with overtime, an additional payment may be required to meet the minimum hourly wages since generally fringe benefits have no value for any time worked over 40 hours weekly. (If a worker is paid more than the minimum rates required by the wage decision, this should not be a problem. As long as the total wages received by a worker for straight time equals the hours worked times the minimum hourly rate in the wage decision, the requirement of the Davis-Bacon and Related Acts has been satisfied.)

C. Overtime

For any project work over 40 hours weekly, a worker generally must be paid 150% of the actual hourly cash rate received, not the minimum required by the wage decision. (The Davis-Bacon and related acts only establish minimum rates and does not address overtime; the Contract Work Hours Act contains the overtime requirement and uses "basic rate of pay" as the base for calculation, not the minimum rates established by the Davis-Bacon and related acts.)

D. Deductions

Workers who have deductions, not required by law, from their pay must authorize these deductions in writing. The authorization must identify the purpose of each deduction and the amount, which may be a specific dollar amount or a percentage. A copy of the authorization must be submitted with the first payroll containing the deduction. If deducted amounts increase, another authorization must be submitted. If deducted amounts decrease, no revision to the original authorization is needed. Court-ordered deductions, such as child support, may be identified by the responsible payroll person in a separate document. This document should identify the worker, the amount deducted and the purpose. A copy of the court order should be submitted.

E. Classifications Not Included in the Wage Decision

If a classification not in the wage decision is required, please advise the owner's representative in writing and identify the job classification(s) required. In some instances, the State agency may allow the use of a similar classification in the wage decision.

Otherwise, the contractor and affected workers must agree on a minimum rate, which cannot be lower than the lowest rate for any trade in the wage decision. Laborers (including any subcategory of the laborer classification) and truck drivers are not considered a trade for this purpose. If the classification involves a power equipment operator, the minimum cannot be lower than the lowest rate for any power equipment operator in the wage decision. The owner will provide forms to document agreement on the minimum rate by the affected workers and contractor.

The USDOL must approve the proposed classification and rate. The contractor may pay the proposed rate until the USDOL makes a determination. Should the USDOL require a higher rate, the contractor must make wage restitution to the affected worker(s) for all hours worked under the proposed rate.

F. Supervisory Personnel

Foremen and other supervisory personnel who spend at least 80% of their time supervising workers are not covered by the Davis-Bacon and Related Acts. Therefore, a wage decision will not include such supervisory classifications and their wages are not subject to any minimums under the Davis-Bacon and Related Act or overtime payments under the Contract Work Hours and Safety Standards Act. However, foremen and other supervisory personnel who spend less than 80% of their time engaged in supervisory activities are considered workers/mechanics for the time spent engaged in manual labor and must be paid at least the minimum in the wage decision for the appropriate classification(s) based on the work performed.

G. Sole Proprietorships/Independent Contractors/Leased Workers

The nature of the relationship between a prime contractor and a worker does not affect the requirement to comply with the labor standards provisions of this contract. The applicability of the labor standards provisions is based on the nature of the work performed.

If the work performed is primarily manual in nature, the worker is subject to the labor standards provisions in this contract. For example, if John Smith is the owner of ABC Plumbing and performs all plumbing work himself, then Mr. Smith is subject to the labor standards provisions, including minimum wages and overtime. His status as "owner" is irrelevant for labor standards purposes.

If a worker meets the IRS standards for being an independent contractor, and is employed as such, this means that the worker must submit a separate payroll as a subcontractor rather than be included on some other payroll. The worker is still subject to the labor standards provisions in this contract, including minimum wages and overtime.

If a contractor or subcontractor leases its workers, they are subject to the labor standards provisions in this contract, including minimum wages and overtime. The leasing firm must submit payrolls and these payrolls must reflect information required to determine compliance with the labor standards provisions of this contract, including a classification for each worker based on the nature of the work performed, number of regular hours worked, and number of overtime hours worked.

H. Apprentices/Helpers

A worker may be classified as an apprentice **only if participating in a federal or state program**. Documentation of participation must be submitted. Generally, the apprentice program specifies that the apprentice will be compensated at a percentage of the journeyman rate. For Davis-Bacon Act purposes, the hourly rate cannot be lower than the percentage of the hourly rate for the classification in the applicable wage decision.

If the worker does not participate in a federal or state apprentice program, then the worker must be classified according to duties performed. This procedure may require classification in the "trade" depending on tools used, or as a laborer if specialized tools of the trade are not used. The contractor may want to consult with the Wage and Hour Division of the U.S. Department of Labor located in most large cities regarding the appropriate classification.

Presently, no worker may be classified as a "helper". As with apprentices not participating in a formal apprentice program, the worker must be classified according to duties performed and tools used.

12. E-Verify

Contractors and subcontractors performing work funded by CDBG subgrants are required to enroll in the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees that they hire during the term of their contracts under Executive Order 11-116, signed by the Governor of Florida on May 27, 2011.

(a) E-Verify is an Internet-based system that allows businesses to determine the eligibility of their employees to work in the United States. A contractor or subcontractor that has not signed up for E-Verify and executed a memorandum of understanding with the Department of Homeland Security can enroll in the E-Verify system on the Department of Homeland Security's website listed below:

http://www.uscis.gov/e-verify/e-verify-enrollment-page

(b) Contractors and subcontractors shall enroll in the E-Verify system prior to hiring any new employee after the effective date of their contracts to perform work on CDBG-funded projects. The address for obtaining an Employer Memorandum of Understanding is:

http://www.uscis.gov/sites/default/files/USCIS/Verification/E-Verify/E-Verify_Native_Documents/MOU_for_E-Verify_Employer.pdf

(c) The Department of Homeland Security offers tutorials and other assistance at the web address below:

http://www.uscis.gov/e-verify/you-start

Appendix
Minority Participation Goals

These are the goals, by county, for meeting the minority participation portion of Section 7-B(2)(b) of the CDBG Supplemental Conditions. These are contractor workforce goals, not goals for subcontracting to minority and women firms. Solicitation of minority and women firms as subcontractors is a separate federal requirement which the contractor must document compliance with.

Tampa-St. Petersburg Area	Percentage
Hillsborough, Pinellas, Pasco	17.9
Charlotte, Citrus, Collier, DeSoto, Hardee, Hernando, & Highlands (all seven counties)	17.1
Lee	15.3
Manatee	15.9
Polk	18.0
Sarasota	10.5
Tallahassee Area	
Leon, Wakulla	24.3
Calhoun, Franklin, Gadsden, Jackson, Jefferson, Liberty, Madison, & Taylor (all eight counties)	29.5
Pensacola - Panama City Area	
Bay	14.1
Escambia, Santa Rosa	18.3
Gulf, Holmes, Okaloosa, Walton, & Washington (all five counties)	15.4
Jacksonville Area	
Alachua	20.6
Baker, Clay, Duval, Nassau, & St. Johns	21.8
Bradford, Columbia, Dixie, Gilchrist	22.2
Hamilton, Lafayette, Levy, Marion, Putnam, Suwannee, & Union (all 11 counties)	

Orlando - Daytona Beach Area	Percentage
Volusia	15.7
Brevard	10.7
Orange, Osceola, & Seminole (all three counties)	15.5
Flagler, Lake, & Sumter (all three counties)	14.9
Miami - Fort Lauderdale Area	
Dade	39.5
Broward	15.5
Palm Beach	22.4
Glades, Hendry, Indian River, Monroe, Okeechobee, Martin, & St. Lucie (all seven counties)	30.4

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SECTION F

CONTRACT DOCUMENTS

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SECTION F

CONTRACT DOCUMENTS

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1.0 PROPOSAL AND BID FORM

This is the Proposal of:

_____

_____

_____

City of Madison
FY16 COMMUNITY DEVELOPMENT
BLOCK GRANT
NO. 18DB-OM-03-50-02-N 33

_____
Date

PROPOSAL AND BID FORM
(Submit in Triplicate, One Original with Original Signatures and Two Copies)

To: City of Madison
321 Southwest Rutledge Street
Madison, FL 32340

The undersigned, having familiarized himself/herself with the product(s) and the services affecting the cost of the work, and with the Contract Documents (which includes Invitation for Bids, Instructions to Bidders, the Form of Bid, Form of Noncollusion Affidavit, the Form of the Bid Bond, the Performance Bond, Payment Bond, the Form of Contract (or Agreement), Addenda (if any), General Conditions, Special Conditions, Plans (as listed in the Schedule of Plans), and Specifications, as prepared by Madison Engineering, 269 NE Ridge Loop, Madison, FL 32340 850.973.7864, and on file in the Office of the City Manager, 321 Southwest Rutledge Street, Madison, FL 32340, hereby proposes to furnish all supervision, technical personnel, labor, material, machinery, tools, appurtenances, equipment and services, including utility and transportation services required to construct and complete the City of Madison Neighborhood Revitalization Project FY 2016 Community Development Block Grant, Florida Department of Economic Opportunity Contract No. 18DB-OM-03-50-02-N 33, all in accordance with the above listed documents, at and for the prices for work in place for the following items:

(Page intentionally left blank)

1.0 PROPOSAL AND BID FORM (Continued)

City of Madison - Sanitary Sewer Improvements

1.01) BASE BID PROPOSAL: BIDDER will complete the Work for the following prices(s):

Note: (a) Quantities are not guaranteed and are solely for the purpose of comparison of Bids and determination of initial Contract Price. Final payment will be based on actual quantities.
(b) There is no separate bid item for the Bidder's profit and `soft' costs, such as: insurance; bonds; management and administrative overhead; on site construction offices (with equipment); survey layout; etc. The costs of these items shall be included pro rata in each bid item.
(c) There is no separate bid item for fill. If any fill is required, the cost of this item shall be included pro rata in each bid item.

Bidder agrees to furnish all materials, equipment, tools, and labor and to perform all work reasonably necessary for, and incidental to, the construction of the CITY OF MADISON - SANITARY SEWER IMPROVEMENTS. Complete in every respect, including all: mobilization/demobilization; permits; insurance; utilities; traffic maintenance; pumps; electrical; telemetry; piping; equipment; valves; fittings; roadway repair/replacement, backfilling; soil compaction; ground cover; testing; operation and maintenance manuals; As-Built drawings; 1 year warranty services; and all other miscellaneous appurtenances and work as shown on the Drawings, described in the Contract Documents, completed, tested, ready for operation and use, and accepted by the Owner for the prices given below.

1.0 PROPOSAL AND BID FORM (Continued)

City of Madison - Sanitary Sewer Improvements

1.02) Schedule of Prices:

NOTE: BIDS shall include sales tax and all other applicable taxes and fees.

Bidder agrees to perform all the work described in the contract documents for the following lump sum price:

PART A - COMMUNITY DEVELOPMENT BLOCK GRANT FUNDED

Item	Description	Amount
1.	Sanitary Sewer Lines - Oak Estates	$_____
2.	Pumping Station and Force Main - Railroad	$_____
3.	Household Hookups - 28 Hookups @ $ _____ per Hookup	$_____

TOTAL BASE BID - PART A:

_____ ($ _____)
(words and figures)

PART B - CITY FUNDED

Item	Description	Amount
1.	Sanitary Sewer Lines - Martin Luther King, Jr. Drive	$_____

TOTAL BASE BID - PART B:

_____ ($ _____)
(words and figures)

TOTAL BASE BID - PART A AND PART B:

_____ ($ _____)
(words and figures)

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1.0 PROPOSAL AND BID FORM (Continued)

In submitting this Bid, the Bidder understands that the right is reserved by the Owner to reject any and all Bids. If written notice of acceptance of this Bid is mailed, or delivered to the undersigned within sixty (60) days after the opening thereof, or at any time thereafter before this Bid is withdrawn, the undersigned agrees to execute and deliver an agreement in the prescribed form and furnish the required bonds within ten (10) days after the agreement is presented to him/her for signature.

Security in the sum of _____ dollars ($_____) in the form of
_____ is submitted herewith in accordance with the Instructions to Bidders.

Attached hereto is an affidavit in proof that the undersigned has not entered into a collusive agreement with any person in respect to this Bid or any other Bid or the submitting of Bids for the Contract for which this Bid is submitted.

The Bidder is prepared to submit a financial and experience statement upon request.

The Bidder hereby agrees to commence work under this Contract on or before a date to be specified in the Notice to Proceed and to fully complete the Project within the number of calendar days thereafter as specified in Paragraph 7.0 of the Information for Bidders.

The Bidder further agrees to pay as liquidated damages the amount listed in the Contract for each consecutive calendar day thereafter that the work remains incomplete.

The Bidder declares that he/she understands that the quantities shown on the Proposal and Bid Form are approximate only and are subject to either increase or decrease; and that should the quantities of any of the items of work be increased, the undersigned proposes to do the work at the unit price set out herein; and should the quantities be decreased, he/she also understands that payment will be made on the actual quantities installed at the unit bid prices, and will make no claim for anticipated profits for any decrease in the quantities.

(Page intentionally left blank)

1.0 PROPOSAL AND BID FORM (Continued)

_____
Firm Name (Print or Type)

_____
Address (Print or Type)

_____
City State Zip Code

ATTEST:

(SEAL)

_____ _____
Signature Signature

_____ _____
Name and Title (Print or Type) Name and Title of Corporate Officer (Print or Type)

_____
Florida License Number

_____
Federal Employer
Identification Number

I, _____, hereby state that I am in fact the _____
Title (Print or Type)
and have full authority to bind the Corporation.

NOTE: If Contractor is a corporation, Secretary must attest.

(Page intentionally left blank)

ATTACHMENTS CHECKLIST:

THE FOLLOWING ATTACHMENTS AND CERTIFICATIONS MUST BE EXECUTED AND SUBMITTED IN TRIPLICATE, ONE ORIGINAL WITH ORIGINAL SIGNATURES AND TWO COPIES, ALONG WITH THE THREE (3) SETS OF THE BID PROPOSAL. FACSIMILE OR ELECTRONIC MAIL BIDS WILL NOT BE ACCEPTED.

____ Form 1.1 Bid Bond

____ Form 1.2 Noncollusion Affidavit of Prime Bidder

____ Form 1.3 Addenda Receipt Acknowledgment

____ Form 1.4 Bidder's Experience List

____ Form 1.5 Subcontractors List

____ Form 1.6 Minority Businesses and Women Business Enterprises Subcontractor Bid Solicitation List

____ Form 1.7 Manufacturers List

____ Form 4.0 Certification of Bidder (Contractor) Regarding Equal Employment Opportunity

____ Form 5.0 Certification of Bidder (Contractor) Regarding Section 3 and Segregated Facilities

____ Form 6.0 Certification by Bidder (Contractor) Concerning Labor Standards and Prevailing Wage Requirements

____ Form 11.0 Contractor Section 3 Plan

____ Form 12.0 Contractor Debarment Certification

____ Form 13.0 Subcontractor Debarment Certification

____ Form 14.0 Contractor and Subcontractor Section Compliance Information

____ Form 15.0 Drug-Free Workplace Form

____ Form 16.0 Trench Safety Compliance Form

____ From 17.0 Statement of Indemnification Form

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1.1 BID BOND

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned,

_____as,

Principal, and _____as,

Surety, are hereby held and firmly bound unto City of Madison, Florida, as Owner in the penal

sum of _____ Dollars and _____

Cents ($_____) for the payment of which, will and truly to be made, we hereby jointly

and severally bind ourselves, our heirs, executors, administrators, successors and

assigns. Signed, this _____ day of _____ 20___.

The condition of the above obligation is such that whereas the Principal has submitted to the Owner a certain Bid, attached hereto and hereby made a part thereof to enter into a Contract in writing for Sanitary Sewer Improvements.

NOW, THEREFORE,

(a) If said Bid shall be rejected, or in the alternate,

(b) If said Bid shall be accepted and the Principal shall execute and deliver a Contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a Performance Bond and a Payment Bond for his/her faithful performance of said Contract, and for the payment of all persons performing labor or furnishing materials in connection therewith within ten (10) consecutive calendar days after he/she has received written notice of the acceptance of his/her Bid, and shall in all other respects perform the agreement created by the acceptance of said Bid,

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

(Page intentionally left blank)

1.1 BID BOND (Continued)

IN WITNESS WHEREOF, the said _____

as Principal herein, has caused these presents to be signed in its name by its

_____

under its corporate seal, and the said _____ as Surety herein, has

caused these presents to be signed in its name by its _____

and attested in its name by its _____

under its corporate seal, this _____ day of _____ 20_____.

Signed, sealed and delivered in the presence of:

ATTEST:

_____
(PRINCIPAL-CONTRACTOR)

(SEAL)

_____	_____
Signature	Signature
_____	_____
Name and Title (Print or Type)	Name and Title (Print or Type)

ATTEST:

_____
(SURETY)

(SEAL)

_____	_____
Signature	Signature
_____	_____
Name and Title (Print or Type)	Name of Attorney-in-Fact (Print or Type)

_____
Signature

_____
Name of Resident Agent (Print or Type)

NOTE: If Contractor is a corporation, Secretary must attest.

(Page intentionally left blank)

1.2 NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

STATE OF _____

COUNTY OF _____

_____, _____
being first duly sworn, deposes and says that:

(1) He/she is _____ of _____, the Bidder that has submitted the attached Bid:

(2) He/she is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid:

(3) Such Bid is genuine and is not a collusive or sham Bid:

(4) Neither said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Owner or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of his/her agents, representatives, owners, employees or parties in interest, including this affiant.

_____ _____
Signature Date

_____
Name and Title (Print or Type)

Subscribed and sworn to before the undersigned, a Notary Public for the State of Florida this _____ day of _____, 20_____.

_____
(Notary Public)

My commission expires _____

.

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1.3 ADDENDA RECEIPT ACKNOWLEDGMENT

Receipt is hereby acknowledged of any addenda issued for Project No. 18DB-OM-03-50-02-N 33

Addendum No.	Date	Initials

1.4 BIDDER'S EXPERIENCE LIST

The following are contracts similar in scope and magnitude to this Project which the Contractor has performed within the past five (5) years:

_____

(Page intentionally left blank)

1.5 SUBCONTRACTORS LIST

The following are Subcontractors to be employed by the Contractor:

Name	Description of Work

1.6 MINORITY BUSINESSES AND WOMEN BUSINESS ENTERPRISES

SUBCONTRACTOR BID SOLICITATION LIST

The following are small and minority businesses and women business enterprises that subcontractor bids were solicited by the Bidder.

NOTE: Bidder shall submit documentation of subcontractor bid solicitations from small and minority businesses and women business enterprises pursuant to 24 CFR Part 85.36(e)(2)(i) through (vi).

1.7 MANUFACTURERS LIST

The following are Manufacturers of materials and equipment to be utilized by the Contractor:

Name	Description of Materials and Equipment

(Page intentionally left blank)

2.0 CONTRACT

THIS AGREEMENT, made this _____ day of _____ 20_____, by and between the City of Madison, Florida, herein called "Owner", and,

_____ a _____
(corporation, partnership or individual)

doing business as _____

County of _____, and State of _____

hereinafter called "Contractor".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the Owner, the Contractor hereby agrees with the Owner to commence and complete the project described as follows: Sanitary Sewer Improvements, hereinafter called the Project, for the sum of_____dollars and _____ cents ($_____) and all extra work in connection therewith, under the terms as stated in Section D, General Conditions and Section E, Supplemental General Conditions of the Contract Documents and Specifications contained herein in this bound volume; and at his/her (its or their) own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance and other accessories and services necessary to complete said Project in accordance with the condition and prices stated in the Contractor's Proposal; the General Conditions, and Supplemental General Conditions of the Contract; the Contract Documents; the Plans, which include all maps, plats, blueprints and other drawings and printed or written explanatory matter thereof, and the Specifications therefore as enumerated in Paragraph 3.0 of the Supplemental General Conditions; all of which are made a part thereof and collectively evidenced and constitute the Contract.

The Contractor hereby agrees to commence work under this Contract on or before a date to be specified in a written "Notice to Proceed" of the Owner and to substantially complete the project in _____ (**120**) calendar days. Calendar days are Monday through Sunday, including holidays. The Contractor further agrees to pay, as liquidated damages, the sum of Five Hundred Dollars and No Cents ($500.00) for each calendar day thereafter as hereinafter provided in Paragraph 19.0 of the General Conditions. After substantial completion, Contractor shall complete the remaining work within **15** calendar days. The Contractor further agrees to pay as liquidated damages, the sum of One Thousand Dollars and No Cents ($1,000.00) for each calendar day thereafter as hereinafter provided in the General Conditions. Total contract time shall be _____ (**135**) calendar days. Substantial completion of a project or specified area of a project is the date when the construction is sufficiently completed, in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the Owner can occupy or utilize the project or specified area of the project for the use for which it was intended. Completion of remaining work of a project is the date when all punch lists items from the substantial completion inspection are completed to the satisfaction of the Owner and the Contractor has submitted his/her final invoice, including a request for release of retainage.

The Contractor is advised and aware that failure to complete the work under this Contract within the required time or extensions granted by the Owner may result in the loss of Community Development Block Grant funds by the Owner, which the Owner is relying upon in substantial part for payment due the Contractor. Therefore, if the Contractor's failure to complete the work under this Contract within the required time or extensions granted by the Owner results in the loss of Community Development Block Grant funds by the Owner, the Contractor shall pay the Owner as additional liquidated damages the amount of such Community Development Block Grant funds lost by the Owner.

(Page intentionally left blank)

2.0 CONTRACT (Continued)

The Contractor shall be liable to and hereby agrees to indemnify and hold harmless the Owner, each officer, agent and employee of the Owner, against all claims against any of them for personal injury or wrongful death or property damages arising out of the negligent performance of construction services caused by any error, omission or negligent act of the Contractor or anyone employed by the Contractor, in the performance of this Contract.

This Contract shall be governed by and interpreted pursuant to the laws of the State of Florida. In the event disputes arise concerning this Contract, the Owner and Contractor mutually agree that exclusive venue of all legal proceedings shall be in a court of competent jurisdiction in Madison County, Florida and all litigation of the parties shall take place therein.

The Owner agrees to pay the Contractor in current funds for the performance of the Contract, subject to additions and deductions, as provided in the General Conditions of the Contract, and to make payments on account thereof as provided in Paragraph 25.0, "Payments to Contractor", of the General Conditions.

IN WITNESS WHEREOF, the parties to these presents have executed this Contract in four (4) counterparts, each of which shall be deemed an original, in the year and day first above mentioned.

_____
(OWNER)

ATTEST:
(SEAL)

_____ _____
Signature Signature

_____ _____
Name and Title (Print or Type) Name and Title (Print or Type)

_____
(CONTRACTOR)

ATTEST:
(SEAL)

_____ _____
Signature Signature

_____ _____
Name and Title (Print or Type) Name and Title (Print or Type)

_____
Address

_____
City, State, and Zip Code

NOTE: If Contractor is a corporation, Secretary must attest.

(Page intentionally left blank)

2.1 PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: That we _____
(Name of Contractor)
a _____, doing business as _____,

hereinafter called "Principal" and _____,
(Surety)
of _____, State of _____, hereinafter called the "Surety", are held and firmly

bound unto _____, Florida, hereinafter called
(Owner)
"Owner" in the penal sum of _____

dollars and _____ cents ($_____) in lawful money of the United States, for

the payment of which sum will and truly to be made, we bind ourselves, our heirs, executors, administrators

and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain Contract with the Owner, dated the _____ day of _____ 20_____, a copy of which is hereto attached and made a part hereof for:

Community Development Block Grant, Fiscal Year 2016, Neighborhood Revitalization Project.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said Contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if he/she shall satisfy all claims and demands incurred under such Contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense and attorney's fees, including appellate proceedings, which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the Plans and Specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Plans and Specifications.

(Page intentionally left blank)

2.1 PERFORMANCE BOND (Continued)

PROVIDED FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed this _____ day of _____ 20_____.

ATTEST: _____
(Principal)

(SEAL)

_____ _____
Signature Signature

_____ _____
Name and Title (Print or Type) Name and Title (Print or Type)

_____
Address

_____
City, State, and Zip Code

ATTEST: _____
(Surety)

(SEAL)

_____ _____
Signature Signature

_____ _____
Name and Title (Print or Type) Name of Attorney-in-Fact (Print or Type)

_____
Address

_____
City, State, and Zip Code

Countersigned

_____ _____
Signature Address

_____ _____
Name of Attorney-in-Fact (Print or Type) City, State, Zip Code
State of Florida

NOTE: Date of Bond must not be prior to date of Contract.
If Contractor is Partnership, all partners should execute bond.

(Page intentionally left blank)

2.2 PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: That we _____
(Name of Contractor)
a _____, doing business as _____,_____

hereinafter called "Principal" and _____,_____

of _____, State of _____, hereinafter called

the “Surety", are held and (Name of Surety) firmly bound unto _____, Florida,

hereinafter called "Owner" in the (Owner) penal sum of _____

dollars and _____ cents ($_____) in lawful money of the United

States, for the payment of which sum will and truly to be made, we bind ourselves, our heirs, executors,

administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain Contract with the Owner, dated the _____ day of _____ 20_____ , a copy of which is hereto attached and made a part hereof for:

Community Development Block Grant, Fiscal Year 2016, Neighborhood Revitalization Project.

NOW, THEREFORE, if the Principal shall promptly make payment as defined in Section 255.05(1), Florida Statutes, to all persons, firms, Subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such Contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work whether by Subcontractor or otherwise, shall reimburse and repay the Owner all outlay and expense and attorney's fees, including appellate proceedings, which the Owner may incur in making good any failure to make payment, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the Plans and Specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Plans and Specifications.

(Page intentionally left blank)

2.2 PAYMENT BOND (Continued)

PROVIDED FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed this _____ day of _____ 20_____.

ATTEST:

_____
(Principal)

(SEAL)

_____ _____
Signature Signature

_____ _____
Name and Title (Print or Type) Name and Title (Print or Type)

_____
Address

_____
City, State, and Zip Code

ATTEST:

_____
(Surety)

(SEAL)

_____ _____
Signature Signature

_____ _____
Name and Title (Print or Type) Name of Attorney-in-Fact (Print or Type)

_____
Address

_____
City, State, and Zip Code

Countersigned

_____ _____
Signature Address

_____ _____
Name of Attorney-in-Fact (Print or Type) City, State, Zip Code
State of Florida

NOTE: Date of Bond must not be prior to date of Contract.
If Contractor is Partnership, all partners should execute bond.

(Page intentionally left blank)

2.3 CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the Secretary of the Corporation named as Principal in the within bond; that _____, who signed the said bond on behalf of the Principal was then _____ of said corporation; that I know his/her signature, and his/her signature thereto is genuine; and that said bond was duly signed, sealed and attested to for and in behalf of said corporation by authority of its governing body.

(SEAL)

_____
Signature

_____
Name and Title (Print or Type)

_____
(Power-of-Attorney for person signing for surety company must be attached to bonds.)

(Page intentionally left blank)

3.0 AFFIDAVIT BY GENERAL CONTRACTOR

STATE OF FLORIDA

COUNTY OF _____

I, _____, having been first duly sworn, do now depose and say: That all persons, firms and corporations, who have furnished services, labor or materials for use on the City of Madison Neighborhood Revitalization Project, FY16 Small Cities Community Development Block Grant, Florida Department of Economic Opportunity Contract No. 18DB-OM-03-50-02-N 33 have fully completed their respective work, and it has been accepted by the Owner, and there are no bills for labor or materials or appliances in connection with such construction which have not been paid.

(SEAL)

_____
Signature

_____
Name and Title (Print or Type)

Subscribed and sworn to before the undersigned, a Notary Public for the State of Florida, this _____ day of _____ 20_____.

_____
(Notary Public)

My commission expires _____.

(Page intentionally left blank)

4.0 CERTIFICATION OF BIDDER (CONTRACTOR) REGARDING EQUAL EMPLOYMENT OPPORTUNITY

NAME OF BIDDER: _____
PROJECT NAME: City of Madison FY 2016 Florida Small Cities CDBG Neighborhood Revitalization Project
PROJECT NUMBER: 18DB-OM-03-50-02-N 33

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any Bidder or prospective Contractor, or any of their proposed Subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the Bidder has not filed a compliance report due under applicable instructions, such Bidder shall be required to as submit a compliance report within seven (7) calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

NAME OF BIDDER: _____
ADDRESS: _____
CITY, STATE, ZIP CODE: _____

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
   Yes ____ No ____

2. Compliance reports were required to be filed in connection with such contract or subcontract.
   Yes ____ No ____

3. Bidder has filed all compliance reports due under applicable instructions, including SF 100.
   Yes ____ No ____ None required ____

4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended?
   Yes ____ No ____

_____ _____
Signature Date

_____
Name and Title (Print or Type)

(Page intentionally left blank)

5.0 CERTIFICATION OF BIDDER (CONTRACTOR) REGARDING SECTION 3 AND SEGREGATED FACILITIES

NAME OF BIDDER: _____
PROJECT NAME: City of Madison FY 2016 Florida Small Cities Neighborhood Revitalization Project
PROJECT NUMBER: 18DB-OM-03-50-02-N 33

The undersigned hereby certifies that:

(a) Section 3 provisions are included in the Contract;

(b) A written Section 3 Plan was prepared and submitted as part of the bid proceedings (if bid equals or exceeds $10,000); and

(c) No segregated facilities will be maintained as required by Title VI of the Civil Rights Act of 1964.

_____ _____
Signature Date

_____
Name and Title (Print or Type)

(Page intentionally left blank)

6.0 CERTIFICATION OF BIDDER (CONTRACTOR) CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS

NAME OF BIDDER: _____

PROJECT NAME: City of Madison FY 2016 Florida Small Cities CDBG Neighborhood Revitalization Project

PROJECT NUMBER 18DB-OM-03-50-02-N 33

1. The undersigned, having submitted a certain Bid, attached hereto and hereby made a part hereof to enter into a Contract with City of Madison, Florida for the construction of the above-identified Project, acknowledges that:

   (a) The Labor Standards provisions are included in the aforesaid Contract; and

   (b) Correction of any infractions of the aforesaid conditions, including infractions by and of his/her Subcontractors and any lower tier Subcontractors, is his/her responsibility.

2. He/she certifies that:

   (a) Neither he/she nor any firm, partnership or association in which he/she has substantial interest is designated as an ineligible Contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the U.S. Secretary of Labor, Part 5 (29 CFR, Part 5) or pursuant to any of the aforementioned regulatory or statutory provisions; and

   (b) Neither he/she nor any firm, partnership or association in which he/she has substantial interest has committed violations of the provisions of any Federal Labor Standards for which final disposition has not been determined by the U.S. Department of Labor.

3. He/she certifies that:

   (a) The legal name and the business address of the undersigned are:

   _____

(Page intentionally left blank)

6.0 CERTIFICATION OF BIDDER (CONTRACTOR)
CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS
(Continued)

(b) The undersigned is: a corporation organized in the State of _____,

_____,
(a single proprietorship, a partnership or other organization)

As described: _____.

(c) The names, titles and addresses of the owners, partners or officers of the undersigned are:

Name	Title	Address

(d) The names and addresses of all other persons, both natural and corporate, having a substantial interest in the undersigned, and the nature of the interest are:

Name	Address	Nature of Interest

(e) The names, addresses, and trade classifications of all the other building contractors in which the undersigned has a substantial interest are:

Name	Address	Trade Classification

_____ _____
Signature Date

_____ _____
Name and Title (Print or Type) Contractor (Print or Type)

WARNING

U.S. Criminal Code, Section 1010, Title 18, U.S.C., provides in part: "Whoever . . . makes, passes, writes or publishes any statement, knowing the same to be false . . . shall be fined not more than $5,000 or imprisoned not more than two years, or both."

(Page intentionally left blank)

7.0 CERTIFICATION OF PROPOSED SUBCONTRACTOR REGARDING EQUAL EMPLOYMENT OPPORTUNITY

NAME OF SUBCONTRACTOR: _____
PROJECT NAME: City of Madison FY 2016 Florida Small Cities CDBG Neighborhood Revitalization Project
PROJECT NUMBER: 18DB-OM-03-50-02-N 33

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any Bidder or prospective Contractor, or any of their proposed Subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the Subcontractor has not filed a compliance report due under applicable instructions, such Subcontractor shall be required to submit a compliance report before the Owner approves the Subcontract or permits work to begin under the Subcontract.

SUBCONTRACTOR'S CERTIFICATION

NAME OF SUBCONTRACTOR: _____
ADDRESS: _____
CITY, STATE, ZIP CODE: _____

1. Subcontractor has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
   Yes ____ No ____

2. Compliance reports were required to be filed in connection with such contract or subcontract.
   Yes ____ No ____

3. Subcontractor has filed all compliance reports due under applicable instructions, including SF 100.
   Yes ____ No ____

4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended?
   Yes ____ No ____

_____ _____
Signature Date

_____
Name and Title (Print or Type)

(Page intentionally left blank)

8.0 CERTIFICATION OF PROPOSED SUBCONTRACTOR REGARDING SECTION 3 AND SEGREGATED FACILITIES

NAME OF SUBCONTRACTOR: _____

PROJECT NAME: City of Madison FY 2016 Florida Small Cities CDBG Neighborhood Revitalization Project

PROJECT NUMBER: 18DB-OM-03-50-02-N 33

The undersigned hereby certifies that

(a) Section 3 provisions are included in the Contract;

(b) A written Section 3 Plan was prepared and submitted as part of the bid proceedings (if bid equals or exceeds $10,000); and

(c) No segregated facilities will be maintained as required by Title VI of the Civil Rights Act of 1964.

_____ _____

Signature Date

_____

Name and Title (Print or Type)

(Page intentionally left blank)

9.0 CERTIFICATION OF PROPOSED SUBCONTRACTOR
CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS

NAME OF SUBCONTRACTOR: _____
PROJECT NAME: City of Madison FY 2016 Florida Small Cities CDBG Neighborhood Revitalization Project
PROJECT NUMBER 18DB-OM-03-50-02-N 33

1. The undersigned, proposing to execute a contract with _____ (Contractor)
for _____ (Nature of Work) in the amount of $ _____.

(a) The Labor Standards Provisions of the Contractor for Construction are included in the aforesaid contract;

(b) Neither he/she nor any firm, corporation, partnership or association in which he/she has a substantial interest is designated as an ineligible Contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the U.S. Secretary of Labor, Part 5(29 CFR, Part 5), or pursuant to Section 3(a) of the Davis-Bacon Act, as amended (40 U.S.C. 276a-2(a)).

(c) No part of the aforementioned Contract has been or will be subcontracted to any Subcontractor if such Subcontractor or any firm, corporation, partnership or association in which such Subcontractor has a substantial interest is designated as an ineligible Contractor pursuant to the aforesaid regulatory or statutory provisions; and

(d) Neither he/she nor any firm, partnership or association in which he/she has substantial interest has committed violations of the provisions of any Federal Labor Standards for which final disposition has not been determined by the U.S. Department of Labor.

2. He/she certifies that:

(a) The legal name and the business address of the undersigned are:

_____
_____
_____

(Page intentionally left blank)

9.0 CERTIFICATION OF PROPOSED SUBCONTRACTOR CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS (Continued)

b) The undersigned is: a corporation organized in the State of _____,
_____,
(a single proprietorship, a partnership or other organization)

as described: _____.

(c) The names, titles and addresses of the owners, partners or officers of the undersigned are:

Name	Title	Address

(d) The names and addresses of all other persons, both natural and corporate, having a substantial interest in the undersigned, and the nature of the interest are:

Name	Address	Nature of Interest

(e) The names, addresses and trade classifications of all other building contractors in which the undersigned has a substantial interest are:

Name	Address	Trade Classification

_____ _____
Signature Date

_____ _____
Name and Title (Print or Type) Name of Subcontractor (Print or Type)

WARNING

U.S. Criminal Code, Section 1010, Title 18, U.S.C., provides in part: "Whoever. . . makes, passes, writes or publishes any statement, knowing the same to be false. . . shall be fined not more than $5,000 or imprisoned not more than two years, or both."

(Page intentionally left blank)

10.0 CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, _____, the duly authorized and acting legal representative of City of Madison, Florida do hereby certify as follows:

I have examined the attached contract(s) and surety bonds and the manner of execution hereof, and I am of the opinion that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

_____ _____

Signature Date

_____

Name and Title (Print or Type)

(Page intentionally left blank)

11.0 CONTRACTOR SECTION 3 PLAN

A. OVERVIEW

Regulations implementing Section 3 require recipients of Community Development Block Grant funds and the contractors they employ to help ensure that the economic opportunities generated by Community Development Block Grant funds are provided to local low- and very low-income persons and the businesses that serve them. The purpose of Section 3 of the Housing and Urban Development Act of 1968 (24 CFR Part 135) is to:

"ensure that employment and other economic opportunities generated by certain U.S. Department of Housing and Urban Development financial assistance shall, to the greatest extent feasible, and consistent with existing federal, state and local laws and regulations, be directed to low- and very low-income persons, particularly those who are recipients of government assistance for housing and business concerns which provide economic opportunities to low- and very low-income persons."

B. THRESHOLDS

Compliance with Section 3 is required for local governments with grant awards of over $200,000 or contracts or subcontracts over $100,000.

C. GOALS

The Contractor hereby establishes the following goals.

Hiring:

At least 10% of the aggregate number of new hires by the Contractor funded with Community Development Block Grant funds should be Section 3 residents.

Contracts:

1. At least 10% of the total dollar amount of all Community Development Block Grant funded contracts for building trades work should be awarded to Section 3 business concerns; and

(Page intentionally left blank)

11.0 CONTRACTOR SECTION 3 PLAN (Continued)

2. At least 3% of the total dollar amount of all other Community Development Block Grant funded contracts should be awarded to Section 3 business concerns.

Failure to meet these goals does not constitute noncompliance with Section 3 regulations and shall not result in sanctions against the Contractor. It means that the burden shifts to the Contractor to demonstrate why it was not possible to achieve the numerical goals. If challenged on the issue of compliance with Section 3 requirements, the Contractor will need to demonstrate that it strived, but was unable, to reach these levels.

D. SECTION 3 RESIDENT PREFERENCES

Among Section 3 eligible citizens, the following preferences shall be given:

1. Where the Section 3 project is assisted under the Stewart B. McKinney Homeless Assistance Act, homeless person(s) residing in the service area or neighborhood shall receive the highest priority;

2. Section 3 residents residing in the service area or neighborhood in which the project is located;

3. Participants in U.S. Department of Housing and Urban Development Youthbuild Programs; and

4. Other Section 3 residents.

E. COMPLIANCE

The Contractor has a responsibility to comply with Section 3 requirements in its own operations. If numerical goals of Section 3 compliance are not achieved, documentation of Contractor efforts to achieve those goals may be used to document compliance with Section 3 requirements:

This responsibility includes, but is not limited to, the actions listed below that can document efforts to comply with Section 3 requirements:

1. documenting actions taken to comply with the Section 3 requirements and the results of those actions;

2. notifying Section 3 residents and business concerns about economic opportunities connected with Community Development Block Grant funded projects;

(Page intentionally left blank)

11.0 CONTRACTOR SECTION 3 PLAN (Continued)

3. informing potential subcontractors for Section 3 covered projects of their obligations under Section 3, and incorporating Section 3 clauses in all solicitations and subcontracts which spells out the responsibilities and commitments of all parties involved;

4. facilitating activities to reach the Section 3 numerical goals for the training and employment of Section 3 residents and the award of contracts to Section 3 subcontractors; and

5. assisting and actively cooperating with the U.S. Department of Housing and Urban Development Assistant Secretary in obtaining the compliance of subcontractors with Section 3 requirements and refraining from entering into any subcontracts with a subcontractor who has been found in violation of the Section 3 requirements.

Section 3 requirements do not require the creation of economic opportunities for low- and very low-income persons, simply for the sake of creating jobs, but requires that when jobs are generated because a project or activity necessitates the employment of additional personnel, preference must be given to Section 3 qualified individuals. If, however, the Section 3 covered assistance is awarded and the Contractor has no need for additional employees or the Contractor has no need to subcontract for work, the Section 3 preference requirements do not apply.

There are four basic ways to obtain compliance with Section 3 requirements:

1. document that the project is not a Section 3 covered project;

2. document that no additional personnel or subcontract work was necessary to complete the assisted activity;

3. document the achievement of Section 3 numerical goals, in the absence of evidence to the contrary; or

4. document efforts undertaken to achieve Section 3 numerical goals and specific reasons why it was not feasible to meet those numerical goals.

A complaint process open to any Section 3 resident or subcontractor requires that complaints be submitted to the U.S. Department of Housing and Urban Development. Complaints will then be referred to the local government for an attempted resolution. Failure to comply with Section 3 requirements can result in suspension of the contract or debarment from participation in U.S. Department of Housing and Urban Development funded programs.

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11.0 CONTRACTOR SECTION 3 PLAN (Continued)

F. SUMMARY

Section 3 is an essential component of the U.S. Department of Housing and Urban Development's comprehensive approach to "creating communities of opportunity." It can establish a sound foundation for long-term economic growth and recovery in distressed areas by increasing employment, developing a more skilled local workforce, and fostering community-based businesses. By directing economic opportunity to low and very
low-income persons, Section 3 requirements help more families move toward economic empowerment and self-sufficiency. It represents one positive step toward reversing the discrimination and disinvestment that has destabilized many low- and very low-income neighborhoods.

G. DEFINITIONS

1. Section 3 Covered Contract: is a contract or subcontract (including a professional service contract) awarded by a recipient or contractor for work generated by the expenditure within a Section 3 covered project.

2. Section 3 Covered Project: is the construction, re-construction, conversion or rehabilitation of housing (including lead based paint abatement), and other public construction which includes buildings or improvements (regardless of ownership) assisted with Housing or Community Development Assistance.

3. Section 3 Business Concern:

    a. is a business that is 51% or more owned by Section 3 residents; or

    b. is a business whose permanent, full-time employees include persons, at least 30% of whom are currently Section 3 residents, or within three (3) years of the date of first employment with the business concern were Section 3 residents; or

    c. is a business that provides evidence of a commitment to subcontract in excess of 25% of the dollar award of all subcontracts to be awarded to business concerns that meet the preceding requirements.

(Page intentionally left blank)

11.0 CONTRACTOR SECTION 3 PLAN (Continued)

As an officer and representative of _____,
(Name of Contractor)
I, the undersigned, have read and fully agree to this Section 3 Plan, and become a party to the full implementation of this program.

_____ _____
Signature Date

_____
Name and Title (Print or Type)

_____
Name of Contractor (Print or Type)

(Page intentionally left blank)

12.0 CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS

PRIMARY COVERED TRANSACTIONS

The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any Federal department of agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction or records, making false statements or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

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

_____	_____
Signature	Date
_____	City of Madison FY 2016
Name and Title (Print or Type)	Florida Small Cities Community Development Block Grant Neighborhood Revitalization Project Sanitary Sewer Improvements
_____	18DB-OM-03-50-02-N 33
Name of Contractor (Print or Type)	Project Number

_____

Address

_____

City, State, Zip Code

24CFR 24.510 & 24 CFR, Part 24, Appendix A

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13.0 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

SUBCONTRACTOR (LOWER TIER COVERED TRANSACTIONS)

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

2) Where the prospective lower tier participant is unable to certify to the above statement, the prospective participant shall attach an explanation to this form.

_____ _____

Signature Date

_____ City of Madison FY 2016

Name and Title (Print or Type) Florida Small Cities Community Development Block Grant Neighborhood Revitalization Project Sanitary Sewer Improvements

_____ 18DB-OM-03-50-02-N 33

Name of Subcontractor (Print or Type) Project Number

_____

Address

_____

City, State, Zip Code

(Page intentionally left blank)

14.0 CERTIFICATION - SECTION 3 COMPLIANCE INFORMATION FOR CONTRACTOR AND SUBCONTRACTOR

Section 3 Compliance Information
(Construction Prime Contractor)

Local Government: _____ CDBG Grant #: _____

Project: _____

Part A: Completed only by prime contractor if contract amount is at least $100,000

Contractor Name: _____

	Yes	No
1. Does the business qualify as a "Section 3 business concern" because:		
a) it is at least 51% owned by Section 3 residents*	___	___
OR		
b) at least 30% of its permanent full-time employees are:		
i) currently Section 3 residents* OR	___	___
ii) were Section 3 residents* within first 3 years of employment	___	___
OR		
c) will at least 25% (dollar value) of construction subcontracts (no material/supplies/equipment vendors unless they are also installing same) be to businesses meeting (a) or (b) above?	___	___

If yes, list any Section 3 subcontractors and subcontract amount:

Name: _____ Amount: $_____

Name: _____ Amount: $_____

Name: _____ Amount: $_____

2. Will the contractor be hiring any additional staff (office or field) for this project? ___Yes ___No

If yes, what types of jobs (e.g., laborer, equipment operator), and how many additional hires estimated in each job type?

_____

* **Section 3 resident** is a member of a family whose total household income does not exceed a certain amount depending on family size and county of residence. The local government will provide a form and the information needed for each worker to make this determination on a "yes" or "no" basis without specifying exact total household income or income sources.

Note: This contract is funded with federal funds and this information is required for reporting purposes. See Section 3 portion of CDBG Supplemental Conditions for additional information.

Section 3 Compliance Information

(Construction Subcontractor)

Part B: Completed only by construction subcontractors if subcontract is at least $100,000
(do not include equipment or material suppliers unless they are installing also)

Subcontractor Name: _____ Subcontract Amount :$_____

1. Does the business qualify as a "Section 3 business concern" because:	Yes	No
a) it is at least 51% owned by Section 3 residents*	___	___
OR		
b) at least 30% of its permanent full-time employees are:		
i) currently Section 3 residents* OR	___	___
ii) were Section 3 residents* within first 3 years of employment	___	___

2. Will the subcontractor hire any additional staff (office or field) for this project? ___Yes ___No

If yes, what types of jobs (e.g., laborer, equipment operator, and how many additional hires estimated in each job type?

_____

* **Section 3 resident** is a member of a family whose total household income does not exceed a certain amount depending on family size and county of residence. The local government will provide a form and the information needed for each worker to make this determination on a "yes" or "no" basis without specifying exact total household income or income sources.

Note: This contract is funded with federal funds and this information is required for reporting purposes. See Section 3 portion of CDBG Supplemental Conditions for additional information

SECTION 00670 PREFERENCE FOR DRUG-FREE WORKPLACE 00670-1

PREFERENCE FOR DRUG-FREE WORKPLACE: Whenever two or more bids which are equal with respect to price, quality, and service are received, preference shall be given to a bid received from a business that certifies that it has implemented a drug-free workplace program in accordance with Section 287 .087, Florida Statutes. In order to receive preference, a signed certification of compliance must be submitted with the bid response.

DRUG-FREE WORKPLACE FORM

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies that _____ does:
(Name of Business)

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of or plea of guilty or no lo contendere to any violation of Chapter 1893 or of any controlled substance law of the United States or any state for a violation occurring in the workplace no later than five (5) days after such conviction.

5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this form complies fully with the above requirements.

_____ _____
Bidder's Signature Date

(This page intentionally left blank.)

16.0 TRENCH SAFETY COMPLIANCE FORM

SECTION 00671 TRENCH SAFETY COMPLIANCE 00671-1

THE INFORMATION ON THIS FORM SHOULD BE TYPED OR CLEARLY PRINTED.

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC BY AN OFFICER AUTHORIZED TO ADMINISTER OATHS.

Bidder acknowledges that he is solely responsible for complying with the Florida Trench Safety Act (Act) and Occupational Safety and Health Administrations excavation safety standard 29 CFR 1926.650-.652 (Subpart P as amended). Bidder further acknowledges that included in the various items of the proposal and in the Total Bid Price are costs for complying with the Florida Trench Safety Act (90-96, Laws of Florida) effective October 1, 1990. The bidder further identifies the costs of compliance as summarized herein.

1. This Sworn Statement is submitted with Bid No. _____ for _____ _____ (Project).

2. This Sworn Statement is submitted by _____, whose business address is _____ and (if applicable) its Federal Employer Identification Number (FEIN) is _____.

3. My name is _____.

4. The undersigned assures that the entity will comply with the applicable Trench Safety Standards and agrees to indemnify and hold harmless the OWNER, CONSTRUCTION MANAGER and ENGINEER, and any of their agents or employees from any claims arising from the failure to comply with said standard.

5. The undersigned has appropriated $ _____ (Total Cost) for trenches to be excavated over 5' deep for compliance with the applicable standards and intends to comply by instituting the following procedures:

Ref No.	Trench Safety Measure (Description)	Units of Measure (LF, SY)	Quantity of Units	Unit Cost	Extended Cost

(This page intentionally left blank.)

16.0 TRENCH SAFETY COMPLIANCE FORM

6. The undersigned has appropriated $ _____ (Total Cost) for compliance with shoring safety requirements and intends to comply by instituting the following procedures:

Ref No.	Trench Safety Measure (Description)	Units of Measure (LF, SY)	Quantity of Units	Unit Cost	Extended Cost
				Total Cost	

7. The undersigned, in submitting this Bid, represents that he has reviewed and considered all available geotechnical information and made such other investigations and tests as he may deem necessary for adequate design of the trench (and shoring) safety system(s) he will utilize on this project.

8. Failure to complete the above may result in the bid being declared non-responsive. The costs indicated herein are provided to comply with the Act and shall not constitute grounds for any additional compensation to that listed for the separate line items of the Bid Form.

(Contractor) _____

(Signature) _____

(Title) _____

Subscribed and sworn to before me this _____ day of _____ 20___

_____
Notary Public, State of Florida at Large

My Commission expires:
_____

(This page intentionally left blank.)

17.0 STATEMENT OF INDEMNIFICATION FORM

STATEMENT OF INDEMNIFICATION

CONTRACTOR shall indemnify and hold THE CITY OF MADISON, it's officers, directors, employees and consultants, harmless from any and all claims, demands, expenses or liabilities that may be asserted or claimed by any person or entity arising out of negligent, grossly negligent or intentionally harmful performance by CONTRACTOR, it's employees, agents, representatives or sub-contractors under or in connection with this Agreement, except to the extent such liabilities arise from the negligence or willful misconduct of the CITY OF MADISON. In connection there with, CONTRACTOR shall defend any action or actions in connection with any said claims, damages, penalties, obligations, or liabilities, and shall pay all expenses and costs, including attorney's fees, incurred in connection therewith.

(Contractor) _____

(Signature) _____

(Title) _____

STATE OF _____

COUNTY OF _____

PERSONALLY APPEARED BEFORE ME, the undersigned authority, _____ who, after first being sworn by me, affixed his/her signature in the space provided on this _____ day of _____ , 20 ____

NOTARY PUBLIC

My Commission Expires: _____ Personally Known to Me or

_____ Produced Identification

Type of I.D.

_____

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SECTION G

WAGE RATE DETERMINATION

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WAGE RATE DETERMINATION

PROJECT NUMBER 18DB-OM-03-50-02-N 33

The wage rate determination decisions that applies to this project are Wage Decision No. FL180143, Heavy Construction and No. FL180199, Highway Construction.

(Page intentionally left blank.)

General Decision Number: FL180143 08/17/2018 FL143

Superseded General Decision Number: FL20170143

State: Florida

Construction Type: Heavy

Counties: Bradford, Citrus, Dixie, Flagler, Hamilton, Lafayette, Levy, Madison, Sumter, Suwannee and Taylor Counties in Florida.

HEAVY CONSTRUCTION PROJECTS (including Sewer and Water Lines)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018
1	08/17/2018

* PAIN0164-005 08/01/2018

	Rates	Fringes
PAINTER: Brush and Spray	$ 20.21	10.73

SUFL2009-139 06/24/2009

	Rates	Fringes
LABORER: Common or General	$ 8.58	0.00
LABORER: Pipelayer	$ 12.60	1.01
OPERATOR: Backhoe/Excavator	$ 14.21	0.94
OPERATOR: Bulldozer	$ 13.30	1.92
OPERATOR: Loader	$ 11.00	0.00
TRUCK DRIVER: Distributor, Dump, Lowboy and Tandem	$ 11.55	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the

Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

General Decision Number: FL180199 03/16/2018 FL199

Superseded General Decision Number: FL20170199

State: Florida

Construction Type: Highway

Counties: Lafayette and Madison Counties in Florida.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018
1	02/23/2018
2	03/16/2018

* ELEC0349-002 03/05/2018

	Rates	Fringes
ELECTRICIAN	$ 33.11	12.31

SUFL2013-017 08/19/2013

	Rates	Fringes
CARPENTER, Includes Form Work	$ 12.63	0.00
CEMENT MASON/CONCRETE FINISHER	$ 13.19	0.00
FENCE ERECTOR	$ 11.32	0.00
HIGHWAY/PARKING LOT STRIPING: Operator (Striping Machine)	$ 12.63	0.00
HIGHWAY/PARKING LOT STRIPING: Operator (Spray Nozzleman)	$ 10.02	0.00
INSTALLER - GUARDRAIL	$ 14.74	0.00
IRONWORKER, REINFORCING	$ 13.67	0.00

LABORER (Traffic Control Specialist)	$ 10.60	0.00
LABORER: Asphalt, Includes Raker, Shoveler, Spreader and Distributor	$ 10.23	0.00
LABORER: Common or General	$ 9.35	0.00
LABORER: Flagger	$ 9.41	0.00
LABORER: Grade Checker	$ 10.97	0.00
LABORER: Landscape & Irrigation	$ 8.35	0.00
LABORER: Pipelayer	$ 13.34	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 12.21	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 11.61	0.00
OPERATOR: Broom/Sweeper	$ 10.89	0.00
OPERATOR: Bulldozer	$ 14.26	0.00
OPERATOR: Crane	$ 17.83	0.00
OPERATOR: Forklift	$ 10.75	0.00
OPERATOR: Grader/Blade	$ 13.17	0.00
OPERATOR: Loader	$ 11.86	0.00
OPERATOR: Mechanic	$ 12.37	0.00
OPERATOR: Milling Machine	$ 13.57	0.00
OPERATOR: Oiler	$ 11.38	0.00
OPERATOR: Paver (Asphalt, Aggregate, and Concrete)	$ 13.65	0.00
OPERATOR: Post Driver (Guardrail/Fences)	$ 16.00	0.00
OPERATOR: Roller	$ 10.11	0.00
OPERATOR: Screed	$ 13.73	0.00
OPERATOR: Tractor	$ 9.73	0.00
OPERATOR: Trencher	$ 16.00	0.00
SIGN ERECTOR	$ 13.15	0.00
TRAFFIC SIGNALIZATION: Traffic Signal Installation	$ 16.73	0.00

TRUCK DRIVER: Dump Truck.....$ 10.71 0.00

TRUCK DRIVER: Lowboy Truck.....$ 15.24 0.00

TRUCK DRIVER: Water Truck.....$ 12.04 0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the

Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

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SECTION H

MINORITY AND FEMALE CONTRACTOR ASSOCIATIONS/

CONTRACTORS/SUBCONTRACTORS

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SECTION H

MINORITY AND FEMALE CONTRACTOR ASSOCIATIONS/

CONTRACTORS/SUBCONTRACTORS

The following list includes firms and individuals conducting business on a statewide or regional basis listed in the Florida Department of Management Services, Office of Supplier Diversity Certified Vendor Directory. This list is provided solely for the benefit of the Contractor for the purpose of assisting him/her in meeting the Special Equal Opportunity Provisions as established in Section E - Supplemental General Conditions. The list does not contain a complete listing of minority and female businesses. The information may in some cases be out of date. The Owner makes no representations respecting the completeness or accuracy of these lists.

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FLORIDA DEPARTMENT of MANAGEMENT SERVICES
office of supplier DIVERSITY
We serve those who serve Florida

Search Results Madison County

Show 10 entries Search:

Name	Contact	Address	City	State	Phone
keystone construction & remodeling	cynthia soety	310 sw tennville trail	lee	FL	407-744-1086

Showing 1 to 1 of 1 entries

Previous 1 Next

FLORIDA DEPARTMENT of MANAGEMENT SERVICES
office of supplier DIVERSITY
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Search Results

Columbia County

Show 10 entries

Search:

Name	Contact	Address	City	State	Phone
Cal-Tech Testing, Inc.	Abby Stalvey	Po Box 1625	Lake City	FL	386-755-3633

Showing 1 to 1 of 1 entries

Previous 1 Next

FLORIDA DEPARTMENT of MANAGEMENT SERVICES
office of supplier DIVERSITY
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Search Results

Suwannee County

Show 10 entries

Search:

Name	Contact	Address	City	State	Phone
No data available in table					

Showing 0 to 0 of 0 entries

Previous Next

FLORIDA DEPARTMENT of MANAGEMENT SERVICES
office of supplier DIVERSITY
We serve those who serve Florida

Search Results

Taylor County

Show 10 entries

Search:

Name	Contact	Address	City	State	Phone
United Sourcing	Jackie Koeller	1270 Shiloh Cemetery Rd.	Perry	FL	850-223-3092

Showing 1 to 1 of 1 entries

Previous 1 Next

FLORIDA DEPARTMENT of MANAGEMENT SERVICES
office of supplier DIVERSITY
We serve those who serve Florida

Search Results

Leon County

Show 10 entries

Search:

Name	Contact	Address	City	State	Phone
24-7 Consulting, LLC	Mellisa McColley	2910 Kerry Forest Pkwy.	Tallahassee	FL	850-559-1967
911 Direct Holdings,LLC	Robert Pough	2836 Industrial Plaza Dr	Tallahassee	FL	850-386-3002
Advon Corporation	Bill Graham	1300 Timberlane Road	Tallahassee	FL	850-727-7626
Blu Steam	Daniel Emmanuel	3240 Sugar Berry Way	Tallahassee	FL	786-280-6594
CanDoTech Consulting Inc	Kakali Sarkar	1034 High Meadow Dr	Tallahassee	FL	850-219-8887
Catering With Care, LLC	Joseph Nix	4727 Crawfordville Rd. #4	Tallahassee	FL	850-765-0127
circuits up llc	Jason Pustejovsky	po box 3384	tallahassee	FL	512-909-6006
Concrete Services Unlimited, Inc.	calvin singleton	5125 Woodlane Cir	tallahassee	FL	850-514-5380
Construction Support Southeast, Inc.	CHERYL CLARK	10017 JOURNEYS END	TALLAHASSEE	FL	850-251-2507
Diligent Concrete Masonry Inc	Crystal Grant	8894 Reshard In	Tallahassee	FL	850-597-3480

Showing 1 to 10 of 40 entries

Previous 1 2 3 4 Next

FLORIDA DEPARTMENT of MANAGEMENT SERVICES
office of supplier DIVERSITY
We serve those who serve Florida

Search Results

Leon County

Show 10 entries

Search:

Name	Contact	Address	City	State	Phone
DT&S Maintenance and Repair	Daphne Nelson	1007 Tucker Street	Tallahassee	FL	850-405-5752
EarthSTEPS, LLC	Janice Steibly	3954 West Pensacola Street	Tallahassee	FL	850-325-6505
Emerc Engineering	Michael Coleman	1704 Beechwood Circle North	Tallahassee	FL	850-264-4940
Environmental Services, Inc.	Courtney Taylor	267 John Knox Road, Suite 110	Tallahassee	FL	904-470-2200
Evergreen Solutions, LLC	Linda Recio	2878 Remington Green Circle	Tallahassee	FL	850-383-0111
Finishing Touch Services, LLC	LaSheriny Word	po box 15732	Tallahassee	FL	850-210-5884
Gabrielle Consulting Inc	Dr. Gabrielle K. Gabrielli	PO Box 12861	Tallahassee	FL	850-321-8222
Geek Sources Inc	Jasmine Camara	1900 South Monroe Street	Tallahassee	FL	202-888-6556
JET SET II, LLC	James Wilcox	P.O. Box 14742	Tallahassee	FL	850-443-4363
KMR Consultants, LLC	Linda Dilworth	3065 Highland Oaks Terrace	Tallahassee	FL	850-222-3768

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FLORIDA DEPARTMENT of MANAGEMENT SERVICES
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Search Results

Leon County

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Search:

Name	Contact	Address	City	State	Phone
kW Control - Holdings, LLC	Kathryn Proctor	926 North Monroe Street	Tallahassee	FL	850-445-3128
Lisa Miller Consulting	Lisa Miller	335 N. Monroe	Tallahassee	FL	850-528-9229
Marlin Engineering, Inc.	Chris Francis	1882 Capital Circle NE	Tallahassee	FL	850-216-3270
Mettron Contracting, Inc.	Sharen Hannah	1431 California Street	Tallahassee	FL	407-313-0757
MORRIS ALLEN & ASSOCIATES, INC.	Dr Walter Davis	1140 Capital Circle SE	Tallahassee	FL	850-421-7770
One Day Came Inc	James Sampson	1575 Paul Russell Road	Tallahassee	FL	727-320-3260
Pinnacle/CSG, Inc.	Cory McFarlane	528 E Park Ave	Tallahassee	FL	850-412-9387
Quick & Clean Inc.	Walter Kreitlow	6716 Chant Trail	Tallahassee	FL	850-443-4858
RDS Drywall & Acoustics, LLC	Calvin Sancho	Post Office Box 6122	Tallahassee	FL	850-402-0399
Registe,Sliger Engineering, Inc.	Jacques Registe	3370 Capital Circle NE, Ste J	Tallahassee	FL	850-894-4521

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Search:

Name	Contact	Address	City	State	Phone
Remedy Intelligent Staffing	Stephanie Pichard	1550 Village Square Blvd	Tallahassee	FL	850-523-0005
RENITTA KNIGHT CONSTRUCTION, LLC	Renitta Knight	P. O. Box 4094	Tallahassee	FL	850-591-3750
Rippee Construction Inc.	Carol Rippee	2107 Delta Way	Tallahassee	FL	850-668-6805
Shaffield Building Specialties, Inc.	Cynthia Knox	1515-2 Henway Ct	Tallahassee	FL	850-553-4840
SHEERAH CONTRACTING SERVICES LLC	Cheryl Clark	10017 Journeys End	Tallahassee	FL	850-251-2507
Silver-Smith Development LLC	Pamela Jones-Smith	918 Old Bainbridge Road	Tallahassee	FL	850-294-6089
Spectra Engineering & Research, Inc.	Peter Okonkwo	1315 East Lafayette	Tallahassee	FL	850-656-9834
TALLAHASSEE WELDING AND MACHINE SHOP	KENNY SMALL	P.O. BOX 2472	TALLAHASSEE	FL	850-576-9596
The Jones Company	Angela Jones	1413 Arkansas Street	Tallahassee	FL	954-214-4812
West Builders, LLC	Judd West	1210 Mitchell Avenue	Tallahassee	FL	850-556-4440

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SECTION I

OWNER'S SECTION 3 PLAN

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SECTION 3 PLAN

CITY OF MADISON

A. OVERVIEW

Regulations implementing Section 3 require recipients of Community Development Block Grant funds and the contractors they employ to help ensure that the economic opportunities generated by Community Development Block Grant funds are provided to local low- and very low-income persons and the businesses that serve them. The purpose of Section 3 of the Housing and Urban Development Act of 1968 (24 CFR Part 135) is to:

"ensure that employment and other economic opportunities generated by certain U.S. Department of Housing and Urban Development financial assistance shall, to the greatest extent feasible, and consistent with existing federal, state and local laws and regulations, be directed to low- and very low-income persons, particularly those who are recipients of government assistance for housing and business concerns which provide economic opportunities to low- and very low-income persons."

B. THRESHOLDS

Compliance with Section 3 is required for local governments with grant awards of over $200,000 or contracts or subcontracts over $100,000.

C. GOALS

The City hereby establishes the following goals.

Hiring:

At least 10% of the aggregate number of new hires by the local government funded with Community Development Block Grant funds for each year over the duration of the Community Development Block Grant Program (Section 3 project) should be Section 3 residents.

Contracts:

1. At least 10% of the total dollar amount of all Community Development Block Grant funded contracts for building trades work should be awarded to Section 3 business concerns; and

2. At least 3% of the total dollar amount of all other Community Development Block Grant funded contracts should be awarded to Section 3 business concerns.

   Failure to meet these goals does not constitute noncompliance with Section 3 regulations and shall not result in sanctions against the local government or contractor. It means that the burden shifts to the local government or contractor to demonstrate why it was not possible to achieve the numerical goals. If challenged on the issue of compliance with Section 3 requirements, the local government or contractor will need to demonstrate that it strived, but was unable, to reach these levels.

D. SECTION 3 RESIDENT PREFERENCES

Among Section 3 eligible citizens, the following preferences shall be given:

1. Where the Section 3 project is assisted under the Stewart B. McKinney Homeless Assistance Act, homeless person(s) residing in the service area or neighborhood shall receive the highest priority;

2. Section 3 residents residing in the service area or neighborhood in which the project is located;

3. Participants in U.S. Department of Housing and Urban Development Youthbuild Programs; and

4. Other Section 3 residents.

E. COMPLIANCE

Each local government has a responsibility to comply with Section 3 requirements in its own operations, and ensure compliance in the operations of its contractors and subcontractors. If numerical goals of Section 3 compliance are not achieved, documentation of local government efforts to achieve those goals may be used to document compliance with Section 3 requirements:

This responsibility includes, but is not limited to, the actions listed below that can document efforts to comply with Section 3 requirements:

1. documenting actions taken to comply with the Section 3 requirements and the results of those actions;

2. notifying Section 3 residents and business concerns about economic opportunities connected with Community Development Block Grant funded projects;

3. informing potential contractors for Section 3 covered projects of their obligations under Section 3, and incorporating Section 3 clauses in all solicitations and contracts which spells out the responsibilities and commitments of all parties involved;

4. facilitating activities to reach the Section 3 numerical goals for the training and employment of Section 3 residents and the award of contracts to Section 3 business concerns; and

5. assisting and actively cooperating with the U.S. Department of Housing and Urban Development Assistant Secretary in obtaining the compliance of contractors and subcontractors with Section 3 requirements and refraining from entering into any contracts with a contractor who has been found in violation of the Section 3 requirements.

Section 3 requirements do not require the creation of economic opportunities for low- and very low-income persons, simply for the sake of creating jobs, but requires that when jobs are generated because a project or activity necessitates the employment of additional personnel, preference must be given to Section 3 qualified individuals. If, however, the Section 3 covered assistance is awarded and the local government has no need for additional employees or the local government has no need to contract for work, the Section 3 preference requirements do not apply.

There are four basic ways to obtain compliance with Section 3 requirements:

1. document that the project is not a Section 3 covered project;

2. document that no additional personnel or contract work was necessary to complete the assisted activity;

3. document the achievement of Section 3 numerical goals, in the absence of evidence to the contrary; or

4. document efforts undertaken to achieve Section 3 numerical goals and specific reasons why it was not feasible to meet those numerical goals.

A complaint process open to any Section 3 resident or business concern requires that complaints be submitted to the U.S. Department of Housing and Urban Development. Complaints will then be referred to the local government for an attempted resolution. Failure to comply with Section 3 requirements can result in suspension of the contract or debarment from participation in U.S. Department of Housing and Urban Development funded programs.

F. SUMMARY

Section 3 is an essential component of the U.S. Department of Housing and Urban Development's comprehensive approach to "creating communities of opportunity." It can establish a sound foundation for long-term economic growth and recovery in distressed areas by increasing employment, developing a more skilled local workforce, and fostering community-based businesses. By directing economic opportunity to low and very low-income persons, Section 3 requirements help more families move toward economic empowerment and self-sufficiency. It represents one positive step toward reversing the discrimination and disinvestment that has destabilized many low- and very low-income neighborhoods.

G. DEFINITIONS

1. Section 3 Covered Contract: is a contract or subcontract (including a professional service contract) awarded by a recipient or contractor for work generated by the expenditure within a Section 3 covered project.

2. Section 3 Covered Project: is the construction, re-construction, conversion or rehabilitation of housing (including lead based paint abatement), and other public construction which includes buildings or improvements (regardless of ownership) assisted with Housing or Community Development Assistance.

3. Section 3 Business Concern:

    a. is a business that is 51% or more owned by Section 3 residents; or

    b. is a business whose permanent, full-time employees include persons, at least 30% of whom are currently Section 3 residents, or within three (3) years of the date of first employment with the business concern were Section 3 residents; or

c. is a business that provides evidence of a commitment to subcontract in excess of 25% of the dollar award of all subcontracts to be awarded to business concerns that meet the preceding requirements.

H. SECTION 3 BUSINESS CONCERN PREFERENCES

In accordance with 24 CFR 85.36(c)(2), the local government hereby establishes geographic preferences to be used under competitive procurement as provided for in Section 3 of the Housing and Urban Development Act of 1968 (24 CFR Part 135).

All other factors being equal, a contract shall be awarded to a Section 3 business concern if the bid price is within the margin (called the "X" Factor) of the lowest responsible bid price. The "X Factor" is a method for the local government to achieve Section 3 quantified goals by providing preference for Section 3 business concerns when the procurement method is sealed bids. Bids shall be solicited from all businesses (both Section 3 business concerns and nonsection 3 business concerns). An award shall be made to a qualified Section 3 business concern with the lowest responsive bid if that bid is:

1. within the maximum total contract price established in the local government Community Development Block Grant funds budget for the specific project for which bids are being taken; and

2. not more than "X" higher than the total bid price of the lowest responsible bid from any responsible bidder. "X" is determined based on the table below.

If no responsive bid by a Section 3 business concern meets that above criteria, the contract shall be awarded to a responsible bidder with the lowest responsive bid.

As provided in 24 CFR 85.36(b)(8), contract awards shall only be made to responsible contractors possessing the ability to perform under the terms and conditions of the proposed procurement. The determination that a prospective contractor is responsible must include consideration of the business concern's compliance with public policy requirement such as Section 3 requirements.

SECTION 3 PLAN (Continued)

SECTION 3 BUSINESS PREFERENCE (THE “X” FACTOR)
SEALED BIDS OVER LOWEST BIDDER

LOWEST RESPONSIVE BID			LESSER OF
$1	<$100,000	10%	or $ 9,000
$100,000	<$200,000	9%	or $16,000
$200,000	<$300,000	8%	or $21,000
$300,000	<$400,000	7%	or $24,000
$400,000	<$500,000	6%	or $25,000
$500,000	<$ 1 million	5%	or $40,000
$ 1 million	<$ 2 million	4%	or $60,000
$ 2 million	<$ 4 million	3%	or $80,000
$ 4 million	<$ 7 million	2%	or $105,000
$ 7 million+		1.5%	

PROJECT MANUAL
OAK ESTATES SANITARY SEWER SYSTEM IMPROVEMENTS
MADISON, FLORIDA

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PART 1) GENERAL

a) SCOPE AND INTENT

i) Description: The work to be done consists of the furnishing of all labor, materials and equipment, and the performance of all work included in this Contract. The summary of the work is presented in Section 01010.

B. Requirements Included:

1. The Contractor shall furnish all labor, superintendence, materials, plant, power. light, heat, fuel, water, tools, appliances, equipment, supplies, and other means of construction necessary or proper for performing and completing the work. He shall obtain and pay for all required permits. He shall perform and complete the work in the manner best calculated to promote rapid construction consistent with safety of life and property and to the satisfaction of the Owner, and in strict accordance with the Contract Documents. The Contractor shall clean up the work and maintain it during and after construction, until accepted. and shall do all work and pay all costs incidental thereto. He shall repair or restore all structures and property that may be damaged or disturbed during performance of the work.

2. The cost of incidental work described in these General Requirements, for which there are no specific Contract Items, shall be considered as part of the general cost of doing the work and shall be included in the prices for the various Contract Items. No additional payment will be made therefore.

3. The Contractor shall provide and maintain such modern plant, tools, and equipment as may be necessary, in the opinion of the Engineer, to perform in a satisfactory and acceptable manner all the work required by this Contract. Only equipment of established reputation and proven efficiency shall be used. The Contractor shall be solely responsible for the adequacy of his workmanship, materials and equipment, prior approval of the Engineer notwithstanding.

C. Public Utility Installations and Structures:

1. Public utility installations and structures shall be understood to include all poles, tracks, pavement, pipes, wires, conduits, house service connections, vaults, manholes and all other appurtenances and facilities pertaining thereto whether owned or controlled by the Owner, other governmental bodies or privately owned by individuals, firms or corporations, used to serve the public with transportation, traffic control, gas, electricity, telephone, sewerage, drainage, water or other public or private property which may be affected by the work shall be deemed included hereunder.

2. The Contract Documents contain data relative to existing public utility installations and structures above and below the ground surface based on the most reliable data available to the Engineer. These data are not guaranteed as to their completeness or accuracy and it is the responsibility of the Contractor to make his own investigations to inform himself fully of the character, depth, condition and extent of all such installations and structures as may be encountered and as may affect the construction operations.

3. The Contractor shall protect all public utility installations and structures from damage during the work. Access across any buried public utility installation or structure shall be made only in such locations and by means approved by the Engineer. The Contractor shall so arrange his operations as to avoid any damage to these facilities. All required protective devices and construction shall be provided by the Contractor at his expense. All existing public utilities damaged by the Contractor which are shown on the Drawings or have been located in the field by the utility shall be repaired by the Contractor, at his expense, as directed by the Engineer. No separate payment shall be made for such protection or repairs to public utility installations or structures.

4. Public utility installations or structures owned or controlled by the Owner or other governmental body which are show-n on the Drawings to be removed, relocated, replaced or rebuilt by the Contractor shall be considered as a part of the general cost of doing the work and shall be included in the prices bid for the various contract items. No separate payment shall be made therefore.

5. Where public utility installations of structures owned or controlled by the Owner or other governmental body are encountered during the course of the work, and are not indicated on the Drawings or in the Specifications. and when, in the opinion of the Engineer, removal, relocation, replacement or rebuilding is necessary to complete the work under this Contract, such work shall be accomplished by the utility having jurisdiction, or such work may be ordered, in writing by the Engineer, for the Contractor to accomplish. If such work is accomplished by the utility having jurisdiction it will be carried out expeditiously and the Contractor shall give full cooperation to permit the utility to complete the removal, relocation, replacement or rebuilding as required. If such work is accomplished by the Contractor, it will be paid for as extra work as provided in the General Conditions.

6. The Contractor shall, at all times in performance of the work, employ approved methods and exercise reasonable care and skill so as to avoid unnecessary delay, injury, damage or destruction of public utility installations and structures; and shall, at all times in the performance of the work, avoid unnecessary interference with, or interruption of public utility services, and shall cooperate fully with the owners thereof to that end.

7. All Owner and other governmental utility departments and other owners of public utilities which may be affected by the work will be informed in writing by the Owner within two weeks after the execution of the Contract or Contracts covering the work. Such notice will set out, in general, and direct attention to, the responsibilities of the Owner and other governmental utility departments and other owners of public utilities for such installations and structures as may be affected by the work and will be accompanied by one set of Drawings and Specifications covering the work under such Contract or Contracts.

8. In addition to the general notice given by Owner, the Contractor shall give written notice to Owner and other governmental utility departments and other owners of public utilities of the location of his proposed construction operations, at least forty-eight hours in advance of breaking ground in any area or on any unit of the work.

9. The maintenance, repair, removal, relocation or rebuilding of public utility installations and structures, when accomplished by the Contractor as herein provided, shall be done by methods approved by the Owners of such utilities.

1.2 CONTRACT DOCUMENTS (BIDDING AND CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS) DRAWINGS AND PROJECT MANUAL

A. Drawings:

1. The Drawings referred to in the Contract Documents bear the general project name and number as shown in the Notice to Bidders (Advertisement).

2. When obtaining data and information from the Drawings, figures shall be used in preference to scaled dimensions, and large scale drawings in preference to small scale drawings.

B. Copies Furnished to Contractor:

1. After the Contract has been executed, the Contractor will be furnished one (1) complete set of reproducible blackline drawings (24 inches by 36 inches) and one (1) copy of the Project Manual (Contract Requirements and Specifications) and all addenda.

2. The Contractor shall furnish each of the subcontractors, manufacturers, and material men such copies of the Contract Documents as may be required for their work. All copies of the Contract Documents shall be printed from the reproducible sets furnished to the Contractor. All costs of reproduction and printing shall be borne by the Contractor.

C. Supplementary Drawings:

1. When, in the opinion of the Engineer, it becomes necessary to explain more fully the work to be done or to illustrate the work further or to show any changes which may be required, drawings known as Supplementary Drawings, with specifications pertaining thereto, will be prepared by the Engineer and the Contractor will be furnished one (1) complete set of applicable reproducible blackline drawings (24 inches by 36 inches) and one (1) copy of the applicable Specifications.

2. The Supplementary Drawings shall be binding upon the Contractor with the same force as the Drawings. Where such Supplementary Drawings require either less or more than the estimated quantities of work, credit to the Owner or compensation therefor to the Contractor shall be subject to the terms of the Agreement.

D. Contractor to Check Drawings and Data:

1. The Contractor shall verify all dimensions, quantities and details shown on the Drawings, Supplementary Drawings, schedules, Specifications or other data received from the Engineer, and shall notify him of all errors, omissions, conflicts, and discrepancies found therein. Failure to discover or correct errors, conflicts or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory work, faulty construction or improper operation resulting therefrom nor from rectifying such conditions at his own expense. He will not be allowed to take advantage of any errors or omissions, as full instructions will be furnished by the Engineer, should such errors or omissions be discovered.

2. All schedules are given for the convenience of the Engineer and the Contractor and are not guaranteed to be complete. The Contractor shall assume all responsibility for the making of estimates of the size, kind, and quality of materials and equipment included in work to be done under the Contract.

E. Specifications: The Technical Specifications consist of three parts: General, Products and Execution. The General Section contains General Requirements which govern the work. Products and Execution modify and supplement these by detailed requirements for the work and shall always govern whenever there appears to be a conflict.

F. Intent:

1. All work called for in the Specifications applicable to this Contract, but not shown on the Drawings in their present form, or vice versa, shall be of like effect as if shown or mentioned in both. Work not specified in either the Drawings or in the Specifications, but involved in carrying out their intent or in the complete and proper execution of the work, is required and shall be performed by the Contractor as though it were specifically delineated or described.
2. The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, and Interpretation of these Specifications shall be made upon that basis. In the event of inconsistencies in the requirements of the Drawings and Specifications, the more expensive will be required.

1.3 MATERIALS

A. Manufacturer:

1. The names of proposed manufacturers, suppliers and dealers who are to furnish materials, fixtures, or other fittings shall be submitted to the Engineer for approval, as early as possible, to afford proper investigation and checking. Such approval must be obtained before Shop Drawings will be checked. No manufacturer will be approved for any materials to be furnished under this Contract unless he shall be of good reputation and have a plant of ample capacity. He shall, upon the request of the Engineer, be required to submit evidence that he has manufactured a similar product to the one specified and that it has been previously used for a like purpose for a sufficient length of time to demonstrate its satisfactory performance.

2. All transactions with the manufacturers or subcontractors shall be through the Contractor, unless the Contractor shall request, in writing to the

   Engineer, that the manufacturer or subcontractor deal directly with the Engineer. Any such transactions shall not in any way release the Contractor from his full responsibility under this Contract.

3. Any two or more pieces of material of the same kind. type or classification, and being used for identical types of service, shall be made by the same manufacturer.

B. Delivery:

1. The Contractor shall deliver materials in ample quantities to insure the most speedy and uninterrupted progress of the work so as to complete the work within the allotted time.

2. The Contractor shall also coordinate deliveries in order to avoid delay in, or impediment of, the progress of the work of any related Contractor.

1.4 INSPECTION AND TESTING

A. General:

1. Inspection and testing of materials will be provided by the Contractor unless otherwise specified.

2. The inspection and testing shall be performed by a Florida licensed engineering/testing firm experienced in this type of work.

3. The Contractor shall notify the Engineer and owner of the firms he intends to use. The Engineer or Owner may accept or reject the firm. If rejected, the process will begin anew.

4. For tests specified to be made by the Owner, the testing personnel shall make the necessary inspections and tests and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Contract Documents. Five copies of the reports shall be submitted and authoritative certification thereof must be furnished to the Owner as a prerequisite for the acceptance of any material.

5. If, in the making of any test of any material, it is ascertained by the Owner that the material does not comply with the Contract Documents, the Contractor will be notified thereof and he will be directed to refrain from delivering said material, or to remove it promptly from the site or from the work and replace it with acceptable material, without cost to the Owner.

B. Costs:

1. All inspection and testing of materials furnished under this Contract will be provided by the Contractor, unless otherwise expressly specified.

2. Materials submitted by the Contractor as the equivalent to those specifically named in the Contract may be tested by the Contractor for compliance. The Contractor shall reimburse the Owner for the expenditures incurred in making such tests of materials which are rejected for non-compliance.

C. Inspection of Materials:

1. The Contractor shall give notice in writing to the Owner, sufficiently in advance of his intention to commence the manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. Such notice shall contain a request for inspection, the date of commencement and the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice, the Owner will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials or he will notify the Contractor that the inspection will be made at a point other than the point of manufacture.

2. The Contractor must comply with these provisions before shipping any material. Such inspection shall not release the Contractor from the responsibility for furnishing materials meeting the requirements of the Contract Documents.

D. Certificate of Manufacture:

1. When inspection is waived or when the Owner so requires, the Contractor shall furnish to him authoritative evidence in the form of Certificate of Manufacture that the materials to be used in the work have been manufactured and tested in conformity with the Contract Documents.

2. These certificates shall be notarized and shall include copies of the results of physical tests and chemical analyses, where necessary, that have been made directly on the product or on similar products of the manufacturer.

E. Failure of Tests:

1. Any defects in the materials or their failure to meet the tests, guarantees or requirements of the Contract Documents shall be promptly corrected by the Contractor by replacements or otherwise. The decision of the Owner as to whether or not the Contractor has fulfilled his obligations under the Contract shall be final and conclusive.

2. If the Contractor fails to make these corrections or if the improved materials, when tested, shall again fail to meet the guarantees or specified requirements, the Owner, notwithstanding its partial payment for work, and materials, may reject the materials and may order the Contractor to remove them from the site at his own expense.

3. In case the Owner rejects any materials, then the Contractor shall replace the rejected materials within a reasonable time. If he fails to do so, the Owner may, after the expiration of a period of thirty (30) calendar days after giving him notice in writing, proceed to replace such rejected materials and the cost thereof shall be deducted from any compensation due or which may become due the Contractor under his Contract.

F. Final Inspection: During such final inspections, the work shall be clean and free from water. Thereafter all structures and pipes intended to hold water shall be filled with water and tested. In no case will the final estimate be prepared until the Contractor has complied with all requirements set forth and the Owner has made the final inspection with the. Contractor of the entire work and is satisfied that the entire work is properly and satisfactorily constructed in accordance with the requirements of the Contract Documents.

1.5 TEMPORARY STRUCTURES

A. Temporary Fences:

1. If, during the course of the work, it is necessary to remove or disturb any fence or part thereof, the Contractor shall provide a suitable temporary fence at his own expense.

2. The Engineer shall be solely responsible for the determination of the necessity for approving a temporary fence and the type of temporary fence to be used.

B. Responsibility for Temporary Structures: In accepting the Contract, the Contractor assumes full responsibility for the sufficiency and safety of all temporary structures or work and for any damage which may result from their failure or their improper construction, maintenance or operation and will indemnify and save harmless the Owner from all claims, suits or actions and damages or costs of every description arising by reason of failure to comply with the above provisions.

1.6 TEMPORARY SERVICES

A. Accident Prevention:

1. Precautions shall be exercised at all times for the protection of person and property. The safety provisions of applicable laws, building and construction codes shall be observed.

2. The Contractor shall comply with the U.S. Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596), and under Section 107 of the contract Work. Hours and Safety Standards Act (PL 9 1-54*),* except where state and local safety standards exceed the federal requirements and except where state safety standards have been approved by the Secretary of Labor in accordance with provisions of the Occupational Safety and Health Act, shall be complied with.

B. First Aid: The Contractor shall keep upon the site, at each location where work is in progress, a completely equipped first aid kit and shall provide ready access thereto at all times when men are employed on the work.

1.7 LINES AND GRADES

A. Grade:

1. All work under this Contract shall be constructed in accordance with the lines and grades shown on the Drawings, or as given by the Engineer. The full responsibility for keeping alignment and grade shall rest upon the Contractor.

2. The Engineer will establish bench marks and base line controlling points. Reference marks for lines and grades as the work progresses will be located to cause as little inconvenience to the prosecution of the work as possible.

3. The Contractor shall so place excavation and other materials as to cause no inconvenience in the use of the reference marks provided. He shall remove any obstructions placed by him contrary to this provision.

B. Surveys:

1. The Contractor shall furnish and maintain, at his own expense. stakes and other such materials for setting project control points.

2. The Contractor shall check the Owner's permanent reference points by such means as he may deem necessary and, before using them, shall call the Engineer's attention to any inaccuracies.

3. The Contractor shall, at his own expense, establish all working or construction lines and grades as required from the Owner's permanent reference marks set by- the Owner, and shall be solely responsible for the accuracy thereof. He shall, however, be subject to the check and review of the Owner.

C. Safeguarding Marks:

1. The Contractor shall safeguard all points, stakes, grade marks, monuments and bench marks made or established on the work, bear the cost of reestablishing them if disturbed, and bear the entire expense of rectifying work improperly installed due to not maintaining or protecting or to removing without authorization such established points, stakes and marks.

2. The Contractor shall safeguard all existing and known property corners, monuments and marks adjacent to but not related to the work and, if required, shall bear the cost of reestablishing them if disturbed or destroyed.

1.8 ADJACENT STRUCTURES AND LANDSCAPING

A. Responsibility:

1. The Contractor shall also be entirely responsible and liable for all damage or injury as a result of his operations to all other adjacent public and private property, structures of any kind and appurtenances thereto met with during the progress of the work.

2. The cost of protection, replacement in their original locations and conditions or payment of damages for injuries to such adjacent public and private property and structures affected by the work, whether or not shown on the Drawings, and the removal, relocation and reconstruction of such items called for on the Drawings or specified shall be included in the various Contract Items and no separate payments will be made therefore.

3. Where such public and private property, structures of any kind and appurtenances thereto are not shown on the Drawings and when, in the opinion to avoid interference with the work, payment therefore will be made as provided for extra work in the General Conditions.

4. Contractor is expressly advised that the protection of buildings, structures, tunnels, tanks, pipelines, etc. and related work adjacent and in the vicinity of his operations, wherever they may be, is solely his responsibility.

5. Conditional inspection of buildings or structures in the immediate vicinity of the project which may reasonably be expected to be affected by the Work shall be performed by and be the responsibility of the Contractor.

6. Contractor shall, before starting operations, make an examination of the interior and exterior of the adjacent structures, buildings, facilities, etc., and record by notes, measurements, photographs, etc., conditions which might be aggravated by open excavation and construction. Repairs or replacement of all conditions disturbed by the construction shall be made to the satisfaction of the Owner. This does not preclude conforming to the requirements of the insurance underwriters. Copies of surveys, photographs, reports, etc., shall be given to the Owner.

7. Prior to the beginning of any excavations, the Contractor shall advise the Owner of all buildings or structures on which he intends to perform work or which performance of the project work will affect.

B. Protection of Trees:

1. All trees and shrubs outside the construction area shall be adequately protected by the Contractor with boxes and otherwise and in accordance with ordinances governing the protection of trees. No excavated materials shall be placed so as to injure such trees or shrubs. Trees or shrubs destroyed by negligence of the Contractor or his employees shall be replaced by him with new stock of similar size and age, at its proper season and at the sole expense of the Contractor.

2. Beneath trees or other surface structures, where possible, pipelines may be built in short tunnels, backfilled with excavated materials, except as otherwise specified, or the trees or structures carefully supported and protected from damage.

3. The Owner may order the Contractor, for the convenience of the Owner, to remove trees along the line or trench excavation. If so ordered the Owner will obtain any permits required for removal of trees.

C. Lawn Areas: Lawn areas shall be left in as good of condition as before the starting of the work. Where sod is to be removed, it shall be carefully removed, and later replaced, or the area where sod has been removed shall be restored with new sod in the manner described in the Workmanship and Materials section.

1. Any fence, or part thereof that is damaged or removed during the course of the work shall be replaced or repaired by the Contractor and shall be left in as good a condition as before the starting of the work.

2. The manner in which the fence is repaired or replaced and the materials used in such work shall be subject to the approval of the Owner.

3. The cost of all labor, materials, equipment, and work for the replacement or repair of any fence shall be deemed included in the appropriate Contract Item or items, or if no specific item is provided therefor, as part of the overhead cost of the work, and no additional payment will be made therefore.

1.9 PROTECTION OF WORK AND PUBLIC

A. Barriers and Lights:

1. During the prosecution of the work, the Contractor shall put up and maintain at all times such barriers and lights as will effectually prevent accidents.

2. The Contractor shall provide suitable barricades, red lights, “danger” or “caution” or “street closed” signs and watchmen at all places where the work causes obstructions to the normal traffic or constitutes in any way a hazard to the public.

B. Smoke Prevention: The Contractor shall use hard coal, coke, oil or gas as fuel for equipment generating steam. A strict compliance with ordinances regulating the production and emission of smoke will be required.

C. Noise:

1. The Contractor shall eliminate noise to as great an extent as practicable at all times. Air compressing plants shall be equipped with silencers and the exhaust of all gasoline motors or other power equipment shall be provided with mufflers.

2. In the vicinity of hospitals and schools, special care shall be used to avoid noise or other nuisances. The Contractor shall strictly observe all local regulations and ordinances covering noise control.

3. Except in the event of an emergency, no work shall be done between the hours of 5:00 p.m. and 7:00 a.m., Monday through Friday and on Saturdays, Sundays and legal holidays without written permission of the Owner. If the proper and efficient prosecution of the work requires operations during the night, the written permission of the Owner shall be obtained before starting such items of the work.

D. Access to Public Services: Neither the materials excavated nor the materials or plant used in the construction of the work shall be so placed as to prevent free access to all fire hydrants, valves or manholes.

E. Dust Prevention: The Contractor shall prevent dust nuisance from his operations or from traffic by keeping the roads and/or construction areas sprinkled with water at all times.

1.10 CUTTING AND PATCHING

A. The Contractor shall do all cutting, fitting or patching of his portion of the work that may be required to make the several parts thereof join and coordinate in a manner satisfactory. to the Engineer and in accordance with the Drawings and Specifications.

B. The work must be done by competent workmen skilled in the trade required by the restoration.

1.11 CLEANING

A. During Construction:

1. During construction of the work, the Contractor shall, at all times, keep the site of the work and adjacent premises as free from material, debris and rubbish as is practicable and shall remove the same from any portion of the site if, in the opinion of the Owner and Engineer, such material, debris, or rubbish constitutes a nuisance or is objectionable.

2. The Contractor shall remove from the site all of his surplus materials and temporary structures when no further need therefore develops. Contractor shall be responsible and liable for all spillage and incur all associated costs including, but not limited to, costs related to repair and maintenance resulting from damages thereof.

B. Final Cleaning:

1. At the conclusion of the work, all erection plant, tools, temporary structures and materials belonging to the Contractor shall be promptly taken away, and he shall remove and promptly dispose of all water, dirt, rubbish or any other foreign substances.

2. The Contractor shall thoroughly clean all materials installed by him and shall deliver such materials undamaged in a bright, clean, polished and new operation condition.

1.12 MISCELLANEOUS

A. Protection Against Siltation and Bank Erosion:

1. The Contractor shall arrange his operations and construct erosion control devices to minimize siltation and bank erosion on construction sites and on existing or proposed water course and drainage ditches.

2. The Contractor, at his own expense, shall remove any siltation deposits and correct any erosion problems as directed by the Owner which results from his construction operations.

B. Protection of Wetland Areas:

1. The Contractor shall not disturb any wetlands.

2. The Contractor shall properly dispose of all surplus material, including soil, in accordance with local, State and federal regulations.

3. Under no circumstances shall surplus material be disposed of in wetland areas as defined by the Florida Department of Environmental Protection.

C. Existing Facilities: The work shall be so conducted to maintain existing facilities in operation insofar as is possible. Requirements and schedules of operations for maintaining existing facilities in service during construction shall be as described in the Specific Provisions.

D. Use of Chemicals: All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfection, polymer, reactant, or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

E. Cooperation With Other Contractors and Forces:

1. During progress of work under this Contract, it may be necessary for other contractors and persons employed by the Owner to work in or about the project.

2. The Owner reserves the right to put such other contractors to work and to afford such access to the site of the Work to be performed hereunder at such times as the Owner deems proper.

3. The Contractor shall not impede or interfere with the work of such other contractors engaged in or about the Work and shall so arrange and conduct his work that such other contractors may complete their work at the earliest date possible.

F. Construction shall be conducted and shall result in construction of the improvements of this project in full accordance with the conditions of the permits granted for the project.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.1 LOCATION OF WORK

A. Work included in this contract will be performed at the Oak Estate Subdivision located along South CR-360A in the City of Madison.

1.2 DESCRIPTION OF WORK

A. **Replace approximately 2,560 LF of sanitary sewer , to include 8" gravity sewer pipes, nine (9) manholes, service connections and approximately 4,500 SY of Roadway repaving.**

1.3 WORK BY OWNER

A. Owner will conduct construction inspection services.
Owner will contract with Engineer (Madison Engineering) to provide Construction Engineering and Resident Project Representative Services, as needed.

1.4 WORK BY CONTRACTOR

A. The Contractor shall furnish all labor, materials, equipment, tools, services and incidentals to complete all of the work required as shown on the Drawings and specified.

B. The Contractor shall complete the work, in place, ready for continuous service, and shall include repairs, testing, disinfection, permits, cleanup, replacements, and restoration required as a result of damages caused during construction.

C. All material, equipment, skills, tools and labor which is reasonably and properly inferable and necessary for the proper completion of the work, in a substantial manner and in compliance with the requirements stated or implied by the Specifications or Drawings, shall be furnished and installed by the Contractor without additional compensation, whether specifically indicated in the Contract Documents or not.

D. The Contractor shall comply with all municipal, county, state, federal laws, rules, guidelines, and codes which are applicable to the work.

E. The Contractor shall pay for all retesting as a result of the original test samples failing to meet the specification requirements.

1.5 CONTRACTOR USE OF SITE

A. Access to Site: Limited to public rights-of-way.

B. Working Period: On site work by Contractor is limited to 7:30 A.M. to 5:00 P.M., Monday through Friday, excluding holidays such as July 4th, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, and New Year's Day. If the Contractor desires to work during time outside the Working Period, prior written permission of Owner must be obtained, and if Owner grants permission, Contractor must pay all Owner's associated costs, such as construction observation and testing services.

C. Utility Outages and Shutdown: Prior approval by Owner and minimized in duration.

D. Safety Precautions: Smoking only in designated areas as approved by Owner and Engineer.

1.6 SITE CONDITIONS

A. The Contractor shall be responsible for having determined to his satisfaction, prior to the submission of his Bid, the conformation of the ground, the character and quality of the substrate, the types and quantities of materials to be encountered, the nature of the ground water conditions, the execution of the work, the general and local conditions and all other matters which can, in any way, affect the work under this Contract. No claim for extras based on substrate or ground water table conditions will be allowed.

1.7 WORK SEQUENCE

A. General: As determined by Contractor and approved by Engineer and Owner.

END OF SECTION

PART I GENERAL

A. Payments to the Contractor shall be made on the basis of the Bid Items as full and complete payment for furnishing all Material, labor, tools and equipment, and for performing all operations necessary to complete the Work included in the Contract Documents. Such compensation shall also include payments for any loss or damages arising directly or indirectly from the Work, or from any discrepancies between the actual quantities of work and those shown in the Contract Documents, or from any unforeseen difficulties which may be encountered during the prosecution of the Work until the final acceptance by the Owner.

B. The price stated in the Bid Form include all costs and expenses for taxes, labor, equipment, Material, commissions, transportation charges and expenses, patent fees and royalties, labor for handling Material during inspection, together with any and all other costs and expenses for performing and completing the Work, as shown on the Plans and specified herein. The basis of payment for Bid Items at the price shown in the Bid Form shall be in accordance with its description of the item in this section and as related to the Work specified and shown on the Drawings. Unit prices where used will be applied to actual quantities furnished and installed in conformance with the Contract Documents.

C. The Contractor's attention is called to the fact that the quotations for the various items of Work are intended to establish a total price for completing the Work in its entirety. The cost of Work for which there is not a separate Bid Item shall be included in a related Bid Item, or shall be distributed over all Bid Items, such that the bid for the project reflects the total price for completing the Work in its entirety.

D. The Owner will have the right to issue one or more Change Orders prior to Final Payment. which will reconcile actual quantities furnished and accepted with the estimated quantities found in the Bid Form. Force Account work performed may be included in the Change Orders.

E. Payment of any Bid Item, in part or in full, prior to Final Payment, shall not be regarded as acceptance of that item.

F. The Contractor's attention is called to the fact that the estimated quantities appearing in the Bid Form consist of the Engineer's best opinion of what will be required to complete the Work as designed. Neither the Owner nor the Engineer guarantee the accuracy or exactness of the figures. The actual quantities will be determined during, and upon completion, of construction, based upon the measurements herein described. Substantial differences may exist between the estimated quantities and the actual quantities. The estimated quantities are not a guarantee of the magnitude of Work. For Unit Price bid items, because the

Contractor's compensation will be based upon actual completed quantities, his actual level, of compensation will vary from the Total Amount Bid. or Contract Sum. The Owner reserves the right to authorize additional amounts of any or all of the Bid Items, and to reduce or totally eliminate any of the Bid Items, without affecting the Contract Unit Price Bid for that Bid or for any other Bid Items.

G. All existing grades shown on the drawings are approximate and the Contractor is responsible to field verify all grades.

H. The Contractor shall have the duty of reporting overpayment on any item, immediately upon his discovery of same.

I. The Owner will have the right to deduct for overpayment of any item, when discovery of overpayment is made, and to adjust the amounts due the Contractor accordingly.

J. The Owner will have the right to require the Contractor to excavate and expose any item which was covered after installation for the purpose of measuring, testing, or inspecting the item; and the Contractor shall comply with such request. No separate or additional payment will be made for such extra work. The Contractor shall, when accepted or directed to by the Owner, restore and repair the Work in conformance to the Contract Documents.

K. Work performed beyond the Contract requirements, shall be approved and accepted before payment may be made. Mere knowledge by the Owner or the Engineer that the Contractor has performed a task shall not constitute approval or acceptance of the task for the purpose of payment, and the Owner will not be under obligation to pay for the task.

L. The Owner reserves the right to request of the Contractor, and Contractor shall provide a breakdown of any of the Lump Sum Bid Items, which the Contractor shall promptly provide. The breakdown shall consist of labor, equipment, and the cost of material for the Bid Item or the various components included within the Bid Item.

M. Lump Sum items have been established for various portions of the work. The term "Lump Sum" shall mean complete payment for the unit of work described. Where the unit measurement is described as "Lump Sum", the unit shall include all necessary appurtenances and incidentals required to complete the unit of work. Measurement of the lump sum work will not be made. However, the completed portion of work will be estimated on a percent complete basis for purposes of monthly payment estimates.

N. Unit Price Items have been established for various portions of the work. For these items of work, the quantity of work completed will be determined by actual measurement of work in place on the basis of the specified unit of measure. Incidentals or appurtenances not indicated as separate pay items but required to complete to particular unit of work shall be included within the unit price. The basis of payment for an item at the unit price bid shall be in general accordance with the description of that item in this section.

PART II - MEASUREMENTS

A. Progress payments for Lump Sum Bid Items will be considered on a percent completed basis and based on the breakdown of the Lump Sum Bid Item provided by Contractor. The Contractor shall estimate the value of the work performed, subject to the review and acceptance by the Engineer.

B. The Contractors surveyor will obtain the field data to be used in calculating the earthwork volumes. The Contractor shall submit quantities for payment, with calculations, for the Owner’s review and approval, in accordance with the Contract Documents.

C. The Owner will review these calculations prior to making payments. The Contractor shall give the Owner access to all field data, calculations, and computations. In the event of discrepancies or the need for additional field data to confirm quantities, the Contractor shall be responsible for the additional surveying cost.

D. Prior to submitting his first requisition for payment, the Contractor shall secure the Owner’s concurrence on the methods and procedures for making field measurements and the manner in which calculations will be performed in preparation of progress and final payment estimates.

E. Quantity estimates, field measurements, certifications, and related backup information that is submitted in support of payment request will be considered by the Owner as having been prepared by the Contractor, even when prepared by or submitted on behalf of the Contractor by others.

F. Earthwork quantities that result from unauthorized over excavations, unauthorized overfilling, or from under filling will not be considered for payment. These operations include excess volumes removed from on-site excavations, additional cover or clean fill material required to-fill excess cuts, or to fill embankments that do not meet the base grade requirements.

G. The value of furnished materials, for which partial progress or full payment is made during the course of the Work, that remain unused at the closing of the Contract, shall be deducted from the amounts due the Contractor in the Final Payment.

H. Payment between the “beginning and end” of directional bores will be for the length of pipe required to clear the applicable obstacles and tie into lines at the depth specified in the plans. Payment will specifically exclude the length of pipe required between the entry/exit locations and the “beginning and end” points, respectively, of the directional bores and the cost for this additional pipe shall be included in the Contractor’s unit bid price.

PART III PAYMENT ITEMS: Payment will be made based on the itemized Bid Proposal.

END OF SECTION

PART I GENERAL

1.1 REQUIREMENTS INCLUDED

A. Submit Applications for Payment to the Engineer in accordance with schedule established by Conditions of the Contract and Agreement between Owner and Contractor.

B. Related Requirements Described Elsewhere:

1. Agreement between Owner and Contractor.

2. Progress Payments, Retainages and Final Payment: Conditions of the Contract.

3. Section 01700: Contract Closeout.

4. Section 01720: Project Record Documents

5. Section 01380: Construction Photographs

1.2 FORMAT AND DATA REQUIRED

A. Submit applications typed on forms provided by the Owner. Application for Payment (Attachment A), with itemized data typed on 8-1/2-inch X 11 inch white paper continuation sheets.

B. Provide itemized data on continuation sheet of format, schedules, line items and values:

Those of the Schedule of Values accepted by the Engineer.

C. Construction Photographs/Video

1. Submit one copy of a color DVD format video of the sites prior to construction the with first application for payment.

2. Submit one copy of a color DVD format video of the sites after completion of construction with the final application for payment.

3. The cost of the work shall be pro rate included in the Contractor’s bid. There is no separate bid line item for this work.

1.3 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

A. Application Form:

1. Fill in required information, including that for Change Orders executed prior to date of submittal or application.

2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.

3. Execute certification with signature of a responsible officer of Contract firm.

B. Continuation Sheets:

1. Fill in total list of all scheduled component items of work, with item number and scheduled dollar value for each item.

2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored. Round off values to nearest dollar, or as specified for Schedule of Values.

3. List each Change Order executed prior to date of submission, at the end of the continuation sheets. List by Change Order Number, and description, as for an original component item of work.

4. To receive approval for payment on component material stored on site, submit copies of the original invoices with the application for payment.

5. As provided for in the “Application for Payment” form, the Contractor shall certify, for each current pay request, that all previous progress payments received from the Owner, under this Contract, have been applied by the Contractor to discharge in full all obligations of the Contractor in connection with Work covered by prior Applications for Payment, and all materials and equipment incorporated into the Work are free and clear of all liens, claims, security interest and encumbrances. Contractor shall attach to each Application for Payment like affidavits and/or partial releases of liens by all Subcontractors.

1.4 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

A. When the Owner or the Engineer requires substantiating data, Contractor shall submit suitable information, with a cover letter identifying:

1. Project.

2. Application number and date.

3. Detailed list of enclosures.

4. For stored products:

a) Item number and identification as shown on application.

b) Description of specific material.

B. Submit one copy of data and cover letter for each copy of application.

C. As a prerequisite for payment, Contractor is to submit a “Surety Acknowledgment of Payment Request” letter showing amount of progress payment which the Contractor is requesting.

D. The Contractor is to maintain an updated set of drawings to be used as record drawings in accordance with Section 01720. As a prerequisite for monthly progress payments, the Contractor is to exhibit the updated record drawings for review by the Owner and the Engineer.

E. As a prerequisite for monthly progress payments, the Contractor shall also submit an updated Progress Schedule and Shop Drawing Log.

F. Contractor shall attach to each Application for Payment affidavits and/or partial releases of liens from all subcontractors certifying for each current pay request, that all previous progress payments received from the Owner, under this Contract, have been applied by the Contractor to discharge in full all obligations of the Contractor in connection with Work covered by prior Applications for Payment, and all materials and equipment incorporated into the Work are free and clear of all liens, claims, security interest and encumbrances.

1.5 PREPARATION OF APPLICATION FOR FINAL PAYMENT

A. Fill in Application form as specified for progress payments.

1.6 SUBMITTAL PROCEDURE

A. Submit applications for Payment to the Engineer at the time stipulated in the Agreement.

B. Number of copies for each Application for Payment:

1. Owner: Three (3) copies

2. Engineer: Two (2) copies

3. Contractor: As required for his needs

C. When the Engineer finds Application properly completed and correct, he will transmit certificate for payment to Owner, with copy for Contractor.

PART 2- PRODUCTS (NOT USED)

1.1 Forms

A. See attached Application for Payment Forms.

END OF SECTION

PART 1 . GENERAL

1.1 RELATED REQUIREMENTS

A. Comply with applicable provisions of Conditions of Contract and agreement between Owner and Contractor.

1.2 SUBMITTALS

A. Submit name of the individual authorized to accept changes, and to be responsible for informing others in Contractor's employ of changes in the Work. Submit Change Order on attached form (Attachment A).

1.3 DEFINITIONS

A. Change Order: See Conditions of Contract.

B. Construction Change Authorization: Written order to Contractor, signed by Owner and Engineer, which amends Contract Documents as described, and authorizes Contractor to proceed with change which affects Contract Sum or Contract Time, for inclusion in subsequent Change Order.

C. Engineer's Supplemental Instructions: Written order, instructions, or interpretations. signed by Engineer, making minor changes in Work not involving change in Contract sum or Contract Time.

1.4 DOCUMENTATION OF CHANGE IN CONTRACT SUM AND CONTRACT TIME

A. Maintain detailed records of work done on a time and material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.

B. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.

C. Provide data to support computations including:

1. Quantities of products, labor, and equipment.
2. Taxes, insurance and bonds.
3 Overhead and profit.
4. Justification for any change in Contract Time.
5. Credit for deletions from Contract. similarly documented.

D. Support each request for additional cost for work done on a time and material basis, with additional information including:

1. Origin and date of request.
2. Dates and times work was performed, and by whom.
3. Time records and wage rates paid.
4. Invoices and receipts for product, equipment, and subcontracts, similarly documented.

1.5 PRELIMINARY PROCEDURES

A. Owner or Engineer may submit to the Contractor a change proposal request which includes detailed description of change with supplementary or revised Drawings and Specifications, the projected time for executing the change, and the period of time during which the requested price will be considered valid.

B. Contractor may initiate a change by submittal of a request to Engineer describing the proposed change with a statement of the reason for the change, and the effect on Contract Sum and Contract Time with full documentation and a statement of the effect on Work of separate contractors.

1.6 CONSTRUCTION CHANGE AUTHORIZATION

A. Engineer may issue a Change Authorization Form, signed by the Owner, instructing Contractor to proceed with a change in the Work, for inclusion in a subsequent Change Order.

B. Promptly execute the change in Work.

1.7 LUMP SUM CHANGE ORDER

A. The Change Order will be based on Change Proposal Request and Contractor’s lump sum quotation.

1.8 UNIT PRICE CHANGE ORDER

A. For pre-determined unit prices and quantities, Change Proposal Request/Change Order will be executed on a lump sum basis.

B. For unit costs or quantities of units of work which are not predetermined, execute Work under a not-to-exceed Change Proposal Request. Changes in Contract Sum or Contract time will be computed as specified for time and material Change Order.

1.9 TIME AND MATERIAL CHANGE ORDER

A. Submit itemized account and supporting data after completion of change, within time limits in the General Conditions.

B. Engineer will determine the change allowable in Contract Sum and Contract Time as provided in the General Conditions.

1.10 EXECUTION OF CHANGE ORDERS

A. Engineer will prepare all Change Orders and will issue Change Orders for signatures of parties as provided in General Conditions.

1.11 CORRELATION OF CONTRACTOR SUBMITTALS

A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum as shown on Change Order.

B. Promptly revise Progress Schedules to reflect any change in Contract Time, revise subschedules to adjust times for other items of work affected by the change, and resubmit.

C. Promptly enter changes in Project Record Documents.

END OF SECTION

PART 1 - GENERAL

1.1 UTILITIES

A. The Contractor is responsible for providing any water, power, and sanitary facilities required at the site.

1.2 PERMITTING

A. The Contractor shall obtain all local permits as required.

1.3 SITE SPECIFIC HEALTH AND SAFETY PLAN

A. Within 30 days of the Notice to Proceed, the Contractor is required to submit to the Owner a Site Specific Health and Safety Plan in accordance with the Regulations 29 CFR 1910.120(b)(4), as developed by the Occupational Safety and Health Administration (OSHA). The plan shall include, at a minimum the following:

1. An organizational chart detailing individual responsibilities,
2. A site-specific definition of work tasks and objectives,
3. Personal protective equipment,
4. Monitoring, and
5. Emergency response plan.

B. The Contractor is required to develop any other additional plans the Contractor deems necessary to protect the health and safety of personnel.

1.4 ENVIRONMENTAL PROTECTION

A. The Contractor is specifically cautioned on the following items:

1. Environmental Constraints:

a. Dust Control: Trucked water or calcium chloride shall be used if necessary to prevent dust.

b. Fire Control: The Contractor shall be responsible for fire control and submit a safety plan and fire control procedures (to which he will adhere during the entire Contract time) to the Engineer.

1.5 SAFETY

A. Trench Safety Act. The Contractor shall comply with all of the requirements of the Florida Trench Safety Act (Chapter 90-96, CS/CB 2626, laws of Florida). The Contractor shall acknowledge that included in various items of his bid proposal and in the total bid price are costs for complying with the provisions of the Act. Additionally, the Contractor is required to break out the costs for complying with the Florida Trench Safety Act. FAILURE TO COMPLY WITH THE REQUEST IN THIS SECTION SHALL RESULT IN THE BID BEING DECLARED NON-RESPONSIVE.

B. General

1. The Occupational Safety and Health Act (OSHA) of 1970 imposes a duty on employers to furnish a safe and healthful job environment for all employees. The employees are required to comply with safety rules and regulations applicable to their activities and conduct. Employers have the obligation not only to eliminate recognized hazards and to comply with national safety and health standards, but also to provide information and training to create the necessary awareness on the part of the employees.

2. Safety Equipment

Workers engaged in construction should wear protective safety equipment as follows:

a. Hard hats, if near moving mechanical equipment.

b. Steel-toed, shoes or rubber boots.

c. Safety glasses or face shields, as appropriate.

d. Protective gloves, as appropriate.

e. Hearing protection, depending on noise level of work environment.

The following safety equipment should be available at the job site in quantities sufficient to cover the construction crew:

a. Clean water, sump and paper towels.

b. First aid kit, eye wash station, stretcher, and blanket.

c. Fire extinguisher (2) 20:A-80:BC.

d. No smoking signs.

e. Vapor masks.

f. Parachute-type harnesses (2) and safety lines (for use in excavations, manholes, etc.).

g. Self-contained breathing apparatus.

h. Oxygen indicator.

i. Hydrogen sulfide indicator (Draeger Tubes).

j. Additional monitoring equipment for toxic vapors and aerosols.

k. Barricades

l. Covers for excavations that will remain open at end of working day.

m. Air-moving equipment that can provide ventilation if working in sub-standard air environment (trenches, condensate drain pits, etc.).

n. Fire blanket.

o. Organic vapor masks.

p. Construction equipment equipped with vertical exhaust or spark arrestors if within 2 feet of grade.

q. Flagging, traffic markers, and flourescent orange safety vests for use when working around operating equipment or near public roadways.

3. Personal Health and Hygiene

a. Personal safety and the safety of fellow workers require that all employees are mentally alert and in good general health. No alcohol or drugs are permitted. Smoking shall be limited to designated area(s).

b. An annual medical examination also is recommended for workers. Any cut or abrasion should be treated immediately. A tetanus shot is recommended at specified intervals for all personnel involved in site construction.

c. Avoid contact with unfamiliar plants or those known to be hazardous growing on the site.

d. Animals, snakes, spiders, and other insects should be avoided. Be particularly careful around vaults and valve boxes. First aid supplies should include a snake bite kit.

e. The address, phone number, and location map of the local hospital and medical emergency room should be prominently posted. In addition, the phone number of an ambulance and fire department/rescue unit should be posted.

f. Wash hands prior to eating.

4. Safety Procedures

a. A confined space is defined as a space where existing ventilation is insufficient to remove dangerous air contamination and/or oxygen deficiency, and where ready access/egress to escape and providing aid to remove a disabled employee is difficult.

b. Vaults and ditches greater than 3 feet and other non-ventilated confined spaces should not be entered unless tested for explosive concentrations, oxygen deficiency and H_2S levels. Air blowers or fans should be available for positive ventilation. Self-contained breathing apparatus or supplied-air masks must be used when entering areas containing hazardous and/or oxygen deficient atmospheres. “Chemical” cartridge respirators can be used for gaseous contaminants (not H_2S) if oxygen concentration is satisfactory. Mechanical filter respirators should be used only for protection against particulate matter.

c. Fires or explosions in confined spaces require a source of ignition. Smoking is strictly forbidden except in designated areas. Non-sparking and/or explosion proof tools should be used in vaults, trenches, or other enclosed areas. Positive ventilation is required in construction shacks or other structures. Temporary structures should be constructed on blocks or other supports with a ventilated area under the main floor.

Construction equipment should be equipped with vertical exhaust and spark arrestors.

d. Employees who wear beards should not work in areas where air masks or respirators may be necessary. Other employees should not use stand-by people wearing beards. All employees should be fit-tested on the respirator that they will wear in order to assure a proper face piece seal against the face. Fit testing should reoccur at least annually.

5. Safety Procedures for Trenching and Pipe Installation

a. Excavation permits and shoring may be required for excavations deeper than 4 to 5 feet (into which workers will enter). Check state regulations, as standards and requirements vary.

b. One person, with the sole responsibility of assuring the observance of all safety procedures, should be present at all times during construction. This person should be trained in the use of all the recommended safety equipment.

c. No smoking on the construction site is preferred and should be prohibited.

d. Prior to the entry of workers into an excavation deeper than 3 feet, and periodically during their work, the atmosphere in the excavation should be tested. If there are any doubts regarding safety, no worker shall be allowed to enter the excavation without at least a half-face or full-face OV/AG mask. If there is an oxygen deficiency, a concentration of any constituent with poor warning properties at a level greater than its TLV, or a concentration of hydrogen sulfide greater than 10 ppm, a pressure-demand SCBA or supplied air respirator with 5 minute emergency escape bottle should be used. If a combustible mixture of gas is present, further precautionary measures shall be taken; entry should be forbidden until the gas concentration is acceptable and at least below 1.0 percent by volume in air, or 20 percent of the LEL. If workers are not equipped with supplied air or pressure-demand SCBAs, then entry should be forbidden until the work area is safe. Workers required to work on an emergency basis, in any environment at or above the IDLH (the level immediately dangerous to life and health as declared and published by NIOSH) for any constituent component in the working environment, should be outfitted in pressure-demand SCBAs.

e. No worker should be allowed to work alone at any time in or near the excavation. Another worker should be present.

f. Construction equipment should be equipped with a vertical exhaust at least 5 feet above grade and with spark arrestors.

g. Electrical motors, if used in the excavation area, shall be explosion-proof or non-sparking, totally enclosed fan cooled (TEFC); and electrical controls should be explosion-proof or intrinsically safe and meet the requirements for Class I, Division 2, Group D, rated equipment in accordance with the National Electric code (NEC).

h. Solvent cleaning, gluing, or bonding of pipe should be performed to the extent possible, outside the trench. An organic vapor respirator shall be worn by persons using PVC solvents or glues. Personnel using solvent and cement shall be familiar with the appropriate materials safety data sheets for those products.

i. Forced ventilation may be required for workers who must work in trenches deeper than 3 feet. Air blowers and fans may be used for positive ventilation. Dilution ventilation may address either an explosive gas hazard or a hazardous chemical health hazard.

j. During piping assembly, all valves should be closed immediately after installation.

6. General Construction/Maintenance: When using alternating-current powered power tools, a portable ground-fault current interrupter (GFCI) should be used.

7. Respiratory Protection

a. All employees who may be required to wear respirators shall be trained in the proper use of respirators. Such individuals will have an appropriate physical examination for use of respirators. Each individual will be approved by a qualified physician for such respirator use. All personnel who wear respirators shall come under the jurisdiction of their employer’s written respiratory protection program, and will follow and be knowledgeable about the program. Personnel will be individually fit-tested wearing their assigned respirator.

b. Persons with interfering facial hair shall not be permitted in areas where respiratory protection equipment is required; i.e., beards are prohibited.

c. Permanent damage to the eyes (cornea) from acid gases and particulates may result if contact lenses are worn. Therefore, wearing contact lenses on site shall be prohibited. Those persons shall have prescription spectacle inserts installed in their respiratory protective equipment.

d. All NIOSH procedures and guidelines for respirator selection and use should be adhered to. Only equipment certified by NiOSH in its most recent certified equipment list will be used. APRs with chemical cartridges can only be used for acid gas/organic solvent vapors under the following conditions:

- If the oxygen concentration is satisfactory.
- If the chemical contaminants have been identified.
- The concentrations are monitored.
- The chemical filter cartridges are effective in removing the contaminants.
- The cartridges are approved for such use (by NIOSH).
- The contaminants have good warning properties.

If all of the above conditions cannot be satisfied, then Level B protection using pressure-demand SCBAs or supplied air is required. APRs with chemical cartridges/canisters will not be used for protection in environments containing constituents which have poor warning properties, and which are at or above, or can reasonably be expected to be near, at, and/or above the limitation of the protection factor (PF) for the respirator. The maximum working environment shall be determined by multiplying the PF for the type of respirator by the TLV for the chemical substance under consideration, (MIJC = PF X TLV).

e. Pressure demand SCBA or pressure demand supplied-air full-face masks shall be used when entering areas containing oxygen-deficient atmospheres, unknown atmospheres, or atmospheres considered to be at or above IDLH levels. Personnel (with appropriate SCBA apparatus) will not enter IDLH environments without emergency justification by and approval of a site safety manager or responsible project manager. An emergency is constituted by an already existing life threatening situation.

f. The length of time an APR canister or cartridge is effective in removing hazardous material from the ambient air will depend on the type and concentration of hazardous material in the air and the level of effort required for a worker to accomplish his assigned tasks. The higher the breathing rate, the more frequently canisters will need to be replaced. These maximum operating periods vary according to manufacturer, so it will be necessary to monitor the total usage of cartridges and canisters during all work requiring a respirator.

8. Special Conditions

Certain types of work may present unusual problems at certain sites with special conditions. Examples include the following:

Special compliance requirements apply for personnel who must work with potential exposure to certain chemicals including vinyl chloride, benzene, and asbestos above action levels. Compliance requirements may vary with each compound and by state, but will likely include:

- Mandatory training
- Medical record keeping
- Exposure monitoring, and record keeping
- Certifications
- Specific protective equipment requirements

9. Shoring and Bracing

a. No person shall enter any trench five feet or more in depth unless that trench has been shored, braced, sloped, or other provisions made to prevent cave in. Shoring shall be engineered by a qualified and licensed civil or structural engineer or engineering geologist. Drawings, specifications, and calculations shall be signed by the engineer.

10. Safety Management

a. No safety program can be effective without management support and interest. It is recommended that all companies involved in the WWTF construction industry initiate a safety program for the protection of the health and safety of the personnel involved.

b. Safety procedures shall be reviewed with all workers to insure that they are aware of requirements and safety concerns.

c. The Safety Officer shall be adequately qualified to insure that he is aware of requirements and safety concerns.

d. Weekly meetings shall be held to review unsafe acts.

e. Unsafe acts shall be stopped if discovered by the Safety Officer.

f. Required safety equipment shall be on-site and shall be checked to verify completeness and function.

g. All employees on the job site should sign a document of their awareness of their work environment.

h. A safety checklist should be maintained at the job site.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Coordination.

B. Field engineering.

C. Alteration project procedures.

D. Cutting and patching.

E. Preconstruction conference.

F. Progress meetings.

G. Reinstallation conferences.

1.2 COORDINATION

A. Contractor shall coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.

B. The Contractor shall coordinate his work with the other Subcontractors working on the site (i.e., wet well liner installation, electrical, etc.).

C. The Contractor shall notify the Engineer one week in advance of the time it is necessary to remove from service any existing road, equipment, or structure.

D. Contractor shall coordinate completion and clean up of Work of separate Sections in preparation for Substantial Completion.

E. After Owner occupancy of premises, Contractor shall coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owners activities.

1.3 FIELD ENGINEERING

A. Contractor shall employ a Land Surveyor registered in the State of Florida and acceptable to the Owner.

B. Contractor to locate and protect survey control and reference points.

C. Control datum for survey is that established by Owner shown on Drawings.

D. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

1.4 ALTERATION PROJECT PROCEDURES

A. Materials: As specified in product Sections.

B. Where new work abuts or aligns with existing, perform a smooth and even transition.

1.5 CUTTING AND PATCHING

A. Employ skilled and experienced installer.

B. Submit written request in advance of cutting or altering elements which affects:

1. Work of Owner or separate contractor.

C. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:

1. Fit the several parts together, to integrate with other Work.
2. Uncover Work to install or correct ill-timed Work.
3. Remove and replace defective and non-conforming Work.
4. Remove samples of installed Work for testing.

D. Execute work by methods which will avoid damage to other Work, and provide proper surfaces to receive filling and finishing.

E. Restore Work with new products in accordance with requirements of Contract Documents.

F. Identify any hazardous substance or condition exposed during the Work to the Owner for decision or remedy.

1.6 PRECONSTRUCTION CONFERENCE

A. Owner will schedule a conference after Notice of Award.

B. Attendance Required: Owner, Engineer, Contractor and Major Subcontractors.

C. Agenda:

1. Execution of Owner-Contractor Agreement.
2. Submission of list of Subcontractors, list of products, Schedule of Values, progress schedule, Pay Request schedule, site safety plan, and schedule.
3. Designation of personnel representing the parties in Contract.
4. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures.
5. Project schedule.
6. Critical work sequencing: Relationships and coordination with other contracts and/or work and continuing site operation.
7. Major equipment deliveries and priorities.
8. Project coordination and control.
9. Submittal of Shop Drawings.
10. Adequacy of distribution of Contract Documents.
11. Procedures for maintaining Record Documents.
12. Use of premises:
    a) Office, work and storage areas.
    b) Owner’s requirements.
    c) Access and traffic control.
13. Construction facilities, controls and construction aids.
14. Temporary utilities.
15. Safety and first aid procedures.
16. Check of required Bond and Insurance certifications.
17. Completion time for contract and liquidated damages.
18. Request for extension of contract time.
19. Request for a weekly job meeting for all involved.
20. Security procedures.
21. Procedures for making partial payments.
22. Guarantee on completed work.
23. Equipment to be used.
24. Staking of work.
25. Project inspection.
26. Labor requirements.
27. Laboratory testing of material requirements.
28. Inventory of material stored on site provisions.
29. Requirements of railroads, highway departments, and other organizations.

30. Rights-of-way and easements.
31. Housekeeping procedures.
32. Liquidated damages.
33. Posting of signs.
34. Pay request submittal dates.
33. Equal opportunity requirements.
34. Permits.
35. Procedures for testing.
36. Procedures for maintaining record documents.
37. Inspection by Owner and Owner's representatives

1.7 PROGRESS MEETINGS

A. Engineer shall schedule and administer meetings throughout progress of the Work at weekly intervals, unless otherwise deferred by the Owner or Engineer due to holidays or lack of major work activities.

B. Contractor shall make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes, submit draft minutes to Engineer for review and comment, and distribute copies within 3 days to Owner, Engineer, participants, and those affected by decisions made.

C. Attendance Required: Engineer Job superintendent, major Subcontractors and suppliers, Owner and Owner's representatives, as appropriate to agenda topics for each meeting.

D. Agenda:

1. Review minutes of previous meetings.
2. Review of Work progress.
3. Field observations, problems, and decisions.
4. Identification of problems which impede planned progress.
5. Review of submittals schedule and status of submittals.
6. Review of off-site fabrication and delivery schedules.
7. Maintenance of progress schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Coordination of projected progress.
11. Maintenance of quality and work standards.
12. Effect of proposed changes on progress schedule and

coordination.

13. Other business relating to Work.

1.08 REINSTALLATION CONFERENCES

A. When required in individual specification Section, convene a reinstallation conference at work site prior to commencing work of the Section.

B. Require attendance of parties directly affecting, or affected by, work of the specific Section.

C. Notify Owner four days in advance of meeting date.

D. Prepare agenda, preside at conference, record minutes, and distribute copies within three days after conference to participants, with one copy each to Owner and Engineer.

E. Review conditions of installation, preparation and installation procedures, and coordination with related work.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

PART 1 GENERAL

1.1 PRECONSTRUCTION MEETING

A. Prior to commencement of work, a preconstruction meeting will be held in compliance with the applicable provisions of Sections 01039 and 01200 and elsewhere herein, for the purpose of clarifying the administrative procedures for prosecution of the work and explaining any requirements of the Contract Documents which are not understood.

1.2 COORDINATION OF DRAWINGS AND SPECIFICATIONS

A. Before execution of Work, review all Drawings and Specifications and immediately report to the Engineer, in writing, all errors, discrepancies, and/or omissions discovered and submit one set of Contract Documents marked in red pencil clearly indicating the discrepancies.

B. Where variances occur between Drawings and Specifications, between large scale drawings over small scale, or within either document itself, include the item or arrangement of better quality, greater quantity, or higher cost in Bid Price. Engineer will have final decision regarding item and manner in which the work is to be installed.

C. Where such variances are encountered, notify Engineer for interpretation or decision before proceeding with the work, and such interpretation or decision will be final.

D. Compare Drawings and verify the figures before laying out work. The Contractor will be held responsible for conflicts which might have been avoided by such verification.

E. Drawings are diagrammatic and indicate general arrangement of systems and work included in the Contract.

1. Follow Drawings in laying out the work and check Drawings of various trades to verify spaces in which work is to be installed.

2. Notify Engineer where space conditions appear inadequate before proceeding.

3. If directed by Engineer, make reasonable modifications in layout as needed to prevent conflict with work of various trades or for proper execution of work, without extra charge.

1.3 COORDINATION OF THE WORK

A. Coordinate construction activities of the various trades and disciplines to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.

B. Verify that characteristics and elements of interrelated operating equipment are compatible. Coordinate work of various trades having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

C. Mechanical/Electrical:

1. Coordinate space requirements and installation of mechanical and electrical work indicated diagrammatically on Drawings.

2. Follow routing shown for pipes, ducts, and conduits, as closely as practicable.

D. Seal penetrations through floors, walls, and ceilings.

1.4 COORDINATION RESPONSIBILITIES

A. Subcontractor Coordination:

1. Insure subcontractors are knowledgeable of all provisions of Division I, General Requirements, and are responsible for conforming to applicable requirements and instructions stated.

2. Assume responsibility for administering Work performed by subcontractors in accordance with Division 1, General Requirements.

B. Installation Sequencing:

1. Examine materials and installations performed by other trades before starting next stage or adjacent work.

2. Immediately correct unsatisfactory conditions which hinder or restrict correct installation of next stage or adjacent work.

3. Start of next stage or adjacent work will be construed as acceptance of previous or adjacent work whether or not conditions are satisfactory.

4. Any work requiring subsequent removal or replacement due to unsatisfactory or defective work shall be at no expense to the Owner.

1.5 PROJECT SIGNS

A. Subject to prior approval of Engineer and Owner as to size, design, type and location, and local regulations, temporary signs may be erected by the Contractor and Subcontractor for purposes of identification and for controlling traffic.

B. Furnish, erect, and maintain such signs as may be required by Safety Regulations or as necessary to safeguard life and property.

END OF SECTION

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

1. Field engineering and surveying services provided by the Contractor.

2. Survey work required in execution of Project.

3. Surveys for record drawings.

4. Identify property benchmarks.

5. Civil, structural or other professional engineering services specified or required to execute Contractor's construction methods.

6. The method of field staking for the construction of the work shall be at the option of the Contractor. The Owner shall provide the engineering surveys to establish reference points which in his judgment are necessary to enable the Contractor to proceed with his work.

7. The accuracy of any method of staking shall be the responsibility of the Contractor. All engineering for vertical and horizontal control shall be the responsibility of the Contractor.

8. The Contractor shall be held responsible for the preservation of all benchmarks, stakes, and marks. If any benchmarks, stakes, or marks are carelessly or willfully disturbed by the Contractor, the Contractor shall not proceed with any work until he has established such points, marks, lines and elevations as may be necessary for the prosecution of the work.

9. The Contractor shall retain the services of a registered land surveyor licensed in the State of Florida to identify existing control points and to maintain a survey during construction and to prepare the As-Built/Record construction drawings.

1.2 QUALIFICATIONS OF SURVEYOR OR ENGINEER

A. Qualified engineer or registered land surveyor, acceptable to the Owner and the Engineer.

B. Registered professional engineer of the discipline required for the specific service on the Project, currently licensed in the State of Florida.

1.3 SURVEY REFERENCE POINTS

A. Owner shall locate site control (reference) points prior to starting site work, and Contractor shall protect and preserve all the Owner's permanent reference points during construction.

1. Contractor shall make no changes or relocations without prior written notice to the Engineer.

2. Contractor shall report to the Engineer when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

3. Contractor shall require surveyor to replace Project control points which may be lost or destroyed at no additional cost to the Owner. Establish replacement based on original survey control for the site.

1.4 RECORDS

A. Maintain a complete, accurate log of all control and survey work as it progresses.

B. Submit record documents under provisions of Section 01720.

1. At end of the project, submit a certified site survey and As-Built/Record Drawings information on reproductive 24" x 36" blackline sheets.

2. All survey information should be tied into site coordinate system.

3. Manholes, cleanout locations and numbers should be submitted to the Engineer by coordinate location and shown on plan sheets.

4. Catch basins, stormwater piping and structures, and manholes required invert elevations.

1.5 SUBMITTALS

A. Submit name and address of surveyor and professional engineer to the Engineer within 30 days after receipt of Notice of Award.

B. On request of the Engineer, submit documentation to verify accuracy of field engineering work.

C. Submit certificate signed by registered engineer or surveyor certifying that elevations and locations of improvements are in conformance with the Contract Documents, or if not in conformance, certify as to variances from the Contract Documents.

PART 2 PRODUCTS (Not used)

PART 3 EXECUTION (Not used)

END OF SECTION

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Unless otherwise specified, the Contractor shall obtain and pay for all licenses necessary to complete the work, as provided for in the General Conditions except as otherwise provided herein.

B. Permits by Owner: Prior to the start of construction, the Owner shall obtain the following permits from the following agencies:

1. Florida Department of Environmental Protection (FDEP) Collection/ Transmission System Permit to Construct the Project (Attachment A); and

2. City Construction Permit.

The Contractor will be issued copies of all permits obtained by the Owner as required.

C. Permits by Contractor: Prior to construction, the Contractor shall pay for and obtain all other local government permits and fees, e.g., licenses, permit fees, impact fees, inspection fees, etc., unless otherwise specified.

Contractor shall post a copy of all permits at the site at all times during construction. The Contractor shall abide by the permit conditions at all times.

D. Work shall be conducted, and shall result in construction of the improvements of this project, in full accordance with the conditions of the permits granted for the project.

END OF SECTION

A	AREA/AIR
AB	ANCHOR BOLT
ABD	ABANDONED
AC	ALTERNATING CURRENT/ ASBESTOS CEMENT/ACRE
A/C	AIR CONDITIONER
ACCEL	ACCELERATION
ACOUST	ACOUSTICAL
ACT	ACTUAL
ADJ	ADJUST
ADPT	ADAPTER
AGG	AGGREGATE
AL	SODIUM ALUMATE
ALT	ALTERNATE
ALUM	ALUMINUM
AMP	AMPERES
AM'T	AMOUNT
APP'D	APPROVED
APROX	APPROXIMATE
ARTF	ARTIFICIAL
ARV	AIR RELIEF VALVE
ASPH	ASPHALT
ASPH CONC	ASPHALTIC CONCRETE
ASSEM	ASSEMBLY
AUTO	AUTOMATIC
AUTO TR	AUTO-TRANSFORMER
AUX	AUXILIARY
AVE	AVENUE
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
AWT	ADVANCED WATER TREATMENT
AWWA	AMERICAN WATER WORKS ASSOCIATION
&	AND
@	AT
B TO B	BACK TO BACK
B/C	BACK OF CURB
BCCMP	BITUMINOUS COATED CORRUGATED METAL PIPE CULVERT
BCPA	BITUMINOUS COATED PIPE ARCH CULVERT
BCPCMP	BITUMINOUS COATED AND PAVED CORRUGATED METAL PIPE CULVERT
BCPPA	BITUMINOUS COATED AND PAVED PIPE ARCH CULVERT
BE	BURIED ELECTRIC
BV	BALL VALVE
BJ	BELL JOINT
BIT	BITUMINOUS
BK	BACK
BL	BASELINE
BLDG	BUILDING
BLK	BLOCK
BM	BENCH MARK
BOT	BOTTOM
BP	BORROW PIT
BR	BRIDGE
BRG	BEARING
BS	BOTH SIDES
BT	BURIED TELEPHONE CABLE OR DUCT
BTFLY	BUTTERFLY
BVCS	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
BW	BOTTOM WIDTH
BYP	BYPASS
C&G	CURB AND GUTTER
CA	COARSE AGGREGATE
CALC	CALCULATE
CAP	CORRUGATED ALUMINUM PIPE OR CAPACITY
CAT	CATALOG
CATV	CABLE TELEVISION
CB	CONCRETE BLOCK OR CATCH BASIN
CBC	CONCRETE BOX CULVERT
CBS	CONCRETE BOX STRUCTURE
CCC	CHLORINE CONTACT CHAMBER
C TO C	CENTER TO CENTER
CCEW	CENTER TO CENTER EACH WAY
CCV	CUSHION CHECK VALVE
CE	CLARIFIED EFFLUENT
CEM	CEMENT
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CH	CHANNEL
CHAM	CHAMFER
CI	CAST IRON
CIP	CAST IRON PIPE
CIP	CAST IN PLACE
CISP	CAST IRON SOIL PIPE
CL	CENTER LINE
CL_2	CHLORINE
CLG	CHLORINE GAS
CLGV	CHLORINE GAS VACUUM
CLS	CHLORINE SOLUTION
CLR	CLEAR
CM	CONCRETE MONUMENT
CMP	CORRUGATED METAL PIPE
CMPA	CORRUGATED METAL PIPE ARCH
CO	COUNTY OR COMPANY
COL	COLUMN
CONC	CONCRETE OR CONCENTRIC

CONN	CONNECTION
CONST	CONSTRUCT OR CONSTRUCTION
CONTRL	CONTROLLER
CPE	CORRUGATED POLYETHYLENE PIPE
CPLG	COUPLING
CR	CONTROL RADIUS OR COUNTY ROAD
CRA	CLEAR RECOVERY AREA
CRS	COURSE
CSP	CORRUGATED STEEL PIPE
CTR	CENTER
CU	COPPER
CU FT	CUBIC FEET
CU IN	CUBIC INCH
CULV	CULVERT
CV	CHECK VALVE
CY	CUBIC YARD
CYL	CYLINDER
CZ	CLEAR ZONE
DC	DIRECT CURRENT
DA	DRAINAGE AREA
DBI	DITCH BOTTOM INLET
DBL	DOUBLE
DEC	DECANT
DECEL	DECELERATION
DEPT	DEPARTMENT
DET	DETOUR
DHW	DESIGH HIGH WATER
DT	DITCH
DI	DROP INLET
DIA OR D	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DISP	DISPOSAL
DIST	DISTANCE
DIV	DIVISION
DOT	DEPARTMENT OF TRANSPORTATION
DR	DRAIN
DRWY	DRIVEWAY
DRG	DRAWING
E TO E	END TO END
EA	EACH
EB	EASTBOUND
ECC	ECCENTRIC
EFF	EFFLUENT
EL	ELEVATION
ELAST	ELASTOMETRIC
ELEC	ELECTRIC
ELLIP	ELLIPTICAL
EMBK	EMBANKMENT
EMER	EMERGENCY
ENCL	ENCLOSURE
CONT	CONTINUATION
CONTR	CONTRACTOR
CORR	CORRUGATED
CP	CONCRETE PIPE
ENGR	ENGINEER
ENGRG	ENGINEERING
ENT	ENTRANCE
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EQUIP	EQUIPMENT
ERCP	ELLIPTICAL REINFORCED CONCRETE PIPE
ESMT	EASEMENT
ET	ELAPSED TIME
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EW	ENDWALL
EXH	EXHAUST
EXP	EXPANSION
EXIST	EXISTING
EXT	EXTERIOR/EXTENSION
FAB	FABRICATED
FB	FLAT BAR
FGP	FIBERGLASS PIPE
F & I	FURNISH & INSTALL
FE	FILTERED EFFLUENT
F TO F	FACE TO FACE
FC	FRICTION COURSE
FD	FRENCH/FLOOR PLAN
FES	FLARED END SECTION
FH	FIRE HYDRANT
FIN	FINISH
FG	FINISHED GRADE
FL	FLOW LINE/FLOOR LINE
FLEX	FLEXIBLE
FLG	FLANGE
FLR	FLOOR
FM	FORCE MAIN
FST	FORGED STEEL
FT	FOOT OR FEET
FTG	FOOTING
FO	FUEL OIL
FURN	FURNISH
FUT	FUTURE
GAL	GALLON
GALV	GALVANIZED
GA	GAUGE OR GAGE
GD	GUTTER DRAIN
GEN	GENERAL
GI	GALVANIZED IRON
GIP	GALVANIZED IRON PIPE
GM	GAS MAIN

GOV'T	GOVERNMENT
GP	GRADE POINT
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GRADE, GUARDRAIL OR GRATE
GSP	GALVANIZED STEEL PIPE
GSKT	GASKET
GSR	GROUND STORAGE RESERVOIR
HS	HIGH SERVICE
HSP	HIGH SERVICE PUMP
HTG	HEATING
HTR	HEATER
HW	HOT WATER
HWA	HIGH WATER ALARM
HWL	HIGH WATER LEVEL
HWY	HIGHWAY
HYD	HYDRANT
HZ	HERTZ
I	IRON
ID	INSIDE DIAMETER
IN	INCH
INF	INFLUENT
INS	INSULATED
INT	INTERIOR
INV	INVERT
IP	IRON PIPE
INSTL	INSTALL
JB	JUNCTION BOX
JCT	JUNCTION
JT	JOINT
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KW	KILOWATT
KWY	KEYWAY
L OR LGTH	LENGTH
LA	LIQUID ALUM
LAB	LABORATORY
LAM	LAMINATED
LAT	LATERAL
LB	POUND
LBR	LIMEROCK BEARING RATIO
LF	LINEAL FEET
LIN	LINEAR
LMRK	LIMEROCK
LPV	LUBRICATED PLUG VALVE
LT	LEFT
LTD	LIGHTED
LOC	LIMITS OF CONSTRUCTION
LUB	LUBRICATED
GTE	GENERAL TELEPHONE CO
GTTR	GUTTER
GV	GLOBE VALVE/GATE VALVE
GYP	GYPSUM
HB	HOSE BIBB
H OR HT	HEIGHT
HD	HIGH DENSITY
HDWL	HEADWALL
HEX	HEXAGON
HGR	HANGER
HGT	HEIGHT
HOA	HAND-OFF-AUTOMATIC
HORIZ	HORIZONTAL
HP	HORSEPOWER
HR	HOUR
L/W	LIGHTWEIGHT
LWL	LOW WATER LINE
M	THOUSAND
MACH	MACHINE
MAINT	MAINTENANCE
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MED	MEDIAN
MES	MITERED END SECTION
MFG	MANUFACTURING
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MG/L	MILLIGRAMS PER LITER
MH	MANHOLE
MHW	MEAN HIGH WATER
MI	MILE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
ML	MIXED LIQUOR
MLW	MEAN LOW WATER
MOD	MODIFY OR MODIFIED
MON	MONUMENT
MPH	MILES PER HOUR
MSL	MEAN SEA LEVEL
MTD	MOUNTED
MTL	METAL
MTR	METER
N	NORTH
NA OR N/A	NOT AVAILABLE OR NOT APPLICALBE
NEC	NATIONAL ELECTRIC CODE
NE	NORTHEAST
NEG	NEGATIVE
NGVD	NATIONAL GEODETIC VERTICAL DATUM OF 1929

NHW	NORMAL HIGH WATER
NI	NOT INCLUDED
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NORM	NORMAL
NOS	NATIONAL OCEANOGRAPHIC SERVICE
NTS	NOT TO SCALE
NTU	NEPHELOMETRIC TURBIDITY UNIT
NW	NORTHWEST
#	NUMBER
OAE	OR APPROVED EQUAL
O/E	OR EQUAL
O TO O	OUT TO OUT
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OE	OVERHEAD ELECTRIC
OFC	OFFICE
OFL	OVERFLOW
PPM	PARTS PER MILLION
PR	PAIR
PRC	POINT OF REVERSE CURVATURE
PRCST	PRECAST
PREFAB	PREFABRICATED
PRESS	PRESSURE
PREST	PRESTRESSED
PRM	PERMANENT REFERENCE MONUMENT
PRV	PRESSURE REDUCING VALVE
PS	PUMPING STATION
PSF	PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSW	PLANT SERVICE WATER
PT	POINT OF TANGENCY
P/T	PRESSURE TREATED
PVC	POLYVINYL CHLORIDE
PV	PLUG VALVE
PVI	POINT OF VERTICAL INTERSECTION
PW	POTABLE WATER
PWR	POWER
R	RADIUS
RAS	RETURN ACTIVATED SLUDGE
RCP	REINFORCED CONCRETE PIPE
RCPA	REINFORCED CONCRETE PIPE ARCH
OH	OVERHEAD
OMP	OPERATIONS MONITORING PANEL
OPNG	OPENING
OPT	OPTION, OPTIONAL
OT	OVERHEAD TELEPHONE
PAVT	PAVEMENT
PC	POINT OF CURVATURE
PCBC	PRECAST CONCRETE BOX CULVERT
PCC	POINT OF COMPOUND CURVATURE
PCV	PRESSURE CONTROL VALVE
PEP	POLYETHELENE PIPE
PERM	PERMANENT
PG	PROFILE GRADE
PGL	PROFILE GRADE LINE
PH	PHASE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE OR PLATE
PLC	PROCESS LOOP CONTROL
PO	PUSH-ON (JOINTS)
POC	POINT ON CURVE
POST	POINT ON SEMI-TANGENT
PP	POWER POLE
PPD	POUNDS PER DAY
RCW	RECLAIMED WATER
RCY	RECYCLE
RECP	RECEPTACLE (ELEC)
RD	ROAD OR ROUND
RED	REDUCE(D)
REF	REFERENCE
REF/L	REFERENCE LINE
REG	REGISTER(ED)
REINF	REINFORCED
RELOC	RELOCATED
REM	REMOVAL
REPL	REPLACE
REQ OR REQD	REQUIRED
RES	RESIDENCE OR RESIDENTIAL
REST'D	RESTRAINED
RET	RETURN
REV	REVERSE
RH	RIGHT HAND
RM	REFERENCE MONUMENT/ROOM
RP	REFERENCE POINT
RPM	REVOLUTIONS PER MINUTE
RRPM	RAISED REFLECTIVE PAVEMENT MARKERS
RR	RAILROAD
RS	RAW SEWAGE INFLUENT FORCE MAIN
RT	RIGHT

RW	REJECT WATER
R/W	RIGHT OF WAY
RWL	RAW WATER LINE
S	SOUTH
SA	SAMPLE
SAN	SANITARY
SCH	SCHEDULE
SD	SIDE/STORM DRAIN/SUBDIVISION
SE	SOUTHEAST
SEC	SECOND
SECT	SECTION
SED	SEDIMENT
SERV	SERVICE
SG	SUBGRADE
SF	SQUARE FOOT OR SILT FENCE
SHT	SHEET
SHLDR	SHOULDER
SHW	SEASONAL HIGH WATER
SL	SLUDGE
SLV	SLEEVE
SM	SMALL
SOL	SOLUTION OR SOLENOID
SP	SPACE
SPEC	SPECIFICATION
SPL	SPECIAL
SQ	SQUARE
SQ FT	SQUARE FEET
SQ IN	SQUARE INCHES
SR	STATE ROAD
SS	STORM SEWER/STAINLESS STEEL
TPR	TAPER
TRAF	TRAFFIC
THWN	MOISTURE AND HEAT RESISTANT THERMOPLASTIC
TK OR THICK	THICKNESS
TRANS	TRANSITION OR TRANSVERSE
TREAT	TREATMENT
TV	TELEVISION
TYP	TYPICAL
UG OR UNGRD	UNDERGROUND
UNDDR	UNDERDRAINS
UTIL	UTILITIES
V	VOLT, VELOCITY, VOLUME OR VALVE
VV	VACUUM VALVE
VAC	VACUUM
STA	STATION
STAB	STABILITY OR STABILIZATION
STD	STANDARD
STL	STEEL
STO	STORAGE
STR	STRUCTURE
SUB OR SUBS	SUBSOIL/SUBSTITUTE
SUBGR	SUBGRADE
SUR	SURVEY
SUSP	SUSPENDED
SV	SOLENOID VALVE
SW	SOUTHWEST
SWK	SIDEWALK
SWL	SEAL WATER
SYS	SYSTEM
T	TIME
TB	TOP AND BOTTOM
T OR TAN	TANGENT LENGTH OF CURVE
T OR TWP	TOWNSHIP
TBM	TEMPORARY BENCH
TC	TANGENT TO CURVE
TCE	TEMPORARY CONSTRUCTION EASEMENT
TECH	TECHNICAL
TEL	TELEPHONE
TEMP	TEMPERATURE OR TEMPORARY
TERM	TERMINAL
T&G	TONGUE AND GROOVE
THD(D)	THREAD(ED)
TM	TELEMETER
TOL	TOLERANCE
TOT	TOTAL
VAR	VARIABLE
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VEH	VEHICLE
VERT	VERTICAL
VOL	VOLUME
VS	VARIABLE SPEED
VTR	VENT THROUGH ROOF
W	WIDTH OR WEST OR WATT/WIDTH
W/	WITH
WAS	WASTE ACTIVATED SLUDGE
WC	WATER CLOSET
WF	WIDE FLANGE

WH	WATER HEATER
WI	WROUGHT IRON
W/I	WITHIN
WL	WATER LEVEL
W/L	WATER LINE
WM	WATER MAIN
W/O	WITHOUT
WP	WEATHER-PROOF/WORKING PRESSURE
WT	WATER TABLE OR WEIGHT
WTP	WATER TREATMENT PLANT
WWM	WELDED WIRE MESH (FABRIC)
WWTF	WASTEWATER TREATMENT PLANT
WWTP	WASTEWATER TREATMENT PLANT
X	COORDINATE DISTANCE (EAST-WEST) OR EXTRA
XING	CROSSING
XSEC	CROSS SECTION
Y	COORDINATE DISTANCE (NORTH-SOUTH)
YD	YARD
YR	YEAR

PART 1 . GENERAL

1.1 EXISTING BUILDINGS

A. Where work of this Project is to be performed in areas of existing improvements, coordinate the work with utilization of such improvements, make provisions to minimize restriction of access to public and private property and facilities, and to minimize disruption of traffic and exercise extreme care to prevent damage to and interference with the existing improvements.

1.2 EXISTING UTILITIES

A. Existing utilities and appurtenances shown on the Drawings were located from existing records. No guarantee is made that all existing facilities are shown or that those shown are entirely accurate. Verify the locations, character and depths of all existing utilities prior to performing any Work. Contact each utility agency to obtain its requirements concerning the work in the vicinity of its facilities and exercise extreme caution to eliminate any possibility of damage to utilities resulting from project operations. The Owner and Engineer will assume no liability for damages sustained or costs incurred because of the Contractor's operations in the vicinity of existing utilities or structures. The Contractor hereby agrees that he shall have no claim for delay or for extra compensation and that he shall have no claims for relief from any obligation or responsibility under the Contract on account of any utility pipe or other underground structure encountered. Promptly notify the Engineer upon discovery of any deviation between existing conditions and the Drawings.

1.3 LAND FOR CONSTRUCTION PURPOSES

A. The Owner will designate areas for construction purposes, for Contractors' field offices and for the storage of materials and equipment. The location of these areas will be made known to the Contractor prior to commencement of construction. Maintain traffic routes between the storage areas and construction sites in good condition, clear of all equipment, materials, etc. for the duration of the Contract.

B. Obtain and pay all costs in connection with any additional work areas, storage sites, access to the construction site or temporary right-of-way which may be required for proper completion of the work.

C. Responsibility for protection and safekeeping of equipment and materials at or near construction sites shall be solely that of the Contractor and no claims shall be made against the Owner by reason of any act of an employee or trespasser. Should an occasion arise necessitating access by the Owner to the sites occupied by the stored equipment and materials immediately move them. Place no equipment or materials upon public or private property until permission has been received therefore.

D. Upon completion of the Contract, remove from the storage areas all equipment, field offices, fencing, surplus materials, rubbish, etc., and leave the areas clean and restored to their original condition. Fill, compact and resurface all holes or excavations made for fence installation, as directed by the Engineer.

1.4 WATER POLLUTION PREVENTION AND EROSION CONTROL

A. When disposing of water from dewatering and other operations, take all actions necessary to prevent contamination of or disturbance to the environment or natural habitat of the properties adjacent to the site, and comply with the requirements and restrictions set by the regulatory agencies having jurisdiction. Schedule and control the operations to confine all runoff water from disturbed surfaces, water from dewatering operations and water in existing ditches that becomes contaminated with lime silt, muck and other deleterious matter from the construction operations.

B. Provide all temporary materials and operations necessary to attain the required pollution and erosion controls including, but not limited to, temporary seeding, filter blankets, chemicals, temporary dikes and ditches, silt screens, fiber mats, mulches, sod, bituminous spray and other erosion control devices. The pollution control procedures shall include control of lime suspended in water which may flow into canals and ditches and which may require the use of screens, filter blankets and coagulants within such ditches. Maintain all pollution and erosion prevention procedures, materials, equipment and other related items in an approved condition until notified by the Engineer to discontinue such maintenance.

C. Where necessary, channel runoff water from construction areas and all water from dewatering operations into temporary stilling basins.

1.5 COORDINATION WITH TRAFFIC CONTROL AGENCIES

A. Perform the work under this Contract with a minimum of interruption to traffic movement on existing streets and roadways. In order to limit such interruption, coordinate the work with all agencies having jurisdiction and schedule the work so that interruptions are held to a minimum.

B. Provide in the work schedule submittals documentation of the Contractor's coordination with such agencies and do not deviate from the approved schedule without prior approval therefrom. Provide proper maintenance and control of all traffic in the areas of construction during the course of construction. Furnish and maintain all required traffic control signs and devices, barricades, safety cones, flashers, lights, flambeaus and similar devices.

1.6 PRECONSTRUCTION CONFERENCE

A. Prior to commencement of construction, a preconstruction conference will be held to review Contractor's construction progress schedule and proposed sequence of construction, to establish procedures for traffic maintenance and control, for handling shop drawings and other submittals and to establish a working understanding between the parties as to the project.

B. Prior to the preconstruction conference, submit to the Owner a construction progress schedule showing chronologically all operations contemplated and necessary for the successful completion of the work within the agreed contract time and a schedule of shop drawings and submissions. Include a detailed description of the proposed construction procedures showing evidence of coordination and compliance with the requirements of the traffic control agencies. The Owner reserves the right to make changes to the sequence as necessary to facilitate the work or to minimize any conflict with traffic operations.

1.7 CONNECTIONS TO EXISTING PIPING

A. Perform all connections to existing piping systems in such a manner that no damage, no contamination, and minimal interruption is caused to the existing installation. Repair or replace any damage caused to existing installations at no additional cost to the Owner. Coordinate operations with the utility company and notify the utility at least 48 hours in advance of any activity which may affect the piping system.

1.8 HYDRAULIC UPLIFT ON STRUCTURES

A. Make all necessary provisions to safeguard any structures that may become buoyant during the construction operations due to the groundwater or floods and before the structure is put into operation. Should there be any possibility of buoyancy of a structure, take the necessary steps to prevent its buoyancy either by increasing the structure's weight, by filling it with approved material or other acceptable methods. Repair damage to any structures due to floating or flooding or replace the structures if necessary, at no cost to the Owner or the Engineer.

END OF SECTION

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. The Engineer will schedule and administer a preconstruction conference, periodic construction progress meetings, and specially called meetings throughout the progress of the work.

B. Contractor shall be responsible for the following:

1. Preparing agenda for meetings.
2. Making physical arrangements for meetings.
3. Presiding at meetings.
4. Recording Minutes, submitting draft minutes to Engineer for review and comments, and distribute copies within three (3) days to Owner, Engineer, participants, and all parties affected by the decisions made.

C. Representatives of contractors, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

D. The Contractor shall attend meetings to ascertain that work is expedited consistent with Contract Documents and construction schedules.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

1.1 PRECONSTRUCTION CONFERENCE

A. A preconstruction conference shall be scheduled by the Engineer.

B. Location: The location of the conference shall be a central site, convenient *for* all parties, designated by the Engineer.

C. Attendance Requested:

1. Owner's representative.
2. Resident project representative (RPR).
3. Engineer and his professional consultants.
4. Contractor's representative.
5. Subcontractor's representative.
6. Supplier's representative.
7. Others, as appropriate.
8. Permitting agencies.

D. Suggested Agenda:

1. Project schedule.
2. Critical work sequencing: Relationships and coordination with other contracts and/or work and continuing site operation.
3. Major equipment deliveries and priorities.
4. Project coordination and control.
5. Procedures and processing of:
   a) Field decisions.
   b) Proposal requests.
   c) Submittals.
   d) Change orders.
   e) Applications for payment.
6. Submittal of Shop Drawings.
7. Adequacy of distribution of Contract Documents.
8. Procedures for maintaining Record Documents.
9. Use of premises:
   a) Office, work and storage areas.
   b) Owner's requirements.
   c) Access and traffic control.
10. Construction facilities, controls and construction aids.
11. Temporary utilities.
12. Safety and first aid procedures.
13. Check of required Bond and Insurance certifications.
14. Completion time for contract and liquidated damages.
15. Request for extension of contract time.
16. Request for a weekly job meeting for all involved.
17. Security procedures.
18. Procedures for making partial payments.
19. Guarantee on completed work.
20. Equipment to be used.
21. Staking of work.
22. Project inspection.

23. Labor requirements.
24. Laboratory testing of material requirements.
25. Inventory of material stored on site provisions.
26. Requirements of railroads, highway departments, and other organizations.
27. Rights-of-way and easements.
28. Housekeeping procedures.
29. Liquidated damages.
30. Posting of signs.
31. Pay request submittal dates.
32. Equal opportunity requirements.
33. Permits.

1.2 PROGRESS MEETINGS

A. Regular periodic construction progress meetings will be scheduled unless more frequent meetings are required. The progress meetings will be held monthly, or at a frequency determined by the Engineer, with the first meeting two weeks after the preconstruction meeting or two weeks or less after the date of Notice to Proceed, in accordance with Section 01039.

B. Meetings shall be held as required by progress of the work.

C. Location of the meetings: RPR's Field Office, or at other locations selected by the Engineer.

D. Attendance:

1. Engineer and his professional consultants (as needed).
2. Contractor.
3. Owner's representative.
4. Subcontractors (as appropriate to the agenda).
5. Suppliers (as appropriate to the agenda).
6. Others (as appropriate).

E. Suggested Agenda:

1. Review approval of minutes of previous meeting.
2. Review of work progress since previous meeting.
3. Field observations, problems, conflicts
4. Problems which impede the Construction Schedule.
5. Review of off-site fabrication and delivery schedules.
6. Corrective measures and procedures to regain projected schedule.
7. Revisions to Construction Schedule.
8. Progress schedule during succeeding work period.

9. Coordination of schedules.
10. Shop Drawing submittals.
11. Maintenance of quality standards.
12. Pending changes and substitutions.
13. Review proposed changes for:
    a) Effect on Construction Schedule and on completion date.
    b) Effect on other contracts of the Project.
14. Other business.
15. Construction Schedule.

16. Critical/long-lead items.

F. The Contractor shall attend construction progress meetings and shall study previous meeting minutes and current agenda items, in order to be prepared to discuss pertinent topics regarding progress of the work.

G. The Contractor is to provide a current submittal log at each progress meeting in accordance with Section 01340.

END OF SECTION

PART 1 . GENERAL

1.1 REQUIREMENTS INCLUDED

A. A Progress Schedule shall be submitted to the Owner for approval, within ten (10) calendar days after Notice to Proceed. The schedule shall include sequence and dates of construction operations for all major stages of work, order and delivery of materials and equipment, and an estimated time of completion. Revisions shall be made until approved by the Owner. Changes in the approved schedule will not be allowed without written order. If the construction progress does not adhere to the schedule as approved or revised, measures shall be taken to make up for lost time so completion of the work is in accordance with the schedule.

B. Procedures for preparation and submittal of construction progress schedules and periodical updating.

1.2 FORMAT

A. Progress schedules shall be accomplished by a program which develops a Critical Path giving data similar and equivalent to IBM's CPM programs, "miss" or "miss-less" Unival's program, "CPM", or General Electric's "Critical Path Method Program." Use of a computer program is not mandatory.

B. Content: Identify for each major and minor construction stage, portion of Work or operation, with initial start dates and durations. The critical path shall be indicated on the network together with the cumulative number of calendar days to complete the project.

C. Sequence of Listing: The chronological order of the start of each item of Work.

D. Cost Data: Include a cost estimate for each activity, based on and compatible with the Schedule of Values described in Section 01370.

E. Scale and Spacing: To provide for notations and revisions.

F. Sheet Size: Minimum 11 inches X 17 inches.

1.3 CONTENT

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.

B. Each event or note of the network shall be uniquely numbered and each activity shall be labeled with a suitable description together with an estimate of the number of working days required for the activity.

C. With the approved network, the Contractor shall submit two (2) copies of each of two (2) different tabulations giving the type of information: Starting Node, Ending Node, Duration in working days, Description, Earliest Start, Earliest Finish, Latest Start, Latest Finish, Total Float, Free Float.

D. One tabulation shall be a listing of activities in order of ascending starting node numbers. If there is more than one activity with the same starting node number, than all such activities shall be listed in order of ascending ending node numbers. The second tabulation shall be a listing of all activities in order of ascending “latest starts” as related to the start of the Project. If there is more than one activity with the same “latest start,” all such activities shall be listed in order of ascending node numbers.

E. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

F. Computer services, if used to process the tabulation, shall be furnished by the Contractor.

1.4 REVISIONS TO SCHEDULES

A. Indicate progress of each activity to date of submittal, and projected completion date of each activity.

B. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.

C. Provide narrative report to define problem areas, anticipated delays, and impact on schedule. Report corrective action taken, or proposed, and its effect, including effect of changes on schedule of separate contractors.

D. If in the opinion of the Engineer, the Contractor falls behind in scheduled progress, the Contractor shall take steps as required to improve his progress and shall submit his revised network diagram, tabulations, and operational plans to demonstrate the manner in which the lost progress will be regained, all without any time loss or additional cost to the Owner.

E. Lack of satisfactory progress, as adjusted by the Engineer, shall be considered grounds for the withholding of payment until necessary changes have been made.

1.5 SUBMITTALS

A. Submit preliminary outline schedules within 10 days after Effective Date of the Agreement for coordination with work of separate contracts. After review, submit detailed schedules within 10 days, modified to accommodate revisions recommended by the Owner.

B. Submit revised progress schedules and progress site photographs with each application for payment.

C. Submit number of opaque reproductions which Contractor requires, plus three copies retained by the Owner.

1.6 PROGRESS REPORTS

A. The Contractor shall submit to the Owner on or about the twenty-fifth day of each month, a report, in form and substance satisfactory to the Owner, stating the progress being made in fulfillment of this Contract up to the fifteenth day of said month.

PART 2- PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. The Contractor shall submit to the Engineer for review and approval, such working drawings, shop drawings, test reports and data, on materials, material samples materials list, certificates and affidavits as required for proper control of work, including but not limited to those working drawings, shop drawings, data and samples for materials and equipment specified elsewhere in the Specifications and in the Contract Drawings.

B. Within ten (10) calendar days after the Effective Date of the Agreement, the Contractor shall submit to the Engineer a complete materials list of preliminary data on items for which Shop Drawings are to be submitted. Included in this materials list shall be the names of all proposed suppliers furnishing specified items. Review of this list by the Engineer shall in no way expressed or implied relieve the Contractor from submitting complete Shop Drawings and providing materials fully in accordance with the Specifications.

C. The Contractor shall maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting with the Owner and the Engineer. This log shall include the following items:

1. Submittal-Description and Number assigned.
2. Date submitted to Engineer.
3. Date returned to Contractor (from Engineer).
4. Status of Submittal (Reviewed, Not Reviewed, Rejected)
5. Date of Resubmittal and Return (as applicable).
6. Projected date of delivery to site.
7. Specification Section.
8. Drawings Sheet Number.

1.2 CONTRACTOR’S RESPONSIBILITY

A. The Contractor shall check all drawings, data and samples prepared by or for him before submitting them to the Engineer for review. Each and every copy of the drawings and data shall bear Contractor’s stamp and signature showing that they have been so checked and by affixing the stamp that they comply to the Contract Documents unless exceptions are given. Shop drawings submitted to the Engineer without the Contractor’s stamp and signature will be returned to the Contractor for conformance with this requirement. Shop drawings shall indicate any deviations in the submittal

from requirements of the Contract Documents. If the Contractor takes exception to the specifications, the Contractor shall note the exception in the letter of transmittal to the Engineer. Shop drawing submittals shall not be used as a vehicle for requesting approval of substitute or alternative materials. Substitution requests will be considered only when submitted in accordance with Section 01600.

B. The Contractor shall stamp each shop drawing with a standard stamp. The stamp will verify the Contractor has reviewed the information included in the shop drawing. In addition, the stamp will note any variation from the Contract Documents. The Contractor's stamp shall be submitted to the Engineer for acceptance fourteen (14) days prior to construction or submittal of shop drawings. The Engineer will only review shop drawings which have an Engineer-accepted stamp. (See Figure 013401).

C. The Contractor shall determine and verify:

1. Field measurements.
2. Field construction criteria.
3. Catalog numbers and similar data.
4. Conformance with Specifications.
5. Conformance with drawings and details.

D. The Contractor shall furnish the Engineer a schedule of Shop Drawings submittals fixing the respective dates for the submission of shop and working drawings, the beginning of manufacture, testing and installation of materials. This schedule shall indicate those that are critical to the progress schedule.

E. The Contractor shall not begin any work covered by a drawing, data, or a sample returned for correction until a revision or correction thereof has been reviewed and returned by the Engineer, with no exceptions.

F. The Contractor shall submit to the Engineer all drawings and schedules sufficiently in advance of construction requirements to provide no less than thirty (30) calendar days for checking and appropriate action from the time the Engineer receives them. No extension of contract time will be authorized because of failure to transmit submittals to the engineer sufficiently in advance of the work to permit processing.

G. All submittals shall be accompanied by a transmittal letter prepared in duplicate containing the following information:

1. Date.
2. Project Title and Number.
3. Contractor's name and address.
4. The number of each Shop Drawing, Product Data, and Sample submitted.
5. Notification of deviations from Contract Documents.
6. Submittal Log Number conforming to Specification Section Numbers.

H. The Contractor shall submit four (4) copies of descriptive or product data submittals to complement shop drawings for the Engineer plus the number of copies which the Contractor requires returned. The Engineer will retain four (4) sets. All shop drawings shall be submitted with four (4) sets of black lines. The Engineer will review the black lines and return to the Contractor a set of marked-up black lines with appropriate review comments. All shop drawings, when practical, shall be 24 inch by 36 inch in size.

I. The Contractor shall be responsible for and bear all costs of damages which may result from the ordering of any material or from proceeding with any part of work prior to the completion of the review by Engineer of the necessary shop drawings.

1.3 ENGINEER'S REVIEW OF SHOP DRAWINGS

A. The Engineer's review of drawings, data and samples submitted by the Contractor will include only general conformity with the design concept of the Project and with the information given in the contract documents. The Engineer's review and exceptions, if any, will not constitute approval of dimensions, quantities, and details of the material or item shown.

B. The review of drawings and schedules will be general, and shall not be construed:

1. as permitting any departure from the Contract requirements;
2. as relieving the Contractor of responsibility for any errors, including details, dimensions, and materials;
3. as approving departures from details furnished by the Engineer, except as otherwise provided herein.

C. If the drawings or schedules as submitted describe variations per paragraph (I.04.E), and show a departure from the Contract requirements which Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Engineer may return the reviewed drawings without noting an exception.

D. When reviewed by the Engineer, each of the Shop Drawings will be identified as having received such review, being so stamped and dated. Shop Drawings stamped “REVISE AND RESUBMIT” and with required corrections shown will be returned to the Contractor for correction and resubmittal.

E. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, to revisions other than corrections requested by the Engineer on previous submissions. The Contractor shall make any corrections required by the Engineer.

F. If the Contractor considers any correction indicated on the drawings to constitute a change to the Contract Drawings or Specifications. the Contractor shall give written notice thereof to the Engineer.

G. Shop drawings and submittal data shall be reviewed by the Engineer for each original submittal and first and second resubmittal; thereafter review time for subsequent resubmittals shall be charged to the Contractor in accordance with the terms of the Engineer’s Agreement with the Owner.

H. When the Shop Drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.

I. No partial submittals will be reviewed. Submittals not complete will be returned to the Contractor for resubmittal. Make all submittals in groups containing all associated items as indicated in specific Specifications Sections. All drawings, schematics, supplier’s product data, certifications and other shop drawing submittals required shall be submitted at one time as a package to facilitate interface checking.

1.4 SHOP DRAWINGS

A. When used in the Contract Documents, the term “Shop Drawings” shall be considered to mean Contractor’s plans for materials which become an integral part of the Project. These drawings shall be complete and detailed and submitted using the attached form (Attachment A). Shop Drawings shall consist of setting and schedule drawings and supplier’s scale drawings. Descriptive literature, and performance and test data, shall be considered only as supportive to required Shop Drawings as defined above.

B. Supplier’s diagrams, illustrations and other standard descriptive data shall be clearly marked to identify pertinent materials, product or models. Delete information which is not applicable to the Work by striking or cross-hatching.

C. Drawings and schedules shall be checked and coordinated with the work of all trades involved, before they are submitted for review by the Engineer and shall bear the Contractor’s stamp of approval as evidence of such checking and coordination. Drawings or schedules submitted without this stamp of approval shall be returned to the Contractor for resubmission.

D. Each Shop Drawing shall have a blank area 3-1/2 inches by 3-1/2 inches, located adjacent to the title block. The title block shall display the following:

1. Project Title and Number.
2. Name of project material.
3. Number and title of the shop drawing.
4. Date of shop drawing or revision.
5. Name of Contractor and subcontractor submitting drawing.
6. Name of Supplier.
7. Separate detailer when pertinent.
8. Specification title and number.
9. Specification Section.
10. Application Contract Drawing Number.

E. If drawings show variations from Contract requirements for any reason, the Contractor shall describe such variations in his letter of transmittal. If acceptable, proper adjustment in the Contract shall be implemented where appropriate. If the Contractor fails to describe such variations, they shall not be relieved of the responsibility for executing the work in accordance with the Contract.

F. Data on materials and include, without limitation, materials lists, catalog data sheets, cuts, materials of construction and similar descriptive material. Materials lists shall give, for each item thereon, the name and location of the supplier, trade name, catalog reference, size and all other pertinent data.

G. All suppliers who proposed to furnish products shall submit an installation list to the Engineer along with the required shop drawings. The installation list shall include at least five (5) installations where identical material has been installed and has been in operation for a period of at least one (1) year.

H. Only the Engineer will utilize the color “red” in marking shop drawing submittals.

I. All electrical shop drawings submitted shall be signed and sealed by a Professional Engineer registered in the state of Florida.

1.5 WORKING DRAWINGS

A. When used in the Contract Documents, the term “working drawings” shall be considered to mean the Contractor’s plan for temporary structures such as support of open cut excavation, utilities, ground water control systems, false work and any other work as may be required for construction but is not an integral part of the Project.

B. Copies of working drawings as noted in paragraph 1.05 A. above shall be submitted to the Engineer for information only, not review, where required by the Contract Documents or requested by the Engineer, and shall be submitted at least thirty (30) calendar days (unless otherwise specified by the Engineer) in advance of their being required for work.

C. Working drawings shall be signed by a registered Professional Engineer, currently licensed to practice in the State of Florida and shall convey, or be accompanied by, calculation or other sufficient information to completely explain the structure, machine, or system described and its intended manner of use. Review of working drawings by the Engineer will not relieve the Contractor in any way from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error are assumed by the Contractor; the Owner and Engineer shall have no responsibility therefor.

D. Submittals that relate to the means, methods, techniques, sequencing, procedures, or safety programs of the contractor will be received by the Engineer for information only. A review of the information will not be conducted.

The submittals that will not be reviewed include:

1. Fit-up of parts
2. Shoring and bracing
3. Constructibility tolerances
4. Field measurements
5. De-watering plans, except with respect to the requirements of the technical specification
6. False work forming plans

1.6 SAMPLES

A. The Contractor shall furnish, for the approval of the Engineer, samples required by the Contract Documents or requested by the Engineer. Samples shall be delivered to the Engineer as specified or directed. The Contractor shall prepay all shipping charges on samples. Materials or equipment for which samples are required shall not be used in work until after review by the engineer and required corrections are made.

B. Samples shall be of sufficient size and quantity to clearly illustrate the functional characteristics of the product. A minimum of two samples of each item shall be submitted.

C. Each sample shall have a label indicating:

1. Name of Project.
2. Name of Contractor and Subcontractor.
3. Material Represented.
4. Place of Origin.
5. Name of Producer and Brand (if any).
6. Location in Project.

D. The Contractor shall prepare a transmittal letter in triplicate for each shipment of samples containing the information required in paragraph 1.06 B. above. He shall enclose a copy of this letter with the shipment and send a copy of this letter to the Engineer. Review of a sample shall be only for the characteristics or use on the project and shall not be construed to change or modify any Contract requirements.

E. Samples not destroyed in testing shall be sent to the Engineer or stored at the site of the work. Materials incorporated in work shall match the Engineer reviewed samples. Samples which failed testing will be returned to the Contractor at his expense, if so requested at time of submission.

1.7 CERTIFICATES AND AFFIDAVITS

A. Where specified in the Contract Documents that a certificate or affidavit be submitted to the Engineer for a particular product or product component, such submittals shall be made in accordance with the following:

1. For Installation: A certificate of compliance shall indicate that the material has been properly installed in compliance with supplier's instructions. Certificate shall be provided by the supplier's representative.

B. Each certificate shall include a sworn statement by an official of the company originating the certificate attesting to the truth and accuracy of all information contained in the certificate. If such attestation of truth and accuracy cannot be included in the certificate itself, it must be provided as an affidavit accompanying the certificate.

1.8 ALTERNATIVES TO SPECIFIED PRODUCTS

A. The Contract Documents may indicate the name of a trade name or a material to be used in the Contract. Reference made to a particular product of the supplier is made to identify a particular design, quality, construction, arrangement, or style.

B. Where the Contractor proposes to use a substitute product for that specified, complete information on such substitute product including all necessary redesign of the material or any other part of the Contract requiring modification as a result of the use of the requested substitute shall be submitted to the Engineer, for review, All such redesign and all new drawings and detailing required as a result thereof shall be prepared by the Contractor at his own expense, including regulatory permit acquisition for the modifications. Requests for additional money for such substitution will not be considered.

C. If the Contractor proposes to provide products as “equals” to those specified, it shall be his responsibility to furnish complete, specific, detailed information to the Engineer from the supplier of the product he proposes to provide in which the requirements of the Contract Documents are shown to be met. This shall consist of a point-by-point comparison of the Contract requirements with the product proposed to be provided. The burden of responsibility in furnishing this information is with the Contractor. If incomplete or irrelevant data is submitted as evidence of compliance with this subparagraph, the request for approval to provide this specific substitute product will be denied and no further submission will be considered.

D. The Contractor shall be responsible for payment of Engineer’s and Owner’s costs for reviewing Contractor’s submittals of ‘Or Equal’ requests. Payment of Engineer’s review costs shall be at Engineer’s standard rates for this Project.

1.9 MISCELLANEOUS DATA

A. Any other submittals required by these Specifications but not directly addressed under this Section shall be submitted in accordance with the requirements for the shop drawings.

PART 2- PRODUCTS (NOT USED)

PART 3- EXECUTION (NOT USED)

END OF SECTION

PART 1- GENERAL

1.1 REQUIREMENTS INCLUDED

A. Submit to the Engineer a Schedule of Values allocated to the various lump sum portions of the Work at the Pre-Construction Conference and in accordance with the successful bidder's bid schedule.

B. Upon request of the Engineer, support the values with data which will substantiate their correctness.

C. The Schedule of Values unless objected to by the Engineer, shall be used only as the basis for the Contractor's Applications for Payment.

1.2 RELATED REQUIREMENTS

A. General Conditions and Requirements of the Contract

1.3 FORM AND CONTENT OF SCHEDULE OF VALUES

A. Type schedule on an 8-1/2 inch x 11 inch white paper; Contractor's standard forms and computer printout will be considered for approval by the Engineer upon Contractor's request. Identify schedule with:

1. Title of project and location
2. Owner and purchase order number
3. Engineer and project number
4. Name and address of Contractor
5. Contract designation
6. Date of submission

B. Schedule shall list the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing unit values for progress payments during construction.

C. Identify each line item with the number and title of the respective major section of the specifications.

D. For each major line item, list sub-values of major products or operations under the item.

E. For the various portions of the Work:

1. Each item shall include a directly proportional amount of the Contractor's overhead and profit.

2. Total installed cost, with overhead and profit

F. For each line item which has installed value of more than $10,000, breakdown costs to list major products or operations under each item.

G. Round off figures to nearest dollar

H. Make sum of total costs of all items listed in schedule equal to total Contract Sum.

1.4 PREPARING SCHEDULE OF UNIT MATERIAL VALUES

A. Submit a separate schedule of unit prices for materials to be stored on which progress payment will be made.

B. Make form of submittal shall parallel that of the Schedule of Values, with each item identified the same as the line item in the Schedule of Values.

C. Include in unit prices only:

1. Cost of the material

2. Delivery and unloading at site

3. Sales taxes

D. Make sure that unit prices multiplied by quantities given, equal material cost of that item in Schedule of Values.

1.5 REVIEW AND RESUBMITTAL

A. After review by Owner, revise and resubmit Schedule of Values and Schedule of Material Values as required.

B. Resubmit revised Schedules in same manner

PART 2 - PRODUCTS (Not used)

PART 3- EXECUTION (Not used)

END OF SECTION

PART 1 . GENERAL

1.1 REQUIREMENTS INCLUDED

A. Contractor will employ, and pay for services of an Independent Testing Laboratory to perform testing and soil borings as required, to ensure that construction is in accordance with the Contract Documents and will result in an excellent finished Project, and as directed by the Engineer who may, at any time, elect to have materials and equipment tested for conformity with the Contract Documents. The Laboratory shall be approved by Owner and Engineer. There is a contract allowance in the Bid Proposal to provide for payment to Contractor for this work.

B. Contractor shall coordinate with the laboratory to facilitate the execution of its required services.

C. Related Requirements Described Elsewhere:

1. Conditions of the Contract.

2. Respective section of specifications: Certification of products.

3. Each specification section listed: Laboratory tests required, and standards for testing.

4. Testing laboratory inspection, sampling and testing is required for, but not limited to the following:

a) Soil Compaction
b) Cast-in-Place Concrete
c) Road Construction

D. Contractor will pay for the retesting of failed portions of the work and any associated Engineering cost.

E. Employment of an independent testing laboratory shall not relieve Contractor of obligation to provide test results in accordance with the Contract Documents.

1.2 LABORATORY DUTIES: LIMITATIONS OF AUTHORITY

A. Cooperate with Engineer and Contractor; provide qualified personnel promptly on notice.

B. Perform specified inspections, sampling and testing of materials and methods of construction:

1. Comply with specific standards; ASTM, other recognized authorities, and as specified.

2. Ascertain compliance with requirements of Contract Documents.

C. Promptly notify Engineer and Contractor of irregularities or deficiencies of work which are observed during performance of services.

D. Promptly submit five (5) copies of reports of inspections and tests to Engineer, including:

1. Date issued.
2. Project title and Engineer's job number.
3. Testing Laboratory name and address.
4. Name and signature of inspector.
5. Date of inspection or sampling.
6. Record of temperature and weather.
7. Date of test.
8. Identification of product and specification section.
9. Location in project.
10. Type of inspection or test.
11. Observations regarding compliance with Contract Documents.

E. Perform additional services as required by owner.

F. Laboratory is not authorized to:

1. Release, revoke ,alter, or enlarge on requirements of Contract Documents.

2. Approve or accept any portion of work.

3. Perform any duties of the Contractor.

1.3 CONTRACTOR'S RESPONSIBILITIES

A. Contractor to notify RPR forty-eight (48) hours prior to when testing or inspection is required.

B. Cooperate with laboratory personnel, provide access to Work, to manufacturer's operations.

C. Secure and deliver to the laboratory adequate facilities of representational samples of materials proposed to be used and which require testing.

D. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other materials mixes which require control by the testing laboratory.

E. Materials and equipment used in the performance of work under this Contract are subject to inspection and testing at the point of manufacture or fabrication. Standard specifications for quality and workmanship are indicated in the Contract Documents. The Engineer requires the Contractor to provide statements or certificates from the manufacturers and fabricators that the materials and equipment provided by them are manufactured or fabricated in full accordance with the standard specifications for quality and workmanship indicated in the Contract Documents. All costs of this testing and providing statements and certificates shall be a subsidiary obligation of the Contractor, and no extra charge to the Owner shall be allowed on account of such testing and certification.

F. Furnish incidental labor and facilities:

1. To provide access to Work to be tested.

2. To obtain and handle samples at the Project site or at the source of the product to be tested.

3. To facilitate inspections and tests.

4. For storage and curing of test samples.

G. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.

PART 2 . PRODUCTS (NOT USED)

PART 3 . EXECUTION (NOT USED)

END OF SECTION

PART 1- GENERAL

1.1 REQUIREMENTS INCLUDED

A. Field Offices

B. Contractor Storage Area

C. Power Services

D. Water Services

E. Telephone Services

F. Sanitary Facilities

G. Maintenance of Traffic

H. Barricades and Lights

I. Fences

J. Damage to Existing Property

K. Security

L. Access Roads

M. Drainage

N. Erosion and Siltation Control Measures

O. Parking

P. Emergencies

Q. Petroleum Spill/Leak Containment

R. Waste Construction Materials

1.2 FIELD OFFICES

A. The Contractor shall, during the course of this Project, erect a temporary field office only within the Limits of Construction shown on the Drawings or as otherwise approved by the Owner. The field office shall be weather-tight, with lighting, electrical outlets, heating, cooling, and ventilating equipment, telephone, and equipped with sturdy furniture, drawing rack and drawing display table. The field office shall also be capable of providing space for project meetings, with table and chairs to accommodate eight persons. Office shall be ready for use by Owner and Engineer within 15 days after date fixed in Notice to Proceed. Other minimum Contractor's field office criteria are given below:

1. Area: Minimum 720 sq. ft., minimum dimension 12 ft.

2. Floor: Linoleum or tile covered.

3. Windows: Minimum three (3); minimum total area of 10 percent of floor area, with operable sash and insect screens. Locate offices to provide window views of construction area.

4. Electrical Distribution Panel: Four (4) circuits minimum, 110 volt, 60 hz service.

5. Minimum four (4) 110 volt duplex convenience outlets, at least one (1) on each wall.

6. Telephone: One (1) direct-line with local access with four (4) telephone connections and instruments (one per room), an answering machine, and one (1) direct-line instrument for fax machine.

7. Sanitary Facilities: Cold water, toilet paper, towels, soap, drinking fountain (water cooler), and private lavatory-toilet facilities.

8. Lighting: 50 ft-C at desk-top height, exterior lighting at entrance doors.

9. Furnishings: Cleaning serviceable, new or slightly used, adequate for required purpose and must not violate applicable codes or regulations.

   a) Three (3) standard size desks, 3 ft. x 5 ft. with three (3) drawers.

   b) One (1) 30 x 72 inch drafting table, with one.(l) equipment drawer, and a full width parallel straight edge.

c) One (1) metal, double-door storage cabinet under drafting table.

d) Two (2) plan racks to hold a maximum of six (6) sets of project drawings each.

e) Three (3) fire-resistant four-drawer legal-size metal filing cabinets, with locks and two (2) keys per lock.

f) Six lin. ft. of metal bookshelves per desk (mm. 4 ft. high).

g) Three (3) swivel arm chairs.

h) Six (6) straight chairs.

i) One (1) drafting table stool.

j) Three (3) tackboards, 36 x 30 inch.

k) Six (6) waste baskets.

l) Coat rack and hooks.

m) Outside thermometer.

n) Copy machine with reduction and enlargement capability.

o) Eight (8) cup coffee machine.

p) Plain paper fax machine

q) One (1) standard conference table with eight (8) chairs.

r) Two (2), 5-LB nominal capacity, wall mounted fire extinguishers, including one UL-rated for use on electronic equipment (computers).

s) One (1) standard IBM Compatible Computer, minimum specifications: 1 Ghz or better, 15" Display, 256 Mb RAM, 30 GB Hard Drive, Windows 2000 Operating System, Microsoft Office, 56K Fax Modem, 10/100 MBPS RJ45 Ethernet Port. 15 PPM Laser Printer with 8 ½" x 11", 8 ½" x 14", and 11" x 17" printing capacity at 300+ DPI.

t) Internet service.

u) Equipment: Six, adjustable band, OSHA-approved protective helmets for visitors, one 10 inch outdoor weather thermometer and one outside rain gauge.

v) One standard refrigerator, with freezer section including ice maker.

w) One small microwave oven.

B. During the performance of this Contract, Contractor shall maintain a suitable office at the site of the work which shall be the headquarters of his representative authorized to receive drawings, instruction, or other communication or articles. Any communication given to the said representative or delivered at Contractor's office at the site of the work in his absence shall be deemed to have been delivered to Contractor.

C. Copies of the Drawings, Specifications, and other Contract Documents shall be kept at Contractor's office at the site of the work and available for use by the Owner, Engineer, or Contractor at all times.

D. In addition, Contractor shall furnish and maintain a temporary field office for the Engineer within the Contractor office facilities.

The Engineer's Office Space shall provide suitable, on-site, fully equipped, and air conditioned/heated office space for the sole use of Owner's Engineer. All normal costs associated with this office shall be paid by Contractor, such as electricity, telephone, internet, water, sewer, equipment maintenance, janitor and maintenance service, etc. As a minimum, the office space configuration shall include a bathroom (may be shared with Contractor) and lockable door with four (4) keys. Other minimum Engineer's field office criteria are given below:

1. Area: Minimum 55 sq. ft. minimum dimension six (6) ft.

2. Floor: Linoleum or tile covered.

3. Windows: Minimum one (1).

4. Electrical Distribution Panel: Two (2) circuits minimum, 110 volt, 60 hz service.

5. Minimum two (2) 110 volt duplex convenience outlet.

6. Telephone: One (1) direct-line with local access, an answering machine, and one (1) direct-line instrument for fax machine (fax machine may be shared with Contractor).

7. Sanitary Facilities: Cold water, toilet paper, towels, soap, drinking fountain or water cooler (may be shared with Contractor).

8. Lighting: 50 ft-C at desk-top height.

9. Furnishings: Cleaning serviceable, new or slightly used, adequate for required purpose and must not violate applicable codes or regulations.

   a) One (1) standard size desk, 3 ft. x 5 ft. with three (3) drawers.

   b) One (1) 30 x 72 inch drafting table, with one.(l) equipment drawer, and a full width parallel straight edge (may be shared with Contractor).

   c) One (1) metal, double-door storage cabinet under drafting table (may be shared with Contractor).

   d) Two (2) plan racks to hold a maximum of six (6) sets of project drawings each.

   e) One (1) fire-resistant four-drawer legal-size metal filing cabinet, with locks and two (2) keys per lock.

   f) Six linear ft. of metal bookshelves (mm. 4 ft. high).

   g) One (1) swivel arm chair.

   h) One (1) straight chair.

   i) One (1) drafting table stool (may be shared with contractor).

   j) One (1) tackboard, 36 x 30 inch.

   k) One (1) waste basket.

   l) Coat rack and hooks.

m) Outside thermometer.

n) Copy machine with reduction and enlargement capability (may be shared with Contractor).

o) Eight (8) cup coffee machine.

p) Plain paper fax machine (may be shared with Contractor)

q) One (1), 5-lb nominal capacity, wall mounted fire extinguisher, UL-rated for use on electronic equipment (computers).

s) One (1) standard IBM Compatible Computer, minimum specifications: 1 Ghz, 15" Display, 256 Mb RAM, 30 GB Hard Drive, Windows 2000 Operating System, Microsoft Office, 56K Fax Modem, 10/100 MBPS RJ45 Ethernet Port. 15 PPM Laser Printer with 8 ½" x 11", 8 ½" x 14", and 11" x 17" printing capacity at 300+ DPI.

t) Internet service.

u) Equipment: Two (2), adjustable band, OSHA-approved protective helmets for visitors, one 10 inch outdoor weather thermometer and one outside rain gauge.

v) One small refrigerator.

w) One small microwave oven.

1.3 CONTRACTOR STORAGE AREA

A. A storage area will be provided on the project site for use by the Contractor for storage of his materials, tools, equipment, office and other items necessary for construction. The exact limits of the Contractor's storage area will be approved in the field by the Engineer. The Contractor shall be fully responsible for the security of this area, including fencing, watchmen, and other means of security. Under no circumstances will the Owner be responsible for the security of any property belonging to the Contractor, his subcontractors, or any of his work forces.

B. The Contractor shall consult with the Owner as to the best location for setting up construction plant buildings and related facilities so as to expedite the Work.

1.4 POWER SERVICES

A. Contractor shall provide all temporary power for heating, cooling, and lighting until the work is accepted. It is Contractor's responsibility to make any connections necessary to perform work or furnish services related to this Contract. A separate temporary meter shall be installed by the local utility to measure electricity usage by Contractor. Contractor shall make all necessary arrangements with the local utility for these services. Contractor shall pay for all electricity usage by the Engineer and Contractor.

1.5 WATER SERVICES

A. Water in sufficient amounts for proper completion of the Work shall be furnished by Contractor without charge to Owner. Contractor shall furnish necessary equipment pipe hose, nozzles and tools and shall perform all necessary labor. Use of water meter on hydrant may be allowed at the Owner's discretion.

1.6 TELEPHONE SERVICES

A. Contractor shall make all necessary arrangements with the telephone utility for telephones in his offices at the site and a separate telephone line in the field office of the Engineer and shall pay all charges for the office of the Engineer.

B. Subcontractors and others performing work or furnishing services at the site shall be permitted to use Contractor's telephone without charge for toll-free calls pertaining to the Work.

1.7 SANITARY FACILITIES

A. Contractor shall furnish temporary sanitary facilities at the sites as provided herein for the needs of all construction workers and others performing work or furnishing services in connection with this Contract.

B. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 10 men. Contractor shall enforce the use of such sanitary facilities by all personnel at the site. The use of existing toilet facilities at the site by Contractor's personnel is strictly forbidden.

1.8 MAINTENANCE OF TRAFFIC

A. Contractor shall conduct his work to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross, obstruct, or close roads, driveways and walks, Contractor shall obtain prior permission from the Owner to obstruct traffic at the designated point.

B. In making open cut street crossing, Contractor shall not block more than one-half of the street at a time.

1.9 BARRICADES AND LIGHTS

A. All roads which are closed to traffic shall be protected by effective barricades on which shall be placed acceptable warning signs.

B. All open trenches and other excavations shall have suitable barricades and signs to provide adequate protection to the public. Obstructions, such as material piles and equipment shall be provided with similar warning signs.

C. All barricades, signs, and other protective devices shall be installed and maintained in conformity with applicable statutory requirements.

1.10 FENCES

A. All existing fences affected by the work shall be maintained by Contractor until completion of the work. Fences which interfere with construction operations shall not be relocated or dismantled until written permission is obtained from the owner of the fence and the period the fence may be left relocated or dismantled has been agreed upon.

B. On completion of the work, Contractor shall restore all fences to their original or to a better condition and to their original location.

1.11 DAMAGE TO EXISTING PROPERTY

A. Contractor will be held responsible for any damage to existing structures, work, materials or equipment because of his operations and shall repair or replace any damaged structures, work, materials or equipment to the satisfaction of, and at no additional cost to the Owner.

B. Contractor shall protect all existing structures and property from damage and shall provide bracing, shoring, or other work necessary for such protection.

C. Contractor shall be responsible for all damage to streets, roads, curbs, sidewalks, highways, shoulders, ditches, embankments, culverts, bridges or other public or private property, which may be caused by transporting equipment, materials, or men to or from the work. Contractor shall make satisfactory and acceptable arrangements with the agency having jurisdiction over the damaged property concerning its repair or replacement.

1.12 SECURITY

A. Contractor shall be responsible for protection of the site and all work, materials, equipment and existing facilities thereon, against vandals and other unauthorized persons.

B. No claim shall be made against Owner by reason of any act of an employee or trespasser, and Contractor shall make good all damage to Owner's property resulting from his failure to provide security measures as specified.

C. Security measures shall be at least equal to those usually provided by Owner to protect his existing facilities during normal operation, but shall also include such addition security fencing, barricades, lighting and other measures as required to protect the site.

1.13 ACCESS ROADS

A. Contractor shall construct, grade, stabilize and maintain temporary access roads to various parts of the site as required to complete the project.

1.14 DRAINAGE

A. The contractor shall keep all natural drainage and water courses unobstructed or provide equal courses effectively placed, and prevent accumulations of surface water.

1.15 EROSION AND SILTATION CONTROL MEASURES

A. Adequate control of erosion and siltation of both a temporary and permanent nature on areas disturbed by this work shall be provided under this Contract, subject to the approval of the Engineer. There will be a joint on-site inspection prior to commencing work, with Contractor, State and County Officials and the

Engineer to determine specific siltation control requirements. Contractor shall implement NPDES stormwater runoff permit pollution prevention plan as identified in Section 02276.

B. Erosion control shall comply with all applicable State and County Regulations.

1.16 PARKING

A. Contractor shall provide and maintain suitable, hard surfaced parking areas (4 minimum) for the use of all construction workers and other performing work by furnishing services in connection with the project, as required to avoid any need for parking personnel vehicles where they may interfere with public traffic, Owner's operations, or construction activities.

1.17 EMERGENCIES

A. The Contractor shall display and update phone numbers of the local police, fire department, hospital, and emergency squad at all times and at all phones on site during the project.

1.18 PETROLEUM SPILL/LEAK CONTAINMENT

A. Contractor shall provide a spill/leak containment vessel for above ground petroleum storage tanks. The containment vessels shall have a capacity exceeding 125 percent of the volume of the petroleum storage tank for which they are intended.

B. For concrete containment vessels, the concrete shall be air-entrained with a minimum of 4,000 psi compressive strength when delivered. Reinforced steel shall be Grade 40 with No. 4 bars on 12-inch centers each way.

C. The containment vessel must contain an acceptable means of removing rain water or recovering spilled or leaked petroleum from the vessel. If a siphon arrangement is used, it shall be mounted on the wall of the vessel and must automatically break when the vessel empties. Then, the siphon must be manually primed the next time the contents are discharged.

D. Anchor bolts must be furnished to tie-down the petroleum storage tank to prevent the flotation of an empty tank due to rain water.

1.19 WASTE CONSTRUCTION MATERIALS

A. The Contractor shall dispose of all waste construction material at a permitted waste facility. All associated cost for disposal shall be the Contractor's responsibility.

B. The Contractor shall provide sufficient containers to collect and hold waste construction materials. Waste materials shall be collected on a daily basis.

C. The Contractor shall dispose of waste construction material when containers are full. Transportation of the waste containers will be supplied by the Contractor.

1.20 MAINTENANCE AND CLEANING

A. Daily janitorial services for offices; periodic cleaning and maintenance for storage areas.

B. Maintain parking area and approach walks free of mud, water, and debris.

1.21 REMOVAL

A. At completion of Work remove buildings, foundations, utility services, and debris. Restore areas.

B. Remove foundations and debris; grade site to required elevations and clean the areas.

PART 2 - PRODUCTS (NOT USED)

PART 3- EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

A. The Work specified in this Section consists of designing, providing, maintaining and removing temporary erosion and sedimentation controls as necessary, in accordance with the plans, specifications, and Stormwater Pollution Prevention Plan. All existing and foreseeable future conditions that affect the work inside and outside the construction limits must be acknowledged as the Contractor's responsibility.

B. Temporary erosion controls include, but are not limited to, grassing, mulching, sodding, netting, watering and reseeding on-site surfaces and soil and borrow area surfaces and providing interceptor ditches or temporary drainage pipes at those locations which will ensure that erosion during construction will be either eliminated or maintained within acceptable limits as established by the Owner.

C. Temporary sedimentation controls include, but are not limited to, silt dams, traps, barriers, and appurtenances at the foot of sloped surfaces which will ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the Owner.

D. Contractor is responsible for providing effective temporary erosion and sediment control measures during construction or until final controls become effective. Contractor may, with approval from the Engineer, work outside the construction limits to establish a working erosion system.

PART 2 PRODUCTS

2.1 EROSION CONTROL

A. Netting Grade 1800 Miramat, as manufactured by Mirafi, or approved equal.

B. Drainage Pipes ADS N-12 or equal.

2.2 SEDIMENTATION CONTROL

A. Bales - clean, seed free cereal hay type.

B. Netting - Envirofence, as manufactured by Marafi, or approved equal.

C. Filter stone - crushed stone conforming to Florida Department of Transportation specifications.

D. Concrete block - hollow, non-load bearing type.

E. Concrete - exterior grade not less than one inch thick.

PART 3 EXECUTION

3.1 EROSION CONTROL

A. Minimum procedures for grassing are:

1. Scarify slopes to a depth of not less than six inches and remove large clods, rock, stumps, roots larger than ½-inch in diameter and debris.

2. Sow seed within twenty-four (24) hours after the ground is scarified with either mechanical seed drills or rotary hand seeders.

3. Apply mulch loosely and to a thickness of between 3/4-inch and 1-1/2 inches.

4. Apply netting over mulched areas on sloped surfaces.

5. Roll and water seeded areas in a manner which will encourage sprouting of seeds and growing of grass. Reseed areas which exhibit unsatisfactory growth. Backfill and seed eroded areas.

3.2 SEDIMENTATION CONTROL

A. Install and maintain silt dams, traps, barriers, and appurtenances as recommended by the manufacturer. Control systems which deteriorate and filter stone which is dislodged shall be replaced.

3.3 PERFORMANCE

A. During construction denuded areas are to be covered as soon as possible by mulch (such as straw, hay, synthetic fiber) or by sod or seed and mulch with temporary or permanent vegetation. Method selected will be initially at the Contractor’s option.

B. Areas to be developed will require temporary sediment basins used as a positive remedy against downstream siltation. During development, permanent stormwater management (detention) ponds may be used in place of temporary sediment basins. Prior to final inspection, accumulated silt and debris shall be removed from the stormwater management ponds.

C. Floating and/or staked silt barriers will be anchored in place to protect against accumulation of silt and sediment upstream and downstream from the work. The silt barriers will be placed so as to effectively control silt and sediment dispersion under the conditions present on this project. Silt fences will be installed where necessary outside limits of construction.

D. All swales, ditches, channels, retention ponds and detention areas will be sodded or seeded as required as soon as possible.

E. Contractor will be required to obtain all applicable dewatering permits required during construction.

F. Methods used to control erosion and sedimentation will comply with applicable Federal, State and local regulations.

G. Should any of the temporary erosion and sediment control measures employed by Contractor fail to produce results which comply with the requirements of the State of Florida, Owner or Engineer, Contractor shall immediately take whatever steps are necessary to correct the deficiency at his own expense.

3.4 DUST CONTROL

A. Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere.

END OF SECTION

PART 1- GENERAL

1.1 REQUIREMENTS INCLUDED

A. Material and equipment incorporated into the Work:

1. Conform to applicable specifications and standards.

2. Comply with size, make, type and quality specified, or as specifically approved in writing by Engineer.

3. Manufactured and fabricated products:

a) Design, fabricate and assemble in accordance with the best engineering and shop practices.

b) Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.

c) Two or more items of the same kind shall be identical, by the same manufacturer.

d) Products shall be suitable for service conditions.

e) Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.

f) New and used, suited for the intended use and manufactured by a company which has produced and successfully placed into operation the product for a minimum of over five (5) years.

4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

1.2 ACCEPTANCE OF MATERIALS

A. In the various detailed Sections of the Specifications where any item of equipment or product is specified by proprietary name or trade name, without the addition of such expressions as “or equal”, it is to be understood that equal-quality equipment or products of either a manufacturer named or of a manufacturer not named which meet the detailed requirements of the

specifications, are intended, subject to the approval of the Engineer as to the equality thereof. Where a product is specified by naming only one product or manufacturer, or where “no substitution” is indicated, the specified product shall be used.

B. Only new materials and equipment shall be incorporated in the work. All materials and equipment furnished by Contractor shall be subject to the inspection and acceptance of Engineer. No material shall be delivered to the work without prior acceptance of Engineer.

C. Within ten (10) days after the Effective Date of the Agreement, Contractor shall submit to Engineer, data relating to materials and equipment he proposes to furnish for the work. Such data shall be in sufficient detail to enable Engineer to identify the particular product-to form an opinion as to its conformity to the specifications.

D. Facilities and labor for handling and inspection of all materials and equipment shall be furnished by Contractor. If Engineer requires, either prior to beginning or during progress of the work, Contractor shall submit samples of materials for such special tests as may be necessary to demonstrate that they conform to the specifications. Such samples shall be furnished, stored, packed and shipped as directed at Contractors expense. Except as otherwise noted, Contractor shall make arrangements for and pay for the tests.

E. Contractor shall submit data and samples sufficiently early to permit consideration and approval before materials are necessary for incorporation in the work. Any delay of approval resulting from Contractor’s failure to submit samples or data promptly shall not be used as a basis of claim against Owner or Engineer.

F. In order to demonstrate the proficiency of workers or to facilitate the choice among several textures, types, finishes and surfaces, Contractor shall provide such samples of workmanship or finish as may be required.

G. The materials and equipment used on the work shall correspond to the accepted samples or other data.

1.3 SUBSTITUTIONS AND PRODUCT OPTIONS

A. The substitution requirements of this Section are in addition to the requirements of the General Conditions and Supplementary Conditions.

B. The intent of these Specifications is to provide Owner with a quality facility without discouraging competitive bidding. Substitutions may be submitted and will be evaluated as specified herein.

C. The contractor shall submit a separate request for each proposed substitution; 2 copies each on form bound into Project Manual. Document each request with complete data substantiating compliance of proposed substitution with requirements of Contract Documents.

1. Designate Specifications Section and Article number.

2. Identify manufacturer by name and address, trade name, model number or catalog number.

3. List product description, performance and test data, applicable reference standards, availability of maintenance service and source of replacement materials.

4. Give itemized comparison of qualities of proposed substitution with specified product, changes required in other elements of the Work due to substitution and effect on Progress Schedule.

5. Give name and address of similar projects on which product was used and date of installation.

6. Provide cost data comparing proposed substitution with specified product and state the amount of net change to Contract Sum.

D. During Bidding period, times for submittal of substitution requests are stated in the Instructions to Bidders.

E. After Bidding period, up to 30 days after date of Notice to Proceed, Engineer will consider written requests from Contractor for proposed substitutions of products. Subsequent requests will be considered only in case of product unavailability or other condition beyond control of the Contractor.

F. Do not order or install substitute products without written acceptance from the Architect/Engineer. Do not imply or indicate substitutions on shop drawings or product data submittals without a separate formal request.

G. Engineer will determine acceptability of substitution. The burden of proof of acceptability of a proposed substitution is upon the submitter; information submitted must convince the reviewers that characteristics of the proposed substitution are equal to or better than those of the specified product. Only one request for substitution for each product will be considered. If not accepted,

Contractor shall provide specified product.

H. Request for substitution constitutes a representation that the Contractor:

1. Has investigated the proposed product and determined that it is equal to or superior in all respects to the specified product.

2. Will provide same or greater warranties for proposed product as for the specified product.

3. Will coordinate installation of substitution accepted into the Work and make other changes and adjustments as may be required to make the Work complete in all respects.

4. Waives all claims for additional costs due to substitution which may later become apparent.

5. Agrees to reimburse the Owner for the additional service charges of the Architect/Engineer and their Consultants for evaluation and review of the proposed substitution.

1.4 MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION

A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including five copies to Engineer.

1. Maintain one set of complete instructions at the job site during installation and until completion.

B. Handle, install, connect, clean, condition and adjust products in strict accord with such instructions and in conformity with specified requirements.

1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Engineer for further instructions.

2. Do not proceed with work without clear instructions.

C. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.5 TRANSPORTATION AND HANDLING

A. Arrange deliveries of products in accordance with construction schedules, coordinate to avoid conflict with work and conditions at the site.

1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.

2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract documents and approved submittals, and that products are properly protected and undamaged.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

1.6 STORAGE OF MATERIALS

A. The Contractor shall furnish a covered, weather-protected storage structure providing a clean, dry, noncorrosive environment for all mechanical equipment, valves, architectural items, electrical and instrumentation equipment, and special equipment to be incorporated into this project. Storage of equipment shall be in strict accordance with the "instructions for storage" of each equipment supplier and manufacturer including connection of heaters, placing of storage lubricants in equipment, etc. Corroded, damaged or deteriorated equipment and parts shall be replaced before acceptance of the project. Equipment and materials not properly stored will not be included in a payment estimate.

B. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.

1. Store products subject to damage by the elements in weathertight enclosures such as buildings or trailers which have a concrete or wooden floor, a roof and fully closed walls on all sides.

2. Maintain temperature and humidity within the ranges required by manufacturer's instructions, (ie. electrical and instrumentation equipment).

3. Protect mechanical and electrical equipment from being contaminated by dust, dirt and moisture.

4. Store fabricated products above the ground, on blocking or skids, prevent soiling or staining. Cover products which are subject to

deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.

5. Provide heated storage space for material which would be damaged by freezing.

6. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.

7. Prior to the installation of equipment it shall be stored at locations designated and approved by the Engineer.

C. All materials and equipment to be incorporated in the work shall be handled and stored by Contractor before, during and after shipment in a manner to prevent warping, twisting, bending, breaking, chipping, rusting, and any injury, theft or damage of any kind whatsoever to the material or equipment.

D. Cement, sand and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All structural and miscellaneous steel, and reinforcing steel shall be stored off the ground or otherwise to prevent accumulations of dirt or grease, and in a position to prevent accumulations of standing water and to minimize rusting. Beams shall be stored with the webs vertical. Precast concrete beams shall be handled and stored in a manner to prevent accumulations of dirt, standing water, staining, chipping or cracking. Brick, block and similar masonry products shall be handled and stored in a manner to reduce breakage, chipping, cracking and spalling to a minimum.

E. All materials which, in the opinion of Engineer, have become so damaged as to be unfit for the use intended or specified shall be promptly removed from the site of the work, and Contractor shall receive no compensation for the damaged material or its removal.

F. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration.

G. Protection After Installation: Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove covering when no longer needed.

H. The Contractor shall be responsible for all material, equipment and supplies sold and delivered to Owner under this Contract until final inspection of the work and acceptance thereof by Owner. In the event any such material, equipment and supplies are lost, stolen, damaged or destroyed prior to final inspection and acceptance, Contractor shall replace same without additional cost to Owner.

I. Should Contractor fail to take proper action on storage and handling of equipment supplied under this Contract within seven days after written notice to do so has been given, Owner retains the right to correct all deficiencies noted in previously transmitted written notice and deduct the cost associated with these corrections from Contractor's Contract. These costs may be comprised of expenditures for labor, equipment usage, administrative, clerical, engineering and any other costs associated with making the necessary corrections.

1.7 SPECIAL TOOLS

A. Manufacturers of equipment and machinery shall furnish any special tools (including grease guns or other lubricating devices) required for normal adjustment, operations and maintenance, together with instructions for their use. Contractor shall preserve and deliver to Owner these tools and instructions in good order no later than upon completion of the Contract.

1.8 STORAGE AND HANDLING OF EQUIPMENT ON SITE

A. Attention shall be given to the storage and handling of equipment on site. As a minimum, the procedure outlined below shall be followed:

1. Equipment shall not be shipped until approved by Engineer. The intent of this requirement is to reduce on-site storage time prior to installation and'or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from Engineer. Equipment shipped to the site shall be stored in accordance with Storage and Protection Section herein. Operation and maintenance data as described in Section 01730 shall be submitted to Engineer for review prior to shipment of equipment.

2. All equipment having moving parts such as gears, electric motors, etc. and/or instruments shall be stored in a temperature and humidity controlled building approved by Engineer, until such time as the equipment is to be installed.

3. All equipment shall be stored fully lubricated with oil, grease, etc. unless otherwise instructed by the manufacturer.

4. Manufacturer's storage instructions shall be carefully studied by Contractor and reviewed with Engineer by him. These instructions shall be carefully followed and a written record of this kept by the Contractor.

5. Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Upon installation of the

equipment, Contractor shall start the equipment, at least half load, once weekly for an adequate period of time to insure that the equipment does not deteriorate from lack of use.

6. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. Mechanical equipment to be used in the work, if stored for longer than ninety (90) days. shall have the bearings cleaned, flushed and lubricated prior to testing and startup, at no extra cost to Owner.

7. Prior to acceptance of the equipment, Contractor shall have the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guarantee the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at Contractor's expense.

1.9 WARRANTY

A. For all major pieces of equipment, submit a warranty from the equipment manufacturer as specified in Section 01740. The manufacturer's warranty period shall be concurrent with the Contractor's for one (1) year after issuance of Substantial Completion document.

1.10 SPARE PARTS

A. Spare parts for certain equipment have been specified in the pertinent sections of the Specifications. Contractor shall collect and store all spare parts so required in an area to-be designated by Engineer. In addition, Contractor shall furnish Engineer an inventory listing all spare parts, the equipment they are associated with, the name and address of the supplier, and the delivered cost of each item. Copies of actual invoices for each item shall be furnished with the inventory to substantiate the delivered cost.

1.11 GREASE, OIL AND FUEL

A. All grease, oil and fuel required for testing of equipment shall be furnished with the respective equipment. Owner shall be furnished with a year's supply of required lubricants including grease and oil of the type recommended by manufacturer with each item of equipment supplied.

B. Contractor shall be responsible for changing the oil in all drives and intermediate drives of each mechanical equipment after initial break-in of the equipment, which in no event shall be any longer than three weeks of operation.

SUBSTITUTION REQUEST

PROJECT: RAILROAD PUMP STATION WASTEWATER COLLECTION AND TRANSMISSION SYSTEM IMPROVEMENTS

TO: MADISON ENGINEERING

DATE: _____

CONTRACTOR HEREBY REQUESTS ACCEPTANCE OF THE FOLLOWING PRODUCT OR SYSTEMS AS A SUBSTITUTION IN ACCORD WITH PROVISIONS OF DIVISION ONE OF THE SPECIFICATIONS:

1. SPECIFIED PRODUCT OR SYSTEM:
   Generic Description:_____

   Specification Section No. ____ Art. ___ Para.___

2. SUPPORTING DATA:
   ___Product data for proposed substitution is attached (description of product, reference standards, performance and test data).
   ___Sample attached. ___Sample will be sent if requested.

3. PRODUCT OR SYSTEM QUALITY COMPARISON:

	SPECIFIED PRODUCT	SUBSTITUTION
Name, brand:		
Catalog No.:		
Manufacturer:		
Vendor:		
Significant Variations:		
Maintenance Service Available Locally:	_____Yes	____No
Spare Parts Source:		

4. EFFECT OF SUBSTITUTION:
   Affects other parts of work: __No__Yes
   Explain:_____
   Substitution changes Contract Time: Add/Deduct ___days.
   Saving or credit to Owner if accepted: $_____

5. PREVIOUS INSTALLATIONS:

Attach list of local similar projects on which proposed substitution was used and dates of installations.

6. STATEMENT OF CONFORMANCE OF PROPOSED SUBSTITUTION TO CONTRACT REQUIREMENT: I/we have investigated the proposed substitution and:

a. believe that it is equal or superior in all respects to specified product, except as stated above; and
b. will provide the same warranty as specified for specified product; and
c. have included complete cost data and implications of the substitution; and
d. will pay redesign and special inspection costs caused by the use of this product; and
e. will pay additional costs to other contractors caused by the substitution; and
f. will coordinate the incorporation of the proposed substitution in the Work; and
g. will modify other parts of the Work as may be needed, to make all parts of the Work complete and functioning; and
h. waive future claims for added cost to Contract caused by the substitution; and
i. agree to pay to the Owner or Architect/Engineer the hourly rate of Eighty Dollars ($80.00) per hour for cost of Architect/Engineer to evaluate and review the proposed substitution.

Name and Title: _____ Date_____

Signature: _____

MADISON ENGINEERING REVIEW AND ACTION:

__Substitution not accepted:
__Resubmit with additional information:

__Substitution is accepted.
__Substitution is accepted, with the following comments:

By: _____ Date:_____

OWNER'S APPROVAL:

__Substitution is accepted.

__Substitution is accepted, with the following comments:

By: _____ Date:_____

PART 2 - PRODUCTS (Not Used)

PART 3- EXECUTION (Not used)

END OF SECTION

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

A. The Work may be segmented into several phases of construction in a logical order to meet the project schedule. Portions of the Work may be utilized prior to Substantial Completion of all the Work. Also, certain items of equipment are to be temporarily utilized in a phased segment of the Work and then relocated in a subsequent phase in a permanent installation.

PART 2- PRODUCTS (NOT USED)

PART 3- EXECUTION

3.1 PRELIMINARY MATTERS

A. Start-up Certification: Prior to system start-up, successfully complete all testing required of the individual components of work. Submit five (5) copies of CHECK-OUT MEMO signed by Contractor, Subcontractor and the Manufacturer's representative. All copies shall be provided with the respective Operation and Maintenance Manual. This form shall be completed and submitted before Instruction in Operation to Owner or a request for final inspection.

B. Demonstrate to the Engineer that all temporary jumpers and/or bypass have been removed and that all components are operating under their own controls as designated.

C. Coordinate start-up activities with the Owner's operating personnel at the site and with the Engineer prior to commencing system start-up.

3.02 START UP

A. Confirm that all equipment is properly energized and that all switches are set to their normal operating condition.

B. Initiate start up in accordance with the operation and maintenance manual.

C. Observe the component operation and make adjustments as necessary to optimize the performance of the Work.

D. Coordinate with Owner before performing any adjustments desired or operational problems requiring debugging.

E. Make adjustments as necessary.

3.3 START-UP DEMONSTRATION AND TESTING

A. After all Work components have been constructed, field tested and started-up in accordance with the individual specifications and manufacturer requirements, perform the Start-Up Demonstration and Testing in the presence of the Engineer and the Owner. The demonstration shall be held upon completion of all systems at a date to be agreed upon in writing with the Owner.

B. The start-up testing shall be conducted for two consecutive days. The Work must operate successfully during the two-day testing period in the manner intended. If the Work does not operate successfully, or if the start-up is interrupted due to other contracts, the problems will be corrected and the test will start over from day one. The party causing the interruption will be subject to the assessment of actual damages due to delay.

C. During the start-up, operate the Work, instruct designated plant operating personnel in the function and operation of the Work, and cause various operational circumstances to occur. Demonstrate the essential features of the equipment and its relationship to other equipment. Prior to the substantial completion, the Contractor shall submit a detailed schedule of operational circumstances. Coordination of the various contract schedules will be accomplished through the Engineer.

D. Acceptability of the Work's performance will be based on the Work performing as specified, under these actual and simulated operating conditions as defined in the Contract Documents. The intent of the start-up demonstration and testing is for the Contractor to demonstrate to the Owner and the Engineer that the Work will function as a complete and operable system under normal as well as emergency operating conditions and is ready for acceptance.

E. Certificate of Completed Demonstration: Submit five (5) copies of Certificate of Completed Demonstration memo signed by the Contractor, Subcontractor and Owner and insert one copy in each Operation and Maintenance Manual.

MANUFACTURER'S CHECK-OUT CERTIFICATION

_____ OWNER:	City of Madison	
_____ ENGINEER:	Madison Engineering	No. Copies _____
_____ CONTRACTOR:	_____	No. Copies _____
_____ FIELD RPR:	_____	No. Copies _____
_____ OWNER:	_____	No. Copies _____

_____

PROJECT NAME

Pawnee Steet Wastewater Collection and Transmission System Improvements

Date: _____
Drawing No.: _____

Spec. Section: _____

Name of Equipment Checked: _____

Name of Manufacturer of Equipment: _____

1. The equipment furnished by us has been checked on the job by us. We have reviewed (where applicable) the performance verification information submitted to us by the Contractor.

2. The equipment is properly installed, except for items noted below.*

3. The equipment is operating satisfactorily, except for items noted below.*

4. The written operating and maintenance information (where applicable) has been presented to the Contractor, and gone over with him in detail. Five *(5)* copies of all applicable operating and maintenance information and parts lists have been furnished to him for insertion in each of the Equipment Brochures.

Checked By: _____ _____
Name of Manufacturer's Rep. Name of General Contractor

_____ _____
Address and Phone No. of Rep. Authorized Signature/Title/Date

_____ _____
Signature/Title/Person Making Check Name of Subcontractor

_____ _____
Date Checked Authorized Signature/Title/Date

Manufacturer's Representative Notations: Exception noted at time of check were:
_____
_____
_____

Manufacturer's Representative to note adequacy of related equipment that directly affects operation, performance or function of equipment checked. (No comment presented herein will indicate adequacy of related systems or equipment):
_____
_____
_____

CERTIFICATE OF COMPLETED DEMONSTRATION

_____ OWNER: City of Madison
_____ ENGINEER: Madison Engineering No. Copies _____
_____ CONTRACTOR: _____ No. Copies _____
_____ FIELD RPR: _____ No. Copies _____
_____ OWNER: _____ No. Copies _____

PROJECT NAME

Railroad PS Collection and Transmission System Improvements

MEMORANDUM:
This memo is for the information of all concerned that the Owner has been given a Demonstration of Completed Systems on the work covered under this Specification Section. This conference consisted of the system operation, a tour on which all major items of equipment were explained and demonstrated, and the following items were given to the Owner:

NOTE TO CONTRACTOR:
Submit five (5) copies of all information **listed** below for Engineer's review at least one week before scheduled demonstration of the Work. After all information has been approved by the Engineer, give the Owner a Demonstration of Completed Systems as specified and have the Owner sign five copies of this form. After this has been done, a written request for a final inspection of the system shall be made.

(a) Owner's copy of Operation and Maintenance Manual for equipment or systems specified under this section containing approved submittal sheets on all items, including the following:

(1) Maintenance information published by manufacturer on equipment items.

(2) Printed warranties by manufacturers on equipment items.

(3) Performance verification information as recorded by the Contractor.

(4) Check-out Memo on equipment by manufacturer's representative.

(5) Written operating instructions on any specialized items.

(6) Explanation of guarantees and warranties on the system.

(b) Prints showing actual "As-Built" conditions.

(c) A demonstration of the System in Operation and of the maintenance procedures which will be required.

_____
(Name of Contractor)

By: _____
(Authorized Signature, Title & Date)

_____
(Name of Subcontractor)

By: _____
(Authorized Signature, Title & Date)

Operations and Maintenance Manual, Instruction Prints, Demonstration & Instruction in Operation Received:

_____
(Name of Owner)

By: _____
(Authorized Signature, Title & Date)

END OF SECTION

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Comply with requirements stated in Conditions of the Contract and in specifications for administrative procedures in closing out the Work.

B. Related Requirements Described Elsewhere:

1. Conditions of the Contract. Fiscal provisions, legal submittals and additional administrative requirements.

2. Section 01720: Project Record Documents

3. The respective Sections of Specifications: Closeout Submittals Required of Trades.

1.2 SUBSTANTIAL COMPLETION (BENEFICIAL OCCUPANCY)

A. When Contractor considers the Work as substantially complete, he will submit to Engineer:

1. A written notice that the Work, or designated portion thereof, is substantially complete.

2. A list of items to be completed or corrected.

B. Within a reasonable time after receipt of such notice, Engineer will make an inspection to determine the status of completion.

C. Should Engineer determine that the Work is not substantially complete:

1. The Engineer will promptly notify Contractor in writing, giving the reasons therefore.

2. Contractor shall remedy the deficiencies in the Work and send a second written notice of substantial completion to Engineer.

3. Engineer will reinspect the Work.

D. When Engineer finds that the Work is substantially complete, he will:

1. Prepare and deliver to Owner a tentative Certificate of Substantial Completion on form provided herein (see Attachment A), with a tentative list of items to be completed or corrected before final payment.

2. After consideration of any objections made by Owner as provided in Conditions of the Contract, and when Engineer considers Work substantially complete, he will execute and deliver to Owner and Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected.

1.3 FINAL INSPECTION

A. When Contractor considers the Work is complete, he shall submit written certification that:

1. Contract Documents have been reviewed.

2. Work has been inspected for compliance with Contract Documents.

3. Work has been completed in accordance with Contract Documents.

4. Equipment and systems have been tested in the presence of Owner's representative and are operational.

5. Work is completed and ready for final inspection.

B. Engineer will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.

C. Should Engineer consider that the Work is incomplete or defective:

1. Engineer will promptly notify the Contractor in writing, listing the incomplete or defective work.

2. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to Engineer that the Work is complete.

3. Engineer will reinspect the Work.

D. When the Engineer finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals.

1.4 REINSPECTION FEES

A. Should the Engineer perform reinspections (includes engineering time, expenses and any field and laboratory costs) due to failure of the Work to comply with the claims of status of completion made by Contractor:

1. Owner will compensate the Engineer for such additional services.

2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

1.5 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

A. Evidence of compliance with requirements of governing authorities and all permits, including, but not limited to, water and sewer separation requirements per 62-604 F.A.C.

B. Project Record Documents: To requirements of Section 01720.

C. Evidence of Payment and Release of Liens from all parties associated with the Project: To requirements of General and Special Conditions.

D. Certificate of Insurance for Products and Completed Operations.

1.6 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit a final statement of accounting to the Engineer.

B. Statement shall reflect all adjustments to the Contract Sum:

1. The original Contract Sum.

2. Additions and deductions resulting from:

a) Previous change orders or written amendment.

b) Allowances

c) Unit prices

d) Deductions for uncorrected work

e) Penalties and bonuses

f) Deductions for liquidated damages

g) Deductions for reinspection payments (i.e. laboratory costs, engineering)

h) Other adjustments

3. Total Contract Sum, as adjusted.

4. Previous payments.

5. Sum remaining due.

6. Retainage for one (1) year warranty work.

C. Engineer will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

1.7 FINAL APPLICATION FOR PAYMENT

A. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION (Not used)

END OF SECTION

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Maintain at the site for the Owner one complete record copy of (as applicable):

1. Drawings
2. Specifications
3. Addenda
4. Change Orders and other Modifications to the Contract
5. Engineer Field Orders or written instructions
6. Approved Shop Drawings, Product Data and Samples
7. Field Test records
8. Regulatory Agency Permits and Applicable Inspection Reports
9. Best Management Plans
10. Construction Photographs

B. Related requirements described elsewhere:

1. Section 01050: Field Engineering and Surveying
2. Section 01340: Shop Drawings, Working Drawings and Samples

1.2 SUBMITTAL

A. Deliver complete sets of record drawings in accordance with Article 1.5 E of this Section.

B. Deliver complete set of record documents listed in 1.1 to the Engineer.

C. Accompany submittal with transmittal letter in duplicate, containing:

1. Date
2. Project title and number
3. Contractor's name and address
4. Title and number of each Record Document
5. Signature of Contractor or his authorized representative

1.3 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. Store documents and samples in Contractor's field office apart from documents used for construction.

1. Provide files and racks for storage of documents.

2. Provide locked cabinet or secure storage space for storage of samples.

B. File documents and samples in an organized, neat manner that facilitates retrieval and in accordance with CSI format with section numbers as provided herein.

C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.

D. Make documents and samples readily available for inspection by Engineer.

1.4 MARKING DEVISES

Provide color marking pens for recording information in color code designated by Engineer.

1.5 RECORDING

A. Label each document "Project Record" in neat large printed letters.

B. Record information concurrently with construction progress.

Do not conceal any work until required information is recorded.

C. Drawings: Legibly mark to record actual construction:

1. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Actual installed material, class, etc.

2. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.

3. Field changes of dimension and detail.

4. Changes made by Field Order or by Change Order.

5. Details not on original contract drawings.

6. Structure and piping relocations.

D. Specifications and Addenda: Legibly mark each Section to record:

1. Manufacturer, trade name, catalog number, and Supplier of each Product and item of equipment actually installed.

2. Changes made by Field Order or by Change Order.

E. RECORD DRAWINGS: Upon completion of the work under this Project, the Contractor shall furnish and submit the “Record Drawings” with embossed seal and certifications statement of the Florida licensed surveyor who prepared the “Record Drawings” to the Engineer for transmittal to the Owner and regulatory agencies.

1. Minimum Technical Requirements (Horizontal)

a) Water Mains, Reclaimed Water Mains, and Sewage Force Mains:

· Locate and label, by station and offset, all changes in the pipeline route alignment as shown on the construction plans and at all locations where construction has deviated from the original design. Any change in alignment greater than 1 foot on either side of the pipeline route shall be surveyed and documented on the “Record Drawings”.

· Locate and label, by station and offset, all appurtenances installed in association with the Project, as shown on the plans, including, but not limited to, elbows and fittings, valves, blowoffs, manholes, vaults, services, etc. Services shall be dimensioned from lot corners if not at lot line, and stations labeled for water and sewer services should be dimensioned from nearest manhole when owners construction plans do not establish stationing for centerline of construction.

· Locate and label, by station and offset, all changes in the “beginning” and “ending” points of all directional bores and/or jack and bores.

b) Gravity Sewers and Storm Sewers

- Locate and label, by station and offset, all manholes, junction boxes, headwalls, culverts, outfall structures, services, etc.

2. Minimum Technical Requirements (Vertical)

a) Water Mains, Reclaimed Water Mains, and Sewage Force Mains

- Locate all changes in the pipeline route alignment as shown on the Construction Plans, and where construction has deviated from the original design. Any change in alignment greater than six inches shall be surveyed and documented on the “Record Drawings”.

b) Gravity Sewers and Storm Sewers

- All manhole pipe inverts and top elevations must be labeled.

c) Paving, Grading, and Drainage As-Builts

- As-Built elevations should be taken on road centerlines at all intersections and at all breaks in grade. Road centerline and edges should be shown at 100' intervals (minimum).

- Critical elevations should be taken in ditches and swales to determine that they have been constructed essentially according to the plan. Invert elevations should be taken on storm sewers at critical locations and on both ends of culverts. Representation elevations should be taken on top of dikes and berms, on the bottoms of retention areas, and on tops of inlets and weirs.

- Representative measures should be taken on pavement widths and radii at intersections.

- In addition to these notes, all As-Built drawings and information shall meet the requirements outlined by SWFWMD in their “As-Built Drawings and Information Checklist”, dated 10/01/93, or latest edition, if applicable.

3. Format and Submittal

a) Upon request by the contractor, the Engineer will transmit digital format Construction Plans to the contractor's surveyor for 'As-Built' preparation. The format will be AutoCAD 2005 compatible. It will be the contractors responsibility to meet these format requirements.

b) The Contractor shall provide the Engineer with: (A) Two sets of blackline "Record Drawings", signed and sealed by a professional surveyor and mapper registered with the State of Florida; and (B) The digital formatted "Record Drawings" in AutoCAD 2005 compatible, saved onto a compact disk (CD).

c) The text shown on the digital "Record Drawings" shall be *italics*, having a height of 0.15 times the drawing scale and the font shall be dark enough to clearly distinguish "Record Drawing" text from all other text shown on the document. The design text, i.e., dimensions, call outs, etc., shall be struck out and 'As-Built' callouts placed adjacent to the struck out text. If the design text depicts what was built, then the text shall be changed to the format described above. All 'As-Built' information created by the surveyor shall be placed on a separate layer named 'As-Built', having a color of white (7).

d) The contractor shall, at the time of his request for final payment, submit the "Record Drawings" and disk, along with all other pertinent record documents. Final payment will be withheld until the "Record Drawings" and disk have been submitted and approved by the Engineer.

- The Contractor may elect to submit a 90% complete set of "Record Drawings" to the Engineer for review prior to submitting for final payment.

e) In accepting and utilizing any drawings or other data on any form of electronic media generated and provided by the Design Professional, the Contractor and Owner covenant and agree that all such drawings and data are instruments of service of the Design Professional, who shall be deemed the author of the drawings and data, and shall retain all common law, statutory law and other rights, including copyrights.

f) The Contractor and Owner further agree not to use these drawings and data, in whole or in part, for any purpose or Project other than the Project which is the subject of this Agreement. The Contractor and Town agree to waive all claims against the Design Professional resulting in any way from any unauthorized changes or reuse of the drawings and data for any other project by anyone other than the Design Professional.

g) In addition, the Contractor and Owner agree, to the fullest extent permitted by law, to indemnify and hold the Design Professional harmless from any damage, liability or cost, including reasonable attorneys' fees and costs of defense, arising from any changes made by anyone other than the Design Professional or from any reuse of the drawings and data without the prior written consent of the Design Professional.

h) Under no circumstances shall transfer of the drawings and other instruments of service on electronic media for use by the Client be deemed a sale by the Design Professional, and the Design Professional makes no warranties, either express or implied, of merchantability and fitness for any particular purpose.

1.6 FINAL PAYMENT

No final payment shall be made until such time as the "Record Drawings" and Record Documents have been approved and accepted by Owner and Engineer.

END OF SECTION

PART 1 . GENERAL

1.1 REQUIREMENTS INCLUDED

A. Scope of Requirements:

1. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under Contract.

2. Prepare operating and maintenance data as specified in this Section and as referenced in other pertinent sections of Specifications.

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

B. Related Requirements Described Elsewhere:

1. Section 01100: Special Project Procedures

2. Section 01340: Shop Drawings, Working Drawings, and Samples

3. Section 01700: Contract Closeout

4. Section 01720: Project Record Documents

5. Section 01740: Warranties and Bonds

1.2 QUALITY ASSURANCE

A. Preparation of data shall be done by personnel:

1. Trained and experienced in maintenance and operation of described products.

2. Familiar with requirements of this Section.

3. Skilled as a technical writer to the extent required to communicate essential data.

4. Skilled as draftsman competent to prepare required drawings.

1.3 FORM OF SUBMITTALS

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

B. Format:

1. Size: 8-1/2 inches x 11 inches.

2. Paper: 20 pound minimum, white, for typed pages.

3. Text: Manufacturer's printed data, or neatly typewritten.

4. Drawings:

a) Provide reinforced punched binder tab, bind in with text.

b) Reduce larger drawings and fold to size of text pages but not larger than 14 inches x 17 inches.

5. Provide fly-leaf for each separate products, or each piece of operating equipment.

a) Provide typed description of products and major component parts of equipment.

b) Provide indexed tabs.

6. Cover: Identify each volume with typed or printed title 'OPERATING AND MAINTENANCE INSTRUCTIONS' List:

a) Title of Project.

b) Identity of separate structure as applicable.

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

C. Binders:

1. Commercial quality three-post binders with durable and cleanable plastic covers.

2. Maximum post width: 2 inches.

3. When multiple binders are used, correlate the data into related consistent groupings.

1.04 CONTENT OF MANUAL

A) Neatly typewritten table of contents for each volume, arranged in systematic order.

1. Contractor, name of responsible principal, address and telephone number.

2. A list of each product required to be included, indexed to content of the volume.

3. List, with each product, name, address and telephone number of:

a) Subcontractor or Installer.

b) A list of each product required to be included, indexed to content of the volume.

c) Identify area of responsibility of each.

d) Local source of supply for parts and replacement.

4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.

B. Product Data:

1. Include only those sheets which are pertinent to the specific product.

2. Annotate each sheet to:

a) Clearly identify specific product or part installed.

b) Clearly identify data applicable to installation.

c) Delete references to inapplicable information.

C. Drawings:

1. Supplement product data with drawings as necessary to clearly illustrate:

a) Relations of component parts of equipment and systems.

b) Control and flow diagrams.

2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.

3. Do not use Project Record Documents as maintenance drawings.

D. Written text, as required to supplement product data for the particular installation:

1. Organize in consistent format under separate headings for different procedures.

2. Provide logical sequence of instructions of each procedure.

E. Copy of each warranty, bond and service contract issued.

1. Provide information sheet for Owner's personnel, give:

a) Proper procedures in event of failure.

b) Instances which might affect validity of warranties or bonds.

1.5 MANUAL FOR MATERIALS AND FINISHES

A. Submit five copies of complete manual in final form.

B. Content: for architectural products, applied materials and finishes:

1. Manufacturer's data, giving full information on products.

a) Catalog number, size, composition.

b) Color and texture designations.

c) Information required for reordering special manufactured products.

2. Instructions for care and maintenance.

a) Manufacturer's recommendation for types of cleaning agents and methods.

b) Cautions against cleaning agents and methods which are detrimental to product.

c) Recommend schedule for cleaning and maintenance.

C. Content, for moisture protection and weather-exposed products:

1. Manufacturer's data, giving full information on products.

   a) Applicable standards.
   b) Chemical composition.
   c) Details of installation.

2. Instructions for inspection, maintenance and repair.

D. Additional requirements for maintenance data: Respective sections of Specifications.

1.6 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Submit five copies of complete manual in final form.

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

1. Description of unit and component parts.

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

   b) Performance curves, engineering data and tests.

   c) Complete nomenclature and commercial number of replaceable parts.

2. Operating procedures:

   a) Start-up, break-in, routine and normal operating instructions.

   b) Regulation, control, stopping, shut-down and emergency instructions.

   c) Summer and winter operating instructions.

   d) Special operating instructions.

3. Maintenance procedures:

   a) Routine operations.

   b) Guide to "trouble-shooting".

   c) Disassembly, repair and reassembly.

   d) Alignment, adjusting and checking.

4. Servicing and lubrication required.

5. Manufacturer's printed operating and maintenance instructions.

6. Description of sequence of operation by control manufacturer.

7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.

   a) Predicted life of parts subject to wear.

   b) Items recommended to be stocked as spare parts.

8. As-installed control diagrams by controls manufacturer.

9. Each Contractor's coordination drawings.

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

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

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

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

1. Description of system and component parts.

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

   b) Performance curves, engineering data and tests.

   c) Complete nomenclature and commercial number of replaceable parts.

2. Circuit directories of panelboards.

   a) Electrical service

   b) Controls

   c) Communications

3. As installed color coded wiring diagrams.

4. Operating procedures:

   a) Routine and normal operating instructions.

   b) Sequences required.

   c) Special operating instructions.

5. Maintenance procedures:

   a) Routine operations.

   b) Guide to “trouble-shooting.

   c) Disassembly, repair and reassembly.

   d) Adjustment and checking.

6. Manufacturer’s printed operating and maintenance instructions.

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

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

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

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

1.7 SUBMITTAL SCHEDULE

A. Submit two copies of preliminary draft of proposed formats and outlines of contents of Operation and Maintenance Manuals within 45 days after Notice to Proceed.

   1. Engineer will review the preliminary draft and return one copy with comments.

B. Submit two copies of completed data in final form no later than 30 days following Engineer’s review of the last shop drawing and/or other submittal specified in Section 01340.

1. One copy will be returned with comments to be incorporated into final copies.

C. Submit five (5) copies of approved manual in final form directly to the offices of the Owner within 30 calendar days of product shipment to the project site and preferably within 30 days after the reviewed copy is received.

D. Append six (6) copies of addendum to the operation and maintenance manuals as applicable and certificates as specified within 30 days after final inspection and start-up test.

1.8 INSTRUCTION OF OWNER'S PERSONNEL

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

B. Operating and maintenance manual shall constitute the basis of instruction.

1. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION (Not used)

END OF SECTION

PART 1 . GENERAL

1.1 REQUIREMENTS INCLUDED

A. Scope of Requirements:

1. Compile specified warranties *and* bonds as specified in these Specifications.

2. Co-execute submittals when so specified.

3. Review submittals to verify compliance with Contract Documents.

4. Submit to Engineer for review and transmittal to Owner.

B. Related Work Described Elsewhere:

1. Instructions to Bidders: Bid Bonds

2. Conditions of the Contract: Performance Bond and Payment Bond

3. Conditions of the Contract: Instructions to Contractors

4. Section 01700: Contract Closeout

1.2 SUBMITTAL REQUIREMENTS

A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.

B. Number of original signed copies required: Two each.

C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.

1. Product of work item.

2. Firm, with name of principal, address and telephone number.

3. Scope.

4. Date of beginning of warranty, bond or service and maintenance contract.

5. Duration of warranty, bond or service maintenance contract.

6. Provide information for Owner's personnel:

   a) Proper procedure in case of failure.

   b) Instances which might affect the validity or warranty or bond.

7. Contractor, name of responsible principal, address and telephone number.

1.3 FORM OF SUBMITTALS

A. Prepare in duplicate packets.

B. Format:

1. Size 8-1/2 inches x 11 inches, punch sheets for standard three-post binder.

   a) Fold larger sheets to fit into binders.

2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List:

   a) Title of Project.

   b) Name of Contractor.

C. Binders: Commercial quality, three-post binder, with durable and cleanable plastic covers and maximum post width of two inches.

1.4 WARRANTY SUBMITTALS REQUIREMENTS

A. For all major pieces of equipment, submit a warranty from the equipment manufacturer. Manufacturer's warranty period shall be concurrent with Contractor's for one (1) year unless otherwise specified, **commencing at the time of final acceptance by Owner.**

B. Contractor shall be responsible for obtaining certificates for equipment warranty for all major equipment which has at least a 1 hp motor or which lists for more than $1,000. Engineer reserves the right to request warranties for equipment not classified as major. Contractor shall still warrant equipment not considered to be "major" in the Contractor's one-year warranty period even though certificates of warranty may not be required.

C. In the event that the equipment manufacturer or supplier is unwilling to provide a one-year warranty commencing at the time of Owner acceptance, the Contractor shall obtain from the manufacturer a two (2) year warranty commencing at the time of equipment delivery to the job site. This two-year warranty from the manufacturer shall not relieve Contractor of the one-year warranty starting at the time of Owner acceptance of the equipment.

D. Owner shall incur no labor or equipment cost during the guarantee period.

E. Guarantee shall cover all necessary labor, equipment and replacement parts resulting from faulty or inadequate design, improper assembly or erection, defective workmanship and materials, leakage, breakage or other failure of all equipment and components furnished by manufacturer.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

PART 1 - GENERAL

1.1 SCOPE AND INTENT

A. Requirement

1) Contractor is required to warranty all of the Project Work for a period of one (1) year from the date of the Owner's written acceptance of the entire Project.

1.2 WARRANTY RETAINAGE

A. Owner will retain a portion of the total Contract price, as specified in Section 00800, to ensure that Contractor will satisfactorily perform the required warranty work in a timely manner.

PART 2 - PRODUCTS USED

2.1 Products and materials used in the warranty work shall be new and the same as used in the original construction, unless the originally used products/materials proved to be unsatisfactory, and in this case, equal alternates, as proposed by Contractor and approved by Owner and Engineer, will be used.

PART 3 - EXECUTION

3.1 INTERMEDIATE WORK

After Owner's acceptance of the entire Project, and prior to expiration of the one (1) year warranty, Owner/Engineer will notify the contractor of any warranty work that is immediately required and Contractor will promptly complete the warranty work. Owner may utilize Warranty retainage funds in emergency situations to maintain utility operations if the Contractor cannot promptly or adequately respond to correct defective work and maintain utility service. Payment for such services will be deducted from the final pay request.

3.2 FINAL WORK

About 11 months after Owner's acceptance of the entire Project, Contractor, Engineer, and Owner will make a detailed inspection of the Project and prepare a list of all warranty work required. Thereafter, Contractor will promptly repair and complete all the warranty work. Thereafter, Owner, Engineer, and Contractor will make another inspection to ensure that all warranty work has been completed to the satisfaction of Owner and Engineer.

Any remaining warranty work will be promptly completed. This process will continue until all warranty work is completed to the satisfaction of Owner and Engineer.

3.2 WARRANTY EXTENSIONS

If the warranty work involves replacement of a failed component, such as motor, pump, blower, etc., the one year warranty period for the replaced item shall begin anew on the date of written acceptance by Owner and Engineer.

3.3 PAYMENT OF WARRANTY WORK RETAINAGE

After completion of all warranty work to the written satisfaction of Owner and Engineer, Contractor will make application for payment of the warranty work retainage, and said application will be promptly processed and paid. If acceptable to Owner and Engineer, Contractor may make partial payment requests for completed and approved warranty work.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Remove surface debris.

ii) Clear construction area of plant life and grass.

iii) Remove trees and shrubs.

iv) Remove root system of trees and shrubs.

v) Topsoil excavation.

1.2 SUBMITTALS

Shall be in accordance with Special Provisions Section.

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

3.1 REGULATORY REQUIREMENTS

A. Conform to applicable codes for disposal of debris, burning debris on site, and use of herbicides.

B. Coordinate clearing Work with Owner and other contractors.

3.2 PREPARATION

A. Verify that existing plant life designated to remain, is tagged or identified.

3.3 PROTECTION

A. Locate, identify, and protect utilities that remain, from damage.

B. Protect trees, plant growth, and features designated to remain, as final landscaping.

C. Protect bench marks from damage or displacement.

3.4 CLEARING

A. Clear areas required for access to site and execution of Work.

B. Remove trees and shrubs indicated. Remove stumps, main root ball, and root system to a depth of 18 inches below subgrade.

C. Apply herbicide to remaining stumps to inhibit growth.

3.5 REMOVAL

A. Remove debris, rock, and extracted plant life from site.

3.6 TOPSOIL EXCAVATION

A. Excavate topsoil from entire GSR construction site.

B. Stockpile in area designated on site. Protect from erosion.

C. Do not intermix grass, weeds, roots, root mat, brush, and stones larger than 3 inches with stockpiled topsoil. Dispose of root contaminated topsoil.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Removal of topsoil and subsoil.

ii) Cutting, grading, filling, and rough contouring the site for site structures.

b) REFERENCES

i) ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 Kg) Rammer and 18 inch (457 mm) Drop.

ii) ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

iii) ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

1.3 SUBMITTALS

Shall be in accordance with Special Provisions Section.

PART 2 (NOT USED)

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site conditions under provisions Invitation to Bid and Bid Proposal.

B. Verify that survey bench mark and intended elevations for the Work and as shown on Drawings.

3.2 GENERAL PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect utilities that remain, from damage.

iv) Notify Owner to remove and relocate utilities.

v) Protect above and below grade utilities that remain.

vi) Protect plant life, and other features remaining as a portion of final landscaping.

vii) Protect bench marks, from excavating equipment and vehicular traffic.

3.3 SUBSOIL EXCAVATION

A. Excavate subsoil from areas to be further excavated, or re-graded.

B. Stockpile in area designated on site. Protect from erosion.

3.4 FILLING

A. Fill areas to contours and elevations shown on Drawings.

B. Place fill materials on continuous layers and compact in accordance with Schedule at end of this Section.

C. Maintain optimum moisture content of fill materials to attain required compaction density.

D. Make grade changes gradual. Blend slope into level areas.

3.5 FIELD QUALITY CONTROL

A. Compaction testing will be performed in accordance with ANSI/ASTM D1557.

B. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

3.6 SCHEDULES

A. Structural Fill:

(1) Fill Type II: Maximum 8 inches (200 mm) compacted depth.

(2) Compact to minimum 98 percent of maximum density.

B. Subsoil Fill:

1. Fill Type I: Maximum 8 inches (300 mm) uncompacted depth.

2. Compact to minimum 95 percent of maximum density.

END OF SECTION

PAR T 1 - GENERAL

1.1 SECTION INCLUDES

A. Finish grading sub-soil.

B. Cutting out areas to receive stabilization base course materials for paving.

C. Placing, finish grading, and compacting top soil.

1.2 SUBMITTALS

Shall be in accordance with Special Provisions Section.

1.3 QUALITY ASSURANCE

Prevent damage to existing fencing, trees, landscaping, natural features, bench marks, pavement, and utility lines. Correct damage to the satisfaction of the Owner and the Engineer.

PART 2 - PRODUCTS

2.1 MATERIALS

Topsoil: Friable loam free from subsoil, roots, grass, excessive amount of weeds, stones, and foreign matter; acidity range (pH) of 5.5 to 7.5; containing minimum of 4 percent and a maximum of 25 percent organic matter. Use topsoil stockpiles on-site if conforming to these requirements.

PART 3 - EXECUTION

3.1 SUB-SOIL PREPARATION

A. Rough grade sub-soil systematically to allow for a maximum amount of natural settlement and compaction. Eliminate uneven areas and low spots. Remove debris, roots, branches, stones, etc. Remove sub-soil which has been contaminated with petroleum products.

B. Cut out areas to sub-grade elevation, which are to receive stabilizing base for paving.

C. Bring sub-soil to required levels, profiles, and contours. Make changes in grade gradual. Blend slopes into level areas.

D. Slope grade away from building 2 inches in 10 feet unless indicated otherwise on the Drawings.

E. Cultivate sub-grade to a depth of 3 inches, where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted sub-soil.

3.2 PLACING TOPSOIL

A. Place topsoil in areas where seeding, sodding, and planting is to be performed. Place to the following minimum depths, up to finished grade elevations.

1. 6 inches for seeded and sprigged areas.
2. 4-1/2 inches for sodded areas.

B. Use topsoil in relatively dry state. Place during dry weather.

C. Fine grade topsoil eliminating rough and low areas to ensure positive drainage. Maintain levels, profiles, and contours of sub-grades.

D. Remove stone, roots, grass, weeds, debris, and other foreign material while spreading.

E. Manually spread topsoil around trees, plants, buildings, to prevent damage which may be caused by grading equipment.

F. Lightly compact placed topsoil.

3.3 SURPLUS MATERIAL

A. Remove surplus sub-soil and topsoil and stockpile at locations indicated on the construction plans.

B. Leave stockpile areas and entire job site clean and raked, ready to receive landscaping.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

Excavating for gravity sewers, service laterals, and force main.

b) SUBMITTALS

Shall be in accordance with Special Provisions Section.

1.3 QUALITY ASSURANCE

i) Protect excavations by methods required to prevent cave-in or loose soil from falling into excavation.

ii) Protect bottom of excavations and soil adjacent to and beneath foundation, from freezing.

C. It is mandatory that the Contractor comply with the "Trench Safety Act" which became Florida law on October 1, 1990. This Act adopts the provisions of the Occupational Safety and Health Administration's excavation safety standards (29 C.F.R. Part 1926.650 Subpart P). For excavations in excess of five (5) feet, the Contractor's Bid must include written assurance that he will comply with the trench safety standards and identify the cost to comply.

PART 2) PRODUCTS

Not Used.

PART 3) EXECUTION

a) PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Verify that survey bench mark and intended elevations for the Work and as shown on the Drawings.

b) EXCAVATION

i) Underpin adjacent structures which may be damaged by excavation work.
ii) Excavate subsoil required to accommodate pipe.

iii) Grade top perimeter of excavation to prevent surface water from draining into excavation.

iv) Hand trim excavation. Remove loose matter.

v) Notify Architect/Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

vi) Correct areas over-excavated in accordance with Section 02223.

G. The trench shall be excavated only so far in advance of pipe installation as to insure proper installation in accordance with the Drawings and the Standards herein. The trench shall be excavated to the depth required so as to provide a uniform and continuous bearing support for the pipe on undisturbed ground. Bell holes shall be provided at each joint so that pipe bells receive no bearing pressure, yet permit proper jointing and inspection.

H. Excavated material shall not be permitted to endanger the work, or obstruct natural water courses, sidewalks or driveways. Fire hydrants under pressure, valve pit covers, valve boxes, fire and police call boxes, or other utility controls shall be left unobstructed and accessible at all times. Gutters shall be kept clear or other satisfactory provisions made for street drainage.

3.3 ADDITIONAL EXCAVATION:

In case the materials encountered at the elevations specified are not suitable, or in case it is found desirable or necessary to go an additional depth, the excavation shall be carried to such additional depth as the Engineer may direct, in writing. The Contractor shall refill such excavated space with either compacted sand, shell, crushed rock, or other selected fill materials tamped in six inch (6") lifts, or as ordered. Additional depth of excavation so ordered and selected fill materials ordered for filling such additional excavation will be paid for by the Owner. When the Contractor encounters questionable material, and the Engineer is not present, he shall notify the Engineer or Owner before proceeding.

3.4 UNAUTHORIZED EXCAVATION:

Wherever the excavation is carried beyond or below the lines and grades shown on the Contract Drawings, except as specified above, all excavated space shall be refilled with such material and in such a manner as may be directed, in order to insure stability of the various structures. Beneath all structures, space excavated without authority shall be refilled by the Contractor at his own expense, with concrete as specified in these Specifications, or selected fill materials as ordered by the Engineer.

3.5 SHORING AND SHEETING:

A. Trenches and other excavation shall be properly shored, sheeted, and braced to prevent shifting of material, to prevent damage to the structure or other work and to adjacent property, and to avoid delay in the work. Bracing shall be arranged as not to place any strain on portions of completed work until the general construction has proceeded far enough to provide ample strength. Sufficient sheeting or supports, as determined by the Contractor, shall be installed at the Contractor's expense to protect the work and to prevent any damage to new or existing structures and to adjacent property.

B. In general, the sheeting and bracing shall be removed as the trench or excavation is refilled, and in such a manner as to avoid the caving in of the bank or disturbance to adjacent areas or structures. The voids left by the withdrawal of the sheeting shall be carefully filled by jetting or otherwise. No shoring, sheeting, or bracing shall be removed that has been driven below the invert of the pipe.

3.6 FIELD QUALITY CONTROL

Provide for visual inspection of bearing surfaces.

3.7 TRENCH DEWATERING

An adequate means of dewatering shall be used when necessary to keep water from the trench bottom. The trench shall be excavated no more than the available pumping facilities are capable of handling. This discharge from pumps shall be routed to natural drainage channels or emptied into drains or storm sewers consistent with applicable regulations. Dewatering shall continue until sufficient backfill is placed above the pipe to prevent floatation.

3.8 TRENCH WIDTH

A. Unsupported trench width shall be limited to the minimum practicable width allowing working space to compact the haunching materials. The width shall be at least the pipe diameter plus one (1) foot.

B. Supported trench width shall be adequate to allow the pipe bedding and haunching to be placed and compacted, and removal of trench support without disturbing the pipe, bedding or haunching material within a pipe diameter plus 8" on both sides.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Fill materials.

ii) Preparation.

iii) Backfilling.

iv) Compaction testing.

b) REFERENCES

i) ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 Kg) Rammer and 18 inch (457 mm) Drop.

ii) ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

C. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb. (4.54 kg) Rammer and an 18-in. (457 mm) Drop.

D. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.

E. Attachment A - Geotechnical Findings and Construction Requirements for Foundations Systems in 28 May 1999 Report of Final Geotechnical Exploration - Proposed Sanitary Sewer Pipe Line by Ardaman and Associates, Inc.

F. Attachment B - Geotechnical Findings and Construction Requirements for Pumping Stations in 27 May 1999 Report of Final Geotechnical Exploration - Proposed Dundee Wastewater Pumping Stations - Phase 1C Site by Ardaman and Associates, Inc.

1.3 SUBMITTALS

Shall be in accordance with Special Provisions Section.

1.4 QUALITY ASSURANCE

A. Protect finished Work from traffic and erosion. Keep free of trash and debris.

B. Reshape and re-compact fills subjected to vehicular traffic.

C. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

D. Fill to Correct Over-excavation under structures:

(1) Fill Type II, flush to required elevation, compacted to 95 percent maximum by density. Place in lifts no greater than 6 inches in uncompacted depth.

E. Fill Under Grass Areas:

1. Fill Type I, to 6 inches below finish grade, compacted to 90 percent of modified proctor (ASTM D1557) maximum dry density.

PART 2 PRODUCTS

2.1 FILL MATERIALS

A. Use stored excavated material for backfill and fill. Provide additional material, if required, to complete backfill and fill. Additional backfill and fill material shall be provided, by the Contractor, at his expense. Additional material shall be approved by the Owner/Engineer prior to bringing the fill to the site. Cost for testing shall be included in the price bid for other items.

B. Type I - Suitable Backfill

Suitable backfill shall be the following soils, classified by the Unified Soil Classification System, ASTM D 2487:

Group Symbols	Typical Names
GW	Well-graded gravels and gravel-sand mixtures, little or no fines
GP	Poorly graded gravels and gravel-sand mixtures, little or no fines

Group Symbols	Typical Names
GM	Silty gravels, gravel-sand-silt mixtures
GC	Clayey gravels, gravel-sand-clay mixtures
SW	Well-graded sands and gravelly sands, little or no fines
SP	Poorly graded sands and gravelly sands, little or no fines
SM	Silty sands, sand-silt mixtures
SC	Clayey sands, sand-clay mixtures
ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays

C. Type II - Special Backfill

Special backfill shall be the following soils, classified by the Unified Soil Classification System, ASTM D 2487:

Group Symbols	Typical Names
GW	Well-graded gravels and gravel-sand mixtures, little or no fines
GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
SW	Well-graded sands and gravelly sands, little or no fines
SP	Poorly graded sands and gravelly sands, little or no fines

D. Type III - Unsuitable Materials

Materials which are unsuitable for backfill include stones greater than 8 inches in their largest dimension, pavement, rubbish, debris, wood, metal, plastic, and the following soils, classified by the Unified Soil Classification System, ASTM D 2487:

Group Symbols	Typical Names
OL	Organic silts and organic silty clays of low plasticity
MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
CH	Inorganic clays of high plasticity, fat clays
OH	Organic clays of medium to high plasticity
PT	Peat, muck, and other highly organic soils

E. Concrete: Lean cement concrete with a compressive strength 1,000 psi.

PART 3 EXECUTIONS

3.1 PREPARATION

A. Compact subgrade to density requirements for subsequent backfill materials.

B. Cut out soft areas of subgrade not capable of required compaction. Backfill and compact to density equal to or greater than requirements in this section, for subsequent fill material. Backfill material for cut out area to be same as subsequent material.

C. Scarify and proof roll subgrade surface to a minimum depth below footing bottoms and slabs-on-grade as specified in the attached geotechnical reports.

3.2 BACKFILLING

A Backfill areas to contours and elevations shown on Drawings.

B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, or spongy subgrade surfaces.

C. Employ a placement method that does not disturb or damage other work.

D. Maintain optimum moisture content of backfill materials to attain required compaction density. Do not backfill against unsupported foundation walls.

E. Slope grade away from structures minimum 2 inches in 10 ft, unless noted otherwise.

F. Backfilling shall be to the original ground surface or to such other grades as may be shown or directed. All backfilling shall be done with approved sound material free from objectionable organic matter, rubbish, boggy or other unsuitable materials. All material used for backfill shall be of a quality acceptable to the Engineer.

G. No backfilling shall be placed against any structure or pipe until permission has been given by the Engineer. In general, backfilling shall be done as quickly as possible following satisfactory installation of pipe lines or completion of structures. In no case shall backfill be placed against a masonry structure until masonry has been in place seven (7) days, unless otherwise directed by Engineer.

H. In backfilling around structures, all lumber, rubbish, braces, and refuse shall be removed from behind walls before backfilling is started. Stones, if any, shall be distributed throughout the mass so that all interstices are solidly filled with fine material, however, no stones shall be placed in the backfill nearer than two feet (2') from any wall or pipe.

I. Backfilling around structures shall be Type I fill placed and compacted in accordance with the attached geotechnical reports.

J. Backfilling of pipe trenches shall be done in two (2) stages as follows:

1. The first stage shall consist of backfilling by hand with Type I fill from the bottom of the pipe to a point 12 inches above the top of the pipe. The Contractor shall provide adequate compacted fill beneath the haunches of the pipe. The width of the backfill and compaction shall be the full width of the trench and as described hereinafter.

2. The second stage shall consist of backfilling with Type I fill from a point 12 inches above the top of the pipe to the original ground surface or to such other grades as may be shown or directed. The width of the backfill and compaction shall be the full width of excavation and as described hereinafter.

3. <u>Stage/Zone 1</u>: The backfill for the first stage shall be placed in a maximum of six inch (6") layers (loose thickness) then solidly rammed down and tamped around the pipe, and shall be compacted with mechanical tampers or by other appropriate methods to produce a density equal to, or greater than, but not less than 95 or 100 percent of the maximum dry density of the soil adjacent to the pipe trench (Standard Proctor Compression Test ASTM D698) in non-roadway and roadway

areas, respectively. The operation shall be done in such a manner as not to disturb the pipe. The earth, to the height specified above, shall be carefully thrown in with hand shovels; under no condition shall any other means than hand shoveling, such as pushing in by heavy equipment, be used. Mechanical tampers shall be used to compact the top layer of the first stage. The material shall be compacted only when the moisture content is within the limits to obtain the required density. The water content of the fill material may be reduced when necessary by appropriate procedures to promote aeration. The water content may be increased by addition of water to the fill. Added water must be evenly distributed through the fill material prior to compaction.

4. Stage/Zone 2:The backfill for the second stage shall be compacted in 12 inch maximum lifts (loose thickness), with mechanical tampers to produce the density required for the first stage. The material shall be compacted only when the moisture content is within the limits to obtain the required density. The water content of the fill material may be reduced when necessary by appropriate procedures to promote aeration. The water content may be increased by addition of water to the fill. Added water must be evenly distributed through the fill material prior to compaction. Care shall be taken to carry the fill up evenly on opposite sides of the pipeline or sewer, other trench excavations, and around sides of all structures. When pavement for main streets, highways, driveways, and sidewalks is to be constructed over the backfill, the backfill in the first and second stage shall be compacted to 100 percent maximum density as determined by AASHTO T-180, Method D (Standard Proctor), latest edition.

5. Soil conditions may be encountered where mechanical tampers will not produce the required density or where other methods of compaction will produce a greater density than can be obtained by mechanical tampers.

   Upon review of data substantiating these soil conditions, the Engineer may give the Contractor permission to use other compaction methods which will produce the required density. The Contractor shall be responsible for obtaining the required density of the backfill and for protecting the pipe and structures. If the material excavated is not clean earth, as above specified, the best of the materials excavated shall be used in backfilling, in position and manner as directed by the Engineer.

6. In rock trenches selected earth, sand, or gravel shall be provided and used as backfill in the manner hereinbefore described to a height of one foot (l') above the top of the pipe. The backfill for the balance of the trench in all cases shall be of good earth, sand, or gravel, which may contain

stones not more than six inches (6") in largest dimensions, but not in proportion exceeding 20 percent of total volume of backfill. Should there be deficiency of proper material for refilling, the Contractor shall furnish acceptable material at his own cost and expense. No house ashes, putrescible refuse, or other material of unsatisfactory character shall be used in refilling, and the Contractor shall not permit the trench to be used as a dumping ground for refuse.

K. Slabs or grade shall be backfilled and compacted in accordance with the attached geotechnical reports.

L. Make gradual grade changes. Blend slope into level areas.

M. Leave fill material stockpile areas free of excess fill materials.

3.3 COMPACTION TESTING

A. Field testing will be performed by an independent testing firm approved by the Owner and Engineer and will be paid for by the Contractor.

B. The Contractor will notify the test firm a minimum of 24 hours before tests are to be taken, and have test locations available. The Contractor will ensure that trench safety and security are installed properly prior to having the test firm notified.

C. Testing firm reports are to clearly state:

1. Pass/Fail;
2. Location(s) tested;
3. Material(s) tested; and
4. Corrective measures required.

D. Testing firm shall provide copies of all test reports to the Contractor, the Engineer, and the Owner.

E. Compaction testing will be performed in accordance with ANSI/ASTM D1557.

F. If tests indicate Work does not meet specified requirements, the work shall be removed, or compacted and retested and paid for by the Contractor. Additional compaction tests shall be made to each side of an unsatisfactory test to determine the extent of re-excavation and re-compaction necessary.

G. The cost of the partial excavation and restoration of the backfill will be paid for by the Contractor.

H. Testing Frequency for Structures and Slabs-on-Grade:

1. One test every 500 feet in Stage 2, or less at locations approved by the Engineer.
2. Staggered lateral locations on each stage.
3. Minimum of two tests per lift of fill.

I. Testing Frequency for Pipeline Installations:

1. The Engineer may at any time instruct the Contractor to partially excavate a previously backfilled trench or temporarily backfill a short section of the trench for the purpose of obtaining measurements of the density of the backfill.

2. Density tests shall be taken along the pipeline trench at locations approved by the Engineer, at a maximum distance between tests of 500 feet; and at staggered depths.

J. Testing Frequency for Pump Stations:

1. Foundation soils for pump stations should be saturated with water and compacted with suitable mechanical equipment to achieve the specified level of density to the required depth. Foundation bottom grade should be tested at all pump stations and 50%of manholes installed to confirm that a minimum density of 98 percent of the Standard Proper Maximum Dry Density exists to a depth of 12 inches below footing bottom. If necessary, the bottom of the footing excavation shall be over-excavated, refilled, and recompacted with mechanical equipment to achieve the necessary minimum field density to the required depth.

K. Testing Frequency for General Pavement and Sidewalk Patching/Repair:

1. Density tests shall be taken at staggered depths in all backfill zones and base/sub-base layers at a minimum frequency of one test per 50 square yards.

L. Testing Frequency for Pavement Construction:

1. Limestone base material densities shall be tested daily (3 tests per day minimum) in accordance with Section 200-6 of the latest FDOT standard specifications.

2. Sub-base densities shall be tested daily (3 tests per day minimum) in accordance with Section 160-5.5 of the latest FDOT standard specifications.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Excavating trenches for utilities.

ii) Compacted fill from top of utility bedding to subgrade elevations.

iii) Backfilling and compaction.

b) REFERENCES

i) ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 Kg) Rammer and 18 inch (457 mm) Drop.

ii) ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

c) DEFINITIONS

Utility: Any buried pipe, conduit, or cable.

1.4 SUBMITTALS

Shall be in accordance with Special Provisions Section

1.5 QUALITY ASSURANCE

A. Protect finished work.

B. Reshape and re-compact fills subjected to vehicular traffic during construction.

1.6 FIELD MEASUREMENTS

Verify that survey bench mark and intended elevations for the Work are as shown on drawings.

1.7 COORDINATION

Coordinate work in accordance with Special Provisions Section.

PART 2) PRODUCTS

a) FILL MATERIALS

Fill Type II: As specified in Section 02223 unless otherwise directed.

PART 3) EXECUTION

a) PREPARATION

i) Identify required lines, levels, contours, and datum.

ii) Protect plant life, lawns, and other features remaining as a portion of final landscaping.

iii) Protect bench marks from excavation equipment and vehicular traffic.

iv) Maintain and protect above and below grade utilities which are to remain.

v) Cut out soft porous, wet or spongy areas of subgrade not capable of required compaction. Backfill with Fill Type II and compact to density equal to or greater than requirements in Section 02223, for subsequent backfill material.

b) EXCAVATION

i) Excavate subsoil required for utilities.

ii) Cut trenches sufficiently wide to enable installation and allow inspection.

iii) Correct areas over excavated in accordance with Section 02222.

iv) Stockpile excavated material in area designated on site.

c) BACKFILLING

i) Backfill trenches to contours and elevations with suitable materials.

ii) Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, or spongy subgrade surfaces.

iii) Maintain optimum moisture content of fill materials to attain required compaction density. See Section 2223, for backfilling of pipe trenches.

d) FIELD QUALITY CONTROL

i) Field testing will be performed under provisions of Special Provisions Section.

ii) Compaction testing will be performed in accordance with ANSI/ASTM D1557.

iii) If tests indicate Work does not meet specified requirements the work shall be removed, recompacted and retested. Additional compaction tests shall be made each side of the unsatisfactory test to determine the extent of re-excavation and re-compaction necessary.

iv) Frequency of Tests will be as outlined under provisions of Section 02223.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. All material, labor, transportation, equipment, and tests required for performing all operations in connection with construction of aggregate base courses for paving in accordance with the requirements, alignments and grades as shown on the Drawings and as specified hereinafter. All work shall be in full accordance with these Specifications and the Construction Drawings.

B. Unless otherwise specified, all material and construction shall be in strict conformance with all applicable provisions of the Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction, latest edition, with additional requirements or limitations thereto and requirements for other materials as specified below and/or on the Drawings. The Contractor shall be responsible for all material and shall replace, at his own expense, all material found defective in manufacture or damaged in handling.

1.2 REFERENCES

A. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition.

1.3 SUBMITTALS

In accordance with the requirements of this Section and Section 01300 of these Specifications.

PART 2 PRODUCTS

2.1 MATERIALS

A. General: The Contractor shall furnish all materials for use on this Project in accordance with the following Specifications. Any variations from these Specifications or additional materials necessary for construction shall be approved by the Engineer prior to use.

B. Cement shall comply with the standard specification for Portland Cement, ASTM Designation C-150, Type I.

C. Water shall be clean and free from oil, acids, alkalies, organic materials, or other injurious substances.

D. Limerock shall conform to FDOT Section 911 for Ocala or Miami Dolite Formation Limerock, and shall have an average LBR value not less than 100.

E. Prime and tack coat shall conform to Section 300 of the FDOT specifications.

PART 3 EXECUTION

3.1 GENERAL

A. Equipment: As necessary for the proper construction of the work, in first-class working condition, and as approved by the Engineer prior to its use.

B. Limits of Construction: Construct the base to the full dimensions shown on the Drawings.

3.2 PERFORMANCE

A. Transporting Limerock: Transport limerock to the point where it is to be used, over rock previously placed if practicable, and dump on the end of the preceding spread. No hauling over the subgrade or dumping on the subgrade will be permitted.

B. Where called for on the Drawings, paving shall have a limerock base of the thickness shown on the Drawings (6 inches minimum) and constructed to meet the requirements of Section 200 of the FDOT Standard Specifications, latest edition.

C. Spreading Limerock:

1. Spread limerock uniformly, and remove and replace all segregated areas of fine or coarse rock with well-graded rock.

2. When the specified compacted thickness of the base is greater than 6-inches, construct the base in two courses with the first course approximately one-half the total thickness of the finished base, but not less than the thickness required to bear the weight of the construction equipment without disturbing the subgrade.

3.3 FIELD QUALITY CONTROL

A. Density Testing

1. Unless otherwise directed, testing laboratory will be selected by the Contractor and approved by the Owner, and tests will be paid for by the Contractor. Any retesting required as a result of material failing to meet Specifications, shall be paid by Contractor. Testing firm representative will be notified when areas are ready for testing and tests will be made as directed by the representative.

2. During final compacting operations, if blading of any areas is necessary to obtain the true grade and cross section, complete the compacting operations for such areas prior to making the density determinations on the finished base.

3. Make at least three density determinations on each day's final operations on each course, and at more frequent intervals if deemed necessary by the Engineer.

4. The following shall be used as a minimum criteria for tests. Locations where tests are taken, and pass/fail statements are to be included on reports. Tests shall be staggered: center left lane, center right lane, and center line of road.

   Base: One (1) laboratory density test (AASHTO-Tl80). One (1) field density test per 2,000 S.Y. of base with a minimum of two (2) per street.

B. Testing Surface: Check the finished surface with a template cut to required crown and cross section and with a 10-foot straightedge laid parallel to the centerline of the road. Correct all irregularities greater than 1/4-inch by scarifying and by removing or adding limerock as may be required, and recompacting the entire area as specified hereinbefore.

C. Thickness Determinations:

1. Measure the thickness of the compacted limerock base at intervals of not more than 200-feet at various points on the cross sections, prior to the application of the prime coat.

2 Take the measurements in holes through the base of not less than 3-inches in diameter. Where the compacted base is deficient by more than ½-inch from the thickness called for on the Drawings, correct such areas by scarifying and adding limerock for a distance of 100-feet in each direction from the edge of the deficient area. Bring the affected areas to the required state of compaction and to the required thickness and cross section.

D. Compacting and Finishing Base:

1. Single Course Base: After spreading is completed, scarify the entire surface and then shape to produce the required grade and cross section after compaction.

2. Double Course Base: After placing and compacting the first course, clean the first course of foreign material, blade and bring to a surface cross section approximately parallel to that of the finished base. Prior to the spreading of any material for the upper course, conduct the density tests for the lower course and determine that the required compaction has been obtained. After the spreading of material for the second course is completed, finish and shape its surface so as to produce the required grade and cross section after compaction, free of scabs and laminations.

3. Moisture Content: When the material does not have the proper moisture content to insure the required density, wetting or drying will be required. If the material is deficient in moisture, add water and uniformly mix in by discing the base course to its full depth. If the material contains an excess of moisture, allow to dry until the required moisture content is attained before being compacted. In wetting or drying operations manipulate the entire width and depth of the base as a unit.

4. Density Requirements: As soon as proper conditions of moisture are attained, compact the material to a density of not less than 100 percent of the maximum density as determined by AASHTO T 180.

E. Priming and Maintaining:

1. Apply bituminous prime and tack coats in accordance with Section 300 of the FDOT specifications, only when the base is firm and unyielding, meets the specified density requirements and the moisture content in the top half of the base does not exceed 90 percent of the optimum moisture content of the base material.

2. Prior to applying the surface course, check that the crown and grade are true, with no rutting or other distortion, and that the base meets all the specified requirements.

F. Correction of Defects:

1. If at any time the subgrade material should become mixed with the base course material, dig out and remove the mixture, replace the materials removed with clean base material, and shape and compact the subgrade as specified above.

2. If cracks or checks appear in the base, either before or after priming, which in the opinion of the Engineer would impair the structural efficiency of the base course, remove such cracks or checks by rescarifying, reshaping, adding base material where necessary and recompacting.

END OF SECTION

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work included in this Section consists of furnishing all labor, material, equipment and transportation for the construction of the concrete pavement to the lines and grades as shown on the Drawings.

1.2 SUBMITTALS

A. Shall be in accordance with the Special Provisions.

PART 2 PRODUCTS

2.1 MATERIALS

A. Concrete: Class B (3000 psi) conforming to the requirements of Section 03300.

B. Reinforcing and Welded Wire Fabric: As specified in Section 03200.

C. Joint Sealer for Pavement:

1. Hot Poured Type: Joint sealer conforming to AASHTO M 173.

2. Cold Applied Type (In lieu of the hot poured type): A two part polysulfide base, self-leveling sealant for horizontal surfaces, developed for foot and vehicular traffic, conforming to the requirements of ASTM C920, Type M, Grade P, Class 12.5, Use T.

D. Preformed Joint Filler: A nonextruding and resilient bituminous type conforming to the requirements of ASTM D 1751.

E. Membrane Curing Compound: Clear fugitive dye conforming to the requirements of AASHTO M 148, Type 1-D, Class A.

PART 3 EXECUTION

3.1 PREPARATION

A. Subgrade Condition:

1. Maintain the finished subgrade in a smooth, compact condition and restore any areas which are disturbed prior to placing of the concrete. Maintain the subgrade moist at the time the concrete is placed and apply water uniformly ahead of the paving operations as directed by the Engineer. If the subgrade is not maintained in the required moist condition, a vapor barrier sheet will be required between the subgrade and the concrete.

2. Accurately trim the subgrade to the required elevation with a 1/4-inch tolerance. Trim high areas to proper elevation and fill low areas with suitable material, compacted to the specified density or with concrete integrally placed with the pavement.

B. Setting Forms: Set the forms accurately to line and grade, and such that they rest firmly, throughout their entire length upon the compacted subgrade surface. Join forms neatly and tightly and brace to resist the pressure of the concrete and the finish operations. Obtain the Engineer's approval for the alignment and grade of all forms before and immediately prior to the placing of concrete.

C. Mixing Concrete: Mix concrete in accordance with Section 03300.

3.2 PLACING CONCRETE:

A. Distribute the concrete on the subgrade to such depth that, when it is consolidated and finished, the slab thickness required by the Drawings will be obtained at all points and the surface will at no point be below the grade specified for the finished surface, after application of the allowable tolerance. Deposit the concrete on the subgrade continuously between transverse joints, without the use of intermediate bulkheads and in a manner which will require as little rehandling as possible.

B. Deposit concrete as near to expansion and contraction joint assemblies as possible without disturbing them, but do not dump the concrete from the discharge bucket or hopper onto an assembly unless the bucket or hopper is centered directly over the assembly.

C. Place fabric reinforcement at slab middepth and maintain at this location during the placing and finishing operations.

D. Thoroughly consolidate concrete against and along the faces of all forms, and along the full length and on both sides of all joint assemblies, by means of hand-operated vibrators. Do not permit vibrators to come in contact with a joint assembly, the subgrade or a side form. Do not continue vibration at any one location so long as to produce puddling or the accumulation of excessive grout on the surface and in no case longer than 15 seconds.

3.3 STRIKING-OFF, CONSOLIDATING AND FINISHING CONCRETE

A. Immediately after the placing, strike off the concrete, consolidate and finish, to produce a finished pavement conforming to the cross section, width and surface finish required by the Drawings and Specifications. Use the following sequence of operations: strike-off; vibratory consolidation; screeding; floating; removal of laitance; straightedging; and final surface finish. Accomplish strike-off, consolidation and finishing in a manner such as to avoid damage to, or misalignment of, joint assemblies, dowels, and other embedded items.

3.4 STRAIGHTEDGING AND SURFACE CORRECTIONS

A. After floating has been completed and the excess water removed, but while the concrete is still in a plastic state, test the surface of the concrete for trueness with an accurate 10-foot straightedge held in successive positions parallel to the road center line, in contact with the surface. Test the whole area from one side of the slab to the other as necessary, advancing along the road in successive stages of not more than one-half the length of the straightedge. Immediately fill any depressions with freshly mixed concrete and strike-off, consolidate and refinish. Cut down high areas and refinish. Continue straightedge testing and surface correction until the entire surface appears to conform to the required grade and cross section.

B. As soon as the concrete has hardened sufficiently to be walked on, test again by straightedging. Correct all surface irregularities exceeding 1/4-inch in 10-feet by grinding as directed by the Engineer.

C. Final Finish: As soon as the water sheen has disappeared from the surface of the pavement and just before the concrete becomes nonplastic, apply a light broom finish to the surface.

D. Edging:

1. After the final finish has been applied, but before the concrete has become nonplastic, carefully round the edges of the pavement along each side of the trip being placed, on each side of transverse expansion joints and construction joints and along any structure extending into the pavement to a ½-inch radius except as otherwise indicated. Produce a well-defined and continuous radius and obtain a smooth, dense mortar finish. Remove all concrete from the top of the joint filler.

2. Check all joints with a straightedge before the concrete becomes nonplastic and, if one side of the joint is higher than the other or the entire joints is higher or lower than the adjacent slabs, correct as necessary.

3.5 JOINTS

A. Transverse Construction Joints: Construct transverse construction joints at the end of all pours and at other locations where the paving operations are stopped for as long as 30 minutes, but do not place construction joints within 10 feet of any other transverse joint or of either end of a section of pavement. If sufficient concrete has not been placed to form a slab at least 10 feet long, remove the excess concrete , back to the last preceding joint. Form joints by placing a wood or metal bulkhead accurately and securely in place, in a plane perpendicular to the profile and center line of the pavement. Install dowell bars at the construction joints, in accordance with the details shown on the Drawings for contraction joints. Saw cut construction joints in a manner similar to contraction joints, so that a groove will be formed for holding the joint sealing compound.

B. Traverse Contraction Joints: Construct transverse contraction joints at the interval indicated in the plans and consisting of planes of weakness created by sawing a groove in the surface of the hardened concrete perpendicular to the surface of the pavement. Install load-transfer devices in transverse contraction joints as indicated on the Drawings.

1. Saw the transverse contraction joints as soon as the pavement has hardened to the degree that tearing and raveling are not excessive and before uncontrolled shrinkage cracking begins. If, at any time, uncontrolled cracking occurs. The Contractor will be required to modify his methods.

2. Perform joint sawing in two steps. Saw the first cut 1/8-inch wide to a depth between 20 percent and 25 percent of the pavement thickness, when the concrete is between four and twelve hours old. Saw the second cut, to joint dimensions indicated on the Drawings, as soon as there is no danger of further raveling.

3. After the final sawing, clean the joint, install the bond breaker and seal the joint.

C. Longitudinal Joints:

1. Construct longitudinal joints in accordance with the details shown on the Drawings. Construct the plane of weakness either by sawing a groove in the hardened concrete or by forming a groove by depressing a tool or by insertion of an approved plastic device into the plastic concrete. Perform sawing within 15 calendar days after the placing of the concrete, and prior to opening of the pavement to any type of traffic.

2. Place deformed steel tie bars at the required depth, parallel to the finished surface, at right angles to the joint and at the uniform spacing called for in the Drawings. Do not paint or coat the bars with any material before placement in the concrete. Place the bars in the plastic concrete by use of approved equipment, or rigidly support them on the subgrade by approved devices capable of preventing displacement, prior to placing of the concrete.

D. Expansion Joints Around Structures: Form expansion joints by placing premoulded expansion joint material about all structures and features projecting through, into or against the pavement. Unless otherwise indicated, make such joints ½-inch in width.

E. Transverse Expansion Joints: Form transverse expansion joints using preformed joint filler and with dowel load transfer bars in accordance with the details shown on the Drawings. Provide hotpoured joint sealer in the space above the woodstrip as shown in the Drawings.

F. Cleaning and Sealing Joints: Fill all joints which are to be sealed with joint sealing material before the pavement is opened to traffic and as soon after completion of the curing period as is feasible. Just prior to sealing, thoroughly clean each joint of all foreign material (including any membrane curing compound) so that the joint faces are clean and surface-dry when the sealer is applied.

1. Apply the sealing material to each joint to conform to the details shown on the Drawings in accordance with the manufacturer’s recommendation, and in such manner that the material will not be spilled on the exposed surfaces of the concrete. Immediately remove any excess material on the surface of the concrete pavement and clean the pavement surface.

2. Clean out all cracks occurring in the pavement prior to its acceptance and seal as specified above, except completely fill the cracks and fractures with joint sealer and remove any excess filler material level with the pavement surface.

3.6 CURING

A. After the finishing operations have been completed and as soon as the concrete has hardened sufficiently that marring of the surface will not occur, cover the entire surface and the edges of the newly placed concrete and cure with membrane curing compound.

B. Apply curing compound uniformly to the surfaces to be cured, in a continuous film, at the rate and in the manner recommended by the manufacturer.

C. Do not apply curing compound during periods of rainfall, or to the inside faces of joints to be sealed. Should the film become damaged from any cause within the required curing period, immediately repair the damaged portions with additional compound. Upon removal of side forms, immediately coat the sides of the slabs exposed, to provide a curing treatment equal to that provided for the surface.

END OF SECTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Section describes the restoration of existing paving, curbing, and sidewalks damaged or removed during construction. It does not describe the construction of new roadway surfaces or the complete resurfacing of existing paving.

B. The Contractor shall replace all paving, driveways, sidewalks, and curbs and gutters damaged or removed during construction of the work included in the Project. Replacement of all such items shall be with the same material and configuration as the original item.

C. Standard specifications noted herein refer to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, 1991 Edition.

1.2 SUBMITTALS

Shall be in accordance with the Special Provisions.

PART 2 - PRODUCTS

(Not Included)

PART 3 - EXECUTION

3.1 GENERAL

All replacement of street surfaces, driveways, sidewalks, and curb and gutter elements shall be performed in accordance with the FDOT Standard Specifications.

3.2 PAVING PATCHING:

A. Trench Compaction: Reference Section 120-9 of the Standard Specifications. All trench backfill material beneath paved areas shall be placed in six inch (6") layers (compacted thickness) compacted to 100 percent of maximum density or determined by AASHTO T-99.

B. Subbase: Reference Section 160, Type C Stabilization, of the Standard Specifications. The subbase shall be stabilized to a minimum thickness equal to

the adjacent subbase and shall have a minimum Florida Bearing Value of 60 psi.

C. Limerock Base: Reference Section 200 of the Standard Specifications. Limerock base material shall be placed and compacted to a minimum thickness equal to the adjacent base. The material shall be compacted to a minimum of 100 percent of the maximum density determined by AASHTO T-180.

D. Soil Cement Base: Soil cement base shall be replaced with 2,500 psi concrete over compacted subbase and cured in accordance with Section 270-10.2 of the Standard Specifications. The thickness of the concrete base shall be equal to the adjacent soil cement base.

E. Prime and Tack Coat: Reference Section 300 of the Standard Specifications. Prior to placing the prime coat, the existing asphalt surface course shall be sawn in a straight line a minimum of 24 inches back of the existing damaged edge to form a straight, vertical edge for the entire width of the patch. All surface course material between the sawn edges shall be removed. All base material shall be primed immediately after compaction. A tack coat shall be applied where applicable.

F. Asphaltic Concrete Surface Course: Reference Section 331 of the Standard Specifications. Type III asphaltic concrete surface course shall be placed and compacted such that the completed patch is level with the adjacent surface course. The thickness of the surface course shall be equal to the adjacent existing surface course.

G. Maintenance of Traffic: Reference Section 102 of the Standard Specifications. Contractor shall provide necessary facilities to maintain access to all residences and businesses during construction activities.

3.3 CURB AND GUTTER:

Reference Section 520 of the Standard Specifications. Damaged curb and gutter elements shall be sawn in a vertical plane a minimum of 12 inches from the damaged edge unless the cut would be within four feet (4') of an existing expansion or contraction joint in which case the element shall be removed all the way to the joint.

3.4 CONCRETE SIDEWALK:

Reference Section 522 of the Standard Specifications. Damaged sidewalk sections shall be sawn in a straight vertical plane a minimum of 12 inches back from the damaged edge unless the cut would be within two feet (2') of an existing expansion or contraction joint, in which case the material shall be removed all the way to the existing

joint. The thickness of the sidewalk shall be a minimum of four inches (4") in pedestrian areas and six inches (6") in driveways and traffic areas with six inch by six inch (6" x 6"), ten (10) gauge welded wire fabric reinforcement mesh embedded within the concrete.

3.5 DRIVEWAY RESTORATION:

A. General: Reference Section 102-6 of the Standard Specifications. Any driveway affected by construction shall be repaired in sections, rather than patched, in a manner consistent with the original construction of the driveway. The original driveway shall be cut back to a straight vertical transverse joint or to an existing joint as directed by the Engineer. New driveway will be placed to the edge of the road.

B. Concrete Driveways: Portland cement concrete driveways shall be repaired with nonstructural concrete having a minimum compressive strength of 3,000 psi according to the Standard Specifications. The minimum thickness shall be six inches (6") with six inch by six inch (6" x 6"), ten (10) gauge welded wire fabric reinforcement mesh embedded within the concrete. Expansion material shall be placed in the joint between old and new concrete. Saw joints shall be placed as directed by the Engineer.

C. Asphaltic Concrete Drives: Asphalt drives shall be repaired with a minimum of four inches (4") of shell or limerock base material meeting Standard Specifications. The base shall be compacted to 98 percent density, primed and covered with 1.25-inch (1.25") of Type III asphaltic concrete surface course. When the existing driveway is thicker, the Contractor shall match that thickness in like kind. When the existing driveway had a seal coat or form boards, the Contractor shall match the existing construction.

D. Other Driveways: In chip and seal, oil-mat epoxy sealed and gravel pavements, wearing surfaces shall be replaced with the same or better type and quality of material as that removed or damaged. The repair shall extend a minimum of two feet (2') wider than the top of the trench and to the depth of the existing driveway.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Scope of Work.

B. Submittals.

C. Connection to work by others or existing lines.

D. Quality Assurance.

1.2 SCOPE OF WORK:

A. The Contractor shall supply all labor, equipment, materials, and incidentals necessary to install and test all piping and appurtenances as shown on the Drawings and as specified herein.

B. Piping shall include all below grade piping including that below structures except for plumbing. Piping above grade shall begin at the outside face of structures and buildings except where there is no joint at the outside face, then piping shall begin at the first pipe joint beyond the structure or building.

C. This work shall include, but not be limited to the following: Ductile iron pipe, HDPE pipe, PVC pipe, valves and fittings. All restrained joints required for all types of piping; Also all excavation, backfilling, sheeting, slope protection, drainage, concrete work, riprap, grading, safety precautions, and all other work necessary to complete the construction, installation and testing of the piping; All force main piping shall be ductile iron unless specifically noted otherwise on the Drawings. All off-site force main piping shall be PVC or HDPE as indicated in the Drawings. It is mandatory that the Contractor comply with the "Trench Safety Act" which became Florida law on October 1, 1990. This Act adopts the provisions of the Occupational Safety and Health Administration's excavation safety standards (29 C.F.R. Part 1926.650 Subpart P). For excavations in excess of five (5) feet, the Contractor's Bid must include written assurance that he will comply with the trench safety standards and identify the cost to comply.

1.3 SUBMITTALS:

A. Submit to the Engineer for review in accordance with the Section 01340 of the Project Manual. The pipe details shall include, but are not limited to, pipe class or design and backup computations including reinforcement; laying schedule which specifies pipe class, class coding, joints, station limits and transition stations for the various pipe classes; and list of abbreviated terms with their full meaning. The above shall be submitted to the Engineer for approval before fabrication and shipment. The locations of all pipes shall conform to the locations indicated on the Drawings. Flexibility in positioning of pipes will be allowed, particularly where new pipes will connect to existing structures or piping.

B. The pipe manufacturer shall inspect all pipe joints for out-of-roundness and pipe ends for squareness. The manufacturer shall furnish to the Engineer a notarized affidavit stating all pipe meets the requirements of ASTM, ASCE, ANSI, etc., these Specifications, and the joint design with respect to square ends and out-of-round joint surfaces.

C. The Contractor shall submit as a Shop Drawing for review by the Engineer, detailed information showing the type of restrained joints proposed and the calculations for determining the total restrained joint pipe length for each fitting in each pipe size. No restrained joint shall be installed unless the Engineer has approved in writing the calculations for such joints.

1.4 CONNECTION TO WORK BY OTHERS OR EXISTING LINES:

A. Lines installed under other Contracts, to which piping of this Contract must connect, the following work shall be performed:

1. Removing the temporary plug provided in the pipe installed under another Contract (if any).

2. Furnishing and installing piping and making proper connections.

B. Connection to existing lines, to which piping of this Contract must connect, the following work shall be performed.

1. Expose buried lines to confirm or determine end connection, pipe material and diameter.

2. Furnish and install appropriate piping and make proper connections.

1.5 QUALITY ASSURANCE:

A. The Contractor's attention is directed to the leakage requirement stipulated in these specifications. Testing shall be as specified in Part 3 of this Section.

B. It is the Contractor's responsibility that all pipe units and all component parts of the piping system are manufactured and installed such that the maximum infiltration/exfiltration limit will not be exceeded.

PART 2 - PRODUCTS

2.1 SECTION INCLUDES:

A. Bedding rock.

B. Cast iron pipe and fittings.

C. Ductile iron pipe and fittings.

D. Schedule of usage of cast iron/ductile iron pipe.

E. PVC pipe and fittings:

1) General.

2) PVC raw sewage force main.

3) Joints.

4) Fittings.

5) Pressure pipe restraint.

6) Gravity sewer pipe.

F. HDPE piping systems.

G. Expansion joints.

H. Quick connect couplings.

I. Flange adapter couplings.

J. Flexible couplings.

K. Unions.

L. Manhole frames and covers.

2.2 BEDDING ROCK:

A. Crushed limerock shall be used for pipe bedding, manhole bases and at other locations indicated on the Drawings.

B. Bedding rock shall be 3/8-inch to 3/4-inch washed and graded limerock. This rock shall be graded so that 99 percent will pass a 3/4-inch screen and 80 percent will be retained on a No. 8 screen and shall be equal to Florida Department of Transportation Designation No. 67.

2.3 CAST IRON PIPE AND FITTINGS:

A. Cast Iron Pipe: Pipe shall be of the centrifugally cast type, either in metal or sand molds, conforming to the requirements of ANSI Specifications 21.6 or 21.8, respectively, or Federal Specification WW-P-421. Pipe thickness shall be Class 22, calculated on the basis of 21,000 psi tensile strength and 45,000 psi modulus of rupture. All pipe shall be designed for a working pressure of 150 psi and a trench condition Type 2 for a minimum of five feet (5') of cover. Manufacturer shall provide a pipe thickness as required for a pipe cover greater than five feet (5'). All pipe shall be furnished complete with all necessary glands, joint material, including rubber gaskets, lubricant, bolts and nuts, etc.

B. Pipe Joints: All cast iron pipe joints, unless otherwise noted, used in the water and sewerage systems, shall be mechanical, flanged, or push-on rubber gasket joint type as manufactured by U.S. Pipe and Foundry; American Cast Iron Pipe; or James B. Clow and Sons.

1. Push-On Joints: Joints that have a single rubber gasket seated in the inside contour of the socket bell to effect the seal shall conform to ANSI Specification A 21.11. Rubber gasket and lubricant shall conform to ANSI Specification A 21.11.

2. Mechanical Joints: Joints and accessories shall conform to ANSI Specification A 21.11, and shall be furnished complete with cast iron glands, high-strength cast iron alloy, tee-head bolts and hexagon nuts, and rubber gaskets (one (1) per joint). All bolts for joints shall be "Acipalloy", "Usalloy", or "Corten" bolts.

3. Flanged Joints: Joints for centrifugal cast iron pipe shall conform to ANSI Specification 21.6 or 21.8 with screwed-on flanges. Pit cast joints shall be in compliance with ANSI Specification A 21.2. The flanges furnished shall have the bolt circle and bolt holes drilled and faced in conformance with ANSI Specification B 16.1, Class 125 flanges.

C. Cast Iron Fittings: All cast iron fittings shall be of a standard design for use with the pipe purchased under these Specifications. Fittings shall be Class 150, short body, and shall conform to the following applicable Specifications.

1. Push-on Fittings: Fittings shall conform to ANSI Specification A 21.10 and shall have joints conforming to the requirements of Article B (1) above, or Federal Specification WW-P-421b.

2. Mechanical Fittings: Fittings shall conform to ANSI Specification A 21.10 and joints conforming to the requirements of mechanical joints above.

3. Flanged Fittings: Fittings shall conform to ANSI Specification A 21.10 and shall have flanges faced and drilled in conformance with ANSI Standard A 21.15, Class 125 flanges. Joints shall be installed with full face rubber gasket. Bolts shall be carbon steel, square heads, sized for 125 pound flanges, with hexagon nuts.

D. Lining and Coating for Pipe and Fittings:

1. Cast iron pipe and fittings for sewage shall be coated on the outside with a standard bituminous coating of approximately one (1) mil thickness. The inside lining shall consist of two (2) coats of Coal Tar Epoxy having a total dry film thickness of 16 mils.

2.4 DUCTILE IRON PIPE AND FITTINGS:

A. Ductile Iron Pipe:

1. Pipe shall be of the centrifugally cast type, either in metal or sand molds, conforming to the requirements of ANSI Specification A 21.51 or AWWA C151. Pipe shall be designed in accordance with ANSI Specification A21.50 or AWWA C150.

2. Pipe thickness shall be Class 50 unless otherwise shown on the Drawings, calculated on basis of 60,000 psi minimum tensile strength, a minimum yield strength of 42,000 psi, and a minimum

elongation of ten (10) percent. All pipe shall be designed for a Trench Laying Condition Type 2 (flat-bottom trench without blocks, tamped backfill). The weight, class, or nominal thickness and casting period shall be shown on each piece. The manufacturer's mark, production year, and the letters "DI" or "Ductile" shall be cast or stamped on each pipe. All pipe shall be furnished complete with all necessary glands, joint material, including rubber gaskets lubricant, bolts and nuts, etc.. Pipe furnished shall be as manufactured by U.S. Pipe and Foundry; American Cast Iron Pipe; or James B. Clow and Sons.

B. Pipe Joints:

1. All ductile iron joints, unless otherwise noted, used in sewerage systems shall be push-on, mechanical, flanged, flexible, or restrained joints as shown on the Drawings. Push-on and mechanical joints shall meet the requirements of ANSI Specifications A 21.11 or AWWA C111, latest revisions. Flanged joints, when required, shall be ductile iron, shall conform to AWWA C115, and shall have the bolt circle and bolt holes drilled and faced in conformance with ANSI Specification A 21.15, Class 125 flanges. Either screwed-on or welded flanges will be required and shall be furnished with a minimum barrel thickness of Class 53 in accordance with ANSI Specification A 21.50. Flanges shall be fully machine faced after being screwed tight on pipe. All bolts for joints shall be "Acipalloy", "Usalloy", or "Corten" bolts.

2. Flexible joint pipe shall meet the requirements of ANSI A21.10 (AWWA C-110) and shall be USIFLEX by U.S. Pipe and Foundry Company, RIVER CROSSING PIPE by Clow Corporation, or FLEX-LOK by American Cast Iron Pipe Company. All joint accessories shall be provided by the pipe manufacturer.

3. Restrained joints shall utilize integral manufactured restraining devices equivalent to LOK-FAST by American Cast Iron Pipe Company, Locked Mechanical Joint by Clow Corporation, or LOK-TYTON by U.S. Pipe and Foundry Company.

4. Ductile iron mechanical joint retainer glands or tie rods may be used in lieu of integral manufactured restraint devices where approved by the Engineer. The Contractor shall submit Shop Drawings showing the type and manner of joint restraint to be utilized to the Engineer for approval prior to ordering the materials.

C. Fittings: Ductile iron fittings shall be of a standard design for use with the pipe purchased under these Specifications and shall be push-on, mechanical, or flanged joints as required by the Drawings. The fittings shall have a minimum tensile strength of 70,000 psi, minimum yield strength of 50,000 psi, minimum elongation of five (5) percent, and meet requirements of ANSI Specification A 21.10 or AWWA C11O. latest revision. All fittings shall be marked with the weight and have distinctly cast upon them the pressure rating, the manufacturer's identification, nominal diameter of openings, and the fraction of a circle of all bends. Fittings shall have the letters "DI" or "Ductile" cast or stamped on them.

D. Lining and Coating for Pipe and Fittings:

1. All ductile iron pipe and fittings for sewage shall be coated on the outside with standard bituminous material of approximately one (1) mil thickness. The inside lining shall consist of a 40 mil thickness virgin polyethylene lining complying with ANSI/ASTM Specification D-1248, or a high build multi-component Amine cured Novalac Epoxy lining meeting the standard of Quality of Protecto 401 Ceramic Epoxy.

2.5 SCHEDULE OF USAGE OF CAST IRON/DUCTILE IRON PIPE:

A. General: All cast and ductile iron pipe and fittings, unless otherwise indicated, shall conform to the following applications.

B. Sewer Lines:

1. Above Ground: Flanged joints.

2. Below Ground: Gravity Sewage Collection - Push-on joints; Force Mains - Push-on joints (mechanical joints will be accepted in lieu of push-on joints, subject to approval of the Engineer); Plant and Yard Piping - Mechanical joints.

2.6 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS:

A. General:

1. All pipe, fittings, and miscellaneous materials to be furnished shall be by one (1) manufacturer to insure unit responsibility and shall be complete to perform the work, including gaskets, lubricants, adapters, specials, etc. The pipe shall be furnished in nominal lengths of approximately 20 feet, unless otherwise directed by the Engineer. Pipe and accessories shall bear the NSF mark indicating its approval for the intended use, pipe size, manufacturer's name,

AWWA and/or ASTM Specification number, working pressure, and production code.

2. Shall be extruded from clean, virgin, unplasticized, National Sanitation Foundation (NSF) approved Class 12454-A or Class 12454-B PVC compound conforming to ASTM resin Specification D 1784.

3. For all PVC pipe four inches (4") to 12 inches (12") in diameter, provisions shall be made for expansion and contraction at each joint with a solid cross section elastomeric ring which shall meet the requirements of ASTM F477, and shall have an integral thickened bell as part of each joint.

4. Gaskets and lubricant furnished for joints shall be nontoxic, shall not support the growth of bacteria, shall have no deteriorating effects on each other or the pipe material, and shall not impart color, taste, or odor to, or otherwise adversely effect, the water.

B. PVC Raw Sewage Force Main:

1. All pressure rated PVC pipe and accessories for sanitary sewer force main system or as specified on the Drawings, of two inches (2") to 12 inches (12") in diameter shall be manufactured in accordance with AWWA Standard C900 "Polyvinyl Chloride (PVC) Pressure Pipe". Pipe shall be suitable for use at a maximum hydrostatic working pressure of 100 psi at 32°C (73.4°F). Pipe shall conform to ASTM D 2241 for Standard Dimension Ratio - SDR 25, and shall meet the requirements as set forth in Product Standards PS 22-70.

2. All pressure rated PVC pipe and accessories for sanitary sewer force main system or as specified on the Drawings, of fourteen inches (14") through 24 inches (24") in diameter shall be manufactured in accordance with AWWA Standard C905 "Polyvinyl Chloride (PVC) Water Transmission Pipe". Pipe shall be suitable for use at a maximum hydrostatic working pressure of 165 psi at 32°C (73.4°F). Pipe shall conform to ASTM D 2241 for Standard Dimension Ratio - SDR 25, and shall meet the requirements as set forth in Product Standards PS 22-70.

3. All spigot (plain) ends shall be marked so as to indicate the distance the spigot end should be extended into the bell. All pipe, fittings, and miscellaneous materials to be furnished shall be by one (1) manufacturer to ensure unit responsibility and shall be complete to perform the work, including gaskets, lubricants, adapters, etc. The pipe shall be furnished in nominal lengths of approximately 20 feet, unless otherwise directed by the Engineer. Pipe and accessories shall bear the AWWA and/or ASTM Specification number, working pressure, and production code.

4. All PVC pipe for use as sewage force main shall be solid green in color. White pipe is strictly prohibited.

C. PVC pipe and accessories less than two inches (2") in diameter, where called for on the Drawings, shall be Schedule 40 or 80 and be of rigid normal impact polyvinyl chloride. The pipe and accessories shall conform to ASTM Specification D 1785 and Product Standard PS22-70. All materials to be furnished complete to perform the work, including solvent cement etc.

D. Joints:

1. The PVC joints for pipe two inches (2") to 12 inches (12") in diameter shall be of the push-on type so that the pipe and fittings may be connected on the job without the use of solvent cement or any special equipment. The push-on joint shall be a single rubber gasket joint designed to be assembled by the positioning of a continuous, molded rubber ring gasket in an annular recess in the pipe or fitting socket and the forcing of the plain end of the entering pipe into the socket, thereby compressing the gasket radially to the pipe to form a positive seal. The gasket and annular recess shall be designed and shaped so that the gasket is locked in place against displacement as the joint is assembled. The rubber ring joint shall be designed for thermal expansion or contraction with a total temperature change of at least 75°F in each joint per length of pipe. The thickened bell section shall be designed to be at least as strong as the pipe wall.

2. PVC joints for pipe less than two inches (2") in diameter shall be threaded or solvent welded joints, where called for on the Drawings, unless otherwise directed by the Engineer. Teflon thread tape or liquid teflon thread lubricant shall be used on all threaded joints to serve as both a sealer and lubricant. Threaded joints should be made hand tight (hard). When the joint is hand

tight a strap wrench should be used to make up one (1) to two (2) additional full turns past the hand tight point. Do not use pipe wrenches or pump pliers on plastic pipe or fittings.

E. Fittings:

1. All fittings for PVC pipe of four inches (4") to fifty-four inches (54") in diameter shall be ductile iron with mechanical joints and shall conform to the above Specifications for ductile iron fittings, unless otherwise directed by the Engineer.

2. Fittings for Schedule 80 PVC pipe less than two inches (2") in diameter shall be threaded and be PVC as shown on the Drawings or as directed by the Engineer. Threaded PVC fittings shall conform to ASTM Specification D 2464-69.

3. Standard double bell couplings will not be accepted where the pipe will slip completely through the coupling.

F. Pressure Pipe Restraint:

1. For all pressure pipe and fittings, restraining shall follow the criteria established herein.

a. Sections of piping requiring restrained joints shall be constructed using pipe and fittings with restrained “locked-type” joints manufactured by the pipe and/or fitting manufacturer, and the joints shall be capable of holding against withdrawal for line pressures at least 50 percent above the normal working pressure. Any restrained joints that allow for elongation upon pressurization will not be allowed in those locations where pipe comes above ground. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1. Restrained pipe joints that achieve restraint by incorporating cut out section in the wall of the pipe shall have a minimum wall thickness at the point of cut out that corresponds with the minimum specified wall thickness for the rest of the pipe.

b. The minimum number of restrained joints required for resisting forces at fittings and changes in direction of pipe shall be determined from the length of restrained pipe on each side of fittings and changes in direction necessary to develop adequate resisting friction with the soil.

c. The required lengths of restrained joint pipe shall be determined by calculations based on the method outlined in the publication entitled “Thrust Restraint Design for Ductile Iron Pipe”, latest edition, published by Ductile Iron Pipe Research Association, Birmingham, AL 35244. This shall apply to PVC and DIP pipe.

d. Whenever two 45 bends are used in place of a 90 bend and the minimum restrained joints required from one 45 bend extend beyond the other 45 bend, the two 45 bends will be considered as though a 90 bend were located midway between the two 45 bends.

e. At a minimum, pipe length restraining in accordance with the following table:

MINIMUM PIPE LENGTH (FT) TO BE RESTRAINED ON EACH SIDE OF FITTING					
PIPE SIZE	4"	6"	8"	10"	12"
90^0 BEND	40	54	70	85	100
45^0 BEND	20	23	29	35	40
22.5^0 BEND	8	11	14	17	20
11.25^0 BEND	4	6	7	9	10
CAP OR BRANCH OF TEE	50	70	100	120	140

2. Two types of joint restraint devices are approved for use on PVC and DIP. One is the “Mega-Lug” device and the other is the “MJR” device. Restraining glands are approved for use on DIP only.

a. Mechanical joint restraint shall be incorporated in the design of the follower gland and shall include a restraining mechanism which, when actuated, imparts multiple or continuous wedging action against the pipe, increasing its resistance as the pressure increases. Flexibility of the joint shall be maintained after burial. Glands shall be manufactured of ductile iron conforming to ASTM A536. Restraining devices shall be of ductile iron heat treated to a minimum hardness of 370 BHN.

b. For Mega-Lug restraints, 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 C153/A21.53. Twist-off nuts shall be used to ensure actuating of the restraining devices.

c. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1.

G. Gravity Sewer PVC Pipe:

1. Quality: Use homogeneous polyvinyl chloride pipe throughout that is free from visible cracks, holes, foreign inclusions or other injurious defects and as uniform as commercially practical in color, opacity, density and other physical properties. Use integrally formed ball and spigot type pipe unless otherwise specified.

a. PVC Gravity Sewer Pipe (4" - 15"), ASTM D3034, SDR 35. Uniform minimum “pipe stiffness” at five percent deflection shall be 46 psi. Applicable UNI-Bell Plastic Pipe Association standard is UNI-B-4. In areas where burial depth, as measured from top of pipe to ground surface, exceeds ten feet, then SDR 26 pipe shall be required.

b. PVC Gravity Sewer Pipe (18" - 27"), ASTM F679, SDR 35. Uniform Minimum “pipe stiffness” at five percent deflection shall be 46 psi. Applicable UNI-Bell Plastic Pipe Association standard is UNI-B-7. In areas where burial depth, as measured from top of pipe to ground surface, exceeds 12 feet, then SDR 26 pipe shall be required.

c. All PVC pipe shall bear the NSF-DW Seal. The minimum standard length of pipe shall be 13 feet.

2. PVC Pipe Joints: (Nominal Diameters of 4 inches through 8 inches). Furnish all PVC pipe and fittings with push-on type joints in which an elastomeric ring gasket is compressed in the annular space between a bell end or socket and a spigot end of pipe. Joint fabrication and testing shall conform to ASTM D3212. Conform materials used in elastomeric seal joints to ASTM F477. Use an approved lubricant in assembling the pipe.

3. Stoppers: All joints for stoppers shall be adequate to withstand the internal pressure of the leakage and/or infiltration test. Make joints removable without injury to the socket.

2.7 HIGH DENSITY POLYETHYLENE (HDPE) PIPING SYSTEMS:

A. General:

1. All pipe, fittings and miscellaneous materials hereunder shall be furnished by one (1) manufacturer that has previously demonstrated his ability to produce this piping by having successfully manufactured similar piping material meeting all requirements of the National Sanitation Foundation.

2. The high density polyethylene pipe shall be high performance, extra-high molecular weight, high density polyethylene pipe, conforming to ASTM D 1248 (Type III, Class C, Category 5, Grade PE34). Minimum cell classification values shall be PE345444C, as referenced in ASTM D 3350 - latest edition. The pipe shall contain a minimum of 2 percent carbon black. The pipe shall be Drisco pipe 4000 series, as manufactured by Phillips Driscopipe, Inc., Richardson, Texas or Plexico, Franklin Park, Ill., and supplied by U.S. Filter/Fife, Brandon, Florida, or approved equal.

3. The piping shall be comprised of new, first quality HDPE material.

4. The Contractor shall submit a certification from the manufacturer of the piping, stating that the piping meets physical property requirements for the intended application.

5. Each standard and random length of pipe in compliance with this specification shall be clearly marked at a minimum: 1) pipe size; 2) SDR number; 3) plant manufacturing information; and 4) color-identified around the entire outside face of pipe. The pipe SDR values shall be SDR 17 unless otherwise indicated on the Drawings.

B. Design/pressure Class:

1. Pressure class (PC) rating for pipe covered by this standard are given. The following equation, commonly known as the ISO (International Organization for Standardization) equation, is used to calculate the pressure class and working pressure rating.

WPR = PC = $\frac{2}{DR - 1}$ x HDB x DF (Eq1)

Where:

WPR = Net Working Pressure Rating

PC = Pressure class, in psiq (kPa gauge)

HDB = Hydrostatic design basis, in psi (kPa), 1600 psi @ 73°F for PE 3408

DR = Dimension ratio, ratio of the specified average outside diameter to the Minimum specified wall thickness, both expressed in the same units

DF = Design factor; includes consideration of degree of safety and all the variables, includes limited surge pressure effects in the end application, (normally ‘0.5' representing the industry accepted 2:1 safety factor).

Working Pressure Rating (PC): (Matched to Project Needs)

50 PSI - DR 32.5	130 PSI - DR 13.5
64 PSI - DR 26	160 PSI - DR 11
80 PSI - DR 21	200 PSI - DR 9
100 PSI - DR 17	267 PSI - DR 7
100 PSI - DR 15.5	

The WPR (PC) values <u>include</u> allowance for pressure rises above working pressure class and <u>recurring pressure surges</u> not exceeding one and one half times the nominal pressure class.

C. Fittings:

1. Fittings shall be butt fusion type, meeting the requirements of ASTM D 3261. All fittings shall be rated to match the system piping to which they are fused. At the point of fusion, the outside diameter and minimum wall thickness shall meet the outside diameter and minimum wall thickness specification of ASTM F 714 for the same size of pipe. Pipe connections between dissimilar materials shall be joined by stub end and backing flange.

2. Flanges, when required, shall be convoluted ductile iron ANSI B16.5-B1, Class 150 lb. The bolts and nuts for the flanges shall be standard grade. Standard flat washers shall be used at the head and nut of each bolt.

3. Any flange connections from HDPE to either PVC or ductile iron shall include a 1/8 inch minimum thickness gasket suitable for use for sanitary sewer service. 304 stainless steel inserts designed for use in HDPE pipe manufactured by JCM, Smith-Blair, or approved equal shall be used in conjunction with all flange connections.

4. Spare Fittings: Contractor to provide Town with six 8-inch diameter, and three 6-inch diamter 304 stainless steel inserts designed for use in HDPE pipe manufactured by JCM, Smith-Blair, or approved equal.

D. Damage Control:

1. Transportation: Care shall be taken during transportation of the pipe that it is not cut, kinked or otherwise damaged.

2. Handling Pipe Lengths:

a) Ropes, fabric or rubber-protected slings and straps shall be used when handling pipes.

b) Chains, cables, or hooks inserted into the pipe ends shall not be used. Two slings spread apart shall be used for lifting each length of pipe. Pipe or fittings shall not be dropped onto rocky or unprepared ground.

3. Storage: Pipes shall be stored on level ground, preferably turf or sand, free of sharp objects which could damage the pipe.

a) Stacking of the pipe shall be limited to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature conditions.

b) Where necessary due to ground conditions, the pipe shall be stored on wooden sleepers, spaced suitably and of such width as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.

E. Pipe Dimensions:

Pipe supplied under this specification shall have a nominal IPS (iron pipe size) O.D. unless otherwise specified. The SDR (standard dimension ratio) of the pipe supplied shall be as specified by the Engineer.

F. Pipe Handling And Storage, Repairing And Joining:

1. Handling and Storage: Pipe shall be stored on clean, level ground to prevent undue scratching or gouging of the pipe. If the pipe must be stacked for storage; such stacking should be done in accordance with the pipe manufacturer's recommendations. The handling of the pipe should be done in such a manner that it is not damaged by dragging over sharp objects or cut by chokers or lifting equipment.

2. Repairing of Damaged Sections: Sections of pipe having been discovered with cuts or gouges in excess of 10% of the wall thickness of the wall thickness of the pipe shall be cut out and removed. The undamaged portions of the pipe shall be rejoined using butt fusion joining method.

3. Pipe Joining: Sections of polyethylene pipe should be joined into continuous lengths on the job site above ground. The joining method shall be the heat fusion method and shall be performed in strict accordance with the pipe manufacturer's recommendations. The heat fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, temperature requirements of 400°F, alignment, and 75 psi interfacial fusion pressure. Heat fusion joining shall be 100% efficient offering a joint weld strength equal to or greater than the tensile strength of the pipe. Socket fusion shall not be used. Extrusion welding or hot gas welding of HDPE shall not be used for pressure pipe applications nor in fabrications where shear or structural strength is important. Ranges, unions, grooved-couplers, transition fittings and some mechanical couplers may be used to mechanically connect HDPE pipe without butt fusion. Refer to the manufacturer's recommendations.

G. Installation:

1. Before pipe is joined by fusion, it shall be cleaned of all dirt and other foreign material. Each pipe shall be carefully examined for cuts, scratches, gouges, etc., before being laid, and defective or damaged pipe shall not be used. Pipelines shall be laid to the grades and alignment indicated. Proper facilities shall be provided for lowering sections of pipe into trenches. Under no circumstances shall pipe be laid in water, and no pipe shall be laid when trench or weather conditions are unsuitable for such work. Diversion of drainage or dewatering of trenches during construction shall be provided as necessary. All pipe in place shall be inspected before backfilling. Any pipe which is disturbed or found to be defective after laying shall be taken up and relaid or replaced.

2. Trench Construction: The trench and trench bottom shall be constructed in accordance with ASTM Standard D 2321 - Section 7.

3. Embedment Material: Embedment materials shall be Class I, Class II, or Class III materials as defined by ASTM D 2321 - Section 6. The use of Class IV and Class V materials for embedment is not recommended and shall be done only with the approval of the Engineer.

4. Bedding: Bedding of the pipe shall be performed in accordance with ASTM standard 2321 - Section 8. Compaction rates shall be as specified in ASTM D 2321. Deviations from the specified compaction must have the approval of the Engineer.

5. Lowering Pipe into Trench: Care shall be exercised when lowering pipe into the trench to prevent damage to or twisting of the pipe.

H. Haunching and Initial Backfill: Haunching and the initial backfill should be as specified in ASTM D 2321 - Section 9 using Class I, Class II, or Class III materials. Materials used and compaction rates shall be as specified by the Engineer. In cases where a compaction rate of 92% Standard Proctor Density is not attainable, the Engineer may wish to increase the SDR of the pipe to provide adequate stiffness.

2.8 EXPANSION JOINTS:

A. Expansion joints shall be manufactured of molded neoprene with filled triple arches. Joints shall be reinforced with galvanized 3/8-inch split steel retaining rings placed directly against the inside of the flange to prevent damage to the rubber surface when the bolts are tightened. Expansion joints shall be suitable for buried service or above ground service. Flanges shall be drilled to ANSI 125#. Working pressures as follows:

Size	Pressure
1"-4"	165#
5"-12"	140#
14"	85#
16"-24"	65#
26"-66"	55#

B. Maximum temperature shall be 180 degrees F and shall be capable of a maximum 1-1/2-inch lateral movement. Expansion joints shall be Model J-1 as manufactured by the Red Valve Company; products by Metraflex, Holtz Rubber Company or approved equal.

2.9 QUICK CONNECT COUPLINGS:

Quick connect couplings shall be Model 633-E hose shank adapter and Model 633-C hose shank coupler as manufactured by Dover Corporation OPW Division, Cincinnati, Ohio, or by Ever-tite coupling Co., Inc., New York, New York, or approved equal.

2.10 FLANGE ADAPTER COUPLINGS:

Flange adapter couplings shall be of the size and pressure rating required for each installation and shall be suitable for use on either cast iron or ductile iron pipe. Shall be similar to Dresser Company, Style 128 or approved equal. All couplings shall have a sufficient number of factory installed anchor studs to meet or exceed the test pressure rating for this project, 300 psi minimum. Certification shall be provided with shop drawings that couplings meet this requirement.

2.11 FLEXIBLE COUPLINGS:

A. Flexible couplings shall be either the split type or the sleeve type as shown on the Drawings.

1. Split type coupling shall be used with all interior piping and with exterior piping as noted on the Drawings. The couplings shall be mechanical type for radius groove piping.

The couplings shall mechanically engage and lock grooved pipe ends in a positive couple and allow for angular deflection and contraction and expansion.

2. Couplings shall consist of malleable iron, ASTM Specification A47, Grade 32510 housing clamps in two or more parts, a single chlorinated butyl composition sealing gasket with a "C" shaped cross-section and internal sealing lips projecting diagonally inward, and two or more oval track head type bolts with hexagonal heavy nuts conforming to ASTM Specification A183 and A194 to assemble the housing clamps. Bolts and nuts shall be hot dipped galvanized after fabrication.

3. Victaulic type couplings and fittings may be used in lieu of flanged joints. Pipes shall be radius grooved as specified for use with the Victaulic couplings. Flanged adapter connections at fittings, valves, and equipment shall be Victaulic Vic Flange Style 741; Gustin-Bacon Group, Division of Certain-Teed Products, Kansas City, Kansas, or approved equal.

4. Sleeve type couplings shall be used with all buried piping. The couplings shall be of steel and shall be Dresser Style 38 or 40, as shown on the Drawings, or approved equal. The coupling shall be provided with hot dipped galvanized steel bolts and nuts unless indicated otherwise.

5. All couplings shall be furnished with the pipe stop removed.

6. Couplings shall be provided with gaskets of a composition suitable for exposure to the liquid within the pipe.

7. If the Contractor decides to use victaulic couplings in lieu of flanged joints, he shall be responsible for supplying supports for the joints. Shop drawings for supports shall be submitted with victaulic coupling submittals.

2.12 UNIONS:

Unions on ferrous pipe 2 inches in diameter and smaller shall be 150 pounds malleable iron, zinc-coated. Unions on water piping 2-1/2 inches in diameter and larger shall be flange pattern, 125-pound class, zinc-coated. Gaskets for flanged unions shall be of the best quality fiber, plastic, or leather. Unions shall not be concealed in walls, ceilings, or partitions.

PART 3 - EXECUTION

3.1 GENERAL:

A. Care shall be taken in loading, transporting, and unloading to prevent injury of the pipe or coatings. Pipe or fittings shall not be dropped. All pipe and fittings shall be examined before laying, and no piece shall be installed which is found to be defective. Any damage to the pipe coatings shall be repaired as directed by the Engineer.

B. All pipe and fittings shall be subjected to a careful inspection and hammer test just prior to being laid or installed. If any defective pipe is discovered after if has been laid it shall be removed and replaced at no expense to the Owner. All pipe and fittings shall be thoroughly cleaned before laying, shall be kept clean until they are used in the work, and when installed or laid, shall conform to the lines and grades required.

C. All buried piping shall be installed to the lines and grades as shown on the Drawings. All underground piping shall slope uniformly between joints where elevations are shown.

D. Contractor shall exercise extreme care when constructing yard piping to shore up and protect from damage all existing underground water lines and power lines, and all existing structures.

E. Trenching and backfilling shall conform to the appropriate sections of these Specifications.

F. Laying Pipe:

1. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line.

2. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe.

3. After placing a length of pipe in the trench, the spigot end shall be centered in the bell and the pipe pushed into place and brought to correct line and grade. The pipe shall be secured in place with approved backfill material tamped under it, except at the bells. Precaution should be taken to prevent dirt from entering the joint space. Any pipe that has its grade or joint disturbed after laying shall be taken up and re-laid.

4. Flanged end, mechanical, and push-on joints shall be completed as specified by the pipe manufacturer and care shall be exercised when making each joint. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug. Under no conditions shall pipe be laid when trench conditions are unsuitable for such work. In all cases, water shall be kept out of the trench during laying operations and until concrete cradles, reaction blocks, or supports, where used or specified, have hardened.

5. Pipe shall be laid with bell ends facing in the direction of laying unless otherwise shown on the Drawings or directed by the Engineer.

G. Concrete Encasement and Specials: Where required by the Engineer, pipes shall be placed on a formed concrete cradle, or unformed concrete shall be placed around pipes for anchors, bedding, and encasement. Concrete anchors or cradles shall consist of structures composed of Class "C" concrete built in trenches to support pipes and to the dimensions shown on the Drawings furnished by the Engineer. Concrete bedding and encasement shall be composed of Class "C" concrete placed in trenches as pipe bedding or encased around pipes, to the dimensions and in the locations directed by the Engineer or indicated on the Drawings.

H. Special Conditions: Cut-ins to existing lines four inches (4") and larger are to be made with tapping valves and sleeves. Cut-ins to existing lines smaller than four inches (4") shall be made by cutting the existing lines. Existing lines can only be cut at time, day, and for the duration approved by the Owner. All new piping must be assembled at site before existing pipe is cut. The Contractor shall work continuously once cut is made until the line is back in service.

3.2 PIPE AND STRUCTURE BEDDING:

A. All pipelines shall be bedded in well graded, compacted, selected fill material. Pipe bedding with selected fill material shall extend a minimum of six inches (6") below the bottom of the pipe and be carried up to one foot (1') over the top of the pipe for the full trench width.

B. Crushed stone bedding material shall be three-quarter inch (3/4") nominal size limestone (Brooksville Formation) and shall conform to the following gradation requirements:

100% passing	1" sieve
90% - 100% passing	3/4" sieve
20% - 55% passing	3/8" sieve
0% - 10% passing	No. 4 sieve

Underbedding shall be placed in layers not over eight inches (8") thick to the limits detailed on the Drawings and shall be thoroughly compacted by tamping.

C. Selected fill material used for pipe bedding shall consist of natural sand, limestone chips, pea gravel, gravel, crushed stone, or other granular or similar material approved by the Engineer which can be readily and thoroughly compacted. For pipe 18 inches or less in diameter, selected fill pipe bedding shall consist of natural sand or material 90 percent of which will be retained on a No. 8 sieve and 100 percent of which will pass a one-half inch (½") sieve and be well graded between those limits. For pipe larger than 18 inches in diameter, selected fill pipe bedding shall be granular material the same as specified for smaller pipe or may be a similar well graded material 90 percent of which will be retained on a No. 8 sieve and 100 percent of which will pass a one inch (1") sieve. Very fine sand or other fine materials that have a tendency to flow under pressure when wet will not be acceptable as selected fill material to be used for pipe bedding.

D. Cast-in-place manhole bases and other foundations for structures shall be cast against undisturbed earth in clean and dry excavations.

E. Existing underground structures, tunnels, conduits, and pipes crossing the excavation shall be bedded with compacted selected fill material. Bedding material shall be placed under and around each existing underground structure, tunnel, conduit, or pipe and shall extend underneath and on each side to a distance equal to the depth of the trench below the structure, tunnel, conduit, or pipe.

3.3 DUCTILE IRON PIPE:

A. Ductile iron pipe and fittings shall be installed in accordance with requirements of AWWA Standard Specification C600 except as otherwise provided herein. A firm, even bearing throughout the length of the pipe shall be constructed by tamping selected material at the sides of the pipe up to the springline. BLOCKING WILL NOT BE PERMITTED.

B. All pipe shall be sound and clean before laying. When laying is not in progress, including lunchtime, the open ends of the pipe shall be closed by watertight plug or other approved means. Good alignment shall be preserved in laying. The deflection at joints shall not exceed that recommended by the manufacturer. Fittings, in addition to those shown on the plans, shall be provided, if required, in crossing utilities which may be encountered upon opening the trench. Solid sleeves shall be used only where approved by the Engineer.

C. When pipe cutting is required, the cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. Cut ends of pipe to be used with a push-on bell shall be beveled to conform to the manufactured spigot end. Cement lining shall be undamaged.

D. Jointing Ductile-Iron Pipe:

1. Push-on joints shall be made in strict accordance with the manufacturer's instructions. Pipe shall be laid with bell ends looking ahead. A rubber gasket shall be inserted in the groove of the bell end of the pipe, and the joint surfaces cleaned and lubricated. The plain end of the pipe is to be aligned with the bell of the pipe to which it is to be joined, and pushed home with a jack or by other means. After joining the pipe, a metal feeler shall be used to make certain that the rubber gasket is correctly located.

2. Mechanical joints at valves, fittings, and where designated on the drawings and/or as specified, shall be in accordance with the "Notes on Method on Installation" under ANSI Specification A21.11 and the instructions of the manufacturer. To assemble the joints in the field, thoroughly clean the joint surfaces and rubber gasket with soapy water before tightening the bolts. Bolts shall be tightened to the specified torques. Under no condition shall extension wrenches or pipe over handle of ordinary ratchet wrench be used to secure greater leverage.

3. Ball joints, where designated on the drawings and/or as specified, shall be installed in strict accordance with the manufacturer's instructions. Where ball joint assemblies occur at the face of structures or tanks, the socket end shall be at the structure or tank and the ball end assembled to the socket.

4. Flanged joints shall be in accordance with ANSI Specifications A21.15 including its Appendix "A" and the instructions of the manufacturer. Flanged joints shall be fitted so that the contact faces bear uniformly on the gasket and then are made up with relatively uniform bolt stress.

E. All valves, hydrants, fittings, and other appurtenances needed upon the pipe lines shall be set and jointed as indicated on the Drawings or as required by the manufacturer.

F. Unless otherwise noted, underground piping shall be push-on or mechanical joint with restraints as needed and above ground piping shall be flanged.

G. Deflected bell pipe if shown on the Drawings is shown only as an assistance in illustrating a preferred means of installation in specific locations, and is not intended to indicate all deflected bell pipe necessary to effect the installation as shown in plan and profile views. The cost of all such deflections shall be included within the bid price for furnishing and installing the pipe.

3.4 PLASTIC PIPE:

Plastic piping shall be snaked along the trench to provide for expansion and contraction. Gravity systems shall be installed in accordance with ASTM D2321-89 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications. The pipe shall be backfilled with selected fine excavated material as shown on the Drawings and thoroughly compacted to one foot above the top of the pipe and backfilled as specified in Section 02223.

3.5 PIPE SUPPORTS AND RESTRAINED JOINTS:

A. Supports:

1. All piping shall be properly and adequately supported. Hangers, supports, base elbows and tees, and concrete piers and pads shall be provided as indicated on the Drawings. Exposed piping shall be supported by hangers wherever the structure is suitable and adequate to carry the superimposed load. The Engineer shall determine if the structure is adequate. Supports shall be placed approximately 8-feet on centers and at each fitting.

2. Hangers shall be heavy malleable iron of the adjustable swivel type, split ring type, or the adjustable-swivel, pipe-roll type for horizontal piping and adjustable, wrought iron, clamp type for vertical piping. Flat-steel strap or chain hangers are not acceptable unless indicated on the Drawings.

3. Hangers shall be attached to the structure, where possible, by beam clamps and approved concrete inserts set in the forms before concrete is poured. Where this method is impractical, anchor bolts with expanding lead shields, Rawl Drives, or other approved means, shall be used. No lag screws or malleable iron expansion shields will be permitted.
4. Where hangers cannot be used, the Contractor shall provide pipe saddle supports with pipe column and floor flange. Pipe supports shall be as manufactured by Grinnell or approved equal.

B. Bearing area of thrust blocks shall prevent any movement of the fitting and shall be of the size and dimensions shown on the Drawings.

C. Thrust blocking is strictly forbidden. Restrained push-on or mechanical joints shall be used as specified in the Plans and herein.

3.6 MANHOLE:

A. Unless otherwise noted on the Drawings, manholes shall be constructed of precast reinforced concrete sections. Each manhole shall have a concrete base section or tee section, barrel section, and an eccentric cone top or flat slab top, all as required. Manholes shall be built without steps. Except as specified herein or shown on the Drawings, precast manholes shall comply with ASTM Designation C47B. Manholes are classified as either Standard Manholes or Standard Shallow Manholes. The maximum depths permitted for Standard Shallow Manhole and the locations are to be used shall be as shown on the Drawings. Manhole barrel and base sections shall be constructed with preformed openings properly located for making sewer line connections. The diameter of such openings shall not be more than two inches (2") inches larger than the outside diameter of the pipe or pipe bell to be connected. The distance between the crown of such openings and the shoulder of the barrel joint shall be six inches (6") minimum.

B. Base sections for standard and shallow manholes shall consist of a circular slab base with a minimum thickness of eight inches (8") and shall be reinforced as shown on the Drawings. The base slab may extend beyond the outside diameter of the barrel section, providing the extension is equal at all points on the circumference of the slab.

C. Barrel Sections:

1. Barrel sections for standard deep type manholes shall have an inside diameter of 48 inches and a minimum wall thickness of eight inches (8"). A single line of circumferential reinforcement shall be placed not less than five inches (5") from the inside face of the wall. The bottom section of manhole barrel shall be integrally precast with the manhole base section. Top sections for standard manholes shall be eccentric cones as shown on the Drawings, three feet (3') in height with a minimum wall thickness of eight inches (8"). Barrel sections for standard shallow manholes on sewers ten inches (10") through 24 inches in diameter shall comply in all respects to the specifications for barrel sections on standard manholes. Top sections for standard shallow type manholes shall be flat circular slabs with a minimum thickness of ten and one-half inches (10-1/2") and a 25-1/4 inch diameter eccentric, circular opening. Top sections shall be reinforced as shown on the Drawings. Standard drop manholes shall comply with all applicable sections of the Specifications for the standard deep type manholes and shall conform to the details as shown on the Drawings.

2. The use of a reasonable number of bats, originating on the work, not smaller than half bricks, will be allowed in brickwork of manholes, provided all interstices are thoroughly filled with mortar.

3. No masonry shall be laid (nor plastering done) when the temperature of the outside air is below 40° F unless suitable means approved by the Engineer, in writing, are provided to heat the masonry materials and protect the completed work from freezing. Protection shall consist of heating masonry materials to at least 70° F and maintaining an air temperature above 40° F. on both sides of the masonry for a period of at least 48 hours. No anti-freeze ingredient shall be used.

4. Inverts shall be formed of concrete to details as shown on the Drawings and shall be smooth and accurately shaped to a semicircular bottom conforming to the inside of the adjacent sewer section. Where directed by the Engineer, invert channels and manhole bottoms shall be shaped and smoothed with mortar evenly. Changes in the direction of the sewer and entering branches shall have a true curve of as large a radius as the size of the manhole will permit. Steep slopes outside the invert channels shall be avoided.

5. Space outside the manholes shall be backfilled with acceptable materials in uniform layers not exceeding six (6) inches in depth. Each layer shall be thoroughly compacted mechanically to 95% density of the earth in the adjacent banks.

6. Manholes shall, in all cases, be fully and completely built and fitted with their frames and covers as the work progresses.

7. The outside of all brick masonry walls for manholes shall be neatly plastered and trowelled with portland cement mortar, one-half (½) inch thick.

8. Cast iron frames and covers shall be furnished and installed by the Contractor, with the frames set in a bed of mortar. Frames and covers shall meet the requirements of this Section.

D. Bedding under the base slab shall not be less than six (6) inches of thoroughly compacted limestone screenings. Limestone screenings used for bedding beneath precast manhole bases shall be placed in uniform layers not greater than six (6) inches in loose thickness and thoroughly compacted in place with suitable mechanical or pneumatic tools to a 2A-49 dry density of not less than 100 percent of the maximum dry density as determined by AASHTO Designation T-99.

E. Watertight Manholes:

1. Where required and specified on the Drawings, watertight manholes shall be constructed. These manholes shall be the same as the standard brick or precast concrete manholes except that a watertight cast iron casting and cover shall be used in lieu of the standard casting and cover.

2. The watertight cast iron frame and cover shall be similar and approved equal to Neenah Foundry Company, Neenah, Wisconsin, Catalog No. R-1916-D. with "O" ring gasket seal and a minimum of four (4) stainless steel lid bolts. There shall be provided four (4) anchor bolts and bolt holes in the frame casting to bolt the frame to the manhole structure.

F. Pipe stubs for all structure and manhole connections shall not exceed 2 feet in length.

3.7 RESTRAINED JOINTS:

A. Sections of piping designated on the Drawings as having restrained joints or those requiring restrained joints shall be constructed using pipe and fittings with restrained "Locked-type" joints and the joints shall be capable of holding against withdrawal for line pressures 50 percent above the normal working pressure but not less than 50 psi. The pipe and fittings shall be as shown for restrained push-on joints or restrained mechanical joints in the Handbook of Cast Iron Pipe, latest edition, except that mechanical joint ductile iron pipe retainer glands will not be permitted.

B. Restrained pipe joints that achieve restraint by incorporating cut out sections in the wall of the pipe shall have a minimum wall thickness at the point of cut out that corresponds with the minimum specified wall thickness for the rest of the pipe.

C. The minimum number of restrained joints required for resisting forces at fittings and changes in direction of pipe shall be determined from the length of restrained pipe on each side of fittings and changes in direction necessary to develop adequate resisting friction with the soil. The formula and parameters given below shall be used to determine the minimum requirements:

$$L = \frac{1.5PA\,(1-\cos X)}{fW}$$

Where:

L	=	length of pipe on each side of fitting or change in direction.
P	=	50 percent above the normal working pressure.
A	=	cross-sectional area is square inches based on outside diameter (O.D.) of pipe.
X	=	angle of bend or change in direction in degrees.
f	=	coefficient of friction = 0.4 (maximum)
W	=	$w_{earth} + w_{pipe} + w_{water\ in\ pipe}$
w_{earth}	=	(density of soil*) (depth of cover in feet) (O.D. in feet)

(2)

* maximum 120 lbs/ft3 above maximum water table elevation and 60 lbs/ft below maximum water table elevation

D. Bolts and nuts for restrained joints shall be corten, low alloy, high strength steel.

E. The Contractor shall also provide restrained joints in accordance with the above criteria wherever thrust blocks are not used in conjunction with below ground fittings on line 6 inches in diameter or less and as approved by the Engineer.

3.8 TESTING OF SEWERS, STORM DRAINS, AND OTHER GRAVITY YARD PIPING:

A. Leakage tests by exfiltration shall be after backfilling. The length of the pipe to be tested shall be such that the head over the crown of the upstream end is not less than 2 feet and the head over the downstream crown is not more than 6 feet. The pipe shall be plugged by pneumatic bags or mechanical plugs in such a manner that the air can be released from the pipe while it is being filled with water. The test shall be continued for one hour and provisions shall be made for measuring the amount of water required to maintain the water at a constant level during this period.

B. If any joint shows an appreciable amount of leakage, the jointing material shall be removed and the joint remade. If any pipe is defective, it shall be removed and replaced. If the quantity of water required to maintain a constant level in the pipe for one hour does not exceed 50 gallons per inch of diameter per day per mile of pipe and all the leakage is not confined to a few joints, the workmanship shall be considered satisfactory. If the amount of leakage indicates defective joints or broken pipes, they shall be corrected by the Contractor.

C. If an inspection of the complete pipe line or any part thereof shows pipes, or joints which allow the infiltration of water in a noticeable stream or jet, the defective work or material shall be replaced or repaired as directed by the Engineer.

D. Rates of infiltration shall be determined by means of V-Notch weirs, pipe spigot or by plugs in the end of the pipe to be provided and installed by the Contractor in an approved manner and at such times and locations as may be directed by the Engineer.

E. The Contractor must submit his plan for testing to the Engineer for review at least ten (10) days before starting the test. The Contractor shall remove and dispose of all blocking material and equipment after completion and acceptance of the field hydrostatic test, unless otherwise directed by the Engineer. Any damage to the pipe coating shall be repaired by the Contractor. Lines shall be totally free and clean prior to final acceptance by the Owner and the Engineer.

3.9 PRESSURE AND LEAKAGE TESTS OF UNDERGROUND PVC AND DIP PRESSURE PIPING:

A. Hydrostatic pressure and leakage tests shall conform with Section 4 of AWWA C600 Specification with the exception that the Contractor shall furnish all gauges, meters, pressure pumps and other equipment needed to test the line.

B. The pressure required for the field hydrostatic pressure test shall be 50 percent above the normal working pressure but not less than 100 psi. The Contractor shall provide temporary plugs and blocking necessary to maintain the required test pressure. Corporation cocks at least 3/4-inches in diameter, pipe riser and angle globe valves shall be provided at each dead-end in order to bleed air from the line. Duration of pressure test shall be at least 24 hours. The cost of these items shall be the responsibility of the Contractor.

C. The leakage test shall be a separate test at the maximum operating pressure as determined by the Engineer following the pressure test and shall not be of less than 2 hours duration. All leaks evident at the surface shall be repaired and leakage eliminated regardless of total leakage as shown by test. Lines which fail to meet tests shall be repaired and retested as necessary to comply with test requirements. Defective materials, pipes, valves, and accessories shall be removed and replaced. The pipe lines shall be tested in such sections as may be directed by the Engineer by shutting valves or installing temporary plugs as required. The line shall be filled with water and all air removed and the test pressure shall be maintained in the pipe for the entire test period by means of a force pump to be furnished by the Contractor. Accurate means shall be provided for measuring the water required to maintain this pressure. The amount of water required is a measure of the leakage.

D. The amount of leakage permitted shall be in accordance with AWWA C600 Standards for all pressure. No pipe installation shall be accepted if the leakage is greater than that determined by the following formula:

$$L = \frac{SD\,(P)^{0.5}}{133200}$$

In which L is the allowable leakage in gallons per hour; S is the Length of pipe tested, in feet; D is the nominal diameter of the pipe, in inches; and P is the test pressure during the leakage test, in pounds per square inch gauge.

E. The Contractor must submit his plan for testing to the Engineer for review at least ten (10) days before starting the test. The Contractor shall remove and adequately dispose of all blocking material and equipment after completion and acceptance of the field hydrostatic test, unless otherwise directed by the Engineer. Any damage to the pipe coating shall be repaired by the Contractor. Lines shall be totally free and clean prior to final acceptance by the Owner and the Engineer.

3.10 PRESSURE AND LEAKAGE TESTS OF UNDERGROUND HDPE PRESSURE PIPING:

A. The initial pressure test can be conducted before or after the line is backfilled. However, it is advisable to cover the pipe at intervals or particularly at curves to hold the pipe in place during pressure test. Flanged connections may be left exposed for visual leak inspection.

B. Test pressure should not exceed 1.5 times the rated operating pressure of the pipe or the lowest rated component in the system (150 psi min).

C. The initial pressure test shall be applied and allowed to stand without make up pressure for a sufficient time to allow for diametric expansion or pipe stretching to stabilize. This usually occurs within 2 to 3 hours. After this equilibrium period, the test section can be returned to the 1.5 times operating pressure, the pump turned off, and a final test pressure held for 1 to 2 hours.

D. Pressure drop will not only occur due to pressure expansion, but also due to fluctuations in temperature during the test. As the temperature increases, the gauge pressure will decrease. Allowable amounts of make up water for expansion during pressure tests shown in manufacturers's chart (see Part F below), taken from PPI technical report TR 31/9-79. If there are not visual leaks or significant pressure drops during the final test period, the pipeline passes the test.

E. Under no circumstances shall the total time under test exceed 3 hours at 1-1/2 times the pressure rating. If the test is not completed because of leakage, equipment failure, or other reason, the test section shall be permitted to "relax" for eight (8) hours before the next testing sequence.

F. Allowance for expansion under test pressure*.

Allowance for Expansion
(U.S. Gallons / 100 Feet of Pipe)

Nominal Pipe Size (Inches)	1 Hour Test	2 Hour Test	3 Hour Test
3	0.10	0.15	0.25
4	0.13	0.25	0.40
6	0.30	0.60	0.90
8	0.50	1.0	1.5
10	0.75	1.30	2.10
11	1.0	2.0	3.0
12	1.1	2.3	3.4
14	1.4	2.8	3.2
16	1.7	3.3	5.0

Allowance for Expansion
(U.S. Gallons / 100 Feet of Pipe)

Nominal Pipe Size (Inches)	1 Hour Test	2 Hour Test	3 Hour Test
18	2.2	4.3	6.5
20	2.8	5.5	8.0
22	3.5	7.0	10.5
24	4.5	8.8	13.3
28	5.5	11.1	16.8
32	7.0	14.3	21.5
36	9.0	18.0	27.0
40	11.0	22.0	33.0
48	15.0	27.0	43.0

* These allowances only apply to the test period and not in the initial expansion phase.

3.11 TELEVISION INSPECTION OF GRAVITY SEWER LINES:

A. All new sewers shall be inspected after installation by means of closed circuit television. Video taping equipment shall have a running footage indication for aiding in locating all wyes, defects, etc., which is displayed and permanently recorded on the video tape of the section being filmed. The complete system shall be permanently recorded using video tape. Immediately upon completion of the filming, the finished video tapes shall be turned over the Engineer in cassette style (VHS Format). A written approval for any deviation from this procedure must be obtained from the Owner or Engineer by the Contractor. An adjustment in contract price shall be required for this change. Wyes and laterals shall be in place prior to the television inspection. This work will be done under the direction and observation of the Owner and/or Engineer.

B. The television inspection shall be completed prior to the final acceptance of the sewer section and use by the public. The standard retainage (10%) shall not be reduced for these sewer sections where the television inspection has not be satisfactorily completed.

C. Any defect in the sewer construction, discovered during the television inspection, such as poor grade, cracked or leaking pipe sections, or excessive amounts of debris, shall be corrected by the Contractor immediately. Section with defects will have to be monitored again after the repairs are made at no additional cost to the Owner(s).

3.12 CLEANING OF SEWERS AND STORM DRAINS:

At conclusion of the work, the Contractor shall thoroughly clean the new pipe line by flushing with water or other means to remove all dirt, stones, pieces of wood or other material which may have entered during the construction period. If, after this cleaning, obstructions remain, they shall be removed and cleaned, and this is the responsibility of the Contractor.

3.13 CLEANING WASTEWATER FORCEMAIN SYSTEMS:

A. General: All pressure systems shall be cleaned in accordance with this section to ensure system performance integrity.

B. Final Cleaning: Prior to final inspection and acceptance of any system by Owner, Contractor shall clean all parts of the system. Cleaning and flushing shall remove all accumulated construction debris, rocks, gravel, sand, silt, and other foreign material from the system. The cleaning procedure shall be conducted in multiple _pigging_ operations of the system. Between successive operations, the pig diameter shall increase

and the pig material shall stiffen. The cleaning procedures shall conform to the poly pig manufacturers recommendations and shall continue until clear water is realized from the cleaned system.

1. Clean water shall be used to propel the poly pig. Care shall be taken to protect fire hoses and other equipment used in the cleaning process. Contractor shall dispose of water discharged at the retrieval point to avoid flooding, washouts and other nuisance problems that may occur. This procedure will be repeated as often as necessary to thoroughly clean all sand and debris from the water main.

2. Upon Owners final inspection of the pressure systems, if any foreign matter is still present in the system, Contractor shall clean the sections and portions of the system as required.

3. All taps, fittings, and appurtenances required for cleaning and flushing purposes, and for temporary or permanent release of air shall be provided for by Contractor as a part of the construction of systems and shall be so indicated on the record drawings. After cleaning all such taps, fittings, and appurtenances shall be sealed to the satisfaction of Owner.

C. Poly Pigs: Pigs shall be blown elastomer polyurethane with open cell-type construction having a material density suitable for use within the system to be cleaned. Pigs shall have a parabolic nose, crisscross coated with a resilient peripheral surface that engages the inner cylindrical wall of the pipe to maintain a sliding seal. When in use, the pig must be able to undergo a reduction to a minimum of sixty-five percent (65%) of the original cross-sectional area and return to shape while maintaining the sliding seal and ability to clean. Pigs shall be bi-directional and have the ability to negotiate fittings, valves, and other appurtenances. The pig cover material shall be such that it effectively scours and cleans the inside of the pipe without damage to the pipe liner or wall. Poly pigs shall be as manufactured by Knapp Poly Pig, Houston, Texas, or equivalent.

D. Poly Pig Electronic Detector: Contractor shall maintain on-site for the duration of the pigging operation ready and available an electronic poly pig detector with the appropriately sized cavity poly pig for use in the system being cleaned to provide a means of tracking the passage of the pig in the system to locate areas of potential or suspected blockage and to find lost valves and other disparities within the system.

E. Launching and Retrieval Stations: Launching and retrieval stations shall be fabricated, designed, and manufactured in accordance with ANSI standards and capable of withstanding working pressures to 150 psig. Launching and receiving tubes shall be fabricated of steel pipe sized one diameter larger than the system to which it will be attached with a minimum length of 2.5 times the diameter. For stations 12 inches or smaller in diameter, steel wall thickness shall be a minimum of 5/16. For stations larger than 12 inches, steel wall thickness shall be a minimum of 3/8.

F. Method: The cleaning of the piping system shall be accomplished by the controlled pressurized passage through the system of a series of hydraulic or pneumatic polyurethane plugs of varying dimensions, coatings, and densities of poly pigs.

1. The dimensions, coatings, and densities of these poly pigs shall be determined by:

   a. characteristics of the system to be cleaned;

   b. recommendation of ENGINEER;
   c. recommendation of the poly pig manufacturer.

2. A series of predetermined poly pigs shall be launched into the system at the beginning of the system. The launching station shall take the form of a size-on-size tee installed on the main.

3. The poly pigs shall be launched into the system by the use of a pig launching station. This launching station shall allow the following:

   a. introduction of pigs into system providing means to induce flow from an external source, independent of the flows and pressure immediately available from the system, on the back of the pig to develop sufficient pressure to force the pig through the system;

   b. means to control and regulate this flow;

   c. means to monitor the flows and pressure introduced into the system;

   d. means to connect to and subsequently be disconnected from the system without any mechanical disruption of the operation ability of system.

4. The poly pigs shall be discharged or retrieved from the end of the system. The retrieval station shall take the form of a size-on-size tee installed on the main.

5. The retrieval station shall trap poly pigs but will allow for the passage or discharge of flow used for propelling the pig through the system. The retrieval station will allow for:

   a. discharge of poly pigs from system by providing means to control the flow at this point so the pig must enter the trap;

   b. means to control and regulate flow;

   c. means to monitor flows and pressures in the system at this point;

   d. means to connect to and subsequently disconnect from the system without any mechanical disruption of the operational ability of the system.

6. Contractor shall maintain or provide during the entire pigging operation:

   a. constant surveillance of system and immediately report to Owner any deviation from established pigging procedures, any in-line problems or malfunctions encountered or discovered by passage of pigs through the system;

   b. record of pigs, pig sizes, pig styles, pig material, pig manufacturer, and other pertinent information about the pigging operation and system.

7. Contractor must demonstrate to the satisfaction of Owner that the work will be performed by an experienced and knowledgeable superintendent and personnel who have properly, safely, and effectively cleaned comparable systems in similar applications. The personnel shall be required to provide acceptable procedures, prior to initiation of work, that will clearly illustrate they are capable and have the means on hand to resolve potential or real problems that may occur in conjunction with pigging of the system. Contractor shall provide evidence of qualification by providing copies of his/her state license or certification to perform such work as described herein.

3.14 CERTIFICATION OF COMPLETION:

A. Upon completion of the covering operation over the piping system, the Contractor shall certify the following to the Owner:

1. The piping system has been constructed in accordance with the approved project plans and specifications.

2. The piping system has not been damaged during construction or the backfilling operation.

END OF SECTION

SECTION A - NEW MANHOLES

1.1 SECTION INCLUDES:

A. Scope of Work

B. Governing Standards

C. General Description

D. Materials

E. Manufacture

F. Requirements

G. Test Methods

H. Quality Assurance/Quality Control

I. Certification

J. Handling and Storage

K. Installation Methods

L. Inspection

M. Measurement

N. Payment

1.2 SCOPE OF WORK

This specification shall govern for the furnishing of all work necessary to accomplish and complete the installation of glass-fiber reinforced polyester manholes. Glass-Fiber Reinforced Polyester Manholes shall be a one-piece monolithic designed unit constructed of glass-fiber reinforced, supplier certified, unsaturated commercial grade polyester resin containing chemically enhanced silica to improve corrosion resistance, strength and overall performance. FRP manholes shall be manufactured in strict accordance with *ASTM D-3753-99 "Standard Specification for Glass-Fiber Reinforced Polyester Manholes", and will include a manufacturer's 20-Year Corrosion & Structural Warranty,* as manufactured by Containment Solutions, Inc., Conroe, Texas, "Flowtite" FRP manholes, 1-888-409-7731 or Engineer Pre-Approved Equal.

1.3 GOVERNING STANDARDS

Manholes shall conform to the following design criteria:

A. ASTM D-3753-99: Standard Specification for Glass-Fiber Reinforced Polyester Manholes.
B. ASTM C-581: Practice for Determining Chemical Resistance of Chemical Thermosetting Resins Used in Glass-Fiber Reinforced Structures Intended for Liquid Service.
C. ASTM D-2412: Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel Plate Loading.
D. ASTM D-695: Test Methods for Compressive Properties of Rigid Plastics.
E. ASTM D-2584: Test Method for Ignition Loss of Cured Reinforced Resins.
F. ASTM D-790: Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and electrical Insulating Materials.
G. ASTM D-2583: Test Method for Indentation Hardness of Rigid Plastics by means of a Barcol Impressor.
H. AASHTO H-20: Axial Loading. American Association of State Highway Officials H-20

1.4 GENERAL DESCRIPTION

A. Dimensions: The manhole shall be a circular cylinder, reduced at the top to a circular manway not smaller than 22 1/2” inside diameter. Manholes shall be produced in half-foot increments of length +/- 2”. Nominal inside diameters shall be 36” to 120” in six-inch increments. Tolerance on the inside diameter shall be +/- 1%. Other diameters as agreed upon between purchaser and the manufacturer are covered by this specification.

B. Configuration:

1) Cone Sections: The Manway reducer must provide a bearing surface on which a standard ring and cover may be supported and adjusted to grade. The reducer shall be concentric and shall be joined to the barrel section at the factory with resin and glass fiber reinforcement, thus providing required monolithic design to prevent infiltration and/or exfiltration through the manhole.
Manway reducer cone section shall be self-centering to permit vertical height adjustment (raising or lowering) of manhole by contractor utilizing manufacturer provided materials and detailed written instructions. Butt-Joint attachment of cone to pipe is not permitted.

C. Class: The manhole shall be manufactured in one class of load rating. This class shall be H-20 wheel load (minimum 16,000 pounds dynamic wheel load). AASHTO H-20 as required by ASTM D-3753 Latest Edition.

D. Stubouts and Connections:

1) Inserta-Tee: Joints for sewer pipe line and drop connections sizes 4” - 12” shall be made by means of Inserta-Tee watertight compression connection. Installation shall be in strict accordance with manufacturer’s written instructions utilizing installation equipment approved for use by the manufacturer of the Inserta-Tee fitting. Use of equipment which does not meet this requirement is expressly prohibited.

2) Pipe Stubouts:

a. Install rubber gasketed PVC sewer pipe stubouts to manhole with resin and glass-fiber reinforced lay-up. Gaskets shall meet the same performance requirements of the sewer pipe to be installed unless otherwise directed by the Engineer. Resin and fiberglass shall be of the same type and grade as used in the fabrication of the fiberglass manhole. Attachment of PVC stubout to manhole wall shall be done using non-pigmented resins to allow for easy field inspection.

b. Install resilient rubber pipe-to-manhole connectors (boots) which conform to the performance requirements of ASTM C-923. Resilient rubber pipe-to-manhole boots shall be attached using fiberglass lay-ups directly to manhole wall by manufacturer.

c. Manholes for large diameter FRP pipe installations may have either factory installed FRP Pipe Stub-Outs identical to pipe used for the project, or a factory installed coupling to bottom of the manhole for T-base style installation.

E. Manhole Bottom: Resin and glass fiber reinforced manhole bottoms may be provided, upon engineer's request. Upon that request, manholes shall be provided with glass reinforced bottom section designed to withstand the hydrostatic head pressure, empty and water to grade, of units at 25-ft. burial depth. (Units deeper than 25-ft. may require additional reinforcement as required). Fiberglass ribs or fiberglass structural members may be utilized to meet the design criteria. Stiffeners shall be of non-corrosive materials encapsulated in fiberglass. FRP encapsulated wood or lumber will not be permitted. Bottom sections shall be furnished with an integral 3" wide anchoring flange. Invert and bench may be field installed utilizing concrete to the requirements of Division 3. Invert and bench may be factory installed utilizing non-corrosive materials encapsulated in fiberglass minimum 1/4" thick.

F. Marking and Identification: All manholes shall be marked in letters no less than 1" in height with the following information:

1) Manufacturers Identification
2) Manufacturers Serial Number
3) Manhole Length
4) ASTM Designation
5) Installation assist marks (vertical lines 90^0 apart at base of manhole).

1.5 MATERIALS

A. Resin: The resins used shall be unsaturated, supplier certified, commerical grade polyester resins. Mixing lots of resin from different manufacturers, or "odd-lotting" of resins shall not be permitted. Quality-assurance records on the resin shall be maintained. Non-pigmented Resin is required to allow for light or "sand" color of manhole surface in order to facilitate easy from grade interior inspection. UV Inhibitors shall be added directly to resins to prevent photodegradation. Exterior Painting or gel-coating shall not be permitted as stated by ASTM D-3753-99.

B. Reinforcing Materials: The reinforcing materials shall be commercial grade "E" type glass in the form of mat, continuous roving, chopped roving, roving fabric, or both, having a coupling agent that will provide a suitable bond between the glass reinforcement and the resin.

C. Surfacing Material: If reinforcing material is used on the surface exposed to the contained substance, it shall be a commercial grade chemical-resistant glass or organic surfacing mat having a coupling agent that will provide a suitable bond with the resin.

D. Fillers and Additives: Fillers, when used, shall be inert to the environment and manhole construction. additives, such as thixotropic agents, catalysts, promoters, etc., may be added as required by the specific manufacturing process to be used to meet the requirements of this standard. However, calcium carbonate mixed by the fabricator shall not be permitted. The resulting reinforced plastic material must meet the requirement of this specification.

E. Laminate: The laminate shall consist of multiple layers of glass matting and resin. The surface exposed to the sewer/chemical environment shall be resin rich and shall have no exposed fibers.

1.6 MANUFACTURE

A. Manhole cylinders, manway reducers, and connectors shall be produced from glass fiber-reinforced polyester resin. Manhole cylinders to 72” ID to be manufactured by “computer controlled “Drostholm” continuous band mandrel process”. Larger Diameters to be manufactured by computer regulated steel mandrel process utilizing structural rib design.

B. Interior Access: All manholes shall be designed so that a ladder or step system can be supported by the installed manhole. Manway openings to accommodate 24” or 32” standard ring and cover.

C. Manway Reducer: Manway reducers shall be concentric with respect to the larger portion of the manhole diameters through 92”.

D. Cover Ring and Support: The manhole shall provide an area from which a typical ring and cover plate can be supported without damage to the manhole.

E. Assembly Joints: Product components, i.e., cylinders, reducers, bottoms, and connectors, may be joined together to form a complete manhole.

1.7 REQUIREMENTS

A. Exterior Surface: The exterior surface shall be relatively smooth with no sharp projections. Hand-work finish is acceptable if enough resin is present to *eliminate* fiber show. The exterior surface shall be *free of blisters* larger than 0.5” in diameter, delamination and fiber show.

B. Interior Surface: The interior surfaces shall be resin rich with no exposed fibers. Interior surface shall be smooth for improved corrosion resistance and reduced sludge build-up. The surface shall be free of crazing, delamination, blisters larger than 0.5” in diameter, and wrinkles of 0.125” or greater in depth. Surface pits shall be permitted up to 6’ 2” if they are less than 0.75” in diameter and less than 0.0625” deep. Voids that cannot be broken with finger pressure and that are entirely below the resin surface shall be permitted up to 4’ 2” if they are less than 0.5” in diameter and less than 0.0625” thick.

C. Repairs: Any manhole repair is required to meet all requirements of this specification.

D. Manhole Lengths: Manhole lengths shall be in whole or 1/2-foot increments +/- 2”.

E. Load Rating: The complete manhole shall have a minimum dynamic load rating of 16,000 lbs. When tested in accordance with ASTM 3753, 8.4 (note 1). To establish this rating the complete manhole shall not leak , crack, or suffer other damage when load tested to 40,000 lbs. and shall not deflect vertically downward more than 0.25” at the point of load application when loaded to 24,000 lb.

F. Stiffness: The cylindrical portion of the manhole is to be tested in accordance with ASTM Method D 2412. The manhole cylinder shall have the *minimum* pipe-stiffness values shown in the table below, when tested in accordance with ASTM 3753, Section 8.5, (note 1).

Manhole Length (ft)	PSI
3 - 6	0.72
7 - 12	1.26
13 - 20	2.01
21 - 25	3.02
26 - 35	5.24

G. Soundness: In order to determine soundness, an air or water test is to be applied to the manhole test sample. While holding the pressure between 3-5 psi, the entire manhole must be inspected for leaks. Any leakage through the laminate is cause for failure of the test. Refer to ASTM 3753, Sec. 8.6.

H. Chemical Resistance: Per ASTM C 581; (see ASTM 3753, Section 8.7), Flexural strength, flexural modulus, and barcol hardness are plotted versus time on log-log coordinates. The line defined by these points is extrapolated to 100,000 hours. The minimum extrapolation retention allowed for any of these properties is 50%. Test samples used are actual pieces of manhole or samples manufactured in a manner consistent in every way with the manhole component construction.

I. Physical Properties:

Flexural Strength (cone):	Hoop: 15.4 x 103 psi
	Axial: 17.2 x 103 psi
Flexural Strength (pipe)	Hoop: 22.5 x 103 psi
	Axial: 14.3 x 103 psi
	Compressive Strength: 18.9 x 103 psi

1.8 TEST METHODS

A. All tests shall be performed as specified in ASTM 3753, Section 8, Titled “Test Methods”. See ASTM 3753, Section 8, Note 5, for Test method D-790 and test method D-695.

1.9 QUALITY ASSURANCE/QUALITY CONTROL

A. Examination: Each manhole component part shall be examined for dimensional requirements, hardness, and workmanship.

B. Composition Control: Controls on glass and resin content shall be maintained for all manufacturing processes and for each portion of manhole fabrication. Records shall be maintained of these control checks. Proper glass content may be shown by glass usage checks, by glass and resin application rate checks, in accordance with the material composition test in ASTM 8.8.1.

C. All required ASTM 3753 testing shall be completed and records of all testing shall be kept and copies of test results shall be presented to customer upon written request within a reasonable time period.

1.10 CERTIFICATION

A. When requested by the purchaser on his order, a certification shall be made the basis of acceptance. This shall consist of a copy of the manufacturer's test report or a statement by the supplier, accompanied by a copy of the test results, that the manhole has been sampled, tested, and inspected in accordance with the provisions of ASTM 3753 and this specification, and meets all requirements. An authorized agent of the supplier or manufacturer shall sign each certification so furnished.

1.11 HANDLING AND STORAGE

A. Do not drop or impact the fiberglass manhole. Lift manhole with two slings on spreader bar in horizontal position or by use of 4" x 4" timber inserted crosswise inside the manhole to the underside of the collar with a rope or chain attached to backhoe or other lifting device. Manhole may be rolled, however, insure that ground is smooth and free of rocks, debris, etc. Use of chains or cables in contact with manhole surface is prohibited.

1.12 INSTALLATION METHODS

A. General: The manhole installation should strictly follow the manufacturers recommended installation procedures.

1. To Install The Fiberglass Flowtite Manhole: *Flowtite* Fiberglass manholes must be installed according to Containment Solution's "Flowtite Fiberglass Manhole Installation Instructions". In addition to these instructions, local codes may apply and should be consulted as applicable in manhole installation. Correct Flowtite manhole installation requires proper concrete foundation, good backfill and proper handling to prevent manhole damage and insure long-term corrosion resistant service.

B. General Installation Outline: Containment Solution's complete Flowtite Manhole installation instructions must be consulted before actual installation is performed.

1. Prepare Excavation/Make Manhole Pipe Cut-Outs for stubout connections: Prepare excavation in a normal manner. Excavation at manhole location should be at least wide enough to accommodate the slab specified and to provide working room around manhole. Insure the depth of manhole is sufficient to allow at least one course of brick or one concrete ring for adjustment of ring and cover at top of final grade. Pipe cut-outs at the flowline are made in manhole prior to

setting manhole in place over pipe in trench. Quarter marks have been provided on barrel to facilitate alignment of cut-outs. Notes: 1. Manholes with factory installed FRP Bottom/Inverts and Connections will not require any cutouts to be made. These manholes will only require to be secured to concrete base and then piped up and backfilled. 2. Manholes for Large Diameter FRP Pipe may have factory installed matching FRP Stubouts or if a T-base style is used a coupling can be factory installed at the bottom of the manhole for T-base connection. In either, case not field cuts will be required on the manhole.

2. Pour Concrete Base: Concrete slab base should be a minimum of 18" thick. Concrete slab should extend a minimum of 18" beyond manhole outside wall. Note: concrete base may be poured-in-hole, or above ground forms can be made and the FRP manhole placed inside and then slab is poured. If the above ground process is used, contractor must install lifting eyes in corners of the slab. Do not pick up the FRP manhole by the FRP Cone if the slab is attached.

3. Set Manhole: To lift manhole, insert 4” x 4” timber crosswise inside the manhole to the underside of the collar with a rope or chain attached to backhoe or other lifting device. Lower manhole into wet concrete base to a minimum depth of 4”. Minimum 2” thick concrete bearing surface beneath bottom edge of the manhole is required. Plumb manhole using standard bubble level and by moving manhole with hands. Work concrete around manhole base and 6 inch minimum over incoming lines. Inverts and laterals are made following standard procedures*. Note: Do not pick up fiberglass manhole by cone if concrete slab is attached above ground. Use lifting lugs that are installed into concrete slab by contractor. Lift manhole with slab attached by the slab not the manhole.*

4. Backfill: Backfilling is done just as soon as the concrete base has hardened enough to provide sufficient support for manhole and fill. Native soil (or sand, in unstable areas), free of large stones, debris, or concrete chunks may be used for backfill. Backfill should be place evenly around manhole in 12” maximum lifts and should thoroughly tamped to 90% standard proctor density before the next layer is installed. Backfill material shall be subject to approval by the engineer.

5. Bring to Grade: Construct chimney on flat shoulder of manhole using precast concrete rings.

1.13 INSPECTION

A. The quality of all materials, the process of manufacture, and the finished sections shall be subject to inspection and approval by the Engineer, or other representative of the owner. Such inspections shall be made at the place of manufacture, or at site of delivery, and the sections shall be subject to rejection on account of failure to meet any of the specification requirements. Sections rejected after delivery to the job site shall be marked for identification and shall be removed from the job at once. All sections which have been damaged after delivery will be rejected, and if already installed shall be acceptable if repaired or removed and replaced at the contractor's expense.

B. At the time of inspection the material will be examined for compliance with the requirements of this specification and the approved drawings.

1.14 MEASUREMENT

This item will be measured will be measured by each type of individual structure completed. The depth will be measured from the flow line to the top of the rim. The size shall be nominal inside diameter. This item includes, but is not limited to the following:

A. Structural excavation

B. Loading, hauling, and disposing of all excess material

C. Furnishing all labor and materials including fiberglass, concrete, mortar, bricks, drop pipe and fittings, manhole rings and covers

D. Placing and compacting all backfill

E. Final Grading

1.15 PAYMENT

A. This item will be paid for at the contract unit price per bid per each structure for the various sizes, types, and various depths of structures complete in place and will be full compensation for all materials required, operations, labor, tools, equipment, and all other incidentals necessary to complete the work as shown on the drawings and specified herein.

SECTION B - REHABILITATED MANHOLES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. WORK INCLUDED

B. MANHOLE TYPES - DEFINITION

1.2 WORK INCLUDED

A. The work included under this Section consists of all labor, services, equipment, materials and testing required to complete the manhole rehabilitation consisting of, but not limited to, installation of new liner, new ring and cover and other accessories as shown on the Drawings.

1.3 MANHOLE TYPES - DEFINITION

A. There are two TYPES of manhole conditions considered in the work of this Section:
   1. Shallow = 3'-6” deep or LESS from existing surface to invert.
   2. Standard = 3'-6" deep or MORE from existing surface to invert.

B. Existing shallow manholes may have either a straight barrel section with a cone top or a straight barrel section with an 8-inch reinforced concrete slab integral ring and cover.

C. Standard manholes with depths greater than 3-feet will normally be constructed with a tapered cone top section.

PART 2 - PRODUCTS

2.1 SECTION INCLUDES

A. FIBERGLASS MANHOLE LINERS

B. POLYVINYL CHLORIDE PIPE INSERTS

2.2 FIBERGLASS MANHOLE LINERS

A. Glass-Fiber Reinforced Polyester Rehabilitation Manholes shall be a one-piece monolithic designed unit constructed of glass-fiber reinforcements, supplier-certified unsaturated commercial grade polyester resin, and chemically enhanced silica to improve corrosion resistance, strength and overall performance. *FRP Manhole Liner will have a 20-Year Corrosion and Structural Warranty and shall be manufactured in strict accordance with ASTM D-3753 "Standard Specification for Glass-Fiber Reinforced Polyester Manholes",* as manufactured by *Containment Solutions, Inc., "Flowtite" FRP manhole liners, Conroe, Texas, (800) 628-2657 or (888) 409-7731*, or Engineer pre-approved equal.

B. Materials:

1. **Resin**: The resins used shall be unsaturated, supplier certified commercial grade polyester resins. Mixing lots of resin from different manufacturers, or "odd-lotting" of resins shall not be permitted. Quality assurance records on the resin shall be maintained. Non-pigmented shall be required to allow for a light or "sand" color of manhole surface in order to facilitate easy from grade interior inspection of manhole liner. UV inhibitors shall be added directly to the resins to prevent photodegradation. Exterior surface "gel-coating" shall not be permitted.

2. Reinforcing Materials: The reinforcing materials shall be commercial grade "E" type glass in the form of mat, continuous roving, chop roving, roving fabric, or both, having a coupling agent that will provide a suitable bond between the glass reinforcement and the resin.

3. Laminate: The laminate shall consist of multiple layers of glass matting, chop glass and silane silica sand. The surface exposed to the sewer/chemical environment shall be resin rich and shall have no exposed fibers.

4. Surfacing Material: If reinforcing material is used on the surface exposed to the contained substance, it shall be a commercial grade chemical-resistant glass or organic surfacing mat having a coupling agent that will provide a suitable bond with the resin.

5. Interior Surfacing Material: The interior surfaces shall be resin rich with no exposed fibers. Interior surface shall be smooth for improved corrosion resistance and reduced sludge build-up. The surface shall be free of crazing, delamination, blisters larger than 0.5” in diameter, and wrinkles of 0.125” or greater in depth. Surface pits shall be permitted up to 6/ft2 if they are less than 0.75” in diameter and less than 0.0625” deep. Voids that cannot be broken with finger pressure and that are entirely below the resin surface shall be permitted up to 4/ft2 if they are less than 0.5” in diameter and less than 0.0625” thick.

6. Wall Construction Procedure: Fiberglass manhole liner barrels or pipe sections up to 72” diameter shall be manufactured by computer controlled “continuous” band mandrel process utilizing commercial grade polyester resin, chop and continuous glass reinforcement and silane treated silica sand for additional strength and corrosion resistance. Minimum wall thickness shall not be less than 0.400”.

7. The cone section, if produced separately, shall be joined to the barrel section at the factory with resin and glass-fiber reinforcement resulting in a monolithic unit. The manhole cone shall have a self-centering lip. The cone shall be joined to manhole barrel utilizing this lip and the resulting joint shall be fiberglass on the exterior only. The fiberglass cone self-centering lip with external wrap shall permit vertical height adjustment of the manhole should it ever become necessary. Cone attachment to manhole barrel section by means of a butt joint, shall not be permitted.

8. Exterior Surface: The exterior surface shall be relatively smooth with no sharp projections. Handwork finish is acceptable if enough resin is present to eliminate fiber show. The exterior surface shall be free of blisters larger than 0.5” in diameter, and shall be free of delamination and fiber show. Exterior surface shall be light or “sand” in color. Exterior painting or gel-coating of surface will hide laminate defects from inspectors and shall not be permitted.

9. Fillers and Additives: Fillers, when used, shall be inert to the sewer environment and manhole construction. Additives, such as thixotropic agents, catalysts, promoters, etc. may be added as required by the specific manufacturing process to be used to meet the requirements of this standard. The resulting reinforced-plastic material must meet the requirements of this specification.

C. Manufacture Process: Manhole liner cylinders, manway reducers, corbel

sections, connectors and neck section shall be produced from glass fiber-reinforced polyester resin using a combination of mat, chop, and silane treated silica sand.

D. Manway Reducer/Corbel Section: Manway reducers or corbel sections will be concentric or eccentric with respect to the larger cylinder portion of the manhole liner.

1. Cover and Ring Support: The manhole liner shall provide an area from which a typical ring and cover can be supported without damage to the manhole liner.

2. Manway Neck or Lip: Manhole liner neck section standard length shall be 3” – 4” tall. At the Engineer’s and/or Owners request, a 12” neck extension may be provided which is designed to protect the adjustment ring(s) used to bring the ring and cover to final grade and to help prevent infiltration through these adjustment rings.

E. Requirements:

1. The manhole liner shall be a circular cylinder, reduced at the top to a circular manway not smaller than 22-1/2” inside diameter. Manhole liners shall be produced in half-foot increments +/- 2”. Nominal inside diameters may be 30”, 36”, 42”, 48”, 54”, 66”, 72”. Other diameters as agreed upon between purchaser and the manufacturer shall also be covered by this specification. Minimum Wall Thickness shall not be less than 0.400”.

2. Repairs: Any manhole repair is required to meet all requirements of these specifications.

3. Manhole Lengths: Manhole liner lengths shall be in 6-inch increments +/- 2”.

4. Diameter Tolerance: Tolerance of inside diameter shall be +/- 1% percent of require manhole diameter.

5. Load Rating: The complete manhole shall have a minimum dynamic-load rating of 16,000 pounds per foot when tested in accordance with ASTM 3753 8.4, Note 1. To establish this rating, the complete manhole liner shall not leak, crack or suffer other damage when load tested to 40,000 pounds per foot and shall not deflect vertically downward more than 0.25 inches at the point of load application when loaded to 24,000 pounds.

6. Stiffness: The cylindrical portion of the manhole liner is to be tested

in accordance with ASTM Method D-2412. The manhole liner cylinder shall have the minimum pipe-stiffness values shown in the table below, when tested in accordance with ASTM D-3753, Section 8.5 (note 1).

Manhole Length in Feet	PSI
3 - 6	0.72
7 -12	1.26
13 -20	2.01
21 -25	3.02
26 -35	5.24

7. Soundness: In order to determine soundness, apply an air or water pressure test to the manhole liner test sample. While holding the pressure between 3 – 5 psi, the entire manhole must be inspected for leaks. Any leakage through the laminate is cause for failure of the test. Refer to ASTM D-3753, Sec. 8.6.

8. Chemical Resistance: Per ASTM C-581 (see ASTM D-3753, Section 8.7). Flexural strength, flexural modulus, and barcol hardness are plotted versus time on log-log coordinates. The line defined by these points is extrapolated to 100,000 hours. The minimum extrapolation retention allowed for any of these properties is 50%. Test samples used are actual pieces of manhole or samples manufactured in a manner consistent in every way with the manhole component construction.

F. Physical Properties:

Flexural Strength (Cone):		Hoop: 15.4 x 103 psi
	Axial:	*17.2 x 103 psi*
Flexural Strength (Pipe):		*Hoop: 22.5 x 103 psi*
	Axial:	*14.3 x 103 psi*
Compressive Strength:		*8.9 x 103 psi*

G. Test Methods: All tests shall be performed as specified in ASTM 3753, latest edition, Section 8, Titled “Test Methods”. See ASTM D-3753, Section 8, Note 5, for Test Method D-790 and Test Method D-695.

H. Quality Control: Each completed manhole liner shall be examined for dimensional requirements, hardness and workmanship. Controls on glass

and resin content shall be maintained for all manufacturing processes and for each portion of manhole fabrication. Records shall be maintained of

these control checks. Proper glass content may be shown by glass usage checks, by glass and resin application rate checks, in accordance with the material composition test in ASTM 8.8.1. All required ASTM 3753 testing shall be completed and records of all testing shall be kept and copies of test results shall be presented to customer upon formal written request within a reasonable time period.

I. Certification: When requested by the purchaser on his order, a certification shall be made the basis of his acceptance. This shall consist of a copy of the manufacturer's test report or a statement by the supplier, accompanied by a copy of the test results, that the manhole has been sampled, tested, and inspected in accordance with the provisions of ASTM D-3753 and this specification, and meets all requirements. An authorized agent of the supplier or manufacturer shall sign each certification so furnished.

J. Shipping and Handling: Do not drop or impact the fiberglass manhole liner. Lift Fiberglass Manhole Liner with two slings on spreader bar in horizontal position or in vertical position by use of a 4in x 4in x 30in timber inserted crosswise inside the manhole to the underside of the collar with a rope or chain attached to backhoe or other lifting device. Manhole liner may be rolled, however, insure that ground is smooth and free of rocks, debris, etc. Use of chains or cables in contact with manhole surface is prohibited.

K. Marking and Identification: Each manhole liner shall be marked on the inside and outside with min. 1" height letters, with the following information:

1. Manufacturer's name or trademark
2. ASTM Designation
3. Manufacturer's Serial Number
4. Manhole Liner Total length

2.2 POLYVINYL CHLORIDE PIPE INSERTS

A. Inserts shall be polyvinyl chloride (PVC) and conform to the requirements of ASTM Designation D 3034, Type PSM, SDR-35. Large diameter plastic gravity sewer pipe and fittings (18 to 27-inch) shall conform to the requirements of ASTM Designation F 679. Elastomeric gasket joints shall conform to ASTM Designation F 477

PART 3 - EXECUTION

3.1 SECTION INCLUDES

A. PREPARATION

B. ROAD SURFACE CUTTING

C. SAFETY AND TRAFFIC CONTROL

D. REMOVAL METHODS

E. LINER INSTALLATION METHODS

F. TESTS, INSPECTIONS

3.2 PREPARATION

A. Survey each manhole to be rehabilitated to determine specific liner dimensions needed and the liner TYPE, i.e., shallow or standard.

B. Survey each manhole location with regard to traffic conditions and prepare a traffic control plan for approval by the Owner and any other agency having jurisdiction.

C. Prepare the sewage by-pass plan, if required, for each manhole location and submit to the Owner and any other agency affected.

3.3 ROAD SURFACE CUTTING

A. The roadway pavement adjacent to the manhole shall be saw<ut all the way through in a square pattern with straight and true sides. The length of cut for each side shall be equal to the manhole outside diameter plus two (2) feet. The cuts shall be parallel and perpendicular to the roadway centerline. All of the pipes terminating in the manhole shall be plugged initially to prevent entry of debris during pavement and manhole top removal and cleared on completion of repair.

3.4 SAFETY AND TRAFFIC CONTROL

A. The traffic control plans shall be in place and in effect prior to commencing work.

3.5 REMOVAL METHODS

A. The roadway surface materials shall be removed by manual or mechanical operated pavement breakers.

B. The shallow type manhole as defined may have either a slab top or a cone shaped top. In either case, the top is to be removed carefully to preserve the lower straight section under the cone. Covers and rings are not to be recovered.

C. A standard manhole will normally have a cone shaped top section. Remove it carefully to preserve the lower straight sections. Covers and rings are not to be recovered.

D. Gravel or earth materials are to be carefully removed from the lower saw-cut pavement edge to 6-inches below the top of the first straight barrel section as shown on the drawings. Minimize road subbase disturbance to prevent undermining the existing pavement. Concrete will be used to re-establish subgrade elevations for repaving as shown on the drawings.

E. All materials removed shall be disposed of by the Contractor in appropriate and legal disposal areas at no expense to the Owner.

3.6 LINER INSTALLATION METHODS

A. Manhole liners shall be installed vertically and supported during the construction of the cement grout support on the outside of the lining

B. Manhole liner diameter shall be approximately six inches smaller than the inside diameter of the barrel section of the manhole.

C. Manhole liner depth shall be from invert to top elevation minus the thickness of the ring and cover. The top 12 inches of the manhole liner shall be a fiberglass neck that extends from the liner corbel or cone section to the bottom of the ring and cover. The neck is used to protect the concrete grade rings or brick and mortar adjustments from the sewer environment.

D. Pressure wash the interior of the manhole with an 800 to 1000 psi water blast to remove all loose materials.

E. Apply a 20 percent muratic acid solution and pressure wash again. Remove all material washed off walls from manhole.

F. Measure and cut manhole liner to exact length. Measure and cut all incoming and outgoing line openings.

G. Lower manhole liner into manhole and level.

H. Extend all incoming and outgoing lines inside the liner with PVC or other approved pipe.

I. Tie-in and seal bottom of liner with a quick setting non-shrink hydraulic grout.

J. Tie-in and seal all lines extending into the manhole liner with hydraulic grout.

K. Pour or pump a 3000 psi pump mix into the annular space between the liner and existing manhole

L. Use concrete grade rings or brick and mortar on top of the liner cone section to bring new ring and cover to finish grade.

M. Any exposed concrete shall be coated with a resin and fiberglass matting (Patch kit). Optional at Engineer and Owners discretion.

N. Existing channels and bench walls shall be repaired, if required, by re-shaping and/or repairing slope of shelves or benches. All pipe connections shall be sealed, if required, to prevent infiltration. The invert channels shall be smooth and accurately shaped to semicircular bottom conforming to the inside of the adjacent sewer section. Steep slopes outside the invert channels shall be avoided. Changes in size and grade shall be made gradually and evenly. Changes in the direction of the sewer or entering branch shall be a smooth curve with radius as long as practicable.

O. Manhole cover lettering shall be in accordance with local government agency.

3.7 TESTS, INSPECTIONS AND ACCEPTANCE OF MATERIAL AND WORKMANSHIP

A. Workmanship: It is imperative that all sewers and appurtenances be built practically watertight and that the Contractor adhere rigidly to the specifications for materials and workmanship. Upon completion, the manholes will be tested and gauged and if leakage is above the allowable limits specified, the rehabilitated manhole will be rejected.

B. Inspection:

1. On completion of each manhole, it shall be cleaned and inspected.

2. Each manhole shall be of the specified size and form, be watertight, neatly and substantially constructed, with the top set permanently to exact position and grade. All repairs shown necessary by the inspection shall be made; broken or cracked pipe replaced; all deposits removed and the manhole left true to line and grade, entirely clean, and ready for use.

PART 4 - MEASUREMENT AND PAYMENT

4.1 SECTION INCLUDES

A. MEASUREMENT

B. PAYMENT

4.2 MEASUREMENT

A. The quantity of Manhole Rehabilitation for which payment will be made shall be the actual number of units measured in place and accepted. The units measured shall be as listed in the Bid Schedule. If a payment hem for Manhole Rehabilitation is not specifically included in the Bid Schedule, the quantity for which payment will be made shall be the quantity required to complete the work.

4.3 PAYMENT

A. Payment for Manhole Rehabilitation shall be made at the prices stated in the Bid Schedule. If a payment item for Manhole Rehabilitation is not specifically included in the Bid Schedule, payment for the work specified in this Section shall be included in the several unit and lump sum prices for all applicable items of work.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Furnishing all labor, materials, equipment and incidentals required to acceptably install, complete and ready for operation, all valves and appurtenances as shown on the Drawings and specified herein.

B. All valves and appurtenances shall be of the size shown on the Drawings and as far as possible all equipment of the same type shall be from one manufacturer.

C. All of the types of valves and appurtenances shall be products of well established reputable firms who are fully experienced, reputable and qualified in the manufacture of the particular equipment to be furnished. The equipment shall be designed, constructed and installed in accordance with the best practices and methods, manufacturer's recommendations, and shall comply with these Specifications as applicable.

PART 2 - PRODUCTS

2.1 GENERAL VALVE REQUIREMENTS

A. All valves shall be manufacturer's standard, of the design which the manufacturer recommends for the service intended. Each valve shall bear the maker's name or trademark or reference symbol to indicate the service condition for which it is guaranteed. All valves for use with copper tubing shall have solder type connections.

B. All screw-end valves shall be threaded according to the American Standard for Pipe Threads No. B2.1. Flange-end valves shall have connecting-end flanges in accordance with the B 16.1 Class, 125 Series of the American Standards Association for type valves covered in the Standard, and in accordance with the Manufacturer's Standardization Society Standard Practice for bronze valves corresponding to the maximum pressure and service for which the valve is to be used. Mechanical joints and slip-on joints shall be as described in the above Specification for cast iron or ductile iron pipe joints.

2.2 CHECK VALVES

A. All check valves, unless otherwise indicated, shall be swing check, iron body. bronze mounted, and shall be as manufactured by DeZurik, Mueller, or approved equal. The check valves shall be designed for a minimum water working pressure of 150 psi, shall be factory tested to double that pressure before shipment, and shall be underwriter approved.

B. The end of check valves shall be of the type conforming with the pipe line where installed. Discs shall be fully revolving and designed to swing freely without jamming in the open position. Check valves 14 inches and larger in size shall be furnished with bypasses.

C. Check valve bodies shall provide excess area through the valves to assure full delivery of line capacity. Unless otherwise required, all check valves shall be furnished with outside spring and lever.

2.3 PLUG VALVES

A. All valves shall be eccentric plug valves unless otherwise specified. Plug valves shall be similar and equal to those as manufactured by DeZurik.

B. Valves shall be of the non-lubricated eccentric type with resilient faced plugs and shall be furnished with end connections as shown on the plans. Flanged valves shall be faced and drilled to the ANSI 125/150 pound standard. Mechanical joint ends shall be to the AWWA Standard Clll-72. Bell ends shall be to the AWWA Standard ClOO-55 Class B. Screwed ends shall be to the NPT standard.

C. Port areas for valves 20 inches and smaller shall be at least 80 percent of full pipe area. Port areas of valves 24 inches through 60 inches shall be 100 percent of full pipe area. Port areas of 66 inches and above shall be 80 percent of full pipe area.

D. Valve bodies shall be of ASTM Al26, Class B Semi-steel. All exposed nuts, bolts, springs, washers, etc., shall be zinc plated. Resilient plug facings shall be of bycar or neoprene single piece plug or alclad coated ductile iron vane with elastomeric sealing surface of bona compound and suitable for the intended service.

E. Valve bearings shall be of alloy metal (stainless steel or bronze with stainless steel sleeves) or shall be low friction, corrosion resistant, factory applied coating. Bearings shall be permanently lubricated and positively eliminate shaft seizure.

F. Seats in valves three inches (3") and larger shall have a corrosion and abrasion resistant surface of high nickel alloy on all surfaces contacting the plug face or fusion bonded nylon eleven.

G. Valve shaft seals shall be adjustable or replaceable.

H. Valve pressure ratings shall be as follows and shall be established by hydrostatic tests as specified by ANSI Standard Bl6.11967. Pressure ratings shall be 175 psi for valves through 12 inches, 150 psi for valves in sizes 14 inches through 36 inches, and 125 psi for valves in sizes 42 inches through 54 inches. Valves shall be capable of providing driptight shutoff to the full valve rating with the pressure in either direction.

I. Manual valves shall have lever or gear actuators and tee wrenches, extension stems, floorstands, etc., as indicated on the Drawings. All valves six inches (6") and larger shall be equipped with gear actuators. All gearing shall be enclosed in a semisteel housing and be suitable for running in a lubricant with seals provided on all shafts to prevent entry of dirt and water into the actuator. The actuator shaft and the quadrant shall be supported on permanently lubricated bronze bearings. Actuators shall clearly indicate valve position and an adjustable stop shall be provided to set closing torque. All exposed nuts, bolts, and washers shall be zinc plated. Valve packing adjustment shall be accessible without disassembly of the actuator.

J. Valves and gear actuators for submerged service shall have seals on all shafts and gaskets on the valve and actuator covers to prevent entry of water. Actuator mounting brackets for buried or submerged service shall be totally enclosed and shall have gasket seals. All exposed nuts, bolts, springs, and washers shall be stainless steel.

2.4 BALL VALVES

A. Ball valves for PVC pipe shall be of PVC Type 1 with union, socket, threaded, or flanged ends as required. Ball valves shall be full port, full flow, all plastic construction, 150 psi rated with teflon seat seals and T-handles. PVC ball valves shall be as manufactured buy Celanese Piping Systems, Inc., Wallace and Tiernan, Inc., or approved equal.

B. All valves shall be mounted in such a position that valve position indicators are plainly visible when operator is standing on the floor.

2.5 VALVE BOXES

All valve boxes shall be of cast iron and of the same make as the valves with which they are used. The thickness of the metal of the box at any point shall not be less than three-sixteenths inch (3/16"). The top section shall be adjustable for elevation. All valve boxes shall be furnished with cast iron covers. Valve boxes for all lines shall be marked for the purpose intended ("Water", "Sewage", "Reclaimed Water", etc.) on the cover.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All valves and appurtenances shall be installed in the locations shown, true to alignment and rigidly supported. Any damage to the above items shall be repaired to the satisfaction of the Engineer before they are installed.

B. After installation, all valves and appurtenances shall be tested at least 2 hours at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If any joint proves to be defective, it shall be repaired to the satisfaction of the Engineer and Owner.

C. Install all floor boxes, brackets, extension rods, guides, the various types of operators and appurtenances as shown on the Drawings that are in masonry floors or walls, and install concrete inserts for hangers and supports as soon as forms are erected and before concrete is poured. Before setting these items, the Contractor shall check all plans and figures which have a direct bearing on their location and he shall be responsible for the proper location of these valves and appurtenances during the construction of the structures.

D. Pipe for use with flexible couplings shall have plain ends as specified in the respective pipe sections in Division 15.

E. Flanged joints shall be made with high strength, low alloy Corten bolts, nuts and washers. Mechanical joints shall be made with mild corrosion resistant alloy steel bolts and nuts. All exposed bolts shall he painted the same color as the pipe. All buried bolts and nuts shall be heavily coated with two (2) coats of bituminous paint, Inertol No. 66 Special Heavy or approved equal.

F. Prior to assembly of split couplings, the grooves as well as other parts shall be thoroughly cleaned. The ends of the pipes and outside of the gaskets shall be moderately coated with petroleum jelly, cup grease, soft soap or graphite paste, and the gasket shall be slipped over one pipe end. After the other pipe has been brought to the correct position, the gasket shall be centered properly over the pipe ends with the lips against the pipes. The housing sections then shall be placed. After the bolts have been inserted, the nuts shall be tightened until the housing sections are firmly in contact, metal-to-metal, without excessive bolt tension.

G. Prior to the installation of sleeve-type couplings, the pipe ends shall be cleaned thoroughly for a distance of 8 inches. Soapy water may be used as a gasket lubricant. A follower and gasket, in that order, shall be slipped over each pipe to a distance of about 6 inches from the end, and the middle ring shall be placed on the already laid pipe end until it is properly centered over the joint. The other pipe end shall be inserted into the middle ring and brought to proper position in relation to the pipe already laid. The gaskets and followers shall then be pressed evenly and firmly into the middle ring flares. After the bolts have been inserted and all nuts have been made up fingertight, diametrically opposite nuts shall be progressively and uniformly tightened all around the joint, by use of a torque wrench of the appropriate size and torque for the bolts.

H. Pressure gauges shall not be installed until after the substantial completion date unless otherwise requested by the Owner.

I. Air Valve Locations: After the mains have been installed the Contractor shall install the air release valves. These connections to the main shall be at high points shown in the Construction Drawings and verified by the Contractor and at other locations as determined by the Engineer. Should re-excavation of the main be necessary to install the air release valve connection, all costs for this work and subsequent backfill/restoration work shall be included in the appropriate lump sum price bid for air release valves.

J. Valve boxes with concrete bases shall be installed as shown on the Drawings. Mechanical joints shall be made in the standard manner. Valve stems shall be vertical in all cases. Place cast iron box over each stem with base bearing on compacted fill and top flush with final grade. Boxes shall have sufficient bracing to maintain alignment during backfilling. Knobs on cover shall be parallel to pipe. Remove any sand or undesirable fill from valve box.

3.2 SHOP PAINTING

Ferrous surfaces of valves and appurtenances shall receive a coating of rust-inhibitive primer as specified in Section 09865. All pipe connection openings shall be capped to prevent the entry of foreign matter prior to installation.

3.3 FIELD PAINTING

All metal valves and appurtenances specified herein and exposed to view will be painted as part of the work in Section 09900.

3.4 INSPECTION AND TESTING

Completed pipe shall be subjected to hydrostatic pressure test for 4 hours at full working pressure. All leaks shall be repaired and lines retested as approved by the Engineer. Prior to testing, the gravity pipelines shall be supported in an approved manner to prevent movement during tests.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

Furnish all labor, materials, equipment, including the following, but not limited to fence framework, fabric, and accessories; excavation for post bases; concrete foundation for posts and center drop for gates; and manual gates and related hardware.

b) REFERENCES

i) ANSI/ASTM A123 - Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.

ii) ANSI/ASTM F567 - Installation of Chain-Link Fence.

iii) ASTM A116 - Zinc-Coated (Galvanized) Steel Woven Wire Fence Fabric.

iv) ASTM A120 - Pipe, Steel, Black and Hot-Dipped Zinc Coated (Galvanized) Welded and Seamless, for Ordinary Uses.

v) ASTM A121 - Zinc-Coated (Galvanized) Steel Barbed Wire.

vi) ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

vii) ASTM C94 - Ready-mixed Concrete.

viii) Chain Link Fence Manufacturers Institute (CLFMI) - Product Manual.

ix) FS RR-F-191 - Fencing, Wire and Post Metal (and Gates, Chain Link Fence Fabric, and Accessories).

c) SUBMITTALS

i) Shall be in accordance with Special Provisions Section.

d) PROJECT RECORD DOCUMENTS

i) Submit under provisions of Section 01720.

ii) Accurately record actual locations of property perimeter posts relative to property lines and easements.

e) QUALITY ASSURANCE

A. Perform Work in accordance with ANSI/ASTM F567.

B. Maintain one copy of each document on site.

C. All fence, gates, and accessories shall be the product of a single manufacturer.

1.6 QUALIFICATIONS

Manufacturer and Installation Company specializing in the products and execution specified in this Section.

1.7 FIELD MEASUREMENTS

Verify that field measurements are as indicated on shop drawings and instructed by the manufacturer.

PART 2) PRODUCTS

a) MANUFACTURERS

i) Page Fence Division of American Chain and Cable.

ii) Cyclone Fence Division of U.S. Steel.

iii) Approved Equal.

b) MATERIALS

i) Framing (Steel): Schedule 40, ASTM A569; hot rolled steel strip, cold formed to pipe configuration, longitudinally welded construction, minimum yield strength of 50 ksi (345 MPa). SS-40 is not acceptable.

ii) Fabric Wire (9 gauge Steel): ASTM A392 Class II zinc coated wire fabric.

iii) Barbed Wire: ASTM A121 galvanized steel; 12 gage thick wire, 3 strands, 4 points at 5 inch o.c.

iv) Concrete: ASTM C94 and Section 03300; Normal Portland Cement, 2,500 psi strength at 28 days, 3 inch slump, 1 inch nominal sized coarse aggregate.

c) COMPONENTS

i) Line Posts: 2.0 inch diameter.

ii) Corner and Terminal Posts: 2.5 inch.

iii) Gate Posts: Pipe sizes and weights required for various gate leaf widths are as follows:

Gate Leaf Width	Height	Spacing	Pipe O.D.	Weight per Foot
0' - 6'	8' 0"	10' 0"	3"	5.79 lbs.
Over 6' to 13'	8' 0"	10' 0"	4"	9.1 lbs.
Over 13' to 18'	8' 0"	10' 0"	6-5/8"	18.97 lbs.
Over 18'	8' 0"	10' 0"	8-5/8"	24.7 lbs.

iv) Top and Brace Rail: 1.63 inch diameter, plain end, sleeve coupled.

v) Gate Frame: 1.63 inch diameter for welded fabrication.

vi) Fabric: 2 inch diamond mesh interwoven wire, 9 gauge thick, 1.8 oz zinc coated top selvage twisted tight, bottom selvage knuckle end closed.

vii) Tension Wire: 7 gage thick steel, single strand.

viii) Tension Band (Stretcher Bar): ¼ inch X 3/4 inch. steel.

I. Tie Wire: 9 gauge, aluminum alloy steel wire.

J. V-track: 2 inch x 2 inch x ¼ inch hot dip galvanized angle iron, inverted, set in 10 inch x 12 inch poured concrete channel across gate opening reinforced with rebar.

K. V-wheels: hot dip galvanized with bearings and grease fittings.

L. Upper retaining rollers; 6 inch hard rubber.

d) ACCESSORIES

i) Post Tops: Gate End, Corner, and Line Post Tops shall be malleable iron or casting of SG70A alloy, sized to post diameter, set screw retainer, or approved equal.

ii) Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.

iii) Extension Arms: Cast steel galvanized, to accommodate 3 strands of barbed wire, single arm, sloped to 45 degrees.

iv) Gate Hardware: Center gate stop and drop rod, three 180 degree gate hinges per leaf and hardware for padlock.

v) Privacy Slats: The fence shall have privacy slats interwoven into the wire mesh

e) FINISHES

i) Components and Fabric: Galvanized to ANSI/ASTM A123; 1.8 oz/sq ft coating.

ii) Hardware: Galvanized to ASTM A153, 2.0 oz/sq ft coating.

iii) Accessories: Same finish as framing.

PART 3) EXECUTION

a) INSTALLATION

A. Do not commence installation before final grading is complete, unless authorized by Engineer.

B. Install framework, fabric, accessories and gates in accordance with ANSI/ASTM F567, manufacturer's instructions, the Drawings, and these Specifications.

C. Set posts plumb, in concrete footings with top of footing 2 inches above finish grade. Slope top of concrete for water runoff.

D. Line Post Footing Depth Below Finish Grade: 3 feet.

E. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: 3.5 feet.

F. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail, one bay from end and gate posts.

G. Provide top rail through line post tops and splice with 6 inch long rail sleeves.

H. Install center and bottom brace rail on corner gate leaves.

I. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.

J. Position bottom of fabric 3 inches above finished grade.

K. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.

L. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.

M. Install bottom tension wire stretched taut between terminal posts.

N. Install support arms sloped outward and attach barbed wire; tension and secure.

O. Do not swing gate from building wall; provide gate posts.

P. Install gate with fabric and barbed wire overhang to match fence. Install three hinges per leaf, latch, catches, and drop bolt.

Q. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.

3.2 ERECTION TOLERANCES

i) Maximum Variation From Plumb: ¼ inch.

ii) Maximum Offset From True Position: 1 inch.

iii) Components shall not infringe adjacent property lines.

3.3 RESTORATION

Replace all features disturbed by installation

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Furnishing all material, equipment, transportation, tools and labor, unless otherwise specified, to establish grass and all items called for or that can be reasonably inferred from the drawings, including sodding, mulching, grading, fertilization, watering, replacements, and maintaining the area for a complete job.

B. Establishing and maintaining a satisfactory growth of grass for a period of 90 days from the date of completion and acceptance by the Owner.

1.2 DEFINITIONS

Satisfactory Growth: Even plant growth in healthy condition without bare spots larger than one square foot. Bare spots larger than one square foot shall be reseeded, re-sodded, or re-sprigged and maintained until satisfactory growth has been demonstrated.

1.3 PAYMENT

Contractor shall not request payment for ground cover until 30 days after the grass shows satisfactory growth as defined in paragraph 1.2 of this section.

1.4 REFERENCES

A. FDOT Spec. - Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

1.5 SUBMITTALS

Shall be submitted in accordance with Special Provisions Section.

1.6 EXCLUSIONS

A. There are no exclusions.

PART 2 - PRODUCTS

A. SOD

Replace in like kind.

B. MULCH

FDOT Spec. Section 981-3, "Mulch".

C. FERTILIZER

FDOT Spec. Section 982-1, "Commercial Fertilizers".

D. WATER

FDOT Spec. Section 983. "Water for Grassing".

PART 3 - EXECUTION

3.1 GRASSING

A. Grassing will be required where original ground cover has been removed for construction.

B. Preparation of Area to be Grassed: Bring all planting areas to finished grades, filling as needed or removing weeds, surplus dirt and rock debris over 1 inch in diameter, and floating to a smooth uniform grade. Slope all areas to drain. Establish flow lines to match existing or as shown on the plans. Finish grass areas 1" below top of adjoining walkways.

C. Application of Fertilizer: Spread the fertilizer uniformly over the area to be grassed at the rate of 800 to 1,000 pounds per acre. Spread fertilizer by hand on steep slopes or other areas where machine spreading may not be practicable. Mix the fertilizer with the soil to a depth of approximately 4 inches.

3.2 SODDING

A. Incorporate sodding into the project at the earliest practical time in the life of the contract at all disturbed areas within rights-of-way and on private properties. Do not use sod which has been cut for more than 72 hours. Stack any sod which is not planted within 24 hours after cutting in an approved manner and maintain properly moistened.

B. Place the sod on a prepared surface, with edges in close contact, firmly and smoothly imbedded by length, tamping and rolling with appropriate tools. Replace any pieces of sod which, after placing, show an appearance of extreme dryness. Edge the sod in a neat, clean manner against all paved and shrub areas.

C. Where sodding is used in drainage ditches, the setting of the pieces shall be staggered to avoid a continuous seam along the line of flow. Along the edges of staggered areas, the offset of individual strips shall not exceed 6 inches. In order to prevent erosion caused by vertical edges at the outer limits, tamp the outer pieces of sod so as to produce a feather edge effect.

D. On areas where the sod may slide due to height and slope, peg the sod with pegs driven through the sod blocks into firm earth.

E. After the sod has been installed, spread a light layer of sand along the edges of each piece of sod to give the finished product a smooth finish.

3.3 WATERING

A. Maintain a balanced watering program until the acceptance of work.

B. Apply water in sufficient quantities and as often as seasonal conditions require to keep the grassed areas moist at all times to a depth of 6 inches below the root system.

3.4 FERTILIZATION

Thirty days after the application of seed, broadcast fertilizer at a rate of 40 pounds per 1,000 square feet. Notify the Engineer, in writing, within 7 days prior to the date of application.

3.5 MAINTENANCE

A. Maintain all grassed areas for a period of 90 days from the date of completion and acceptance by the Owner as a guarantee against all defects and faults of material and workmanship.

B. Maintain grass areas by watering, fertilizing, and mowing to establish an even and uniform grass surface of 2-1/2 inches, as specified herein.

C. In the event that the grass exhibits iron chlorosis symptoms during the establishment period apply Fe 138 Geigy or equivalent at manufacturer's recommended rates.

PART 4 - QUALITY ASSURANCE

4.1 GUARANTEE

A. Guarantee all grassed areas to be alive and in satisfactory growth at the end of the maintenance period (90 days).

B. Replace any grass that is dead or not in satisfactory growth, as determined by the Owner. Guarantee new grass for an additional 90 days.

C. Replace grass with the same variety as initially specified.

4.2 INSPECTION

Request review from the Owner and Engineer at least 48 hours in advance of the time inspection is required.

END OF SECTION

PART 1) - GENERAL

a) SECTION INCLUDES

i) Formwork for cast-in place concrete, with shoring, bracing and anchorage.

ii) Openings for other work.

iii) Form accessories.

iv) Form stripping.

b) REFERENCES

ACI 347: Recommended Practice For Concrete Formwork
APA: Form V345 Plywood for Concrete Forming
NFPA: National Design Specifications for Wood Construction
APA: Grading Rules

1.3 SUBMITTALS

Shall be in accordance with Special Provisions Section.

1.4 DESIGN REQUIREMENTS

Design, engineer and construct formwork, shoring and bracing to conform to design and code requirements; resultant concrete to conform to required shape, line and dimension.

1.5 QUALITY ASSURANCE

Perform Work in accordance with ACI 347.

1.6 QUALIFICATIONS

General Design: The licensed Contractor shall be responsible for the design of all form work, safety in construction, use, and removal.

1.7 REGULATORY REQUIREMENTS

Conform to all applicable codes for design, fabrication, erection and removal of formwork.

1.8 FIELD SAMPLES

Coordinate with requirements stated in Section 03100 and 03300.

1.9 COORDINATION

i) Coordinate work in accordance with Special Provisions Section.

ii) Coordinate this Section with other Sections of work which require attachment of components to formwork.

PART 2) PRODUCTS

a) WOOD FORM MATERIALS

A. Conform with ACI 347 - Chapter 4 - "Materials for Formwork" and as herein specified.

B. APA - Form V345 Plywood for concrete forming.

b) PREFABRICATED FORMS

A. Preformed Steel Forms: Minimum 16 gage matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.

B. Pan Type: Steel of size and profile required.

c) FORMWORK ACCESSORIES

i) Form Release Agent: Colorless mineral oil which will not stain concrete, or absorb moisture or impair natural bonding or color characteristics of coating intended for use on concrete

ii) Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

PART 3) EXECUTION

a) EXAMINATION

Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

b) EARTH FORMS

Earth forms are not permitted.

c) ERECTION - FORMWORK

i) Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.

ii) Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to over stressing by construction loads.

iii) Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

iv) Align joints and make watertight. Keep form joints to a minimum.

v) Obtain approval before framing openings in structural members which are not indicated on Drawings.

d) APPLICATION - FORM RELEASE AGENT

i) Apply form release agent on formwork in accordance with manufacturer's recommendations.

ii) Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

iii) Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are effected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

e) INSERTS, EMBEDDED PARTS, AND OPENINGS

i) No concrete will be poured until all embedded items such as pipe wall fittings, metal frames, and inserts are in place within the form work. No boxouts will be allowed. It is up to the contractor to see that all embedded items are ordered and delivered well in advance of the need.

ii) Locate accurately and set in place items which will be cast directly into concrete.

iii) Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.

iv) Install accessories in accordance with manufacturer's instructions, straight, level, and plumb. Ensure items are not disturbed during concrete placement.

v) Install waterstops continuous without displacing reinforcement.

f) FORM CLEANING

i) Clean forms as erection proceeds, to remove foreign matter within forms.

ii) Clean formed cavities of debris prior to placing concrete.

iii) Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

g) FORMWORK TOLERANCES

Construct formwork to maintain tolerances required by ACI 301.

h) FIELD QUALITY CONTROL

Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.

i) FORM REMOVAL

i) Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

ii) Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

iii) Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Reinforcing steel bars, wire fabric and accessories for cast-in-place concrete.

b) REFERENCES

i) ACI 301 - Structural Concrete for Buildings.

ii) ANSI/ASTM A82 - Cold Drawn Steel Wire for Concrete Reinforcement.

iii) ANSI/ASTM A184 - Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.

iv) ANSI/AWS D1.4 - Structural Welding Code for Reinforcing Steel.

v) ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement -Grade 60

F. AWS D12.1 - Welding Reinforcement Steel, Metal Inserts and Connections in Reinforced Concrete Construction.

G. CRSI - Concrete Reinforcing Steel Institute - Manual of Practice.

H. CRSI 63 - Recommended Practice For Placing Reinforcing Bars.

c) SUBMITTALS

i) Shall be in accordance with Special Provisions Section.

d) QUALITY ASSURANCE

i) Perform Work in accordance with ACI 301.

e) QUALIFICATIONS

i) Design reinforcement under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of Florida.

f) COORDINATION

i) Coordinate work in accordance with Special Provisions Section.

PART 2) PRODUCTS

a) REINFORCEMENT

i) Reinforcing Steel: ASTM A615, Grade 60 deformed billet steel bars, unfinished.

B. Welded Wire Fabric shall conform to ASTM Designation A-185.

b) ACCESSORY MATERIALS

i) Tie Wire: Minimum 16 gage annealed type

ii) Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions

c) FABRICATION

i) Fabricate concrete reinforcing in accordance with CRSI Manual of Practice

PART 3) EXECUTION

a) PLACEMENT

i) Place, support and secure reinforcement against displacement. Do not deviate from required position.

ii) Do not displace or damage vapor barrier.

iii) Accommodate placement of formed openings.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Driveways on grade.

ii) Control, expansion and contraction joint devices associated with concrete work.

b) REFERENCES

i) ACI 301 - Structural Concrete for Buildings.

ii) ACI 302 - Guide for Concrete Floor and Slab Construction.

iii) ASTM C33 - Concrete Aggregates.

iv) ASTM C94 - Ready-Mixed Concrete.

v) ASTM C150 - Portland Cement.

vi) ASTM C260 - Air Entraining Admixtures for Concrete.

vii) ASTM C330 - Light Weight Aggregates For Structural Concrete.

viii) ASTM C494 - Chemicals Admixtures for Concrete.

c) SUBMITTALS

Shall be in accordance with Special Provisions Section.

d) PROJECT RECORD DOCUMENTS

i) Submit under provisions of Section 01720 - Project Record Documents.

ii) Accurately record actual locations of embedded utilities and components which are concealed from view. Maintain on a daily basis.

e) QUALITY ASSURANCE

Perform Work in accordance with ACI 301.

f) COORDINATION

i) Coordinate work in accordance with Special Provisions Section.

ii) Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories.

PART 2) PRODUCTS

a) CONCRETE MATERIALS

Cement:

Type IA, where sulfate concentrations in groundwater are moderate

Type IIA, where sulfate concentrations in groundwater above normal readily available

Type IIIA, where high early strength is desired

b) ADMIXTURES

Air Entrainment: ASTM C260.

c) ACCESSORIES

Bonding Agent: Polyvinyl Acetate.

d) JOINT DEVICES AND FILLER MATERIALS

i) Joint Filler ASTM D994; Asphalt impregnated fiberboard or felt, ¼ inch thick; tongue and groove profile.

2.5 EXPANSION JOINING MATERIALS: Preformed bituminous expansion joint material shall conform to ASTM Designation D 1751 (for bituminous type), or D 1762 (for non-bituminous type).

2.6 CONCRETE MIX

A. Mix concrete in accordance with ACI 304.

B. Deliver concrete in accordance with ASTM C94.

C. Provide concrete to the following criteria:

Unit	Measurement
Compressive Strength (7 day)	2,000 psi
Compressive Strength (28 day)	3,000 psi
Coarse Aggregate	[*] percent by volume
Fine Aggregate	[*] percent by volume
Water/Cement Ratio (maximum)	0.45 by weight (mass)
Aggregate Size (maximum)	3/4 inch
Aggregate Size (minimum)	[*] inch
Air Content by Volume	6 percent ± of all concrete
Admixture	[*] type
Admixture	[*] type
Slump - Plus or minus 1 inch	4 inches
Fly Ash	Not Permitted

* Contractor to submit concrete mix - design based on 3,000 psi and concrete (28 day) for Engineer's approval.

D. Add air entraining agent to normal weight concrete mix for work exposed to exterior, cast-in-place concrete.

PART 3) EXECUTION

a) EXAMINATION

i) Verify requirements for concrete cover over reinforcement.

ii) Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

b) PREPARATION

i) Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.

ii) In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

PLACING CONCRETE

i) Place concrete in accordance with ACI 301 and ACI 318.

ii) Notify Engineer minimum 24 hours prior to commencement of operations.

iii) Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.

iv) Install joint devices in accordance with manufacturer's instructions.

v) Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

vi) Place concrete continuously between predetermined expansion, control, and construction joints.

c) CONCRETE FINISHING

A. Exposed concrete surfaces shall be true and even, free from open or rough areas, depressions or projections. Concrete in all driveways shall be brought to the required elevation, struck off with a straight edge and floated. Mortar finishing will not be permitted except as provided below:

B. Types of Finish: The various types of finish shall be as follows:

1. "Spade" finish shall be obtained by forcing a flat spade or similar device down adjacent to the form and then pulling the top away from the form to bring mortar to the surface, and after forms are removed, all irregularities in the concrete surfaces shall be corrected satisfactorily.

2. "Rubbed" finish shall be made upon a previously "spaded" surface by rubbing the concrete after it has hardened with a carborundum stone to a uniform surface as required. Plenty of water must be used. Brush finishing or painting with grout or neat cement will not be permitted unless such finishing or other special methods are specifically required under the Section covering the particular structure involved.

3. "Monolithic Floor Finish" shall be obtained without out the addition of a separate cement mortar topping coat, by first screening and removing all excess laitance and giving the concrete a preliminary wood float finish, which shall be true and even and free from depressions. Surface shall then be worked with a steel trowel to a dense, smooth finish, continuing this operation until no large aggregate is visible in the top surface.

4. "Bonded Floor Finish" shall be obtained by roughening the support slab with rakes as it sets and later applying the surface finish. Details of the surface finish shall be as specified under the particular structure involved.

5. "Float Finish" shall be obtained without the addition of a separate cement mortar topping coat by first screening and removing all excess laitance and then working the surface with a wood float until the desired texture is reached.

6. "Broomed Finish". This finish shall be obtained by drawing a stiff bristled broom lightly across the concrete surface which has been "float finished" as in (5) above. Only sufficient pressure should be used to produce a slightly scratched non-skid surface.

C. Applications: The surface finishes described above shall be applied to the locations as indicated below.

1. "Spade Finish" - all surfaces not exposed to general view.

2. "Rubbed Finish" - all exposed surfaces of structures and their supporting structures, including parapets, pilasters, copings, caps, columns, outside and bottom of exterior girders and beams, outside faces of slabs, outer and upper surfaces of arched members if such surfaces require forms, outer and upper surfaces of spandrel walls, outer surfaces of all walls down to an elevation of six (6) inches below the proposed fill slope or berm, the inner vertical surfaces of hydraulic structures to the extent indicated in the Section covering such structures.

3. All surface finishes described above shall he applied as shown on the Drawings or described in the Specifications.

d) CURING AND PROTECTION

i) Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

ii) Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

e) FIELD QUALITY CONTROL

i) Provide free access to Work and cooperate with appointed firm.

ii) Submit proposed mix design of each class of concrete to testing firm for review prior to commencement of Work.

iii) Tests of cement and aggregates may be performed to ensure conformance with specified requirements.

iv) Three concrete test cylinders will be taken for every 100 or less cu yds of each class of concrete placed in any one day or for each 5,000 sq. ft. of surface area placed.

v) One additional test cylinder will be taken during cold weather concreting, cured on job site under same conditions as concrete it represents.

vi) One slump test will be taken for each set of test cylinders taken.

f) PATCHING

i) Allow Engineer to inspect concrete surfaces immediately upon removal of forms.

ii) Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Engineer upon discovery.

iii) Patch imperfections in accordance with ACI 301.

g) DEFECTIVE CONCRETE

i) Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

ii) Repair or replacement of defective concrete will be determined by the Engineer.

h) SCHEDULE - CONCRETE TYPES AND FINISHES

Driveways: 3,000 psi 28 day concrete, float finish surface.

END OF SECTION

PART 1 - SECTION INCLUDES

1.1 GENERAL

These specifications pertain to the manufacture, transportation, and erection of all pretensioned, prestressed concrete products as shown on the plans. The physical characteristics of the prestressed concrete products covered by this specification and shown on the plans are as detailed in the latest catalog of Southern Prestressed Concrete. Products of at least equal quality, strength, appearance, design, shape, dimensions, and otherwise meeting this specification in all respects, may be used, subject to the approval of the Engineer.

1.2 REFERENCES

The latest edition of the following specifications, standards and codes shall govern with modifications as specified herein:

A. American Concrete Institute

1. ACI 318 - Building Code Requirement for Reinforced Concrete
2. ACI 301 - Specifications for Structural Concrete for Buildings

B. American Welding Society

1. AWS D1.0 - Code for Welding in Building Construction
2. AWS D12.1 - Recommended Practices for Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction

C. Prestressed Concrete Institute

1. MNL - 116 - Manual for Quality Control for Plants and Production of Precast, Prestressed Concrete Products.

1.3 SUBMITTAL

Shall be in accordance with Special Provisions Section.

1.4 EXPERIENCE CLAUSE

The manufacturing company shall be a specialist in the design and construction of precast pre-tensioned prestressed composite roof beams and slabs. Such company shall have on its staff full-time Professional Engineer(s) experienced in design and field construction of prestressed composite beams and slabs and who will be in responsible engineering charge of the work to be done. All design calculations and construction and shop drawings shall carry the seal of such Registered Professional Engineer, registered in the State of Florida.

1.5 QUALITY CONTROL

A. Testing procedures shall be in general compliance with PCI MNL-116 Manual for Quality Control, and as defined herein.

1. Tensioning of tendons.

   In all methods of tensioning, the stress induced in the tendons shall be determined by measurement of strand elongation and, independently, by direct measurement of force using a pressure gauge and/or load cell. The two determinations shall check each other and the theoretical design values within a tolerance of limit 5%.

2. Detensioning of tendons.

   Stress transfer from anchorages to the members shall not be done until concrete strength, as indicated by test cylinders, is in accordance with the specified transfer strength. For field control of concrete, for testing cylinders, and for the design and control of concrete mixes, the prestressed concrete plant shall be equipped with adequate on-site testing equipment and staffed with personnel trained in its use. Thus the prestressed concrete strengths may be readily and accurately determined at the time of stressing.

   (Note to designers: Since the compressive strength of concrete must be determined prior to stress transfer, cylinder breaking equipment should be provided at all prestressing plants.)

3. Concrete Cylinders.

   a. Concrete shall be sampled and cylinders made in strict accordance with the following specifications:

ASTM - C - 172 Sampling Fresh Concrete
ASTM - C - 31 Making and Curing Concrete

b. At least four test cylinders per casting bed shall be made each day the bed is used.

B. Dimensional tolerances shall be as outlined in PCI MNL-116-Manual for Quality Control and as defined as follows:

1. The size of all prestressed concrete members shall be as shown on the plans, with cross-section dimensional tolerances not to exceed ± 1/8 inch.

2. The length dimensional tolerance shall not exceed ± 1/8 inch per 10 feet of member length and shall not be greater than 3/4 inches.

C. Finishes to concrete surfaces shall be as outlined in PCI MNL-116-Manual for Quality Control, with additional requirements listed below:

1. All standard shaped prestressed concrete products shall be cast in steel, fiberglass, or concrete mold. Special shaped products may be cast in accurately constructed forms with smooth interior surfaces of plastic coated wood, masonite or similar materials.

2. Formed surfaces of prestressed concrete products shall be plant finished as indicated on the contract drawings and defined as follows:

a. PLANT-RUN FINISH: Some small surface holes caused by entrained air bubbles, normal form joint makers, minor chips and spalls are permitted, but major or unsightly imperfections, honeycomb, or structural defects are unacceptable.

(Note to designers: Typical locations for Plant-Run finish are: (a) storerooms, (b) shops, (c) very high roofs, (d) above suspended ceilings, and (e) where sprayed acoustical plaster is applied.)

b. ARCHITECTURAL GRADE A FINISH: All air pockets and holes larger than 1/4 inch shall be filled with a sand-cement paste. All form offsets or fins larger than 1/8 inch shall be ground smooth.

(Note to designers: Typical locations for Class A finish are: (a) exposed unpainted, (b) painted with textured or film-forming paint, (c) spackled.)

c. ARCHITECTURAL GRADE AA FINISH: All air pockets and holes, chips, spalls, form offsets, fins, and other imperfections shall be finished to a uniform texture to match adjacent areas when painted.

(Note to designers: Typical location for Class AA finish is exposed concrete painted with acrylic, latex, or water-based paints which have non-filming characteristics, especially where paint is sprayed applied. Also, preparation of surfaces to be painted should be included in the paint specification.)

3. Uniformed surfaces of prestressed concrete products shall be finished appropriately for the intended use.

(Note to designers: The finish of unformed surfaces should be very carefully defined when these surfaces are exposed and are a part of the architectural detail such as wall panels or non-skid surfaces such as stadium seats.)

Standard finishes are:

Roof slabs: medium broom
Floor slabs: heavy broom

4. When the end of a member is to be exposed to view, the ends of the tendons shall be recessed and the recess filled with non-shrink material in a satisfactory manner to prevent staining. Thin coats of cement mortar shall be bonded to the base member by a chemical bonding agent.

D. Fasteners

1. The prestressed concrete manufacturer shall cast in structural inserts, bolts and plates as detailed on the contract drawings.

2. Hand drilled, power drilled, and power driven inserts and studs may be placed in prestressed concrete members if not contacting or cutting the prestressing steel. Power driven inserts and studs shall be located a minimum of 6" from concrete edges to reduce spalling. If spalling does occur, the repair and finishing shall be the responsibility of trade causing same.

(Note to designers: Experience has shown that inserts and connectors should be field placed by the appropriate tradesmen whenever possible in order to provide the necessary working tolerances. Field placement, when feasible, is normally more economical. Cast-in items are not available in machine-extruded members. Consult manufacturer for recommendations.)

E. Deck Openings

1. The prestressed concrete manufacturer shall precast deck openings 10" wide and larger as required for skylights, vents, fans, etc., where same are specifically indicated on the contract drawings.
2. Deck openings smaller than 10" wide as required for plumbing and heating pipes, electrical conduits, outlet boxes and similar items shall be cut in the field by each subcontractor as required for his installation. All hand chiseled holes shall be cut from the underside to prevent spalling. Power cored holes may be cut from the top. No prestressing steel, or stem sections of prestressed concrete members shall be cut without prior approval of the Engineer and the Prestressed Concrete Manufacturer.

   (Note to designers: This specifications should also be included or referenced in the Electrical section, Mechanical section, and/or any other section covering the work of trades which may find it necessary to make openings in the prestressed concrete deck. Experience indicates that most tradesmen prefer to cut their own openings because of the tolerance they so gain for their work.)

PART 2 - PRODUCTS

2.1 MATERIALS

Materials shall be as outlined in ACI 318 - Building Code Requirements for Reinforced Concrete and the AISC Manual of Steel Construction and as follows:

A. Portland Cement:

1. ASTM C150 - Type I or III

B. Admixtures:

1. Air-Entraining Admixtures: ASTM C260
2. Water Reducing, Retarding, Accelerating Admixtures: ASTM C494

C. Aggregates:

1. ASTM C33 or C330

D. Water:

Potable or free from foreign materials in amounts harmful to concrete and embedded steel.

E. Reinforcing Steel:

1. Bars:
   Deformed Billet Steel: ASTM A615
   Deformed Rail Steel: ASTM A616
   Deformed Axle Steel: ASTM A617
   Deformed Low Alloy Steel: ASTM A706

2. Wire:
   Cold Drawn Steel: ASTM A82

3. Wire Fabric:
   Welded Steel: ASTM A185
   Welded Deformed Steel: ASTM A497

F. Strand:

1. Uncoated, 7-Wire, Stress-Relieved Strand: ASTM A416 - Grade 250K or 270K

G. Anchors and Inserts:

1. Materials:
   a. Structural Steel: ASTM A36
   b. Malleable Iron
   c. Stainless Steel: ASTM A666

2. Finish
   a. Shop primer: Manufacturer's standards
   b. Hot Dipped Galvanized: ASTM A153
   c. Zinc-Rich Coating: MIL-P-2135, self curing, one component, sacrificial.
   d. Cadmium Coating

H. Grout:

1. Cement grout: Portland cement, sand, and water sufficient for placement and hydration.

2. Non-shrink grout: Premixed, packaged ferrous and non-ferrous aggregate shrink-resistant grout.

2.2 DEFINITIONS

A. The term Pretensioned, Prestressed Concrete, referred to herein as Prestressed Concrete, refers to concrete in which the prestressing tendons are tensioned prior to placing the concrete and released after the concrete has gained sufficient strength to retain the prestressing force by bond.

B. All other terms and symbols shall be as defined in ACI 318 - Building Code Requirements for Reinforced Concrete.

2.3 DESIGN

A. All prestressed concrete products shall be designed to support the dead load indicated on the plans and live loads in accordance with the Southern Standard Building Code. Design shall be in accordance with ACI 318 - Building Code Requirements for Reinforced Concrete.

B. All prestressed concrete design shall be accomplished by, or under the direct supervision of a Professional Engineer registered in the State of Florida, who has had a minimum of two years responsible experience in prestressed concrete design. He shall affix his signature and seal to all design calculations and shop drawings certifying that all prestressed concrete products have been designed to meet this specification and all load criteria shown on the plans. He shall submit complete design calculations to the Engineer when so requested.

C. Permissible Design Deviations:

1. Any proposed design deviations shall be supported by complete calculations and drawings and shall have the Engineer's approval.

2. All connection, bearing, and fitting details shown on the plans indicate the Engineer's intent. The prestressed concrete manufacturer may be permitted to modify these details if such modifications will be equally or more efficient, more consistent with latest recommended practices of the Prestressed Concrete Institute, and no more costly. Such modifications shall be approved by the Engineer.

(Note to designers: Most prestressed concrete is cast in continuous steel forms; therefore, connection devices on the formed surfaces must be contained within the members since penetration of the form is impractical.)

D. All prestressed concrete products shall be designed with at least sufficient camber to properly offset deflection under full superimposed dead loads. The anticipated camber shall be computed by the prestressed concrete manufacturer.

1. Design camber in inches under full dead load should not exceed L/360 where L is the clear span in inches. Residual camber shall not vary from the design camber more than ± 1/8" per 10' of member length with a maximum variance of 1/2".

2. Differential camber between adjacent members in the final erected position should not exceed tolerances as defined in PCI MNL - 116 Manual for Quality Control.

(Note to designers: Computed camber figures should be relied upon only to the extent that they provide theoretical value of initial camber which may differ from actual values when measured. Cambers less than obtained under normal design practices (L/360) may be designed for, but usually require additional prestressing steel, resulting in higher costs. Therefore, these designs should not be specified unless they are absolutely essential. Structural details should recognize the existence of camber and camber movement in connection with closures to interior non-load bearing partitions. Closures parallel to prestressed concrete members, whether masonry, windows, curtain walls or others, must be properly detailed for appearance. In floor systems receiving poured in place topping over prestressed concrete products, the effect of camber must be recognized in topping thickness and masonry course detailing.)

E. Concrete: Design shall be based on both the elastic and the ultimate theory. It must be ascertained that the resulting structure will perform properly under the service conditions, and will possess sufficient strength to carry occasional overloads. Proper performance shall mean that camber, deflection, creep, shrinkage, and cracks are within control. Designed by the elastic theory, the maximum allowable stresses shall be limited to the following.

F. Temporary Stresses: Concrete stress in psi before losses due to creep and shrinkage should not exceed the following:

Compression

- For Pre-tensioned members ..... 0.60 _f^1_c

Tension

- For members w/o auxiliary reinforcement (unprestressed or prestressed) in the tensile zone ..... 3 _f^1_c

- For members w/non-prestressed reinforcement provided to resist the tensile force in the concrete, computed on the basis of an uncracked section: Single element ..... 6 _f^1_c

G. Stresses at Design Loads: maximum allowable stresses under final dead and live load conditions shall be as follows:

- Compression ..... 0.45 _f^1_c

- Flexural tension in the precompressed tensile zone ..... 7.50 _f^1_c

H. Ultimate Flexural Strength: Designed by the ultimate theory the load factors for building shall be at least 1.4D + 1.7L. When windloads must be considered in building design, the load factors should be 1.25 (D + L + W) or .9D + 1.1 W, whichever is greater, but not less than 1.4D + 1.7L.

All members shall be checked for net deflections (upward and downward) with all dead loads and again with all live loads.

2.4 DESIGN DETAILS:

A. The spacing of prestressing strands and/or wire at the ends of the beams shall be the largest of the following.

B. The center to center distance of prestressing wires shall not be less than four (4) times the wire diameter.

C. The center to center distance of prestressing strands shall not be less than three (3) times the strand diameter.

D. In either case, the clear spacing between strand and/or wires shall not be less than one and one-third (1-1/3) times the maximum size of coarse aggregates.

E. Prestressing steel may be bundled together in the middle portion of the span, provided the above requirements are satisfied.

F. The following minimum thickness of concrete cover shall be provided for prestressing steel, and non-prestressed steel.

	Cover (in.)
Concrete Surfaces in Contact w/Ground Beams and Girders:	2
Beams and Girders:	
Prestressing Steel and Main Reinforcing Bars	1-1/2
Stirrups and Ties	1
Slabs and Joists Exposed to Weather	1
Slabs and Joists Not Exposed to Weather	3/4

G. All members to be designed for composite action shall have projecting steel from the prestressed member to the topping for bond, and to transmit horizontal shear, unless it is shown that the structure will behave properly under service conditions without such steel.

2.5 GROUTING, POINTING, AND CAULKING

A. All grouting, pointing, and caulking shall be done in a workmanlike manner by appropriate skilled tradesmen of the General Contractor, specifically as follows:

1. Grout shall be a mixture of not less than one part Portland Cement to 3 parts fine sand, and the consistency shall be such that joints can be completely filled but without seepage to other surfaces. Any grout that seeps from a joint shall be thoroughly removed before it hardens.

2. Grout for horizontal joints between slabs shall be placed from the top of the slab, and finished on the underside before hardening by the following procedure, as applicable:

a. In areas where slabs will be used exposed or painted as finished ceiling, rake joints 1/2 inch deep and tool smooth.

b. In areas to receive suspended ceilings, the underside of joints need to be rough broomed only.

c. In areas to be finished with acoustical plaster sprayed directly onto the concrete surface, rake grout 3/4 inch deep. Before acoustical plaster is sprayed, the joint shall be filled with hand trowel from the underside with the same type of color of acoustical plaster to be generally used, and shall be struck flush with the underside horizontal surfaces of the adjacent slabs.

3. Top of grout joints on roofs shall be trowelled adequately smooth to prevent any unevenness that might interfere with the placing of, or cause damage to, insulation and roofing. Transitions due to differential levels should be finished not steeper than 1:12.

PART 3 - EXECUTION

3.1 MANUFACTURE AND INSTALLATION

A. All precast prestressed units shall be installed by the manufacturer or an approved subcontractor. All units, unless shown otherwise on the Drawings, shall be anchored to their supports buy welding bearing plates; see Drawings for location of blockouts for secondary pouring of composite beams.

B. No honeycombing or voids in concrete will be permitted on the undersides of the roof slabs. Any such defects shall be patched and rubbed smooth with stone and water. Brushing grout in these defects will not be accepted in lieu of rubbing. All undersides of slabs shall be of sufficient smoothness to satisfactorily receive a painted finish.

C. All exposed openings in the "T" beam flanges in excess of eight inches (8") shall be cast in the flanges. Other means of obtaining openings of less than eight inches (8") may be used provided the resulting opening presents a neat, clean appearance and in a manner as recommended by the manufacturer.

D. The finished products of prestressed concrete shall be lifted and/or supported at the points shown on the Drawings, or at the supporting points of the member when it is put into service.

E. Shop Drawings shall be submitted to the Engineer for approval prior to erection of the prestressed beams. Roof beams shall be capable of withstanding a superimposed vertical downward load of not less than 40 pounds per square foot in addition to concentrated minimum pipe or ton cylinder I-Beam loads of 300 pounds in the locations shown on the Drawings with a maximum deflection of L/360.

3.2 BUILT-UP ROOF

Built-up roofing shall be of five-ply bonded type saturated 30-pound roofing felt, lapped not less than 27 inches and mopped between plies with 0.25 pounds of hot pitch or asphalt per square foot in a manner so that in no place shall felt touch felt. Over the surface a uniform application of hot tar or pitch shall be made at the rate of 0.75 pounds per square foot and, while not, an application of three (3) pounds of crushed slag or gravel shall be embedded. All flashing shall be installed between first and second ply.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

This Section covers the use of miscellaneous metals; shapes and sheets, fittings, fasteners, plates, grating, balusters, etc., not specified elsewhere in these Specifications.

1.2 FIELD MEASUREMENTS

Verify that field measurements that are as indicated on Drawings and shop drawings.

1.3 SUBMITTALS

Shall be in accordance with Special Provisions Section.

1.4 QUALIFICATIONS

Contractor shall be specialized in the work covered in this Section.

PART 2 - PRODUCTS

2.1 STEEL

A. Miscellaneous steel plates, shapes, bars, and connections shall conform to the requirements of ASTM Designation A 36 and shall be galvanized by the hot dip method after fabrication in accordance with the requirements of ASTM Designation A 123.

B. Steel Pipe

Steel pipe used for miscellaneous members and connections shall conform to the requirements of ASTM Designation A 53, Schedule 40, galvanized, except as otherwise indicated.

C. Anchor Bolts and Fasteners

Anchor bolts for securing equipment and for aluminum structures and assemblies shall be stainless steel. Anchor bolts for securing wood nailers and plates shall be hot dipped zinc coated steel. All other fastenings, bolts, nuts, washers and anchors shall be aluminum, stainless steel, lead or brass. Zinc coated fastenings will not be approved except at wood nailers, or when other types of corrosion resistant materials are not

available. Zinc coated fasteners shall be hot dipped in accordance with ASTM Designation A153. Fasteners shall be adequate strength for purpose intended.

Bolts, screws, nuts, washers, and other fasteners shall be first quality and shall conform to the material specifications named herein.

Stainless steel and silicon bronze bolts shall have a raised letter or symbol on the bolts indicating the manufacturer.

Concrete and masonry inserts shall be drill-in type as manufactured by Phillips Drill Company, Michigan City, Indiana; Star, Mountainview, New York; or approved equal. Powder or gun-driven, fiber, and plastic inserts shall not be used unless otherwise specified. The use of these devices in the webs of prestressed concrete members is prohibited.

All dissimilar metal shall be connected with appropriate fasteners and shall be insulated with a dielectric or approved equal. Unless otherwise specified, aluminum and steel shall be fastened with Type 304 stainless steel bolts and insulated with Micarta or approved equal.

D. Accessories

Fasteners and Saddle Clips, Flange Blocks, J-Hooks, Galvanized steel, Stainless steel, Unfinished steel.

E. Steel Pipe Guards

Steel pipe guards shall be as detailed on the Drawings, including pipe sleeves, concrete fill, crushed fill and grouting to secure parts. Pipe for guards shall be galvanized steel, schedule 40 pipe that conforms to ASTM Designation A 53-76.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

B. Beginning of installation means erector accepts existing conditions.

3.2 PREPARATION

A. Clean and strip primed metallic items to bare metal where site welding is required.

B. Supply items required to be with setting templates, to appropriate Sections.

3.3 FABRICATION AND ERECTION

A. Install in accordance with manufacturer's instructions.

B. Install components plumb and level, accurately fitted, free from distortion or defects.

C. Provide anchors, plates, angles required for connecting railings to structure. Anchor railing to structure.

D. Conceal bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.

E. Fit and shop assemble components in largest practical sizes, for delivery to site.

F. Fabrication and erection shall be in accordance with the specified standards.

G. Fabricate components with joints tightly fitted and secured, continuously sealed and joined by continuous welds.

H. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

I. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

J. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

K. Accurately form components to suit stairs and landings, to each other and to building structure.

3.4 PAINTING

In accordance with Section 09900.

PART 4 - WORKMANSHIP

4.1 ERECTION TOLERANCE

i) ASTM B221 - Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.

ii) ASTM B241 - Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.

iii) ASTM B483 - Aluminum and Aluminum-Alloy Drawn Tubes for General Purpose Applications.

4.2 PREVENTION OF ELECTROLYSIS

Where the contact of dissimilar metals may cause electrolysis and where aluminum will contact concrete, mortar or plaster, the contact surface of the metals shall be separated using not less than one coat of zinc chromate primer and one heavy coat of aluminum pigmented asphalt paint on each surface; or where deemed necessary by the Engineer, not less than one course of asphalt saturated cotton fabric cemented to both metals with flashing cement, shall be used. Finished works shall be cleaned and excess cement removed.

4.3 Fabricated material shall be fitted and shop assembled ready for erection. Welding and equipment shall conform to American Welding Society's Code for Welding in Building Construction, latest edition. All work shall be square, plumb and true, accurately fitted with tight joints and intersections. All work shall be adequately anchored in place at proper elevations, planes, and locations. Exposed work shall be finished smooth with welds ground smooth. The completed work shall conform to OSHA Standards.

END OF SECTION

PART I - GENERAL

1.1 SECTION INCLUDES

Furnish all labor, materials, equipment, and incidentals required for the surface preparation and application of shop primers on ferrous metals, excluding stainless steels, as specified herein.

1.2 SUBMITTALS

Shall be submitted in accordance with Special Provisions Section and Section 09900.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Submerged Services: Shop primer for ferrous metals which will be submerged or which are subject to splash action or which are specified to be considered submerged service shall be sprayed with one coat of Tnemec Series 66-1255 (Beige) Hi-Built Epoxoline for water and waste treatment facilities (non-potable water) and one coat of Tnemec Series 20-1255 (Beige) Pota-Pox for potable water storage contact. Both Primers should be applied at a minimum of 3.0 mils dry film thickness.

B. Nonsubmerged Services: Gears, bearings surfaces, and other similar surfaces obviously not to be painted shall be given a heavy coat of grease or other suitable rust-resistant coating. This coating shall be maintained as necessary to prevent corrosion during all periods of storage and erection and shall be satisfactory to the Engineer up to the time of the final acceptance test.

C. Nonprimed Surfaces: Gears, bearings surfaces, and other similar surfaces obviously not to be painted shall be given a heavy shop coat of grease or other suitable rust-resistant coating. This coating shall be maintained as necessary to prevent corrosion during all periods of storage and erection and shall be satisfactory to the Engineer up to the time of the final acceptance test.

D. Compatibility of Coating Systems: Shop priming shall be done with primers that are guaranteed by the manufacturer to be compatible with their corresponding primers and finish coats specified in Section 09900 for use in the field and which are recommended for use together.

PART 3 - EXECUTION

3.1 APPLICATION

A. Surface Preparation and Priming:

1. Nonsubmerged components scheduled for priming, as defined above, shall be sandblasted clean in accordance with SSPC-SP-6, Commercial Grade, immediately prior to priming. Submerged components scheduled for priming, as defined above, shall be sandblasted clean in accordance with SSPC-SP-10. Near white, immediately prior to priming.

2. Surfaces shall be dry and free of dust, oil, grease, dirt, rust. loose mill scale, and other foreign material before priming.

3. Shop prime in accordance with approved paint manufacturer's recommendations.

4. Priming shall follow sandblasting before any evidence of corrosion has occurred and within 24 hours.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Furnishing all painting materials and equipment and performing all labor necessary to provide a finished and completely acceptable painting job. All painting work shall be performed by a contractor specializing in this work and shall be in strict accordance with the paint manufacturer's published instructions.

B. All facilities, structures, and appurtenances shall be painted with not less than one (1) shop coat and two (2) field coats, or one (1) prime coat and two (2) finish coats of the appropriate paint. Surfaces of exposed members that will be inaccessible after erection shall be cleaned and painted before erection. It is the intent of these Specifications that all interior and exterior surfaces of the structures, machinery, piping, valves, fittings, electric panels, conduits, structural steel, pumps, equipment, equipment bases, and accessories shall be painted whether they are specifically mentioned or not.

C. Baked on enamel finishes and items with the standard shop finishes shall not be repainted unless damaged prior to final acceptance. Aluminum, stainless steel, copper, cast iron manhole covers, and bronze work shall not be painted.

D. Items to be painted shall include, but not necessarily be limited to, the following:

1. Exterior ferrous metals including equipment, machinery, exposed piping, valves, fittings above grade, structural steel, electrical panels, machinery, pumps, conduits, and miscellaneous metal work;

2. Exterior exposed wood, concrete and concrete block masonry surfaces.

3. Interior exposed wood, concrete and concrete block masonry surfaces.

4. Interior ferrous metals, including field painting of structural steel, and exposed piping, valves, fittings, conduits, electric panels, equipment, machinery, pumps, and miscellaneous metal work.

E. All structure surfaces (excluding piping), which come in contact with process water, will be painted with a two coat, two color epoxy paint system. The Contractor shall submit color selection cards to the Engineer and all colors will be selected/approved by the Owner.

1.2 SUBMITTALS

A. In accordance with the Special Provisions Section.

B. Contractor shall furnish coating schedule and the manufacturer's color charts. Contractor will order finish coats from same batch code and be responsible for any non-uniform colors which may detract from appearance of total job.

C. Each coat shall be slightly differentiated in color from the previous coat.

D. Samples of the material shall be submitted for approval prior to delivery and additional samples shall be taken after delivery. No materials shall be used until written approval has been issued by the Engineer.

1.3 REFERENCES

A. Federal Specifications JJJ-0-336 for raw oil and JJJ-0-331 for boiled oil: Linseed Oil

B. Federal Specification LLL-T-791a: Turpentine

C. Federal Specification TT-D-651: Drier

D. ASTM Specification D-81: White lead

E. Federal Specification TT-R-191: Red lead (shall be 97 percent grade).

F. ASTM Specification D476-48: Titanium Dioxide

G. SSPC: Steel Structures Painting Council

1.4 DELIVERY AND STORAGE

A. In accordance with the Special Provisions Section.

B. All materials shall be delivered to the site in unopened original containers bearing the manufacturer's printed labels. All materials used shall be applied before the manufacturer's stated shelf life of the coating has expired.

C. Oily rags and other expended materials shall be burned or removed from the site at the close of each day's work, and all other necessary precautions shall be taken to avoid hazardous fumes or fire.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers for field applied coatings specified in this Section shall be Tnemec Company, Inc., Porter Paint Company; Koppers (Kop-coat), or approved equal.

B. Materials selected for coating systems for each type surface shall be the product of a single manufacturer, unless otherwise approved by the Engineer.

2.2 MATERIALS

A. General

All field applied primers and undercoats shall be provided to ensure compatibility of total coating systems and of the same manufacturer as the finish coats for each system as specified hereafter. Provide barrier coats for each system as specified hereafter. Provide barrier coats over incompatible primers or remove and reprime as required. No thinner or solvents other than those approved by the Coating Manufacturer shall be used.

B. Concrete and Masonry Submerged Walls

1. The term submerged applies to water and wastewater and includes areas subject to spraying or splashing. Special consideration shall be given to applications where acids or other highly corrosive materials will be present.

2. Coat concrete and masonry submerged walls with the following system:

Coat	**Manufacturer & Product**	**Minimum Number of Coats**	**Dry Mil Thickness**
Finish	Kop-Coat Hi-Guard Epoxy Porter	2	3.0-6.0 per coat
	M.C.R.-4351 High Build Semi- Gloss Epoxy	2	3.0-6.0 per coat
	Tnemec 66HB	2	3.0-6.0 per coat
Total System			minimum 10.0

C. Submerged Metals and Machinery

1. The term submerged applies to water and wastewater and includes *valves and* areas subject to spraying or splashing. Special consideration shall be given to applications where acids or other highly corrosive materials will be present.

2. Coat submerged metals and machinery with the following system:

Coat	**Manufacturer & Product**	**Minimum Number of Coats**	**Dry Mil Thickness**
Shop Primer	Kop-Coat 340 Gold Primer	1	2.0 minimum
	Porter MCR-4361 High Build Epoxy Primer	1	3.0-4.0 per coat
	Tnemec 66-1211	1	3.0-4.0 per coat
Field & Touch-up Primer	Kop-Coat 340 Gold Primer	1	2.0 minimum
	Porter M.C.R.-4361 High Build Epoxy Primer	1	3.0-4.0 per coat
	Tnemec 66-1211	1	3.0-4.0 per coat
Finish	Kop-Coat High Guard	2	3.0-6.0 per coat
	Porter M.C.R.-4351 High Build Semi-Gloss	2	3.0-6.0 per coat
	Epoxy Tnemec 66HB	2	3.0-6.0 per coat
Total System			minimum 12.5

D. Non-submerged Exterior Metals and Machinery

Coat non-submerged exterior metals, *valves* and machinery with the following system:

Coat	Manufacturer & Product	Minimum Number of Coats	Dry Mil Thickness
Shop Primer	Kop-Coat 340 Gold Porter 284-U-Prime Tnemec #77 Chem-Prime	1 1 1	2.5-3.5 per coat 2.5-3.5 per coat 2.5-3.5 per coat
Intermediate	Kop-coat Hi-Guard Epoxy Porter M.C.R.-4351 High Build Epoxy Tnemec Series 66-Hi-Build	1 1 1	5.0-7.0 per coat 4.0-6.0 per coat 4.0-6.0 per coat
Finish	Kop-Coat 1122 BRS or 1122 HS Porter 4610 Series Hythane Tnemec Series 71 ENDURA-SHIELD	1 1 1	1.5-2.5 per coat 1.5-2.5 per coat 1.5-2.5 per coat
Total System			minimum 9.5

E. Non-submerged Interior Metals and Machinery

Coat non-submerged interior metals and machinery with the following system:

Coat	Manufacturer & Product	Minimum Number of Coats	Dry Mil Thickness
Shop Primer	Kop-Coat 340 Gold Porter 284-U-Prime Tnemec #77 Chem-Prime	1 1 1	2.5-3.5 per coat 2.5-3.5 per coat 2.5-3.5 per coat
Field & Touch-up Primer	Kop-Coat 340 Gold Porter M.C.R.-4361 High Build Epoxy Primer Tnemec Series 66- 1211	1 1 1	2.0 minimum 3.0-4.0 per coat 3.0-4.0 per coat
Finish	Kop-Coat Hi-Guard Porter MCR-4351 High Build Semi-Gloss Epoxy Tnemec 66 HB Epoxoline	2 2 2	4.0-6.0 per coat 3.0-6.0 per coat 3.0-6.0 per coat
Total System			minimum 8.0

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

A. Surfaces to be painted shall be clean and dry, and free of dust, rust, scale and all foreign matter. No solvent cleaning, power or hand tool cleaning shall be permitted unless approved by the Engineer. Field rivets and welds shall be primed.

B. Hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place prior to cleaning and painting, and not intended to be painted, shall be protected or removed during painting operations and repositioned upon completion of painting operations. Name plates giving manufacturer's data shall not be painted over.

C. Preparation:

1. Ferrous Metals: All ferrous metal shall be sandblasted to near white in accordance with SSPC Surface Preparation Specification No. 10 (SP10). Cleaned metal shall be primed immediately after cleaning to prevent rusting. If rusting occurs in the field, the rusted portions of shop-primed ferrous metals shall be field-cleaned down to bright metal by sandblasting and immediately field primed.

2. Nonferrous Metals: If required to be painted, copper, aluminum, bronze, or galvanized metal surfaces shall be given one coat of metal passivator or metal conditioner before applying the prime coat. The passivator or conditioner shall be compatible with the complete paint system.

3. Concrete: All concrete shall be cleaned of all dust, form oil, curing compounds and other foreign matter before paints or coatings are applied. New cement shall be cured at least 28 days. Submerged concrete surfaces that are to be painted shall be etched with 15 percent to 20 percent muriatic acid solution or a solution of phosphoric acid and detergent of such a percentage to produce the necessary "sandpaper texture" surface required for satisfactory adherence of the paint. Contractor may also etch surfaces by "brush blasting" to profile the concrete. Existing uncoated concrete that is to be painted shall be prepared in the same manner as new concrete. Surfaces must be flushed and scrubbed with water to remove acid residue and particles loosened by it. Acid shall not be allowed to dry on surfaces. All defects in concrete or concrete masonry shall be filled solid and flush with patching cement and rubbed smooth when dry.

4. Wood: Wood surfaces shall be thoroughly cleaned and free of all foreign matter, with cracks and nail holes and other defects properly filled and smoothed. Wood trim shall be sandpapered lightly when dry and before a second coat of paint is applied. All wood trim shall be primed and backprimed before being set in place; all end grain and cut wood shall be thoroughly saturated with sealer before priming. After the prime coat on woodwork has dried, all nail holes, cracks, open joints, and other small holes shall be neatly filled with approved spackling putty.

5. Prior Coating: All tar coated surfaces, such as cast iron pipe, that are to be painted shall be sand blasted to SSPC SP-10 before the first coat of the painting system is applied. Surface preparation of old paint surfaces on concrete, metal, and non-ferrous metal shall be removed by sandblasting unless otherwise specified. Old paint surfaces on plastic shall be examined on individual merit. Ferrous metals in immersion or severe

service shall be abrasive blasted to a near white grade (SP-10) and a prime coat of the same generic type as the finish coat recommended by the coating manufacturer shall be applied.

6. Touchup: Any abraded areas of shop or field applied coatings shall be touched up with the same type of shop or field applied coating, even to the extent of applying an entire coating, if necessary. Touchup coatings and surface preparation shall be in addition to and not considered as the first field coat.

7. Castings (Cast Ferrous and Nonferrous Metals): Surfaces of casting shall be prepared for painting by using a brush applied filler and/or a knife-applied filler as required. These fillers are not to be used to fill cracks, gasholes, or excessive porosity. Castings shall receive one coat of primer with the minimum thickness of 1.2 mils. Sufficient drying time must be allowed before further handling.

8. Masonry: All masonry shall receive dampproofing, water repellent treatment, filler or protective coatings depending upon exposure, unless otherwise specified. Surface preparation shall be the same as that specified for concrete.

9. Materials which are to be supplied galvanized shall receive no other treatment, and shall be hot dip galvanized after fabrication in conformance with the appropriate ASTM and American Hot Dip Galvanizers Association, Inc., Specification.

10. Aluminum products shall not be shop painted, unless required for safety color coding.

3.2 APPLICATION OF PAINT

A. All paint shall be applied by experienced painters with brushes or other application devices approved by the Engineer, and without runs, sags, thin spots, or unacceptable marks. Paint shall be applied at the rate specified by the manufacturer to achieve the minimum dry mil thickness required. Additional coats of paint shall be applied, if necessary, to obtain thickness specified. Paint shall be applied with spraying equipment on only those surfaces designated by the Engineer. If the material has thickened or must be diluted for application by spray gun, each coat shall be built up to the same film thickness achieved with undiluted brushed-on material. Where thinning is necessary and approved, only the products of the particular manufacturer furnishing the paint shall be used, and all such thinning shall be done in strict accordance with the manufacturer's instructions, as well as with the full knowledge of the Engineer.

B. A minimum drying time shall elapse between application of any two (2) coats of paint on a particular surface. Recoating times shall be in strict conformance with the manufacturer's printed data instructions. The Engineer will approve exceptions, if he deems it necessary.

C. No painting shall be performed in rainy or excessively damp weather or when the general air temperature cannot be maintained at 50°F. or above throughout the entire drying period.

D. Each and every field coat of priming and finishing paint shall be inspected and approved by the Engineer or his authorized representative, before the succeeding coat is applied. The Contractor shall follow a system of tinting successive paint coats so that no two (2) coats for a given surface are exactly the same color. Areas to receive black protective coatings shall in such cases be tick-marked with white or actually gauged as to thickness when finished. All paint material shall be factory manufactured colors and no tinting shall be used except as noted above.

E. The Contractor shall be responsible for the cleanliness of his painting operations and shall use covers and masking tape to protect the work wherever such covering is necessary, or if so requested by the Engineer. Any unwanted paint shall be carefully removed without damage to any finished paint or surface. If damage does occur, the entire surface, adjacent to and including the damaged area, shall be repainted without visible lapmarks.

F. Number of Coats: All coats specified shall be in addition to shop or priming coats performed under other Sections of these Specifications. All coats shall not exceed manufacturer's suggested coverage rates. Manufacturer's coverage rates shall be furnished for approval on materials proposed.

3.3 PROTECTION AND CLEANING

A. After painting or finishing, work subjected to damage or defacement shall be properly protected and such protection maintained until the Engineer shall direct its removal.

B. Upon completion of the work under this Section, all surplus materials, empty containers, debris, etc., shall be removed from the site. All finished work shall be perfectly retouched where necessary, thoroughly cleaned and left in a neat, perfect condition. Paint spatters or daubs shall be removed from all hardware, glass, walls, floors or any other surface thus disfigured.

3.4 EQUIPMENT

A. Effective oil and water separators shall be used in all compressed air lines serving spray painting and sandblasting operations to remove oil or moisture from the air before it is used. Separators shall be placed as far as practicable from the compressor.

B. All equipment for application of the paint and the completion of the work shall be furnished by the Contractor in first class condition and shall comply with recommendations of the paint manufacturer.

C. If requested, Contractor will provide to Engineer "Tooke" (Concrete) and "Nordson-Mikrotest" (Steel) dry film gauges to be used to inspect coating by Engineer and Contractor. Engineer will return gauges to Contractor at completion of job.

PART 4 - QUALITY ASSURANCE

4.1 Painting or finishing shall not be executed under any condition of wind, weather or temperature unsuitable for executing a first-class job. Dust and airborne foreign matter shall not be permitted to lodge in the fresh finish.

4.2 Field applied priming coats shall be applied as soon as possible after the work is in place. All paint shall be applied so as not to show brush marks. Edges of doors shall be finished similar to the door faces.

4.3 In the finishing of operating parts, the parts shall be painted in the "open" position and shall so remain until dry. Metal surfaces required to be bare for proper operation shall be kept free of paint.

4.4 Primers and undercoats on interior wood or metal surfaces shall be sanded with Number 00 paper prior to subsequent coats.

4.5 Nail holes, imperfections, and defacement in wood finishes shall be putty stopped, after priming coats are applied, to a flush plane. Metal work shall be similarly treated with an approved metal paste.

4.6 Contractor shall provide the services of the coating manufacturer's representative to verify that the coatings application complied with manufacturer's instructions.

PART 5 - COLORS

A. IDENTIFICATION AND PAINTING SCHEDULE: Colors for all pumping station components to be selected by the Town based on color samples/options provided to the Town by the Contractor

1. Comply with OSHA requirements concerning color coding and safety marking.

2. Color code exposed piping and equipment associated with piping, unless otherwise shown or specified.

3. Color coding shall be as follows, unless otherwise specified or directed by the Engineer:

	Generic Color	TNEMEC Color Identification
Water:		
Raw Water	Olive Green	EN07 Clover
Settled or Clarified Water	Aqua	GB36 Aqua Sky
Finished or Potable Water	Dark Blue	SC06 Safety Blue
Wastewater:		
Sewage Plant Effluent	Clay *	EN13 Terra Cotta
Backwash Waste	Light Brown	YB31 Twine
Sludge	Dark Brown	EN05 Weathered Bark
Sewer (Sanitary or Other)	Dark Gray	GR28 Fossil
Other:		
Hoists/Trolleys	Yellow *	SCO1 Safety Yellow
Fire Protection	Red *	SC09 Safety Red

* These generic colors are not part of the *Recommended Standards for Water Works*.

4. MIXING AND TINTING

1. Coatings, except two part epoxies shall be delivered to the job site premixed.

2. Job tinting is not acceptable, except as previously stated or if approved by the Engineer.

3. All mixing shall be done in mixing pails placed in suitably sized non-ferrous or oxide resistant metal pans.

END OF SECTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. SCOPE OF WORK: The CONTRACTOR shall furnish all labor, materials, equipment and incidentals and install, place in operation, and field test three (3) wastewater pumping stations as shown on the Drawings. The CONTRACTOR shall provide all miscellaneous items not otherwise specified but required for a complete operating installation, and shall perform all such operations and tests specified herein and indicated on the Drawings. Limits of work are as shown on the Drawings.

1.2 SHOP DRAWINGS

A. CONTRACTOR shall submit shop drawings and product data showing materials of construction and details of installation to the Engineer for approval prior to construction in accordance with General Conditions and the following.

B. Equipment manufacturer's Certificate of Installation, Testing and Instructions.

1.3 O&M MANUAL

A. CONTRACTOR shall submit operation and maintenance data for all pumping station components for review and approval by the Engineer prior to Project completion and final payment to the CONTRACTOR.

1.4 RECORD DRAWINGS

A. Upon completion of the work under this Project, the CONTRACTOR shall furnish "Record Drawings" to the Engineer for transmittal to the Owner in accordance with Section 01720 of the Specifications. Such Drawings shall accurately show all approved field changes to the original Construction Drawings including actual locations, dimensions, and elevations, and shall be subject to a field review in the presence of the Engineer or his designated representative.

1.5 WARRANTY

A. The pumps, associated control panels, or any part thereof, shall be warranted against defects in material or workmanship within one year from date of installation or 18 months from date of manufacture, whichever comes first, and shall be replaced at no charge with a new or manufactured part, F.O.B. factory or authorized warranty service station. The warranty shall not assume responsibility for removal, reinstallation or freight, nor shall it assume responsibility for removal, reinstallation or freight, nor shall it assume responsibility of incidental damages

resulting from the failure of the pump to perform. The warranty shall not apply to damage resulting from accident, alteration, design, misuse or abuse.

PART 2 - PRODUCTS

2.1 GENERAL

A. All materials to be utilized in the construction of the pumping station shall be in accordance with Sections 11306 and 11310 of these Specifications, and as shown on the Shop Drawings and Construction Drawings. The CONTRACTOR shall be responsible for all material and shall replace at his own expense all material found defective in manufacture or damaged in handling.

B. All metal components in the wet well, with the exception of the pump(s), motor(s), and station piping, shall be stainless steel.

2.2 PUMPING STATION WET WELL

A. General: Unless otherwise noted on the Drawings, the pumping station wet well shall be reinforced concrete pipe and shall conform to the requirements of ASTM Designating C-478, latest edition. The minimum wall thickness shall be designed and fabricated in accordance with the procedures as specified in ASTM C-76, Wall “B", in order to establish conformance with ASTM Designation C-478. Wet well barrel sections shall be furnished with tongue and groove joints suitable for the installation of Ram-Nek between the joints. The pipe shall be absolutely free of honeycombs and shall present a hard, dense surface inside and outside. Installation of pipe and joints shall be in compliance with the requirements of the manufacturer’s recommendations. Certification shall be provided from the manufacturer that the pipe meets the specifications prior to fabrication and/or delivery of the pipe to the job site.

B. Cast-in-place wet well base: If specified on the Drawings, the base and first wall section shall be cast monolithically.

C. Tremie base installation: If specified on the Drawings, tremie wet well installation shall meet the following standards:

1.0) Concrete used for the tremie seal and secondary pour must be 4000 P.S.I. at 28 days with Type II Portland Cement (150 lb/Ft^3 min.).

2.0) Minimum of four 2" x 6" ring keyways are required with top keyway centered in the secondary concrete pour.

3.0) Tremie seal is required to be a minimum of 42" thick and secondary concrete pour 16" thick.

4.0) Tremie seal is to cure 48 hours prior to pumping off water to prepare for secondary concrete pour.

5.0) Weight of top slab, secondary concrete pour, pumps and exterior skin friction shall not be included in buoyancy calculations (worst case scenario during installation).

D. Glass Reinforced Polyester Liner: If noted on the Drawings, the wet well shall be lined with a Containment Solutions glass-fiber reinforced polyester wetwell liner by the manufacturer.

E. Concrete: All cement utilized in construction of the pumping station structures shall be Type II Portland Cement. Overall density of concrete wet well structure (steel reinforcing and concrete) shall have a minimum density of 150 lb/ft^3.

F. Gages: Where shown on the Drawings, gages shall be of the Bourdon tube type with diaphragm seal and flushing connection. Case shall be black Thoenolic Plastic and dial shall be four and one-half inches (4-1/2") in diameter. Gages shall be Ashcroft Duragage 1279A or approved equal, and diaphragm seal shall be Ashcroft Type 101 or approved equal. Gages shall be calibrated to read zero feet at atmospheric pressure. The discharge gages shall be calibrated to read zero feet to 100 feet of water pressure. The gages shall be connected with galvanized steel or galvanized malleable iron pipe fittings and stop cocks.

G. Pumping Equipment:

1) Pumping equipment shall be furnished and installed as specified herein and as shown on the Drawings and Section 11310 of the Specifications. The CONTRACTOR shall furnish and install where indicated on the Drawings, submersible sewage pumps, as manufactured by Flyght or approved equal. Each pump shall be equipped with an impeller to suit the operating conditions as outlined herein.

2) Pumps shall be capable of handling raw, unscreened sewage with 3" diameter solids. The design shall be such that pumping units will be automatically connected to the discharge piping when lowered into place on the discharge connection. The pumps shall be easily removable for inspection or service, requiring no bolts, nuts, or other fastenings to be removed for this purpose, and no need for personnel to enter the wet well. Each pump shall be fitted with a stainless steel cable of adequate strength and length to permit raising the lump for inspection and removal.

H. Controls:

1) The CONTRACTOR shall furnish and install three (3) automatic pump control centers in NEMA 4X stainless steel enclosures in accordance with Section 11310.

2) The control panel will operate the electrical submersible pumps at the power characteristics shown on the Drawings and specified herein.

3) In the event of a malfunction or a flow that exceeds the capacity of the pump, a high level audible alarm and slashing light will be activated to indicate the alarm conditions. A reset function shall lock out the audible alarm; however, only correction of the high level condition shall release the alarm light and remote alarm.

4) Should the “Pump Off” regulator fail, the system will keep the station in operation and provide a visual indication of the regulator failure.

5) In the event of loss of power, phase reversal, loss of any phase or phase balance, or low voltage, control voltage will be interrupted through the phase monitor. The power monitor will automatically reset upon removal of any and all of the above conditions.

I. Control Panel Construction and Materials:

1) The control panel shall be a NEMA 4X stainless steel enclosure with aluminum dead front inner door construction with four (4) modular interchangeable subpanels.

2) The power subpanel shall contain a main circuit breaker, emergency circuit breaker with transfer interlock, control circuit breaker, and duplex receptacle with ground fault protection.

3) The motor starter subpanel shall contain across the line magnetic starters with individual overload protection on each power leg.

4) Control panel will include components and features described in Section 11310.

5) An 11 inch x 17 inch schematic and pump data sheet will be permanently affixed to the interior of the enclosure door. The data sheet will be extruded vinyl homopolymer laminate.

J. Access Frames and Guides:

1) Access frames and covers shall be Halliday or approved equal, aluminum units, complete with hinges and hasp, and shall be of the sizes and types as shown on the Drawings. Stainless steel upper guide holders and level sensor cable holders shall be provided as shown on the Drawings. Frames shall be securely fastened to the mounting structure. Covers shall be of one-quarter inch (1/4:) thick aluminum checkered plate and have safety locking handles in the open position. All bolts, anchors, hinges, hasps, upper guide holders, and cable holder shall be stainless steel.

2) Lower guide holders shall be integral with discharge connection; guide bars shall be cut to the exact length and shall be of Schedule 40 welded type stainless steel pipe.

K. Electrical:

1) All electrical work shall be in conformance with the National Electric Code and the Section 16000 of these Specifications.

2) For purpose of clearness and legibility, the electrical drawings are essentially diagrammatic and although the location of equipment is shown to scale, the Contractor shall make use of all data in all of the contract documents and shall verify all information at the site which may influence his proposal.

3) The materials shall be new and of the manufacturer's latest design. All work shall be executed in a neat and skillful, workmanlike manner.

4) All equipment and materials shall be permanently grounded in accordance with the requirements of the National Electrical Code.

L. Painting:

1) The CONTRACTOR shall provide for painting of all surfaces as specified in Section 09000 of these Specifications.

2) All parts of equipment and surfaces coming in contact with sewage shall be protected with a shop coat of rubber asphalt paint. Field coats shall be in accordance with the "Painting and Finishing" Section of these Specifications.

3) All shop and field paint coatings shall be coordinated by the Contractor and compatible one with the other.

M. Nameplates:

A brass or stainless steel nameplate shall be furnished for each pump with stamped characters readable under ordinary lighting conditions. Pump nameplate shall give the rating in gallons per minute, rated head, speed, and efficiency. Additional data may be in accordance with the manufacturer's regular practice. Nameplates shall be securely attached and NOT PAINT OVER.

N. Padlocks and Keys:

One (1) solid brass padlock for each access hatch. Yale Model 945, or approved equal, with six (6) keys shall be furnished for each hatch called for. Locks shall be keyed to the Owner's Master Keying System.

PART 3 - EXECUTION

3.1 SHOP TESTS

The pump manufacturer, at a minimum, shall perform the following tests on each pump before shipment from the factory:

A. Megger the pump for insulation breaks or moisture.

B. Prior to submergence, the pump shall be run dry and be checked for correct rotation.

C. Pump shall be run for 30 minutes in a submerged condition.

D. Pump shall be removed from test tank, meggered immediately for moisture, oil plugs removed for checking lower seal, and inspection plug removed for checking of upper seal and possible water intrusion of stator housing.

E. A written certified test report giving the above information shall be supplied with each pump at the time of shipment. Certified pump curves shall be furnished with the pumps.

F. The end of all pump cables shall then be fitted with a shrink fit rubber boot to protect cable prior to electrical installation.

3.2 SITE PREPARATION

Site preparation shall be in conformance with the Section 2 of these Specifications.

3.3 INSTALLATION

All equipment shall be installed by skilled mechanical erection labor in accordance with the instructions of the manufacturer, and such installations of all major items shall be inspected, adjusted, approved, and certified by the manufacturer.

3.4 LUBRICATION

On all equipment, ample means of lubrication shall be provided for all bearings and other metal parts in sliding contact. Alemite industrial type fittings or approved equal shall be used for grease lubrication, except as otherwise noted herein. All lubricants, fuel, and power necessary for initial operations and tests shall be furnished by the CONTRACTOR.

3.5 FIELD TESTING

A. Upon completion of all the mechanical work, the CONTRACTOR shall conduct testing as specified herein to demonstrate that the equipment performs in accordance with all Specifications.

B. The CONTRACTOR shall perform initial testing of the equipment insuring to himself that the tests listed in the Final Acceptance Test paragraph below can be satisfactorily completed.

C. The CONTRACTOR shall give seven (7) days advance written notice of the date of the Punch List Inspection to the Owner and Engineer.

D. Items to be inspected at the Punch List Inspection include, but are not limited to, the items identified on the inspection form in Attachment A to this Section.

E. The Punch List Inspection shall demonstrate that all items of these Specifications have been met by the equipment as installed and shall include, but not be limited to, the following tests.

1) That the quick release lift-out feature functions properly and allows the pump to be raised and lowered without draining the pit.

2) The all units have been properly installed and are in correct alignment.

3) That the units operate without overheating or overloading any parts and without objectional vibration.

4) That there are no mechanical defects in any of the parts.

5) That the pumps can deliver the specified pressure and quantity.

6) That the pumps shall be capable of pumping raw, unscreened sewage.

7) That the pump sensors and controls perform satisfactorily as to sequence control, correct start and stop elevations, and proper high level alarm functions.

F. In the event that the pumping station does not meet the Punch List Inspection requirements, the CONTRACTOR shall, at his own expense, make such changes and adjustments in the equipment which he deems necessary and shall conduct further tests until full satisfaction is indicated by the Engineer and written certification is received thereof.

G. Start-up and Operation: In addition to furnishing, delivering, installing, and testing equipment, the CONTRACTOR shall provide the services of competent manufacturing representatives for the periods indicated. Such representatives shall assist the Owner's personnel in start-up by instructing the operating personnel of the Owner in the maintenance and operation of the equipment, conducting tests, and making recommendations for producing the most efficient results. These services shall be made during the initial operation of the pumping stations and be over and above any services necessary during erection or to correct defective materials or workmanship during the guarantee period. These representatives shall be specially trained and qualified for installation, adjustment, start-up, and testing work and shall not be sales representatives only. The cost of such representation, including subsistence and travel, shall be included under this Contract.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION

A. The General Contractor shall furnish, install, test and place in satisfactory operation, as shown on the Plans and specified, quantity two (2) wet-pit submersible pump(s) complete with all appurtenances, accessories and spare parts as will be required to produce a complete and workable installation. The pump control system shall be furnished under Division 16.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Refer to Division 1 for supplementary requirements for guarantees, shop drawings, technical manuals, start-up, etc.

B. Division 9 for Painting.

C. Division 16 for Electrical and Sewage Pump Controls.

D. Division 15 for Pressure Gauges and Valves.

1.03 SUBMITTALS

A. Data to be submitted:

1. The Contractor shall submit pump curves for the units which he proposes to supply, showing Total Dynamic Head, Pump Efficiency, Brake Horsepower, Power Input to Electric Drive Motor of Pumping Unit for the various conditions under which the units are to operate along with descriptive data and specifications describing in detail the construction of the complete units.

2. The manufacturer shall have a minimum of five installations of the exact combination of pump and motor model proposed to be furnished for this project. Installations must be in operation for a minimum of five years and shall list the pump model, motor model and horsepower, date of installation, duty point, and contact information including telephone number. A list of these installations shall be furnished to the Engineer with submittals.

B. Dimensional Data:

1. The successful bidder shall submit to the Engineer for approval, shop drawings, showing all weights and dimensions necessary for the installation of foundations, anchor bolts, piping and valve connections.

PART 2 - MATERIALS

2.01 MANUFACTURERS

A. Manufacturer:

Sewage pumps shall be manufactured by Wilo-EMU of Thomasville, Georgia, or pre-approved equal.

Any pump manufacturer, other than specified, proposing to offer the following equipment must submit sufficient information to the Engineer to determine that the equipment complies with the requirements of the Contract Documents. This information must be received by the Engineer not less than 14 days prior to the Bid Date. The Engineer will issue an addendum prior to the bid date which lists any pre-approved equipment. Contractors and manufacturers are advised that a manufacturer named as an approved supplier is not excused from meeting all of the technical and performance requirements of this specification. The pre-bid qualification package shall include complete pump performance data, evidence of compliance with the installation experience requirements of this Section and a letter from an officer of the company of the pump manufacturer listing all exceptions to the specifications.

Manufacturer shall have an authorized service center within 1 hour of the job site with an on hand inventory of all spare parts required for repair of the pumps.

B. Pump Performance:

Each pump shall be capable of the following performance:

Duty Point Flow, gallons per minute	***560***
Duty Point Total Dynamic Head, feet	***84***
Minimum Hydraulic Efficiency at Duty Point, %	***69.1***
Maximum NPSH-R at Duty Point, feet	***8***
Motor Horsepower (Minimum)	***25***
Maximum Motor Speed, Revolutions Per Minute	***1740***
Minimum Shut-off Pressure, feet	***125***
Minimum solids passage, inches	***4.9***
Secondary Rating Point Total Dynamic Head, feet	*N/A*
Minimum Hydraulic Efficiency at Secondary Rating Point, %	*N/A*

2.02 PUMP CONSTRUCTION

A. GENERAL

The sewage pumping units shall be vertical, non-clogging, centrifugal sewage pumps with bottom inlet and side discharge. The pumps shall be direct driven by integral squirrel cage, electric induction motors. Each pump shall include motor, bearings, quick removal system, anchor bolts and all accessories specified herein.

B. VOLUTE

1. The volute shall be constructed of ASTM A48 minimum Class 35B or higher cast iron (GG25) capable of prolonged resistance to raw sewage.

2. Suction and discharge flanges shall be 125# and meet ANSI standard B16.1.

3. All nuts, bolts, washers, and other fastening devices supplied with the pumps shall be stainless steel.

4. All mating surfaces requiring a watertight seal shall be machined and fitted with FPM (Viton) O-rings. Paper gaskets are not acceptable.

C. IMPELLER

1. Pump impellers shall be of the solids handling single vane non-clog type. The impeller vane shall be smooth, finished throughout, and shall be free from sharp edges.

2. Pump impellers shall be manufactured from ASTM A48 Class 35B or higher cast iron (GG25).

3. Impellers shall be key driven and securely held to the shaft by a streamlined impeller washer and bolt assembly specifically designed to reduce friction in the suction eye of the impeller. The arrangement shall be such that the impeller cannot unscrew or be loosened by torque from either forward or reverse rotation. Designs based on threaded connection between pump shaft and impeller will not be considered.

4. The impeller shall be capable of passing a 3.94 inch solid non-deformable sphere through the bottom inlet and out between the two shrouds. Designs which cannot pass a sphere through the impeller or rely on deforming, cutting or chopping solid materials shall not be acceptable.

D. WEAR RINGS

1. The impeller shall be provided with an AISI 329 (1.4462) duplex stainless steel wear ring which is drive fitted to the suction eye of the impeller. The impeller wear ring shall be hardened to a Brinell hardness of 200-250.

2. The casing shall be provided with an AISI 304 (1.4308) stainless steel wear ring which is drive fitted to the bottom suction inlet. The volute wear ring shall be hardened to a Brinell hardness of 275-325.

2.03 MOTORS

A. SUBMERSIBLE MOTORS

1. Each pump shall be furnished with a squirrel cage, induction motor enclosed in a watertight housing suitable for use and compatible with all variable frequency drive systems.

2. The motor shall be suitable for dry pit or wet pit installation under full load conditions. Motors shall be certified for variable frequency drive systems without de-rating the motor output power. The motors shall be capable of installation in either the wet pit or dry pit installation without adding or removing any items to the motor's interior or exterior.

3. The motors shall be oil-filled with moisture resistant NEMA Class F insulation and Class H slot liners and constructed to NEMA B design standards. The copper wound stator shall be dipped in epoxy enamel and hardened to withstand a temperature of 155 degrees Centigrade as defined in NEMA Standard MG-1. Each winding phase or layer shall be laced with Class H glass lined paper. The use of cable ties to restrain windings shall not be allowed. The rotor shall be statically and dynamically balanced after fabrication. The rotor shall utilize aluminum amortisseur bars and short circuit rings. The constructed motor shall be certified for continuous duty and shall be non-overloading over the entire range of the impeller.

4. Motors shall be capable of sustaining 15 starts per hour (unlimited starts with VFD) at a minimum ambient temperature of 40°C.

5. Motors shall be capable of uninterrupted operation with a voltage drop of 10%.

6. The power cables entering the motor housing shall connect to individual terminal pins, which separates the incoming service from the pump motor.

7. The motor shall be cooled via the internally circulated oil by means of a pump/motor shaft mounted oil circulation impeller. The oil/coolant impeller shall be mounted above the upper mechanical seal. Systems that utilize a coolant impeller mounted between the upper and lower mechanical seals shall not be acceptable. The motor/pump oil circulation impeller shall cause the oil to move through and around the stator windings and motor rotor from which it picks up heat. This heat is then directed into the motor heat exchanger which transfers the heat to the pumped liquid. The heat exchanger shall be located below the sealing chamber. It shall be provided with a labyrinth design channel system such that a minimum of 85% of the heat generated by the motor must be conducted through the heat exchanger to the pumped liquid. Cooling systems requiring a separate, clean water source or that circulates the pumped sewage through a cooling jacket will not be accepted.

8. Thermal switches shall be furnished to monitor stator temperatures. The stator shall be equipped with three (3) thermal switches, one per winding phase. Thermal switches shall automatically de-energize the motor when its temperature exceeds a preset limit as recommended by the manufacturer.

9. The pump manufacturer's nameplates shall be engraved, laser etched or stamped on stainless steel and fastened to the motor casing.

B. SHAFTS

1. Pump shafts shall be AISI 420 (1.4021) stainless steel. Carbon steel shafts or shafts with sleeves of any type are not acceptable. The shaft shall be one piece construction without joints or stubs attached.

2. Multiple row lower bearings for axial thrust and a single row upper bearing for radial thrust shall support the motor/pump shafts. Bearings shall be sized to provide a minimum L-10 life of 50,000 hours anywhere on the flow versus head curve. Thrust bearings shall be restrained from thrust in both directions. Designs that do not protect the pump/motor from thrust in reverse directions shall not be acceptable.

3. All shafts shall be dynamically balanced and shall be amply sized to minimize shaft deflection. The distance from the lower bearing to the hub of the impeller shall not exceed 1-1/4 times the shaft diameter when the shaft diameter is measured at the lowest bearing.

4. The oil contained and circulated in the motor shall lubricate all pump/motor bearings. Grease lubricated bearings shall not be provided or acceptable.

5. Minimum shaft diameter shall be 2-1/8 inches at the lowest bearing.

C. MECHANICAL SEALS

1. Each pump shall be provided with an enclosed block mechanical seal with the seal housing and spring system constructed of 316 stainless steel. The block seal housing shall be constructed such that it can be dismantled allowing the seal faces and springs to be renewed and the seal system to be put back into service. Cartridge seals constructed such that they cannot be repaired or renewed shall not be acceptable. Both upper and lower seal faces shall be silicon carbide versus silicon carbide.

2. The seal shall be mounted in a separate and isolated seal chamber. The seal chamber shall be filled with non-conductive lubricating oil as recommended by the manufacturer.

3. A moisture sensor shall be furnished to sense seal failure for each pump. This sensor shall be wired to the Pump Control Panel (specified in Division 16) and shall activate an alarm light upon seal failure. The sensor probe shall be mounted in the seal chamber and shall be of the conductive type, sensing moisture intrusion above the lower seal, but below the upper seal. Designs which sense seal failure above the upper seal through the use of a float switch are not acceptable.

D. POWER AND CONTROL CABLES

1. Power and control cables shall be furnished in lengths to run un-spliced from the pump to the pump control panel as shown on the Contract Drawings and as specified herein. Cables shall terminate with conductor sleeves that bundle the entire group of strands of each phase to improve termination at the pump control panel. The sleeves shall be provided to confirm that all strands of each conductor is terminated properly. Termination shall be coordinated with the connection to the Pump Control Panel.

2. Cables shall be of the "NSSHOU" type and shall be approved by the MSHA for use in hazardous locations and shall conform to industry standards for loads, resistance under submersion against sewage, and be of stranded construction. The cables shall enter the pump through a heavy duty galvanized cast iron entry assembly which shall be provided with an external clamp assembly to protect against tension once secured providing a strain relief function as part of standard construction.

3. The cables for each pump shall pass through the galvanized cast iron strain relief component and then through a series of stainless steel disks and Buna-n grommet that is sandwiched between the disks to control compression of the grommet. These components shall work to compress the cable jacket by the inner diameter of the grommet while the outer diameter of the grommet seals against the inside surface of the cable entry chamber in the top of the motor.

2.04 REMOVAL SYSTEM

A. General Description

The removal system shall consist of a discharge base elbow that mounts in the bottom of the wet pit, a replaceable pump coupling, guide pipes and supports and hardware as required for a complete and operational system. Connections to piping shall be standard ANSI flanges.

B. Discharge Base Elbow

The ASTM A48 Class 30B or higher cast iron discharge base elbow shall be provided to support the full weight of the submersible pump in the installation and provide a leak proof connection in which the pump coupling mates using a conformed Buna-N seal which is held in place by the combined weight of the cantilevered pump and motor. The hydraulic pressure generated while the pump is in operation also aids the sealing. The discharge base elbow shall be provided guide pipe retention lugs.

C. Pump Coupling

The pump coupling shall be close grained gray cast iron construction. The coupling shall be located between the pump discharge flange and the vertical face of the discharge base. The purpose of the coupling shall be to allow use of a standard

ANSI drilled pump-casing flange on the pump. The coupling acts as the intermediate part between the pump and the discharge base. The coupling vertical face is designed to seal against the vertical face of the discharge base using a replaceable Buna-N elastomeric compressible one piece seal that acts as both the discharge face seal and the gasket between the coupling and the pump flange. Wet pit installation designs which utilize the flat face of the pump flange to seal against the discharge base are not allowed.

D. Guide Rails

304 stainless steel guide rails supported by upper and intermediate brackets of 316 stainless steel shall guide each pump. The guide rails shall consist of standard dimension schedule 40 piping with a minimum diameter of 1-1/4"" and a maximum diameter of 3" as shown on the contract drawings. The guide rails shall be supported by a 316 upper guide rail bracket that will be mounted in the opening of the access cover to support and guide the pump/motor into and out of the wet well. Intermediate guide rail brackets will be provided for all installations deeper than 20 ft.

E. Lifting Device

Each pump shall be supplied with a lifting chain of 304 stainless steel, rated for 5 times the installed pump and coupling weight. The manufacturer shall provide information on recommended testing parameters that shall keep the lifting system capable of service for the life of the station. Recommendations shall be in written form and shall be discussed during startup training for the installation.

F. Access Hatches

Access door shall be manufactured by U.S.F. Fabrication, Inc., Hialeah, Florida, with the size being specified on the plans. Door leaf shall be 1/4-inch thick aluminum diamond plate reinforced for a 300 p.s.f. live load. The frame shall be extruded aluminum with an integral anchor flange and door seat on all four (4) sides. The floor access door shall be equipped with a flush drop handle and a 316 stainless steel hold open arm with red vinyl grip that automatically locks the cover in the 90 degree open position. The door shall have 316 stainless steel hinges and 316 stainless steel tamper resistant bolts/locknuts and staple for a padlock. An adhesive backed vinyl material that protects the product during shipping and installation shall cover the entire top of the frame and cover. Manufacturer shall guarantee the door against defects in materials and workmanship for a period of ten (10) years.

2.05 SHOP PAINTING

A. Primer and Finish Paint - Shop apply to all exterior ferrous surfaces of the pump and motor. Shop apply to exterior and interior surfaces of elbow

1. Solids by volume: 57%

2. Type: Polyamide epoxy with maximum VOC content of 3.06 #/gal

3. Total Dry Film Thickness: 3 coats, 4-6 mils/coat minimum

4. Minimum Adhesion: 2.1 Newtons per square millimeter (300 psi) per ISO 4624.

5. Minimum Hardness: 6H on pencil hardness scale

6. Resistance: Level 1 (continuous duty) for sewage with pH of 6-10, Level 2 (occasional duty) for saltwater, Level 3 (not recommended) for 10% hydrochloric acid.

B. Surface Preparation - Prepare all surfaces to receive coating system.

1. Method: Blasting per ISO 12944-4

2. Standard Cleanliness Grade: 2.5

3. Minimum Peak to Valley Height: 70 microns (2.75 mils)

2.06 SHOP TESTING

1. Pumps shall be tested at the manufacturer's facility as follows. Run each pump at full rating point for a minimum of 30 minutes prior to start of any testing. Pumps shall be tested in the configuration used for this project—wet pit pumps shall be submerged and dry pit pumps shall be tested in a dry pit configuration.

2. Provide certified performance curves for each pump. Pump tests to be evaluated to: ANSI/HI Acceptance Level A.

3. Each pump test shall include a minimum of six points between shut-off and run-out points. One of the six points shall be the "Duty Point Flow". Complete information shall be taken to determine flow, head, motor speed, horsepower and hydraulic efficiency.

4. Should the pumps tested fail to meet the requirements of the specifications, the pump manufacturer shall modify and/or replace the original pumps with equipment and re-test the pumps at no additional cost to the Owner.

2.06 CONTROLS

One Duplex pump control panel shall be furnished as a package by the pump manufacturer and shall contain as a minimum, but not be limited to, the following components:

A.

1) Main Circuit Breaker (Square D or approved equal)
2) Enclosure NEMA 4X, 304 SS, with dead front inner door
3) Emergency Plug Circuit Breaker, (Square D or approved equal)
4) Motor Circuit Breakers, (Square D or approved equal)
5) Control Circuit Breaker, (Square D approved equal)

6) Convenience Receptacle, (Square D or approved equal)
7) NEMA Motor Starters with Overloads, (Square D or approved equal); Heater size - As Required
8) Generator Receptacle
9) Mechanical Interlock for H & J Frame Breakers
10) Alarm Light
11) Alarm Horn
12) Elapsed Time Meters (2)
13) G.F.I. Convenience Receptacle (1)
14) Phase Monitor (1)
15) Seal Failure Relay (2) with pilot lights on panel front door
16) Lightning Arrester
17) 24 Volt Control Transformer, 120/24
18) Alarm Silencer Push Button
19) Alarm Silencer Relay
20) Alternator
21) HOA Selector Switches
22) Run Pilot Lights (2)
23) Terminal Strip
24) Reset Buttons (2)
25) Relays: Square D or approved equal;
26) Dataflow TAC Pack Telemetry Control Unit with ### MHz radio and antenna.

B. REMOTE TERMINAL UNIT (RTU)

1. The Contractor shall coordinate tower and antenna requirements with DFS. A complete radio survey shall be conducted by DFS to verify antenna requirements. DFS shall license the new RTU with the FCC for operation under the existing radio frequency. The Contractor shall provide station(s) physical location information to DFS for radio communication study purposes. Information shall be provided in the form of GPS readings or street map with actual site location(s) clearly marked. The Contractor shall provide all required information for Sunshine One Call, underground locate services and shall serve as underground locate point of contact.

2. The specified RTU shall be housed in the Motor Control Panel and powered by 120 VAC commercial power. The RTU panel shall be an integral component of the Motor Control Panel and shall provide local and automatic pump station control functions, monitor local statuses and transmit those statuses to the

PART 2 – PRODUCTS

2.01 REMOTE TERMINAL UNIT (RTU)

The Telemetry Control Unit (TCU) shall be a microprocessor-based multi-pump controller module designed for automatic pump station control. The TCU shall include an integrated radio as specified in paragraph 3.2. As a minimum, the TCU shall incorporate the following features:

A) On-Board 12-button operator interface keypad and 4x20-character LCD display. Configuration parameters shall be adjustable via the 12-button operator interface keypad or required RS-232 service port.

B) The LCD display shall provide the elapsed runtime of each pump, the average runtime of each pump, the flow of each pump, the flow of the station and the time of day.

C) Triplex/Duplex/Simplex configurable. The device shall have the capability of easily being configured for one, two or three pumps via the on-board keypad.

D) Three (3) on-board HOA switches. Local manual control provided by the HOA switches. Each HOA switch shall be fail safe and operate in the OFF and HAND position without power. Alarms shall indicate that an HOA switch has been left in the HAND or OFF position.

E) Integrated pump alternation. The pump alternation function will operate based on the number of pumps configured. Automatic alternation around non-operational pumps shall be provided.

F) Pumps/Starter/Breaker Fault alarms shall be determined by the unit automatically. These alarms shall be activated when a pump is called to run, but fails to run, or if the pump is turned off by the TCU, but continues to run.

G) Multiple level control input options. The unit shall provide local automatic level control from float, bubbler, transducer, or ultrasonic inputs. Redundancy of level control input shall be supported. An alarm shall be generated when floats are operating out of sequence.

H) On-board 240 / 480 VAC three-phase-power monitor. The phase monitor shall be transformer-isolated and detect loss of phase, phase reversal, low phase and high phase faults. All phase monitor adjustments shall be adjustable from the keyboard. Phase voltages from phase A to B and from phase A to C shall be transmitted to the central site computer.

I) Integrated Alarm Light output and Alarm Horn output, each capable of driving 120 VAC loads to ½ amp. An input shall be supplied for external alarm silence button, which shall be used to silence the Alarm Horn.

J) The unit's internal power supply shall keep the backup battery at a float charge. The backup battery shall not be damaged by deep discharges.

K) All inputs and outputs shall be optically or magnetically isolated and surge suppressed.

L) A local RS-232 service port shall provide local access to all the functions of the unit.

M) The TCU shall be easily removed/replaced by removing two industry standard wire terminal connectors.

N) Wire terminals shall be used as an interface between the TCU and field wiring. Fuses and voltage reducing resistors shall be used where required by the manufacturer. Wire terminals shall be housed in the same enclosure as the TCU.

O) Supply voltage shall be 115 VAC. Ambient operating temperature shall be -10^0C to 60^0C (14^0F to 140^0F). The upper temperature limit is 50^0C

(122^0F) when using the backup battery. Unit shall be UL Listed and surge tested for EMI Susceptibility to IEC 61000-4-5 Surge Immunity Tests.

A. 2.02 INTEGRATED RADIO

The Integrated Radio shall function as the interface between the TCU and TAC II central site. The Integrated Radio shall incorporate a radio transceiver and associated electronics. The Integrated Radio shall be mounted inside the TCU radio compartment. When combined the TCU with Integrated Radio is referred to as model TAC Pack TCU. At a minimum, the Integrated Radio shall have the following features:

A) Surge protected radio power.
B) On board communications and functional firmware.
C) Watchdog Timer.
D) On board voltage regulation and radio power supply control.
E) Radio current, receiver sensitivity and operating temperature are monitored for system diagnostics.

B. 2.03 BACKUP BATTERY

The RTU shall be provided with a 3.0 AHr backup battery. The backup battery shall be model PE12V3A as manufactured by Portalac.

1. 2.04 SURGE PROTECTION

Multiple staged surge protection shall be provided for all power supply and power monitoring circuits. One stage of protection shall be equipped with both energy limiting and clamping circuits with slow blow fuses designed for overload conditions. This design shall provide a very high level of non-destructive transient immunity. With the exception of a direct lightning strike, the device shall protect the TCU power supply and power monitoring circuits from damage due to voltage transients. The unit shall provide circuit protection to withstand multiple transients in excess of 6,500 volts, 3,250 amps, without damage. Damage shall be limited to a blown fuse when exposed to larger transients. The device shall be transient-tested to ANSI standard C62.41. The unit shall meet or exceed the quality, reliability and performance of the Transient Filter Shield TFS001 as manufactured by Data Flow Systems. The AC power input protection shall meet or exceed the quality, reliability and performance of the Single Phase Suppresser, SPS001 (or, if three phase power is in use, the Three Phase Suppresser, TPS001) as supplied by Data Flow Systems.

C. 2.05 ANTENNA SUBSYSTEM

A) A high gain directional antenna shall be used to transmit and receive data at the RTU. It shall be supported on a mast/pole and have DC grounding for lightning protection. The antenna mast/pole shall be hot dipped galvanized for corrosion protection. All mounting hardware shall be made of stainless steel. The mast shall meet or exceed the quality and reliability of the AG20 manufactured by Rohn.

B) The coax cable shall be the type that utilizes an inert semi-liquid compound to flood the copper braid. The coax cable shall be of the RG-8 construction type and have the RF loss characteristic of foam flex. The coax cable shall be RTC 400 as supplied by Data Flow Systems, Inc.

C) Type N connectors shall be utilized at both ends of the coax. The Type N

connectors shall be sealed with 3-inch sections of Alpha FIT321-1-0 sealant shrink tubing. The coax cable shall be secured to the mast/pole with E.V.A.-coated 316 stainless steel cable ties. The cable ties shall meet or exceed the quality, reliability and performance of AE112 cable ties manufactured by Band-It.

D) The antenna shall be an all welded aluminum elements. The antenna shall have a single radiator element connected to a type N female connector. The antenna shall be the RTA series as supplied by Data Flow Systems, Inc.

E) A coaxial surge protector model IS-B50LN-C2 as manufactured by Polyphaser shall be supplied with the RTU.

PART 3 – EXECUTION

3.01 INSTALLATION

A) Install and place into operation a complete new RTU System at the site. This work shall include the new antenna system, all interconnecting wiring, conduit, and circuitry necessary to provide the owner with a fully operable RTU.

B) Install and mount equipment in accordance with the Contract Documents, manufacturer's instructions and shop drawings. Rigidly support and mount equipment level and plumb, and in such a manner as to provide accessibility; protection from damage; isolation from heat, shock, and vibration; and freedom from interference with other equipment, piping, and electrical components.

C) Include the services of a factory trained, qualified service engineer of the equipment manufacturer to inspect the complete equipment installation to assure that it's installed in accordance with the manufacturer's recommendations, make all adjustments necessary to place the system into trouble-free operation.

D) All workmanship utilized in the manufacture and installation of this system shall be of the highest quality and performed in a manner consistent with all accepted industry practices.

E) The Central Site SCADA Server shall be modified to incorporate a new HMI graphical screen for this station. The graphical screen shall be consistent with existing lift station screens.

3.02 WARRANTY

1. The manufacturer shall warrant all hardware and software provided under this contract against all defects in material and workmanship for a period of one year. The TAC Pack TCU shall carry an additional 2-year return-to-factory warranty. The TAC Pack TCU warranty shall also cover damage due to lightning the entire three year period.

D. 3.03. SERVICE

1. The manufacturer shall offer full factory support of the installed system through the use of factory employees. Service representatives who are not direct employees of the manufacturer, or who are not specifically trained in the service of the owner's existing SCADA System shall be unacceptable. The customer shall have 24 hour per day access to service personnel.

PART 3 - EXECUTION

3.01 WARRANTY

A. The pumps and motors will be covered by a five (5) year warranty that shall comprise the following terms: The initial year from start-up of the equipment shall be covered 100% for parts and labor. The following years 2 through 5 shall be covered 50% for parts and labor. This warranty shall not be limited by hours of running time or operation from variable speed drives.

3.02 FIELD QUALITY CONTROL

A. Field Testing:

1. After the installation of the pumps, controls and all appurtenances, and when construction of other units of the pump station will permit, each complete pumping unit will be subject to field tests as specified herein under actual operating conditions.

2. The field tests shall be made by the Contractor under the direct supervision of a qualified factory trained engineer, and in the presence of, and as directed by the Engineer. The Contractor shall provide, calibrate and install all temporary gauges and meters, shall make necessary tapped holes in the pipes, and install all temporary piping and wiring required for the field tests.

3. The field tests shall determine the head, discharge flow and overall efficiency characteristics of each pumping unit and in addition, shall demonstrate that under all conditions of operation each unit:

   - Has not been damaged by transportation or installation.
   - Has been properly installed.
   - Has no mechanical defect.
   - Is in proper alignment.
   - Has been properly connected.
   - Is free of overheating of any parts.
   - Is free of all-objectionable vibration and noise.
   - Is free of overloading of any parts.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

Basic Electrical Requirements specifically applicable to Division 16 Sections, in addition to Division 1 - General Requirements.

b) WORK SEQUENCE

i) Install work to accommodate Owner's occupancy requirements during the construction period coordinate electrical schedule and operations with General Contractor.

c) REFERENCES

i) ANSI/NFPA 70 - National Electrical Code.

ii) Madison County Electrical Code.

iii) City of Madison Electric Requirements.

d) SUBMITTALS

i) Shall be in accordance with Special Provisions Section.

ii) Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal.

iii) Mark dimensions and values in units to match those specified.

e) REGULATORY REQUIREMENTS

i) Electrical: Conform to NFPA 70.

ii) Obtain permits, and request inspections from authority having jurisdiction.

f) PROJECT/SITE CONDITIONS

i) Install Work in locations shown on Drawings, unless revised by Project conditions.

ii) Prepare drawings showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Engineer before proceeding.

C. Work shall be as required for complete and operating systems.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Metal conduit.

ii) Flexible metal conduit.

iii) Liquidtight flexible metal conduit.

iv) Electrical metallic tubing.

v) Nonmetal conduit.

vi) Electrical nonmetallic tubing.

vii) Flexible nonmetallic conduit.

viii) Fittings and conduit bodies.

b) REFERENCES

i) ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.

ii) ANSI C80.3 - Electrical Metallic Tubing, Zinc Coated.

iii) ANSI C80.5 - Rigid Aluminum Conduit.

iv) ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.

v) ANSI/NFPA 70 - National Electrical Code.

vi) NECA "Standard of Installation."

vii) NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

c) DESIGN REQUIREMENTS

Conduit Size: ANSI/NFPA 70.

d) REGULATORY REQUIREMENTS

i) Conform to requirements of ANSI/NFPA 70.

ii) Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2) PRODUCTS

a) CONDUIT REQUIREMENTS

i) Minimum Size: 3/4 inch unless otherwise specified.

ii) Underground Installations:
Use thickwall nonmetallic conduit, Minimum Size: 3/4 inch.

iii) Outdoor Locations, Above Grade: Use aluminum conduit.

iv) In Slab Above Grade:
(1) Use thickwall nonmetallic conduit.
(2) Maximum Size Conduit in Slab: 3/4 inch.

v) Wet and Damp Locations: Use aluminum conduit.

vi) Dry Locations:
(1) Concealed: Use aluminum conduit or electrical metallic tubing.
(2) Exposed: Use aluminum and thickwall nonmetallic conduit.

b) CONDUIT

A. Rigid Steel Conduit (RGS): Hot-dipped galvanized or sherardized including the threads manufactured in accordance with ANSI C80.1 and UL6. Threaded, hot-dipped galvanized or sherardized fittings manufactured in accordance with ANSI C80.4.

B. Rigid Aluminum Conduit (ALUM): Conduit shall be rigid, copper free, heavy wall aluminum. Conduit bodies shall be copper free aluminum with aluminum cover and neoprene gasket, Crouse-Hinds, Form 7, or approved equal.

C. Electrical Metallic Tubing (EMT): Manufactured in accordance with ANSI C80.3 and UL 797. Steel or malleable iron compression type couplings and connectors manufactured in accordance with ANSI C80.4.

D. Polyvinal Chloride Conduit (PVC): Schedule 40 manufactured in accordance with ANSI C333.91.

E. Liquid-tight Flexible Conduit (FLEX): Hot-dipped galvanized with liquid-tight grey vinyl jacket, type UA. Fittings shall be liquid tight for flexible metal conduit manufactured by Thomas & Betts or approved equal.

PART 3) EXECUTION

a) INSTALLATION

i) Install conduit in accordance with NECA "Standard of Installation."

ii) Install nonmetallic conduit in accordance with manufacturer's instructions.

iii) Arrange supports to prevent misalignment during wiring installation.

iv) Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.

v) Group related conduits; support using conduit rack. Construct rack using steel channel; provide space on each for 25 percent additional conduits.

vi) Fasten conduit supports to building structure and surfaces under provisions of Section 16190.

vii) Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports

viii) Do not attach conduit to ceiling support wires.

ix) Arrange conduit to maintain headroom and present neat appearance.

x) Route conduit parallel and perpendicular to walls.

xi) Route conduit installed above accessible ceilings parallel and perpendicular to walls.

xii) Route conduit in and under slab from point-to-point.

xiii) Maintain adequate clearance between conduit and piping.

xiv) Maintain 12 inch clearance between conduit and surfaces with temperatures exceeding 104 degrees F (40 degrees C).

xv) Cut conduit square using saw or pipecutter; de-burr cut ends.

xvi) Bring conduit to shoulder of fittings; fasten securely.

xvii) Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for 20 minutes, minimum.

xviii) Use conduit hubs or sealing locknuts to fasten conduit to sheet metal boxes, cast boxes, and fiberglass boxes in damp and wet locations.

xix) Install no more than equivalent of three 90-degree bends between boxes. Use conduit bodies to make sharp changes in direction, as around beams. Use hydraulic one-shot bender to fabricate bends in metal conduit larger than 2 inch size.

xx) Avoid moisture traps.

U. Provide suitable fittings to accommodate expansion where required to prevent conduit stress.

V. Provide suitable pull string in each empty conduit except sleeves and nipples.

W. Use suitable caps to protect installed conduit against entrance of dirt and moisture.

X. Ground and bond conduit under provisions of Section 16170.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Building wire and cable.

ii) Wiring connectors and connections.

b) REFERENCES

i) ANSI/NFPA 70 - National Electrical Code.

c) REGULATORY REQUIREMENTS

i) Conform to requirements of ANSI/NFPA 70.

ii) Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

d) PROJECT CONDITIONS

i) Verify that field measurements are as shown on Drawings.

ii) Conductor sizes shall be based on copper. Aluminum is not allowed.

iii) Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet Project Conditions.

iv) Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required.

e) COORDINATION

i) Determine required separation between cable and other work.

ii) Determine cable routing to avoid interference with other work.

C. Coordinate work in accordance with Special Provisions Section.

PART 2) PRODUCTS

a) BUILDING WIRE AND CABLE

i) Description: Single conductor insulated wire.

ii) Conductor: Copper

iii) Insulation Voltage Rating: 600 volts.

iv) Insulation: ANSI/NFPA 70

2.2 SIGNAL CABLE

A. Description: Two conductor, 16 AWG, shield and drain wire, 18 AWG, tinned copper - stranded.

B. Conductor: Copper

C. Insulation Rating: 600 V 60° C.

D. Color Code: Black, Clear

E. Manufacturer: Belden Wire & Cable or approved equal

F. Trade Number: 8719 (NEC CL2)

PART 3) EXECUTION

a) EXAMINATION

i) Verify that interior of building has been protected from weather.

ii) Verify that mechanical work likely to damage wire and cable has been completed.

b) PREPARATION

i) Completely and thoroughly swab raceway before installing wire.

c) WIRING METHODS

A. Use wire type per conduit and wire schedule.

B. Use wiring methods indicated on Drawings.

d) INSTALLATION

i) Install products in accordance with manufacturers instructions.

ii) Use stranded conductors for all circuits.

iii) Use conductor not smaller than 12 AWG for power and lighting circuits.

iv) Use conductor not smaller than 14 AWG for control circuits.

v) Use 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 feet.

vi) Use 10 AWG conductors for 20 ampere, 240 volt branch circuits longer than 200 feet.

vii) Pull all conductors into conduit at same time.

viii) Use suitable wire pulling lubricant for building wire 4 AWG and larger.

ix) Neatly train and lace wiring inside boxes, equipment, and panelboards.

x) Clean conductor surfaces before installing lugs and connectors.

xi) Make all connections/terminations to carry full ampacity of conductors with no perceptible temperature rise.

xii) Use split bolt connectors for motor lead connections. Tape uninsulated conductors and connector with electrical tape to 150 percent of insulation rating of conductor.

e) INTERFACE WITH OTHER PRODUCTS

i) Identify wire and cable under provisions of Section 16195.

ii) Identify each conductor with its circuit number or other designation indicated on Drawings.

f) FIELD QUALITY CONTROL

i) Perform field inspection and testing under provisions of Section 15990.

ii) Inspect wire and cable for physical damage and proper connection.

iii) Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.

iv) Verify continuity of each branch circuit conductor.

4.0 WIRE AND CONDUIT SCHEDULE: See Drawings

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Wall and ceiling outlet boxes.

ii) Floor boxes.

iii) Pull and junction boxes.

b) REFERENCES

i) ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies.

ii) ANSI/NEMA OS 1 - Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports.

iii) ANSI/NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports.

iv) ANSI/NFPA 70 - National Electrical Code.

v) NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

c) REGULATORY REQUIREMENTS

i) Conform to requirements of ANSI/NFPA 70.

ii) Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

d) PROJECT CONDITIONS

i) Verify field measurements are as shown on Drawings.

ii) Verify locations of floor boxes and outlets prior to rough-in.

iii) Install electric boxes at location required for box to serve intended purpose.

PART 2) PRODUCTS

a) OUTLET BOXES

i) Sheet Metal Outlet Boxes: ANSI/NEMA OS 1, galvanized steel.

ii) Nonmetallic Outlet Boxes: ANSI/NEMA OS 2.

iii) Cast Boxes: NEMA FB 1, Type FD aluminum. Provide gasketed cover by box manufacturer.

b) PULL AND JUNCTION BOXES

i) Sheet Metal Boxes: NEMA OS 1, galvanized steel.

ii) In-Ground Cast Metal Box: NEMA 250, Type 6, outside flanged, recessed cover box for flush mounting.
(1) Material: Galvanized cast iron.
(2) Cover: Smooth cover with neoprene gasket and stainless steel cover screws.
(3) Cover Legend: ELECTRIC

iii) Fiberglass Handholes: Die-molded fiberglass handholes.
(1) Cable Entrance: Pre-cut 6 x 6 inch (150 x 150 mm) cable entrance at center bottom of each side.
(2) Cover: Fiberglass weatherproof cover with nonskid finish.

D. Concrete in-ground pull boxes for duct banks.
1. As specified on the drawings.

PART 3) EXECUTION

a) INSTALLATION

i) Install electrical boxes as shown on Drawings, and as required for wire pulling.

ii) Install electrical boxes to maintain headroom and to present neat mechanical appearance.

iii) Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

iv) Align adjacent wall-mounted outlet boxes for switches, thermostats, and similar devices with each other.

v) Support boxes independently of conduit except cast box that is connected to two rigid metal conduits both supported within 12 inches of box.

vi) Use gang box where more than one device is mounted together. Do not use sectional box.

vii) Use cast outlet box in exterior locations exposed to the weather and wet locations.

viii) Use cast floor boxes for installations in slab on grade; formed steel boxes are acceptable for other installations.

ix) Large Pull Boxes: Boxes larger than 100 cubic inches in volume or 12 inches in any dimension. Use surface-mounted cast metal box or concrete box.

J. Fully support boxes with fabricated steel channel and fasteners manufactured for use in an outdoor environment.

b) INTERFACE WITH OTHER PRODUCTS

i) Coordinate locations and sizes of required access doors.

ii) Locate flush mounting box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.

iii) Coordinate mounting heights and locations of outlets mounted above counters, benches and backsplashes.

iv) Position outlet boxes to locate luminaries as indicated on plans.

c) ADJUSTING

i) Install knockout closure in any unused box opening.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Wall switches.

ii) Receptacles.

iii) Device plates and decorative box covers.

b) REFERENCES

i) NEMA WD 1 - General Purpose Wiring Devices.

ii) NEMA WD 6 - Wiring Device Configurations.

1.3 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2) PRODUCTS

a) WALL SWITCHES

i) Single Pole Switch:
(1) GE Model GE5951-2
(2) Leviton Model 53501
(3) Hubbel Model 1221-1

ii) Double Pole Switch:
(1) GE Model GE 5952-2
(2) Leviton Model 53502
(3) Hubbel Model 1222-1

iii) Three-way Switch:
(1) GE Model GE5953-2
(2) Leviton Model 53503
(3) Hubbel Model 1224-1

iv) Four-way Switch:
(1) GE Model GE 5954-2
(2) Leviton Model 535-4
(3) Hubbel Model 1224-1

b) WALL SWITCHES

i) Manufacturers:
(1) GE
(2) Leviton
(3) Hubbel
(4) Or Approved Equal

ii) Description: NEMA WD 1, general-duty, AC only general-use snap switch.

iii) Device Body: Ivory plastic with toggle handle.

iv) Voltage Rating: 120-277 volts, AC.

v) Current Rating: 20 amperes.

vi) Ratings: Match branch circuit and load characteristics.

c) RECEPTACLES

i) Single Convenience Receptacle:
(1) GE Model 5252-2
(2) Leviton Model 16351
(3) Hubbel Model 5251-I

ii) Duplex Convenience Receptacle:
(1) GE Model 5252-2
(2) Leviton Model 16352
(3) Hubbell Model 5252-I

iii) GFCI Receptacle:
(1) GE Model TGTR115F
(2) Leviton Model 6398-HGI

d) RECEPTACLES

i) Manufacturers:
(1) GE
(2) Leviton
(3) Hubbell
(4) Or Approved Equal

ii) Description: NEMA WD 1; general duty general-use receptacle.

iii) Device Body: Ivory plastic.

iv) Configuration: NEMA WD 6; type as specified and indicated.

v) Convenience Receptacle: Type 5-15R

vi) GFCI Receptacle: Convenience receptacle with integral ground fault circuit interrupter to meet regulatory requirements.

vii) Telephone Jack: Modular - 2 pair

e) WALL PLATES

i) Decorative Cover Plate: Ivory

ii) Weatherproof Cover Plate: Gasketed cast aluminum with hinged gasketed device cover.

PART 3) EXECUTION

a) EXAMINATION

i) Verify outlet boxes are installed at proper height.

ii) Verify wall openings are neatly cut and will be completely covered by wall plates.

iii) Verify floor boxes are adjusted properly.

iv) Verify branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

b) PREPARATION

i) Provide extension rings to bring outlet boxes flush with finished surface.

ii) Clean debris from outlet boxes.

c) INSTALLATION

i) Install products in accordance with manufacturer's instructions.

ii) Install devices plumb and level.

iii) Install switches with OFF position down.

iv) Install receptacles with grounding pole on bottom.

v) Connect wiring device grounding terminal to branch circuit equipment grounding conductor.

vi) Connect wiring devices by wrapping conductor around screw terminal.

vii) Install aluminum plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.

d) INTERFACE WITH OTHER PRODUCTS

i) Install wall switch 4 ft. 6 inches above finished floor.

ii) Install convenience receptacle 18 inches above finished floor.

e) FIELD QUALITY CONTROL

i) Inspect each wiring device for defects.

ii) Operate each wall switch with circuit energized and verify proper operation.

iii) Verify that each receptacle device is energized.

iv) Test each receptacle device for proper polarity.

v) Test each GFCI receptacle device for proper operation.

vi) Verify that each telephone jack is properly connected and circuit is operational.

f) ADJUSTING

Adjust devices and wall plates to be flush and level.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Hinged cover enclosures.

ii) Cabinets.

iii) Terminal blocks.

iv) Accessories.

b) REFERENCES

i) NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

ii) NEMA ICS 4 - Terminal Blocks for Industrial Control Equipment and Systems.

iii) ANSI/NFPA 70 - National Electrical Code.

c) SUBMITTALS

i) Product Data: Provide manufacturer's standard data for enclosures and cabinets.

ii) Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of Product.

d) REGULATORY REQUIREMENTS

i) Conform to requirements of ANSI/NFPA 70.

ii) Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2) PRODUCTS

a) MANUFACTURERS

i) See individual specifications.

b) HINGED COVER ENCLOSURES

i) Construction: NEMA 250, Type 4X Aluminum or Fiberglass enclosure, as specified on the Drawings.

ii) Covers: Continuous hinge, held closed by flush latch operable by screwdriver.

iii) Provide interior aluminum metal panel for mounting terminal blocks and electrical components; finish with white enamel.

D. Provide metal barriers to separate signal/control wiring operating at less than 50 volts D.C. from control/power wiring (A.C.).

E. Enclosure Finish: Natural

c) CABINETS

i) Boxes: Steel, epoxy, finish ANSI Grey 61.

ii) Box Size: per Drawing and NEC.

iii) Provide accessory feet or channel for free-standing equipment.

d) TERMINAL BLOCKS

i) Manufacturers:
(1) Buchanon
(2) Square D Company
(3) Allen Bradley
(4) Or Aproved Equal

ii) Terminal Blocks: ANSI/NEMA ICS 4.

iii) Power Terminals: Unit construction type with closed back and tubular pressure screw connectors, rated 600 volts.

iv) Signal and Control Terminals: Modular construction type, suitable for channel mounting, with tubular pressure screw connectors, rated 300 volgs min.

v) Provide ground bus terminal block, with each connector bonded to enclosure.

F. Din rail mounted fuse holders per drawings.

e) ACCESSORIES

i) Plastic Raceway:
(1) Panduit as specified on drawings.

PART 3) EXECUTION

i) Verify that surfaces are ready to receive Work.

a) INSTALLATION

i) Install Products in accordance with manufacturer's instructions.

ii) Install enclosures and boxes plumb. Anchor securely to wall and structural supports at each corner.

iii) Install cabinet fronts plumb.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Grounding electrodes and conductors.

ii) Equipment grounding conductors.

iii) Bonding.

b) REFERENCES

ANSI/NFPA 70 - National Electrical Code.

c) GROUNDING ELECTRODE SYSTEM

i) Metal underground water pipe.

ii) Metal frame of the building.

iii) Ground ring specified in Section 02781.

iv) Rod electrode.

d) PERFORMANCE REQUIREMENTS

Grounding System Resistance:

e) SUBMITTALS

i) Product Data: Provide data for grounding electrodes and connections.

ii) Test Reports: Indicate overall resistance to ground and resistance of each electrode.

f) PROJECT RECORD DOCUMENTS

i) Accurately record actual locations of grounding electrodes.

B. Work in accordance with Section 01720.

g) REGULATORY REQUIREMENTS

i) Conform to requirements of ANSI/NFPA 70.

ii) Furnish products listed and classified by Underwriters Laboratories, Inc. or testing firm acceptable to authority having jurisdiction as suitable for purpose specified and shown.

PART 2) PRODUCTS

a) ROD ELECTRODE

i) Material: Copper-clad steel.

ii) Diameter: 3/4 inch

iii) Length: 10 foot sections, overall length per drawings

b) MECHANICAL CONNECTORS

i) Manufacturers:

(1) Burndy Model QPX3428

2. Or Approved Equal

ii) Material: Bronze.

c) EXOTHERMIC CONNECTIONS

i) Manufacturers:

(1) Cadweld

2. Or Approved Equal

d) WIRE

i) Material: Stranded copper.

ii) Foundation Electrodes: 4/0 AWG.

iii) Grounding Electrode Conductor: Size to meet NFPA 70 requirements.

e) GROUNDING WELL COMPONENTS PER DRAWINGS

PART 3) EXECUTION

a) EXAMINATION

i) Verify that final backfill and compaction has been completed before driving rod electrodes.

b) INSTALLATION

i) Install Products in accordance with manufacturer's instructions.

ii) Install rod electrodes at locations indicated. Install additional rod electrodes as required to achieve specified resistance to ground.

iii) Provide grounding well pipe with cover at rod locations where indicated. Install well pipe top flush with finished grade.

iv) Provide grounding electrode conductor and connect to reinforcing steel in foundation footing where indicated.

v) Provide bonding to meet Regulatory Requirements.

vi) Bond together metal siding not attached to grounded structure; bond to ground.

vii) Equipment Grounding Conductor: Provide separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing.

c) FIELD QUALITY CONTROL

i) Inspect grounding and bonding system conductors and connections for tightness and proper installation.

ii) Use a low resistance type "megger" to measure resistance to ground of system. Perform testing in accordance with the fall-of-potential method as described in James G Biddle Publication No. 25-T. If measured resistance exceeds 3 ohms, additional ground rods may be required.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Conduit and equipment supports.

ii) Anchors and fasteners.

b) REFERENCES

i) NECA - National Electrical Contractors Association.

ii) ANSI/NFPA 70 - National Electrical Code.

1.3 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2) PRODUCTS

a) PRODUCT REQUIREMENTS

i) Materials and Finishes: Provide adequate corrosion resistance.

ii) Provide materials, sizes, and types of anchors, fasteners and supports to carry the loads of equipment and conduit. Consider weight of wire in conduit when selecting products.

iii) Anchors and Fasteners:
(1) Concrete Structural Elements: Use expansion anchors.
(2) Steel Structural Elements: Use beam clamps.
(3) Concrete Surfaces: Use expansion anchors.
(4) Hollow Masonry, Plaster, and Gypsum Board Partitions: Use toggle bolts and hollow wall fasteners.
(5) Solid Masonry Walls: Use expansion anchors.
(6) Sheet Metal: Use sheet metal screws.
(7) Wood Elements: Use wood screws.

b) STEEL CHANNEL

i) Manufacturer:

(1) Kindorf
(2) Unistrut
(3) Superstrut
(4) Or Approved Equal

ii) Description: Aluminum unless noted otherwise

PART 3) EXECUTION

a) INSTALLATION

i) Install products in accordance with manufacturer's instructions.

ii) Provide anchors, fasteners, and supports in accordance with NECA "Standard of Installation".

iii) Do not fasten supports to pipes, ducts, mechanical equipment, and conduit.

iv) Do not use spring steel clips and clamps.

v) Do not use powder-actuated anchors.

vi) Obtain permission from Architect/Engineer before drilling or cutting structural members.

vii) Fabricate supports from structural steel or steel channel. Rigidly weld members or use hexagon head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.

viii) Install surface-mounted cabinets and panelboards with minimum of four anchors.

ix) In wet and damp locations use aluminum channel supports to stand cabinets and panelboards one inch off wall.

x) Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.

K. Conduit supports should be arranged to avoid contact between aluminum conduit and carbon steel supports by installing Micarta barrier between support material and conduit or with a tape wrap of Scotch No. 50 at the conduit contact area.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Nameplates.

ii) Wire and cable markers.

iii) Conduit markers.

b) REFERENCES

i) ANSI/NFPA 70 - National Electrical Code.

c) REGULATORY REQUIREMENTS

i) Conform to requirements of ANSI/NFPA 70.

PART 2) PRODUCTS

a) NAMEPLATES

i) Nameplates: Engraved three-layer laminated plastic, black letters on white background, 1-inch high by 3-inches wide, minimum size.

ii) Locations:
(1) Each electrical distribution and control equipment enclosure.
(2) Communication cabinets.
(3) Field control stations and push buttons.

iii) Letter Size:
(1) Use 5/32 inch letters for identifying individual equipment and loads, etc.

b) WIRE MARKERS

i) Type: Preprinted "heat shrink" labels for each conductor and/or cable.

ii) Locations: Each conductor at panelboard gutters, pull boxes, outlet and junction boxes, motor control center, and each load connection.

iii) Legend:
(1) Power and Lighting Circuits: Branch circuit or feeder number indicated on drawings.

(2) Control Circuits: Control wire number indicated on schematic and interconnection diagrams on drawings.

c) UNDERGROUND WARNING TAPE

i) Manufacturers:
(1) 3M
(2) Panduit

ii) Description: 4-inch wide plastic tape, colored yellow with suitable warning legend describing buried electrical lines.

PART 3) EXECUTION

a) PREPARATION

Degrease and clean surfaces to receive nameplates.

b) APPLICATION

i) Install nameplate parallel to equipment lines.

ii) Secure nameplate to equipment front using stainless steel screws.

iii) Secure nameplate to inside surface of door on panelboard that is recessed in finished locations.

iv) Identify underground conduits using underground warning tape. Install one tape per trench at 3 inches below finished grade.

END OF SECTION

Part 1. GENERAL

1.01 Scope

A. Provide complete factory assembled generator set equipment with digital (microprocessor-based) electronic generator set controls, digital governor, and digital voltage regulator.

B. Provide factory test, startup by a supplier authorized by the equipment manufacturer(s), and on-site testing of the system.

C. The generator set manufacturer shall warrant all equipment provided under this section, so that there is one source for warranty and product service. Technicians specifically trained and certified by the manufacturer to support the product and employed by the generator set supplier shall service the generator sets.

1.02 Codes and Standards

A. The generator set installation and on-site testing shall conform to the requirements of the following codes and standards, as applicable. The generator set shall include necessary features to meet the requirements of these standards.

1. CSA 282, 1989 Emergency Electrical Power Supply for Buildings
2. IEEE446 – Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications
3. NFPA37 –
4. NFPA70 – National Electrical Code. Equipment shall be suitable for use in systems in compliance to Article 700, 701, and 702.
5. NFPA99 – Essential Electrical Systems for Health Care Facilities
6. NFPA110 – Emergency and Standby Power Systems. The generator set shall meet all requirements for Level 1 systems. Level 1prototype tests required by this standard shall have been performed on a complete and functional unit, component level type tests will not substitute for this requirement.

B. The generator set and supplied accessories shall meet the requirements of the following standards:

1. NEMA MG1. Alternator shall comply with the requirements of the current version this standard as they apply to AC alternators.
2. UL142 – Sub-base Tanks
3. UL1236 – Battery Chargers
4. UL2200. The generator set shall be listed to UL2200 or submit to an independent third party certification process to verify compliance as installed..

C. The control system for the generator set shall comply with the following requirements.

1. CSA C22.2, No. 14 – M91 Industrial Control Equipment.
2. EN50082-2, Electromagnetic Compatibility – Generic Immunity Requirements, Part 2: Industrial.
3. EN55011, Limits and Methods of Measurement of Radio Interference Characteristics of Industrial, Scientific and Medical Equipment.
4. FCC Part 15, Subpart B.
5. IEC8528 part 4. Control Systems for Generator Sets
6. IEC Std 801.2, 801.3, and 801.5 for susceptibility, conducted, and radiated electromagnetic emissions.
7. UL508. The entire control system of the generator set shall be UL508 listed and labeled.
8. UL1236 –Battery Chargers.

D. The generator set manufacturer shall be certified to ISO 9001 International Quality Standard and shall have third party certification verifying quality assurance in design/development, production, installation, and service, in accordance with ISO 9001.

1.03 Acceptable Manufacturers

Only approved bidders shall supply equipment provided under this contract. Equipment specifications for this project are based on generator sets manufactured by Cummins Power Generation with microprocessor-based controls. Equipment by other suppliers that meets the requirement of this specification are acceptable, if approved not less than 2 weeks before scheduled bid date. Proposals must include a line by line compliance statement based on this specification.

Part 2. PRODUCTS

2.01 Generator set

A. Ratings

1. The generator set shall operate at 1800 rpm and at a voltage of: 240 Volts AC, Three phase, 4 wire, ____ hertz.
2. The generator set shall be rated at 60 kW, 75 kVA at 0.8 PF, standby rating, based on site conditions of : Altitude 500 ft. , ambient temperatures up to 122 degrees F (50 degrees C).
3. The generator set rating shall be based on emergency/standby service.

B. Performance

1. Voltage regulation shall be plus or minus 0.5 percent for any constant load between no load and rated load. Random voltage variation with any steady load from no load to full load shall not exceed plus or minus 0.5 percent.
2. Frequency regulation shall be isochronous from steady state no load to steady state rated load. Random frequency variation with any steady load from no load to full load shall not exceed plus or minus 0.5%.
3. The diesel engine-generator set shall accept a single step load of 100% nameplate kW and power factor, less applicable derating factors, with the engine-generator set at operating temperature.
4. Motor starting capability shall be a minimum of 423 kVA. The generator set shall be capable of recovering to a minimum of 90% of rated no load voltage following the application of the specified kVA load at near zero power factor applied to the generator set. Maximum voltage dip on application of this load, considering both alternator performance and engine speed changes shall not exceed 25%.
5. The alternator shall produce a clean AC voltage waveform, with not more than 5% total harmonic distortion at full linear load, when measured from line to neutral, and with not more than 3% in any single harmonic, and no 3rd order harmonics or their multiples. Telephone influence factor shall be less than 40.
6. The generator set shall be certified by the engine manufacturer to be suitable for use at the installed location and rating, and shall meet all applicable exhaust emission requirements at the time of commissioning.

C. Construction

1. The engine-generator set shall be mounted on a heavy-duty steel base to maintain alignment between components. The base shall incorporate a battery tray with hold-down clamps within the rails.
2. All switches, lamps, and meters in the control system shall be oil-tight and dust-tight. All active control components shall be installed within a UL/NEMA 3R enclosure. There shall be no exposed points in the control (with the door open) that operate in excess of 50 volts.

D. Connections

1. The generator set load connections shall be composed of silver or tin plated copper bus bars, drilled to accept mechanical or compression terminations of the number and type as shown on the drawings. Sufficient lug space shall be provided for use with cables of the number and size as shown on the drawings.

2. Power connections to auxiliary devices shall be made at the devices, with required protection located at a wall-mounted common distribution panel.
3. Generator set control interfaces to other system components shall be made on a permanently labeled terminal block assembly. Labels describing connection point functions shall be provided.

2.02 Engine and Engine Equipment

The engine shall be diesel, 4 cycle, radiator and fan cooled. Minimum displacement shall be 4.5 liter, 272 cubic inches, with 4 cylinders. The horsepower rating of the engine at its minimum tolerance level shall be sufficient to drive the alternator and all connected accessories. Two cycle engines are not acceptable. Engine accessories and features shall include:

A. An electronic governor system shall provide automatic isochronous frequency regulation. The governing system dynamic capabilities shall be controlled as a function of engine coolant temperature to provide fast, stable operation at varying engine operating temperature conditions. The control system shall actively control the fuel rate and excitation as appropriate to the state of the generator set. Fuel rate shall be regulated as a function of starting, accelerating to start disconnect speed, accelerating to rated speed. The governing system shall include a programmable warm up at idle and cooldown at idle function. While operating in idle state, the control system shall disable the alternator excitation system.

B. Skid-mounted radiator and cooling system rated for full load operation in 122 degrees F (50 degrees C) ambient as measured at the alternator air inlet. Radiator fan shall be suitable for use in a system with 0.5 in H_2O restriction. Radiator shall be sized based on a core temperature that is 20F higher than the rated operation temperature, or prototype tested to verify cooling performance of the engine/radiator/fan operation in a controlled environment. Radiator shall be provided with a duct adapter flange. The equipment manufacturer shall fill the cooling system with a 50/50-ethylene glycol/water mixture prior to shipping. Rotating parts shall be guarded against accidental contact.

C. Electric starter(s) capable of three complete cranking cycles without overheating.

D. Positive displacement, mechanical, full pressure, lubrication oil pump.

E. Full flow lubrication oil filters with replaceable spin-on canister elements and dipstick oil level indicator.

F. An engine driven, mechanical, positive displacement fuel pump. Fuel filter with replaceable spin-on canister element. Fuel cooler, suitable for operation of the generator set at full rated load in the ambient temperature specified shall be provided if required for operation due to the design of the engine and the installation.

G. Replaceable dry element air cleaner with restriction indicator.

H. Flexible supply and return fuel lines.

I. Engine mounted battery charging alternator, 40-ampere minimum, and solid-state voltage regulator.

J. Coolant heater

1. Engine mounted, thermostatically controlled, coolant heater(s) for each engine. Heater voltage shall be as shown on the project drawings. The coolant heater shall be UL499 listed and labeled.

2. The coolant heater shall be installed on the engine with silicone hose connections. Steel tubing shall be used for connections into the engine coolant system wherever the length of pipe run exceeds 12 inches. The coolant heater installation shall be specifically designed to provide proper venting of the system. The coolant heaters shall provisions to isolate the heater for replacement of the heater element without draining the coolant from the generator set. The quick disconnect/automatic sealing couplers shall allow the heater element to be replaced without draining the engine cooling system or significant coolant loss.

3. The coolant heater shall be provided with a DC thermostat, installed at the engine thermostat housing. An AC power connection box shall be provided for a single AC power connection to the coolant heater system.

4. The coolant heater(s) shall be sized as recommended by the engine manufacturer to warm the engine to a minimum of 104F (40C) in a 40F (4C) ambient, in compliance with NFPA110 requirements, or the temperature required for starting and load pickup requirements of this specification.

K. Provide vibration isolators, spring/pad type, quantity as recommended by the generator set manufacturer. Isolators shall include seismic restraints if required by site location.

L. Starting and Control Batteries shall be calcium/lead antimony type, 24 volt DC, sized as recommended by the engine manufacturer, complete with battery cables and connectors. The batteries shall be capable of a minimum of three complete 15-second cranking cycles at 40F ambient temperature when fully charged.

M. Provide exhaust silencer(s) for each engine of size and type as recommended by the generator set manufacturer and approved by the engine manufacturer. The mufflers shall be critical grade. Exhaust system shall be installed according to the engine manufacturer’s recommendations and applicable codes and standards.

N. Provide a dual wall sub-base fuel storage tank with 145 gallons capacity 24 hour. The tank shall be constructed of corrosion resistant steel and shall be UL 142

listed. The equipment, as installed, shall meet all local and regional requirements for above ground tanks.

2.03 AC Generator

A. The AC generator shall be; synchronous, four pole, 2/3 pitch, revolving field, drip-proof construction, single prelubricated sealed bearing, air cooled by a direct drive centrifugal blower fan, and directly connected to the engine with flexible drive disc. All insulation system components shall meet NEMA MG1 temperature limits for Class H insulation system and shall be UL1446 listed. Actual temperature rise measured by resistance method at full load shall not exceed 105 degrees Centigrade.

B. The generator shall be capable of delivering rated output (kVA) at rated frequency and power factor, at any voltage not more than 5 percent above or below rated voltage.

C. A permanent magnet generator (PMG) shall be included to provide a reliable source of excitation power for optimum motor starting and short circuit performance. The PMG and controls shall be capable of sustaining and regulating current supplied to a single phase or three phase fault at approximately 300% of rated current for not more than 10 seconds.

D. The subtransient reactance of the alternator shall not exceed 15 percent, based on the standby rating of the generator set.

2.04 Generator set Control. The generator set shall be provided with a microprocessor-based control system that is designed to provide automatic starting, monitoring, and control functions for the generator set. The control system shall also be designed to allow local monitoring and control of the generator set, and remote monitoring and control as described in this specification.

The control shall be mounted on the generator set, or may be mounted in a free-standing panel next to the generator set if adequate space and accessibility is available. The control shall be vibration isolated and prototype tested to verify the durability of all components in the system under the vibration conditions encountered.

The generator set mounted control shall include the following features and functions:

A. Control Switches

1. Mode Select Switch. The mode select switch shall initiate the following control modes. When in the RUN or MANUAL position the generator set shall start, and accelerate to rated speed and voltage as directed by the operator. A separate push-button to initiate starting is acceptable. In the OFF position the generator set shall immediately stop, bypassing all time delays. In the AUTO position the generator set shall be ready to accept a signal from a remote device to start and accelerate to rated speed and voltage.

2. EMERGENCY STOP switch. Switch shall be Red "mushroom-head" push-button. Depressing the emergency stop switch shall cause the generator set to immediately shut down, and be locked out from automatic restarting.

3. RESET switch. The RESET switch shall be used to clear a fault and allow restarting the generator set after it has shut down for any fault condition.

4. PANEL LAMP switch. Depressing the panel lamp switch shall cause the entire panel to be lighted with DC control power. The panel lamps shall automatically be switched off 10 minutes after the switch is depressed, or after the switch is depressed a second time.

B. Generator Set AC Output Metering. The generator set shall be provided with a metering set including the following features and functions:

1. Digital metering set, 1% accuracy, to indicate generator RMS voltage and current, frequency, output current, output KW, KW-hours, and power factor. Generator output voltage shall be available in line-to-line and line-to-neutral voltages, and shall display all three-phase voltages (line to neutral or line to line) simultaneously.
2. Analog voltmeter, ammeter, frequency meter, power factor meter, and kilowatt (KW) meter. Voltmeter and ammeter shall display all three phases. Meter scales shall be color coded in the following fashion: green shall indicate normal operating condition, amber shall indicate operation in ranges that indicate potential failure, and red shall indicate failure impending. Metering accuracy shall be within 1% at rated output. Both analog and digital metering are required.
3. The control system shall monitor the total load on the generator set, and maintain data logs of total operating hours at specific load levels ranging from 0 to 110% of rated load, in 10% increments. The control shall display hours of operation at less than 30% load and total hours of operation at more than 90% of rated load.
4. The control system shall log total number of operating hours, total kWH, and total control on hours, as well as total values since reset.

C. Generator Set Alarm and Status Display.

1. The generator set control shall include LED alarm and status indication lamps. The lamps shall be high-intensity LED type. The lamp condition shall be clearly apparent under bright room lighting conditions. Functions indicated by the lamps shall include:

   - The control shall include five configurable alarm-indicating lamps. The lamps shall be field adjustable for any status, warning, or shutdown function monitored by the genset. They shall also be configurable for color, and control action (status, warning, or shutdown).

   - The control shall include green lamps to indicate that the generator set is running at rated frequency and voltage, and that a remote start signal has

been received at the generator set. The running signal shall be based on actual sensed voltage and frequency on the output terminals of the generator set.

- The control shall include a flashing red lamp to indicate that the control is not in automatic state, and red common shutdown lamp.
- The control shall include an amber common warning indication lamp.

2. The generator set control shall indicate the existence of the warning and shutdown conditions on the control panel. All conditions indicated below for warning shall be field-configurable for shutdown. Conditions required to be annunciated shall include:

low oil pressure (warning)
low oil pressure (shutdown)
oil pressure sender failure (warning)
low coolant temperature (warning)
high coolant temperature (warning)
high coolant temperature (shutdown)
high oil temperature (warning)
engine temperature sender failure (warning)
low coolant level (warning)
fail to crank (shutdown)
fail to start/overcrank (shutdown)
overspeed (shutdown)
low DC voltage (warning)
high DC voltage (warning)
weak battery (warning)
low fuel-daytank (warning)
high AC voltage (shutdown)
low AC voltage (shutdown)
under frequency (shutdown)
over current (warning)
over current (shutdown)
short circuit (shutdown)
over load (warning)
emergency stop (shutdown)
(4) configurable conditions

3. Provisions shall be made for indication of four customer-specified alarm or shutdown conditions. Labeling of the customer-specified alarm or shutdown conditions shall be of the same type and quality as the above-specified conditions. The non-automatic indicating lamp shall be red, and shall flash to indicate that the generator set is not able to automatically respond to a command to start from a remote location.

D. Engine Status Monitoring.

1. The following information shall be available from a digital status panel on the generator set control :

   engine oil pressure (psi or kPA)
   engine coolant temperature (degrees F or C)
   engine oil temperature (degrees F or C)
   engine speed (rpm)
   number of hours of operation (hours)
   number of start attempts
   battery voltage (DC volts)

2. The control system shall also incorporate a data logging and display provision to allow logging of the last 10 warning or shutdown indications on the generator set, as well as total time of operation at various loads, as a percent of the standby rating of the generator set.

E. Engine Control Functions.

1. The control system provided shall include a cycle cranking system, which allows for user selected crank time, rest time, and # of cycles. Initial settings shall be for 3 cranking periods of 15 seconds each, with 15-second rest period between cranking periods.
2. The control system shall include an idle mode control, which allows the engine to run in idle mode in the RUN position only. In this mode, the alternator excitation system shall be disabled.
3. The control system shall include an engine governor control, which functions to provide steady state frequency regulation as noted elsewhere in this specification. The governor control shall include adjustments for gain, damping, and a ramping function to control engine speed and limit exhaust smoke while the unit is starting.
4. The control system shall include time delay start (adjustable 0-300 seconds) and time delay stop (adjustable 0-600 seconds) functions.
5. The control system shall include sender failure monitoring logic for speed sensing, oil pressure, and engine temperature which is capable of discriminating between failed sender or wiring components, and an actual failure conditions.

F. Alternator Control Functions:

1. The generator set shall include a full wave rectified automatic digital voltage regulation system that is matched and prototype tested by the engine manufacturer with the governing system provided. It shall be immune from misoperation due to load-induced voltage waveform distortion and provide a pulse width modulated output to the alternator exciter. The voltage regulation system shall be equipped with three-phase line to neutral RMS sensing and shall control buildup of AC generator voltage to provide a linear rise and limit overshoot. The system shall include a torque-matching characteristic, which shall reduce output voltage in proportion to frequency below an adjustable frequency threshold. Torque matching characteristic shall be adjustable for roll-off frequency and rate, and be capable of being curve-matched to the engine torque curve with adjustments in the field. The voltage regulator shall include adjustments for gain, damping, and frequency roll-off. Adjustments shall be broad range, and made via digital raise-lower switches, with an alphanumeric LED readout to indicate setting level. Rotary potentiometers for system adjustments are not acceptable.

2. A microprocessor-based protection device shall be provided to individually monitor all phases of the output current of the generator set and initiate an alarm (over current warning) when load current exceeds 110% of the rated current of the generator set on any phase for more than 60 seconds. The device shall shut down and lock out the generator set when output current level approaches the thermal damage point of the alternator (over current shutdown). The protective functions provided shall be in compliance to the requirements of NFPA70 article 445.

3. A microprocessor-based protection device shall be provided to monitor all phases of the output current for short circuit conditions. The control/protection system shall monitor the current level and voltage. The controls shall shut down and lock out the generator set when output current level approaches the thermal damage point of the alternator (short circuit shutdown). The protective functions provided shall be in compliance to the requirements of NFPA70 article 445.

4. Controls shall be provided to monitor the KW load on the generator set, and initiate an alarm condition (over load) when total load on the generator set exceeds the generator set rating for in excess of 5 seconds. Controls shall include a load shed control, to operate a set of dry contacts (for use in shedding customer load devices) when the generator set is overloaded.

5. A microprocessor-based AC over/under voltage monitoring system that responds only to true RMS voltage conditions shall be provided. The system shall initiate shutdown of the generator set when alternator output voltage exceeds 110% of the operator-set voltage level for more than 10 seconds, or with no intentional delay when voltage exceeds 130%. Under voltage shutdown shall occur when the output voltage of the alternator is less than 85% for more than 10 seconds. The system shall monitor individual phases and be

connected line to neutral on 3-phase 4-wire generator sets, and for systems that are solidly grounded.

G. Other Control Functions

1. The generator set shall be provided with a network communication module to allow LonMark compliant communication with the generator set control by remote devices. The control shall communicate all engine and alternator data, and allow starting and stopping of the generator set via the network in both test and emergency modes.

2. A battery monitoring system shall be provided which initiates alarms when the DC control and starting voltage is less than 25VDC or more than 32 VDC. During engine cranking (starter engaged), the low voltage limit shall be disabled, and DC voltage shall be monitored as load is applied to the battery, to detect impending battery failure or deteriorated battery condition.

H. Control Interfaces for Remote Monitoring:

1. The control system shall provide four programmable output relays. These relay outputs shall be configurable for any alarm, shutdown, or status condition monitored by the control. The relays shall be configured to indicate: (1) generator set operating at rated voltage and frequency, (2) common warning, (3) common shutdown, (4) load shed command.

2. A fused 10 amp switched 24VDC power supply circuit shall be provided for customer use. DC power shall be available from this circuit whenever the generator set is running.

3. A fused 10 amp 24VDC power supply circuit shall be provided for customer use. DC power shall be available from this circuit at all times from the engine starting/control batteries.

4. The control shall be provided with a direct serial communication link for the LonWorks communication network interface as described elsewhere in this specification and shown on the drawings.

2.05 Other equipment to be provided with the generator set

A. The generator set shall be provided with a mounted main line circuit breaker, sized to carry the rated output current of the generator set. The circuit breaker shall incorporate an electronic trip unit that operates to protect the alternator under all overcurrent conditions, or a thermal-magnetic trip with other overcurrent protection devices that positively protect the alternator under overcurrent conditions. The supplier shall submit time overcurrent characteristic curves and thermal damage curve for the alternator, demonstrating the effectiveness of the protection provided.

B. Outdoor Weather-Protective Enclosure

1. The generator set shall be provided with an outdoor enclosure, with the entire package listed under UL2200. The package shall comply with the requirements

of the National Electrical Code for all wiring materials and component spacing. The total assembly of generator set, enclosure, and sub-base fuel tank (when used) shall be designed to be lifted into place using spreader bars. Housing shall provide ample airflow for generator set operation at rated load in an ambient temperature of 100F. The housing shall have hinged access doors as required to maintain easy access for all operating and service functions. All doors shall be lockable, and include retainers to hold the door open during service. Enclosure roof shall be cambered to prevent rainwater accumulation. Openings shall be screened to limit access of rodents into the enclosure. All electrical power and control interconnections shall be made within the perimeter of the enclosure.

2. All sheet metal shall be primed for corrosion protection and finish painted with the manufacturers standard color using a two step electrocoating paint process, or equal meeting the performance requirements specified below. All surfaces of all metal parts shall be primed and painted. The painting process shall result in a coating that meets the following requirements:

   Primer thickness, 0.5-2.0 mils. Top coat thickness, 0.8-1.2 mils.

   Gloss, per ASTM D523-89, 80% plus or minus 5%. Gloss retention after one year shall exceed 50%.

   Crosshatch adhesion, per ASTM D3359-93, 4B-5B.

   Impact resistance, per ASTM D2794-93, 120-160 inch-pounds.

   Salt Spray, per ASTM B117-90, 1000+ hours.

   Humidity, per ASTM D2247-92, 1000+ hours.

   Water Soak, per ASTM D2247-92, 1000+ hours.

3. Painting of hoses, clamps, wiring harnesses, and other non-metallic service parts shall not be acceptable. Fasteners used shall be corrosion resistant, and designed to minimize marring of the painted surface when removed for normal installation or service work.

4. Enclosure shall be constructed of minimum 12 gauge steel for framework and 14 gauge steel for panels. All hardware and hinges shall be stainless steel.

5. A factory-mounted exhaust silencer shall be installed inside the enclosure. The exhaust shall exit the enclosure through a rain collar and terminate with a rain cap. Exhaust connections to the generator set shall be through seamless flexible connections.

6. The enclosure shall include the following maintenance provisions:

   - Flexible coolant and lubricating oil drain lines, that extend to the exterior of the enclosure, with internal drain valves
   - External radiator fill provision.

C. Provide a sub-base fuel tank for the generator set, sized to allow for full load operation of the generator set for 24 hours. The sub-base fuel tank shall be

UL142 listed and labeled. Installation shall be in compliance to NFPA37. The fuel tank shall be a double-walled, steel construction and include the following features:

1. Emergency tank and basin vents.
2. Mechanical level gauge.
3. Fuel supply and return lines, connected to generator set with flexible fuel lines as recommended by the engine manufacturer and in compliance to UL2200 and NFPA 37 requirements.
4. Leak detection provisions, wired to the generator set control for local and remote alarm indication.
5. High and low level float switches to indicate fuel level. Wire switches to generator control for local and remote indication of fuel level
6. Basin drain.
7. Integral lifting provisions.

Part 3. OPERATION

3.01 Sequence of Operation

A. Generator set shall start on receipt of a start signal from remote equipment. The start signal shall be via hardwired connection to the generator set control and a redundant signal over the required network connection.

B. The generator set shall complete a time delay start period as programmed into the control.

C. The generator set control shall initiate the starting sequence for the generator set. The starting sequence shall include the following functions:

D. The control system shall verify that the engine is rotating when the starter is signaled to operate. If the engine does not rotate after two attempts, the control system shall shut down and lock out the generator set, and indicate “fail to crank” shutdown.

E. The engine shall fire and accelerate as quickly as practical to start disconnect speed. If the engine does not start, it shall complete a cycle cranking process as described elsewhere in this specification. If the engine has not started by the completion of the cycle cranking sequence, it shall be shut down and locked out, and the control system shall indicate “fail to start”.

F. The engine shall accelerate to rated speed and the alternator to rated voltage. Excitation shall be disabled until the engine has exceeded programmed idle speed, and regulated to prevent over voltage conditions and oscillation as the engine accelerates and the alternator builds to rated voltage.

G. On reaching rated speed and voltage, the generator set shall operate as dictated by the control system in isochronous state.

H. When all start signals have been removed from the generator set, it shall complete a time delay stop sequence. The duration of the time delay stop period shall be adjustable by the operator.

I. On completion of the time delay stop period, the generator set control shall switch off the excitation system and shall shut down.

J. Any start signal received after the time stop sequence has begun shall immediately terminate the stopping sequence and return the generator set to isochronous operation.

Part 4. OTHER REQUIREMENTS

4.01 Submittals.

A. Within 10 days after award of contract, provide six sets of the following information for review:

- Manufacturer’s product literature and performance data, sufficient to verify compliance to specification requirements.
- A paragraph by paragraph specification compliance statement, describing the differences between the specified and the proposed equipment.
- Manufacturer's certification of prototype testing.
- Manufacturer's published warranty documents.
- Shop drawings showing plan and elevation views with certified overall dimensions, as well as wiring interconnection details.
- Interconnection wiring diagrams showing all external connections required; with field wiring terminals marked in a consistent point-to-point manner.
- Manufacturer's installation instructions.

4.02 Factory Testing.

A. The generator set manufacturer shall perform a complete operational test on the generator set prior to shipping from the factory. A certified test report shall be provided. Equipment supplied shall be fully tested at the factory for function and performance.

B. Factory testing may be witnessed by the owner and consulting engineer. Costs for travel expenses will be the responsibility of the owner and consulting engineer. Supplier is responsible to provide two weeks notice for testing.

C. Generator set factory tests on the equipment shall be performed at rated load and rated power factor. Generator sets that have not been factory tested at rated power factor will not be acceptable. Tests shall include: run at full load, maximum power, voltage regulation, transient and steady-state governing, single step load pickup, and function of safety shutdowns.

4.03 Installation

A. Equipment shall be installed by the contractor in accordance with final submittals and contract documents. Installation shall comply with applicable state and local codes as required by the authority having jurisdiction. Install equipment in accordance with manufacturer's instructions and instructions included in the listing or labeling of UL listed products.

B. Installation of equipment shall include furnishing and installing all interconnecting wiring between all major equipment provided for the on-site power system. The contractor shall also perform interconnecting wiring between equipment sections (when required), under the supervision of the equipment supplier.

C. Equipment shall be installed on concrete housekeeping pads. Equipment shall be permanently fastened to the pad in accordance with manufacturer’s instructions and seismic requirements of the site.

D. Equipment shall be initially started and operated by representatives of the manufacturer.

E. All equipment shall be physically inspected for damage. Scratches and other installation damage shall be repaired prior to final system testing. Equipment shall be thoroughly cleaned to remove all dirt and construction debris prior to initial operation and final testing of the system.

4.04 On-Site Acceptance Test:

A. The complete installation shall be tested for compliance with the specification following completion of all site work. Testing shall be conducted by representatives of the manufacturer, with required fuel supplied by Contractor. The Engineer shall be notified in advance and shall have the option to witness the tests.

B. Installation acceptance tests to be conducted on-site shall include a "cold start" test, a two hour full load test, and a one step rated load pickup test in accordance

with NFPA 110. Provide a resistive load bank and make temporary connections for full load test, if necessary.

C. Perform a power failure test on the entire installed system. This test shall be conducted by opening the power supply from the utility service, and observing proper operation of the system for at least 2 hours. Coordinate timing and obtain approval for start of test with site personnel.

4.05 Training

A. The equipment supplier shall provide training for the facility operating personnel covering operation and maintenance of the equipment provided. The training program shall be not less than 4 hours in duration and the class size shall be limited to 5 persons. Training date shall be coordinated with the facility owner.

4.06 Service and support

A. The manufacturer of the generator set shall maintain service parts inventory at a central location which is accessible to the service location 24 hours per day, 365 days per year.

B. The generator set shall be serviced by a local service organization that is trained and factory certified in generator set service. The supplier shall maintain an inventory of critical replacement parts at the local service organization, and in service vehicles. The service organization shall be on call 24 hours per day, 365 days per year.

C. The manufacturer shall maintain model and serial number records of each generator set provided for at least 20 years.

4.07 Warranty

A. The generator set and associated equipment shall be warranted for a period of not less than 5 years from the date of commissioning against defects in materials and workmanship.

B. The warranty shall be comprehensive. No deductibles shall be allowed for travel time, service hours, repair parts cost, etc.

END OF SECTION

Transfer Switches

Part 1. GENERAL

1.01 Scope

A. Provide complete factory assembled power transfer equipment with electronic controls designed for designed for fully automatic operation and including: surge voltage isolation, voltage sensors on all phases of the normal source and one phase of the emergency source, positive mechanical and electrical interlocking, and mechanically held contacts for both sources.

B. The generator set manufacturer shall warrant transfer switches to provide a single source of responsibility for all the products provided. Technicians specifically trained to support the product and employed by the generator set supplier shall service the transfer switches.

1.02 Codes and Standards

A. The automatic transfer switch shall conform to the requirements of the following codes and standards:

1. **UL1008. The transfer switch shall be UL listed and labeled.**
2. **CSA C22.2, No. 14 – M91 Industrial Control Equipment.**
3. **CSA 282, Emergency Electrical Power Supply for Buildings**
4. **IEEE Standard C62.41 and C62.45.**
5. **NFPA70 – National Electrical Code. Equipment shall be suitable for use in systems in compliance to Article 700, 701, and 702.**
6. **NFPA99 – Essential Electrical Systems for Health Care Facilities**
7. **NFPA110 – Emergency and Standby Power Systems. The transfer switch shall meet all requirements for Level 1 systems.**
8. **IEEE446 – Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications.**
9. **NEMA ICS10-1993 – AC Automatic Transfer Switches.**

B. The transfer switch manufacturer shall be certified to ISO 9001 International Quality Standard and shall have third party certification verifying quality assurance in design/development, production, installation, and service, in accordance with ISO 9001.

1.03 Acceptable Manufacturers

Only approved bidders shall supply equipment provided under this contract. Equipment specifications for this project are based on transfer switches manufactured by Cummins Onan. Equipment by other suppliers that meets the requirement of this specification are acceptable, if approved not less than 2 weeks before scheduled bid date. Proposals must include a line by line compliance statement based on this specification.

Part 2. PRODUCTS

2.01 Power Transfer Switch

A. Ratings

1. **Refer to the project drawings for specifications on the sizes and types of transfer switch equipment, withstand and closing ratings, number of poles, voltage and ampere ratings, enclosure type, and accessories.**
2. **Main contacts shall be rated for the operation voltage as installed.**
3. **Transfer switches shall be rated to carry 100 percent of rated current continuously in the enclosure supplied, in ambient temperatures of -40 to +60 degrees C, relative humidity up to 95% (non-condensing), and altitudes up to 10,000 feet (3000M).**
4. **Transfer switch equipment shall have withstand and closing ratings (WCR) in RMS symmetrical amperes greater than the available fault currents shown on the drawings. The transfer switch and its upstream protection shall be coordinated. The transfer switch shall be third party listed and labeled for use with the specific protective device(s) installed in the application.**

B. Construction

1. **Transfer switches shall be double-throw, electrically and mechanically interlocked, and mechanically held in the source 1 and source 2 positions.**
2. **Transfer switch internal wiring shall be composed of pre-manufactured harnesses that are permanently marked for source and destination. Harnesses shall be connected to the control system by means of locking disconnect plug(s), to allow the control system to be easily disconnected and serviced without disconnecting power from the transfer switch mechanism.**
3. **Transfer switch shall be provided with flame retardant transparent covers to allow viewing of switch contact operation but prevent direct contact with line voltage components.**
4. **Transfer switches shall be 3-pole and shall be provided with a neutral bus and lugs. The neutral bus shall be sized to carry 100% of the current designated on the switch rating.**
5. **Enclosures shall be UL listed and NEMA 1 rated. The enclosure shall provide NEC wire bend space when both sources and the load are all connected from either the top or bottom of the transfer switch. The cabinet door shall be key-locking.**

C. Connections

1. **Field control connections shall be made on a common terminal block that is clearly and permanently labeled.**
2. **Transfer switch shall be provided with AL/CU mechanical lugs sized to accept the full output rating of the generator set.**

2.02 Transfer Switch Control

A. Solid-state under voltage sensors shall simultaneously monitor both sources. Pick-up and drop-out settings shall be adjustable. Voltage sensors shall have field calibration of actual supply voltage to nominal system voltage.

B. Automatic controls shall signal the engine-generator set to start upon signal from normal source sensor. Solid-state time delay start, adjustable from 0 to 15 seconds (factory set at 2 seconds) shall avoid nuisance start-ups. Battery voltage starting contacts shall be silver, dry type contacts factory wired to a field wiring terminal block.

C. The switch shall transfer when the emergency source reaches the set point. Provide a solid-state time delay on transfer, adjustable from 2 to 120 seconds, factory set at 3 seconds.

D. The switch shall retransfer the load to the normal source after a time delay retransfer, adjustable from 6 seconds to 30 minutes, factory set at 5 minutes. Retransfer time delay shall be immediately bypassed if the emergency power source fails.

E. Controls shall signal the engine-generator set to stop after a time delay, adjustable from 2 seconds to 10 minutes, and factory set at 5 minutes, beginning on return to the normal source.

F. The control system shall include field adjustable provisions to control the speed of transfer of the transfer switch.

G. Power for transfer operation shall be from the source to which the load is being transferred.

H. The control shall include latching diagnostic indicators to pinpoint the last successful step in the sequence of control functions, and to indicate the present status of the control functions in real time, as follows:

Normal Available	Start (Gen Set)	Emergency Available
Transfer Timing	Transfer Complete	Retransfer Timing
Retransfer Complete	Timing for Stop	

I. The transfer switch shall be provided with a battery charger for the generator set starting batteries. The battery charger shall be a float type charger rated 10 amps. The battery charger shall include an ammeter for display of charging current and shall have fused AC inputs and DC outputs. The charger shall also include fault indications for high and low dc voltage, and supply power failed, and dry contacts for external indication of these fault conditions. Supply power failed indication shall be displayed on the ATS control panel.

J. Provide solid state exerciser clock to set the day, time, and duration of generator set exercise/test period. Provide a with/without load selector switch for the exercise period.

2.03 Front Panel Devices:

Provide control switches mounted on cabinet front for:

A. Test - Simulates normal power loss to control for testing of generator set. Controls shall provide for a test with or without load transfer.

B. Retransfer - Momentary position to override retransfer time delay and cause immediate return to normal source, if available.

C. Provide LED-type switch position and source available indicator lamps on the front of the transfer switch cabinet.

D. Provide manual overide switch to bypass the control system and transfer load from source to source when control is disabled.

2.04 Control Interface

A. The transfer switch will provide an isolated relay contact for starting of a generator set. The relay shall be normally held open, and close to start the generator set. Output contacts shall be form C, for compatibility with any generator set.

B. Provide one set Form C auxiliary contacts on both sides, operated by transfer switch position, rated 10 amps 250 VAC.

C. The transfer switch shall provide relay contacts to indicate the following conditions: source 1 available, load connected to source 1, source 2 available, source 2 connected to load.

2.05 Enclosure

A. Enclosures shall be UL listed. The cabinet door shall be key-locking.

B. Transfer switch equipment shall be provided in a NEMA 4x or better enclosure.

C. Enclosures shall be the NEMA type specified. The cabinet shall provide code-required wire bend space at point of entry as shown on the drawings. Manual operating handles and all control switches (other than key-operated switches) shall be accessible to authorized personnel only by opening the key-locking cabinet door. Transfer switches with manual operating handles and/or non key-operated control switches located on outside of cabinet do not meet this specification and are not acceptable.

Part 3. OPERATION

3.01 Open Transition Sequence of Operation

A. Transfer switch normally connects an energized utility power source (source 1) to loads and a generator set (source 2) to the loads when normal source fails. The normal position of the transfer switch is source 1 (connected to the utility), and no start signal is supplied to the genset.

B. Generator Set Exercise (Test) With Load Mode. The control system shall be configurable to test the generator set under load. In this mode, the transfer switch shall control the generator set in the following sequence:

1. **Transfer switch shall initiate the exercise sequence at a time indicated in the exercise timer program, or when manually initiated by the operator.**
2. **When the control systems senses the generator set at rated voltage and frequency, it shall operate to connect the loads to the generator set by opening the normal source contacts, and closing the alternate source contacts a predetermined time period later. The timing sequence for the contact operation shall be programmable in the controller.**
3. **The generator set shall operate connected to the load for the duration of the exercise period. If the generator set fails during this period, the transfer switch shall automatically reconnect the generator set to the normal service.**
4. **On completion of the exercise period, the transfer switch shall operate to connect the loads to the normal source by opening the alternate source contacts, and closing the normal source contacts a predetermined time period later. The timing sequence for the contact operation shall be programmable in the controller.**
5. **The transfer switch shall operate the generator set unloaded for a cooldown period, and then remove the start signal from the generator set. If the normal power fails at any time when the generator set is running, the transfer switch shall immediately connect the system loads to the generator set.**

C. Generator Set Exercise (Test) Without Load Mode. The control system shall be configurable to test the generator set without transfer switch load connected. In this mode, the transfer switch shall control the generator set in the following sequence:

1. **Transfer switch shall initiate the exercise sequence at a time indicated in the exercise timer program, or when manually initiated by the operator.**
2. **When the control systems senses the generator set at rated voltage and frequency, it shall operate the generator set unloaded for the duration of the exercise period.**
3. **At the completion of the exercise period, the transfer switch shall remove the start signal from the generator set. If the normal power fails at any time when the generator set is running, the transfer switch shall immediately connect the system loads to the generator set.**

Part 4. OTHER REQUIREMENTS

4.01 Factory Testing. The transfer switch supplier shall perform a complete operational test on the transfer switch prior to shipping from the factory. A certified test report shall be available on request. Test process shall include calibration of voltage sensors.

4.02 Service and support

A. The manufacturer of the transfer switch shall maintain service parts inventory at a central location which is accessible to the service location 24 hours per day, 365 days per year.

B. The transfer switch shall be serviced by a local service organization that is trained and factory certified in both generator set and transfer switch service. The supplier shall maintain an

inventory of critical replacement parts at the local service organization, and in service vehicles. The service organization shall be on call 24 hours per day, 365 days per year.

C. The manufacturer shall maintain model and serial number records of each transfer switch provided for at least 20 years.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) Manual motor starters.

ii) Magnetic motor starters.

iii) Combination magnetic motor starters.

b) REFERENCES

i) NFPA 70 - National Electrical Code.

ii) NECA "Standard of Installation," published by National Electrical Contractors Association.

iii) NEMA AB 1 - Molded Case Circuit Breakers.

iv) NEMA ICS 2 - Industrial Control Devices, Controllers, and Assemblies.

v) NEMA ICS 6 - Enclosures for Industrial Controls and Systems.

vi) NEMA KS 1 - Enclosed Switches.

c) SUBMITTALS

i) Shall be in accordance with the Special Provisions Section.

ii) Product Data: Provide catalog sheets showing voltage, controller size, ratings and size of switching and overcurrent protective devices, short circuit ratings, dimensions, and enclosure details.

iii) Test Reports: Indicate field test and inspection procedures and test results.

iv) Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of Product.

d) QUALITY ASSURANCE

Perform Work in accordance with NECA Standard of Installation.

e) QUALIFICATIONS

Manufacturer: Company specializing in manufacturing the Products specified in this section.

f) REGULATORY REQUIREMENTS

i) Conform to requirements of NFPA 70.

ii) Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and indicated.

PART 2) PRODUCTS

a) MANUFACTURERS

A. Square D Company

B. Or Approved Equal

b) MANUAL CONTROLLERS

i) Manual Motor Controller: NEMA ICS 2, AC general-purpose Class A manually operated, full-voltage controller with overload element, and toggle operator.

ii) Fractional Horsepower Manual Controller: NEMA ICS 2, AC general-purpose Class A manually operated, full-voltage controller for fractional horsepower induction motors, with thermal overload unit, and toggle operator.

iii) Motor Starting Switch: NEMA ICS 2, AC general-purpose Class A manually operated, full-voltage controller for fractional horsepower induction motors, without thermal overload unit, with toggle operator.

iv) Enclosure: NEMA ICS 6; Type 4.

c) AUTOMATIC CONTROLLERS

i) Magnetic Motor Controllers: NEMA ICS 2, AC general-purpose Class A magnetic controller for induction motors rated in horsepower.

ii) Coil operating voltage: 120 volts, 60 Hertz.

iii) Overload Relay: NEMA ICS; melting alloy.

iv) Enclosure: NEMA ICS 6, Type 3R.

d) PRODUCT OPTIONS AND FEATURES

i) Auxiliary Contacts: NEMA ICS 2, 2 each normally field convertible contacts in addition to seal-in contact.

ii) Cover Mounted Pilot Devices: NEMA ICS 2, heavy duty type.

iii) Pilot Device Contacts: NEMA ICS 2, Form Z, rated A150.

iv) Pushbuttons: covered type.

v) Indicating Lights: incandescent type with 120/6V transformer, press-to-test.

vi) Selector Switches: Rotary type.

vii) Control Power Transformers: 120 volt secondary, "va" minimum as required, in each motor starter. Provide fused primary and secondary, and bond unfused leg of secondary to enclosure.

e) DISCONNECTS

i) Combination Controllers: Combine motor controllers with motor circuit protector disconnect in common enclosure.

ii) Motor Circuit Protector: NEMA AB 1, circuit breakers with integral instantaneous magnetic trip in each pole.

PART 3) EXECUTION

a) INSTALLATION

i) Install enclosed controllers where indicated, in accordance with manufacturer's instructions.

ii) Install enclosed controllers plumb. Provide supports in accordance with Section 16190.

iii) Height: 5 ft (1.6 M) to operating handle.

iv) Select and install overload heater elements in motor controllers to match installed motor characteristics.

v) Provide engraved plastic nameplates under the provisions of Section 16195.

vi) Provide neatly typed label inside each motor controller door identifying motor served, nameplate horsepower, full load amperes, code letter, service factor, and voltage/phase rating.

b) FIELD QUALITY CONTROL

i) Field inspection and testing will be performed under provisions of Section 15990.

ii) Inspect and test each enclosed controller to NEMA ICS 2.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

i) General purpose contactors.

ii) Lighting contactors.

b) REFERENCES

i) ANSI/NEMA ICS 6 - Enclosures for Industrial Controls and Systems.

ii) NEMA ICS 2 - Industrial Control Devices, Controllers, and Assemblies.

iii) ANSI/NFPA 70 - National Electrical Code.

1.3 OPERATION AND MAINTENANCE DATA

A. Submit under provisions of Section 01730 - Operating and Maintenance Data.

B. Maintenance Data: Include instructions for replacing and maintaining coil and contacts.

1.4 QUALIFICATIONS

Manufacturer: Company specializing in manufacturing products specified in this Section.

1.5 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2) PRODUCTS

a) MANUFACTURERS - GENERAL PURPOSE CONTACTORS

i) Square D Company

ii) Or Approved Equal

b) GENERAL PURPOSE CONTACTORS

i) Description: NEMA ICS 2, AC general purpose magnetic contactor.

ii) Coil Voltage: 120 volts, 60 Hertz

iii) Poles: As indicated.

iv) Size: As indicated.

v) Enclosure: ANSI/NEMA ICS 6, as required to meet conditions of installation.

vi) Accessories: As shown.

c) MANUFACTURERS - LIGHTING CONTACTORS

i) Square D Company

ii) Or Approved Equal

d) LIGHTING CONTACTORS

i) Description: NEMA ICS 2, magnetic lighting contactor.

ii) Configuration: Electrically held 2 wire control.

iii) Coil Voltage: 120 volts, 60 Hertz

iv) Poles: As Indicated

v) Contact Rating: as indicated on drawings.

F. Accessories:

(1) Selector Switch: ON/OFF/AUTOMATIC.
(2) Indicating Light: RED.
3. Control Power Transformer: As required, sized by manufacturer.

e) ACCESSORIES

i) Selector Switches: NEMA ICS 2, heavy duty type

ii) Indicating Lights:NEMA ICS 2, push-to-test type.

PART 3) EXECUTION

a) INSTALLATION

Install in accordance with manufacturer's instructions.

END OF SECTION

PART 1) GENERAL

a) SECTION INCLUDES

Lightning Protection System: UL 96A; Master Labeled consisting of structures bonding to structures and other metal objects; grounding electrodes; interconnecting conductors, and control panels.

b) REFERENCES

i) ANSI/NFPA 78 - Lightning Protection Code.

ii) ANSI/UL 96 - Lightning Protection Components.

iii) LPI - Lightning Protection Institute.

iv) UL 96A - Installation Requirements for Lightning Protection Systems.

c) SUBMITTALS

i) Shall be in accordance with Special Provisions Section.

ii) Submit shop drawings showing layout of air terminals, grounding electrodes, and bonding connections to structure and other metal objects. Include terminal, electrode, and conductor sizes, and connection and termination details.

iii) Submit product data showing dimensions and materials of each component, and include indication of listing in accordance with ANSI/UL 96.

iv) Submit manufacturer's installation instructions with Shop Drawings.

d) PROJECT RECORD DOCUMENTS

i) Submit project record documents in accordance with Section 01720.

ii) Accurately record actual locations of air terminals, grounding electrodes, bonding connections, and routing of system conductors.

e) QUALIFICATIONS

i) Manufacturer: Company specializing in lightning protection equipment and member of the Lightning Protection Institute.

ii) Installer: Authorized installer of manufacturer and member of the Lightning Protection Institute.

f) SEQUENCING AND SCHEDULING

Coordinate the work of this Section with control panel installations.

PART 2) PRODUCTS

a) MANUFACTURERS

i) Furnish list of equipment with manufacturer's name, model, and description of all components.

B. Innovative Technology, Inc.

b) MATERIALS

i) Components: In accordance with ANSI/UL 96.

ii) Square D Catalog No. SP 3560 (wastewater pumping station control panels).

iii) Grounding Rods: Solid copper.

iv) Ground Plate: Copper.

v) Conductors: Copper cable.

vi) Connectors and Splicers: Bronze

PART 3) EXECUTION

a) EXAMINATION

i) Verify that surfaces are ready to receive work.

ii) Verify that field measurements are as shown on Drawings.

iii) Beginning of installation means installer accepts existing conditions.

b) PROTECTION OF SURROUNDING ELEMENTS

Protect elements surrounding work of this Section from damage or disfiguration.

c) INSTALLATION

i) Install in accordance with manufacturer's instructions.

ii) Install in accordance with UL 96A

d) FIELD QUALITY CONTROL

i) Field inspection and testing will be performed under provisions of Section 15990.

ii) Obtain the services of Underwriters Laboratories, Inc. to provide inspection and certification of the lightning protection system under provisions of UL 96A.

iii) Obtain UL Master Label and attach to building at location directed by Engineer.

END OF SECTION