REQUEST FOR PROPOSAL

FOR

FC-8437

RM CLAYTON WRC INSTRUMENTATION AND CONTROLS RELIABILITY RESTORATION

City of Atlanta

Jo Ann J. Macrina, P.E.
Commissioner
Department of Watershed Management

Adam L. Smith, Esq., CPPO, CPPB, CPPM, CPP,
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CITY OF ATLANTA

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DEPARTMENT OF PROCUREMENT
Adam L. Smith, Esq., CPPO, CPPB, CPPM, CPP
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Chief Procurement Officer
asmith@atlantaga.gov

March 30, 2016

ATTENTION INTERESTED PROPONENTS:

Your firm is hereby invited to submit to the City of Atlanta, Department of Procurement ("**DOP**"), a proposal for **FC-8437, RM Clayton WRC-Instrumentation and Controls Reliability Restoration.** The City of Atlanta, Department of Watershed Management (DWM) is seeking to identify a single qualified company to upgrade various outdated Distributive Control Systems (DCS) and Programmable Logic Controller (PLC) systems as well as add fiber networks and duct banks at the RM Clayton WRC.

A **Pre-Proposal Conference** will be held on **Tuesday, April 12, 2016,** at **11:00 A.M. EDT**, at 55 Trinity Avenue, S.W., Suite 1900 (1st Floor), City Hall South, Atlanta, Georgia 30303. The purpose of the Pre-Proposal Conference is to provide proponents with detailed information regarding the project and to address questions and concerns. There will be representatives from Department of Watershed Management, Risk Management, Office of Contract Compliance, Atlanta Workforce Development Authority and the Ethics Office available at the conference to discuss this project and to answer any questions. Attendance at the Pre-Proposal Conference and Site Visit is strongly encouraged. The Site Visit will be held immediately following the Conference.

The City will host a **Site Visit, at 12:15 P.M.**, at the R.M. Clayton Water Reclamation Center, 2440 Bolton Road, NW, Atlanta, Georgia 30318. Each proponent is responsible for securing travel to the facility. The central location for meeting the designated staff member will be at the gate of the facility between 12:00 noon and 12:15 P.M. Please be prompt to avoid delaying the Site Visit beyond the allotted time. The purpose of the Site Visit is to provide proponents with a visual inspection of the facility. Proponents will be required to sign a release form for the Site Visit and wear Personal Protection Equipment ("**PPE**"). Refer to the Part 4, Required Submittal Forms for the Site Tour Release form and PPE requirements for entry. Further details regarding the Site Visit will be provided at the Pre-Proposal Conference.

There will be an additional Site Visit held on **Thursday, April 14, 2016, at 10:00 A.M. EDT** at the R.M. Clayton Water Reclamation Center, 2440 Bolton Road, NW, Atlanta, Georgia 30318. This additional Site Visit is optional.

Proponents will be allowed to ask questions during the Pre-Proposal Conference on **Tuesday, April 12, 2016**. However, please note that oral answers to questions during the Pre-Proposal Conference are not authoritative. Authoritative responses to all written questions will be published and made available to all proponents in the form of an addendum. The deadline to submit questions in writing is **Monday, April 18, 2016, at 1:00 P.M. EDT.**

Your response to this Request for Proposals ("**RFP**") must be received by designated staff of the Department of Procurement at 55 Trinity Avenue, S.W., Suite 1900 (1st Floor), City Hall South, Atlanta, Georgia 30303, **no later than 2:00 P.M. EDT, Wednesday, May 11, 2016.**

****ABSOLUTELY NO PROPOSALS WILL BE ACCEPTED AFTER 2:00 P.M. EDT****

Proposals will be publicly opened and read at 2:01 P.M. EDT on the respective due date in Suite 1900 (1st Floor), 55 Trinity Avenue, S.W., City Hall South, Atlanta, Georgia 30303.

This RFP is being made available by electronic means. If accepted by such means, then the proponent acknowledges and accepts full responsibility to insure that no changes are made to the RFP. In the event of conflict between a version of the RFP in the proponent's possession and the version maintained by the DOP, the version maintained by the DOP shall govern.

The Proposal document may also be obtained from the Department of Procurement's Plan Room, City Hall South, 55 Trinity Avenue, S.W., Suite 1900, Atlanta, Georgia 30303, at a cost of **$150.00** per package, beginning on March 30, 2016.

You are required to email and confirm receipt of your business name, contact person, address, phone number, fax number and the project number to the DOP's Plan Room at dop@atlantaga.gov, to be placed on the Plan Holders List. Failure to do so will prevent you from receiving any addenda that are issued and may deem you non-responsive. Any questions regarding the procedures for purchasing a copy of the document or obtaining a copy of the Plan Holder's list should be directed to the Plan Room at (404) 330-6204.

All questions and inquiries concerning this project should be directed in writing to Teresa Slayton, CPPB, CPP, CPPM, GCPM, GCPA, Contracting Officer, Department of Procurement, 55 Trinity Avenue, S.W., City Hall South, Suite 1900, Atlanta, Georgia 30303 or questions may be e-mailed to tslayton@atlantaga.gov.

The City reserves the right to cancel any and all solicitations and to accept or reject, in whole or in part, any and all proposals when it is for good cause and in the best interest of the City.

Thank you for your interest in doing business with the City.

Sincerely,

Adam L. Smith

Adam L. Smith

ALS/ts

FC-8437; RM Clayton WRC
Instrumentation and Controls Reliability Restoration

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PART I

Information and Instructions to Proponents

PART 1: INFORMATION AND INSTRUCTIONS TO PROPONENTS

1. **Services Being Procured:** This Request for Proposals ("**RFP**") from qualified proponents ("**Proponent**" or "**Proponents**") by the City of Atlanta (the "**City**"), on behalf of its Department of Watershed Management ("**DWM**") is soliciting proposals from qualified firms to upgrade various outdated Distributive Control Systems (DCS) and Programmable Logic Controller (PLC) systems as well as add fiber networks and duct banks at the RM Clayton WRC. The work will include installing additional duct banks and fiber optic cables to support connections, replacing input and output modules, upgrading and consolidating DCS control processors and installing new fiber network for connectivity between the designated buildings and lower level control panels as well as a five (5) year Customer FIRST Program Support and Service Agreement, in a form acceptable to the City, for the Foxboro System. The RFP includes the following parts, including exhibits, attachments and appendices:

   - Part 1 – Information and Instructions to Proponents
   - Part 2 – Contents of Proposals / Required Submittals
   - Part 3 – Evaluation of Proposals
   - Part 4 – Required Procurement Documents
   - Part 5 – City Contractor Agreement
   - Exhibits
   - Appendices

2. **Scope of Work:** A more detailed Scope of Work ("**SOW**") sought in this procurement is set forth in the Exhibits (to include but not limited to Exhibit D – Scope of Work) attached to the City Contractor Agreement; **Contract No. FC-8437, RM Clayton WRC-Instrumentation and Controls Reliability Restoration**, included in this RFP at Part 5.

3. **Method of Source Selection:** This procurement is being conducted in accordance with all applicable provisions of the City of Atlanta's Code of Ordinances, including its Procurement and Real Estate Code and the particular method of source selection for the work sought in this RFP is Code Section 2-1189; Competitive Sealed Proposal. By submitting a Proposal concerning this procurement, a Proponent acknowledges that it is familiar with all laws applicable to this procurement, including, but not limited to, the City's Code of Ordinances and Charter, which laws are incorporated into this RFP by reference.

4. **Minimum Qualifications; Authority to Transact Business in Georgia:**

   4.1. Each Proponent must submit with its Proposal documentation that demonstrates it is duly authorized to conduct business in the State of Georgia.

   4.2. Proponent must be able to demonstrate successful completion of at least at least one (1) contracts involving the upgrading of outdated Distributive Control Systems (DCS) and Programmable Logic Controller (PLC) systems as well as adding fiber networks and duct banks.

4.3. Proponent shall have successfully completed at least two (2) projects of similar size and scope within the last ten (10) years for this Project.

4.4. Proponent shall execute a five (5) year Customer FIRST Support and Services Agreement with the City, for the Foxboro System. The Agreement shall be executed as a condition of Substantial Completion and shall be in substantial conformance with the Draft Services Agreement attached to this RFP as Exhibit F.

5. **No Offer by City; Firm Offer by Proponent:** This procurement does not constitute an offer by City to enter into an agreement and cannot be accepted by any Proponent to form an agreement. This procurement is only an invitation for offers from interested Proponents and no offer shall bind City. A Proponent's offer is a firm offer and may not be withdrawn except under the rules specified in City's Code of Ordinances and other applicable law.

6. **Proposal Deadline:** Your response to this RFP must be received by the City's Department of Procurement, 55 Trinity Avenue, S.W., City Hall South, Suite 1900, Atlanta, Georgia 30303-0307, **no later than 2:00 P.M., EDT** (as verified by the Bureau of National Standards) on **Wednesday, May 11, 2016.** Any Proposal received after this time will not be considered and will be rejected and returned.

7. **Pre-Proposal Conference:** Each Proponent is strongly encouraged to attend both the Pre-Proposal Conference and Site Visit scheduled for, **Tuesday, April 12, 2016,** at **11:00 A.M. EDT**. The Pre-Proposal Conference will be held in in the Department of Procurement's Bid Room, Suite 1900, at 55 Trinity Avenue, S.W., Suite 1900 (1st Floor), City Hall South, Atlanta, Georgia 30303. The Site Visit will be held immediately following the Conference. The City will host a **Site Visit**, **at 12:15 P.M.**, at the R.M. Clayton Water Reclamation Center, 2440 Bolton Road, NW, Atlanta, Georgia 30318. All proponents are responsible for securing travel to the facility. Each Proponent must be fully informed regarding all existing and expected conditions and matters which might affect the cost or performance of the Services. Any failure to fully investigate the job requirements shall not relieve any Proponent from the responsibility of evaluating the difficulty or cost of successfully performing the Services properly.

   Any Original Equipment Representatives, Sales Representatives and/or Non-City Representatives attending the Pre-Proposal Conference and/or Site Visit may **NOT** distributed material nor answer questions.

   There will be an additional Site Visit held on **Thursday, April 14, 2016, at 10:00 A.M. EDT** at the R.M. Clayton Water Reclamation Center, 2440 Bolton Road, NW, Atlanta, Georgia 30318. This additional Site Visit is optional.

8. **Proposal Guarantee:**

   8.1. Each Proponent is required to furnish a Proposal Guarantee in the amount of five percent (5%) of the Lump Sum Amount. At the option of the Proponent, the Proposal Guarantee may also be cash, a certified check payable to the order of City or a Proposal Bond as provided on Form 8 included in Part 4 herein. A surety executing a Proposal Bond must meet the requirements set forth in Appendix B-Insurance and Bonding Requirements attached to the Agreement included in this RFP.

   8.2. No Proposal shall be considered unless it is accompanied by the required guarantee. The Proposal Guarantee shall insure the execution of the Agreement and the furnishing of the

performance and payment bonds and insurance by the successful Proponent as required by the Agreement Documents.

8.3. Each Proponent agrees that, if it is awarded the Agreement and fails to execute provide all other documents required to consummate the transaction within fifteen (15) days of the award, City will retain the Proposal Guarantee as liquidated damages and not as a penalty.

8.4. Attorneys-in-fact who sign Proposal Bonds must file with the bond a certified and effectively dated copy of their power of attorney.

9. **Procurement Questions; Prohibited Contacts:** Any questions regarding this RFP should be submitted in writing to the City's contact person, Teresa Slayton, CPPB, CPP, CPPM, GCPM, GCPA, Contracting Officer, Department of Procurement, 55 Trinity Avenue, SW, Suite 1900, Atlanta, Georgia 30303, by fax (404) 979-7356 or e-mail tslayton@atlantaga.gov **on or before Monday, April 18, 2016, at 1:00 P.M. EDT.** Questions received after the designated period may not be considered. Any response made by the City will be provided in writing to all Proponents by addendum. It is the responsibility of each Proponent to obtain a copy of any addendum issued for this procurement by monitoring the City's website at http://procurement.atlantaga.gov/ and its Department of Procurement's Plan Room which is open during posted business hours, Suite 1900, 1st Floor, 55 Trinity Avenue, S.W., City Hall South, Atlanta, Georgia 30303. No Proponent may rely on any verbal response to any question submitted concerning this RFP. All Proponents and representatives of any Proponent are strictly prohibited from contacting any other City employees or any third-party representatives of the City on any matter having to do with this RFP. All communications by any Proponent concerning this RFP must be made to the City's contact person, or any other City representatives designated by the Chief Procurement Officer in writing.

10. **Ownership of Proposals:** Each Proposal submitted to the City will become the property of the City, without compensation to a Proponent, for the City's use, in its discretion.

11. **Georgia Utility Contractor's License:** The Proponent shall provide its Georgia Utility Contractor's License Number and a copy of the license with the documentation submitted in Part 4 of this RFP. A Utility Contractor's license number held by a Subcontractor or issued by another state does **NOT** fulfill this requirement in lieu of the Proponent's Georgia Utility Contractor's License.

12. **Preparation of Proposals:** All Proposals must be submitted on forms supplied by the City and shall be subject to all requirements of the Agreement Documents. All Proposals must be regular in every respect and no interlineations, excisions, or special conditions shall be made or included in the Proposal by the Proponent.

12.1. Lump sum, unit price, and extensions of unit prices must be entered in the appropriate spaces provided on the Proposal Cost Form. Unit prices shall include an appropriate allocation of overhead and other indirect costs so that the summation of unit price extensions and lump sum items represent the Proposal Total amount. In the case of any Proposal item for which a fixed amount predetermined by the City has already been entered on the Proposal Cost Form, the amount so entered shall be conclusive of all Proponents as the price for such item, and shall not be revised unless the City directs a change in the Scope of Work affecting the item to which such amount relates.

12.2. The City may consider as irregular any conditional Proposal or any Proposal on which there is an alteration of, or departure from, the Proposal Cost Form hereto attached and at its option may reject the same.

12.3. Erasure or other changes in the Proposals must be explained or noted over the signature of the Proponent. Failure to do so shall render the Proponent as non-responsive and cause rejection of the Proposal.

12.4. Failure to execute the Proposal Cost Form documents may render the Proponent as non-responsive and cause rejection of the Proposal.

13. Georgia Open Records Act: Each Proponent shall refer to the Georgia Open Records Acts (O.C.G.A. § 50-18-72) for information not subject to public disclosure.

14. How to Submit Proposals: The Proposal must be submitted in sealed envelope(s) or package(s) and the outside of the envelope(s) or package(s) must clearly identify the name of the project: **FC-8437, RM Clayton WRC-Instrumentation and Controls Reliability Restoration**; and, the name and address of the Proponent. All proposals must be submitted to:

Adam L. Smith, Esq., CPPO, CPPB, CPPM, CPP,
CIPC, CISCC, CIGPM, CPPC
Chief Procurement Officer
Department of Procurement
55 Trinity Avenue, S.W.
Atlanta, GA 30303-0307
City Hall South, Suite 1900

14.1. A Proponent is required to submit one (1) original and seven (7) copies of its Informational Proposal. Each Informational Proposal must be submitted on 8½" x 11" single-sided, double-spaced, typed pages, using 12–point font size and such pages must be inserted in a standard three-hole ring binder. Each Informational Proposal must contain an index and separate sections for the information requirements set forth in this RFP, as well as for the forms required to be submitted.

14.2. In addition to the hard copy submission, each Proponent must submit two (2) digital versions of its Proposal in Adobe Portable Document Format (PDF) on compact disk (CDs). CD One (1) version should be a duplicate of the hard copy of the Proposal with no deviations in order or layout of the hard copy Proposal. CD Two (2) version should be a redacted version of your hard copy Proposal. Please refer to the Georgia Open Records Acts (O.C.G.A. Section 50-18-72) for those items of documents that can be redacted.

14.3. The City assumes no liability for differences in information contained in the Proponent's printed Proposal and that contained on the CDs. In the event of a discrepancy, the City will rely upon the information contained in the Proponent's printed material (Hard Copy). Each CD should be labeled with the Project Number, Project Name, and the CD Number.

14.4. A Proponent is required to submit, in a separate, sealed envelope, clearly marked "Cost Proposal", one (1) original, marked "Original" and five (5) copies of its Cost Proposal with its Informational Proposal.

15. **Execution of Proposal Documents:** Proponents shall submit their Proposals, together with the Proposal Guarantee and all forms which the Proponent is required to sign, executed in the appropriate manner as set forth below:

15.1. If the Proponent is a corporation, all documents requiring execution by the Proponent shall be signed by the president or vice-president of the corporation, whose signature shall be attested by the secretary or assistant secretary of the corporation and the corporate seal affixed.

15.2. If the Proponent is an individual, he or she shall sign the documents and his or her signature shall be notarized by a notary public.

15.3. If the Proponent is an individual doing business under a trade name, all documents shall be signed by the Proponent whose signature shall be followed by either, "doing business as," or "trading as," followed by the trade name of the Proponent's business, and notarized by a notary public.

15.4. If the Proponent is a partnership, all forms shall be executed by placing the name of the partnership followed by "By: (the signature of the partner executing)" followed by the word "Partner," and notarized by a notary public.

15.5. If the Proponent is a joint venture, each party to the joint venture shall execute the Proposal Documents in the manner set forth in this article as appropriate for this type of organization.

16. **Insurance and/or Bonding Requirements:** The Insurance and/or Bonding requirements for any Agreement that may be awarded pursuant to this RFP are set forth in the Insurance and Bonding Requirements included in the appendix of this RFP.

17. **Applicable City Office of Contract Compliance ("OCC") Programs:** The OCC Programs applicable to this procurement are set forth in Appendix A; Office of Contract Compliance Requirements, included in this RFP. By submitting a Proposal in response to this procurement, each Proponent agrees to comply with such applicable OCC Programs.

18. **Evaluation of Financial Information:** The City's evaluation of financial information concerning a Proponent and its consideration of such information in determining whether a Proponent is responsive and responsible may involve a review of several items of information required to be included in a Proposal. City will review the information included in Form 3; Proponent Financial Disclosure attached to this RFP and any additional information required on that form to be included in a Proposal. Further, if this RFP requires the provision of a Payment Bond and/or Performance Bond if an Agreement is awarded, the City will review the information included in the Form 4.2; Certification of Bonding Ability. A Proponent may include with that form and Form 4.1; Certification of Insurance Ability, (a) notarized letter(s) from its proposed insurer(s) and surety(ies) indicating that the financial capacity of the Proponent is such that the insurer(s)/surety(ies) is/are willing to issue insurance and Payment and Performance Bonds for the Proponent if an Agreement is awarded. Further, if this RFP requires a successful Proponent that is awarded an Agreement pursuant to this procurement to post some other type of performance guarantee (e.g. letter of credit, guarantee agreement, etc.), a Proponent must submit with its Proposal a notarized letter from an appropriate financial institution (e.g., bank) indicating that it is willing to issue such performance guarantee for the Proponent if an Agreement is awarded.

19. **Special Rules Applicable to Evaluation of Proposals:** A Proponent may be required to submit, in writing, the addresses of any proposed subcontractors or equipment manufacturers listed in the Proposal and to submit other material information relative to proposed subcontractors. City reserves the right to disapprove any proposed subcontractors or equipment manufacturers who's technical or financial ability or resources or whose experience are deemed inadequate.

20. **Examination of Proposal Documents:**

    20.1. Each Proponent is responsible for examining with appropriate care the complete RFP and all Addenda and for informing itself with respect to all conditions which might in any way affect the cost or the performance of any Work. Failure to do so will be at the sole risk of the Proponent, who is deemed to have included all costs for performance of the Work in its Proposal.

    20.2. Each Proponent shall promptly notify City in writing should the Proponent find discrepancies, errors, ambiguities or omissions in the Proposal Documents, or should their intent or meaning appear unclear or ambiguous, or should any other question arise relative to the RFP. Replies to such notices may be made in the form of an Addendum to the RFP, which will be issued simultaneously to all potential Proponents who have obtained the RFP from City.

    20.3. City may in accordance with applicable law, by Addendum, modify any provision or part of the RFP at any time prior to the Proposal due date and time. The Proponent shall not rely on oral clarifications to the RFP unless they are confirmed in writing by City in an issued Addendum.

    20.4. Each Proponent must confirm Addenda have been received and acknowledge receipt by executing the Form 5: Acknowledgment of Addenda attached to this RFP.

21. **Oral Presentations**: Responsive Proponents may be required to participate in an oral presentation to the City Evaluation Committee. The Key Personnel (or some group thereof) identified in the Proponent's Proposal must be active participants in the oral presentation. The Proponent's presentation should demonstrate an understanding of the project and work to be provided. The City will notify responsive Proponent(s) of the date, time and location for the presentation and will provide an agenda or topics for discussion.

22. **Cancellation of Solicitation:** This solicitation may be cancelled in accordance to the City of Atlanta Code of Ordinances.

23. **Award of Agreement; Execution:** If the City awards an Agreement pursuant to this procurement, the City will prepare and forward to the successful Proponent an Agreement for execution substantially in the form included in this RFP. Subsequent to the award and within fifteen (15) days after the prescribed forms are presented for signature, the successful Proponent shall execute and deliver to the City six (6) copies of the Agreement as included in the Agreement Documents and provide performance and payment bonds and insurance certificates. The failure of the successful Proponent to execute the Agreement and to supply the required bonds within fifteen (15) days after the prescribed forms are presented for signature, or within such extended period as the City may grant, based upon reasons determined sufficient by the City, shall constitute a default, and the Proponent shall forfeit the Proposal Guarantee and the City may either award the Agreement to the next most responsive Proponent or re-advertise for Proposals, and may proceed against the Proposal Bond of the

defaulted Proponent. If a more favorable Proposal is received by re-advertising, the defaulting Proponent shall have no claim against the City for a refund.

24. Surety Bonds: Regarding submission of surety bonds prior to or subsequent to the Proposal submission, the following requirements pertain:

24.1. Any surety bond submitted in accordance with the Proposal or Agreement requirements must be issued by a corporate surety company satisfactory to the City and authorized to act as such in the State of Georgia;

24.2. Such bonds shall conform to the forms provided with the RFP and be completed in accordance with the instructions thereon; and

24.3. In accordance with Georgia law, and upon award of the Agreement, separate performance and payment bonds shall be required of the successful Proponent, each in an amount not less than the total amount payable under the Agreement.

24.3.1. The performance bond shall remain in effect for two (2) years after final acceptance of the Work or the guaranty period under the Agreement, whichever is the longer.

24.3.2. The payment bond shall remain in effect for the period required under Georgia law for the payment bonds on public construction agreements. Reference is made to the bond forms and the Agreement Documents for additional particulars of the terms required in the bonds. In the case of any inconsistency between the Bond Forms and Georgia law, the law shall control. Finally, alterations, extension of the time allowed for performance, extra and additional Work, and other changes authorized under the Agreement may be made without notice to or consent of the surety or sureties.

25. Laws and Regulations: The Proponent's attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Agreement throughout, to the extent that such requirements do not conflict with federal laws or regulations, and they will be deemed to be included in the Agreement the same as though therein written out in full.

Proponent's attention is directed to the following laws and regulations:

25.1. Wages under this Agreement must not be less than the minimum wage rates specified for Atlanta-funded projects as set forth in these documents;

25.2. Applicable provisions of the Occupational Safety and Health Act must be observed during Work under this Agreement; and

25.3. Appendix A – Requirements of the Office of Contract Compliance.

26. Agreement Terms: The term of the Contract shall be sixteen (16) months.

27. Liquidated Damages: The performance of the Work under Agreement within the specified time is essential to the City's economic interests. The attention of potential Proponents is directed to the provisions of the Agreement Documents, which establish the basis for liquidated damages to be paid to the City in the event that the Work is not completed on schedule.

28. Pre-Construction Conference: A pre-construction conference may be held with the successful Proponent and all known Subcontractors at a time and place set by the City.

29. Substitutions: Whenever a Material, article or piece of Equipment is identified on the Plans or in the Specifications by reference to manufacturers' or vendors' names, trade names, catalog numbers, etc., it is intended to establish a standard, and any Material, article or Equipment of other manufacturers and vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable, provided the Material, article or Equipment so proposed is, in the opinion of the City, of equal substance and function. A Material, article or piece of Equipment shall not be purchased or installed by the Proponent without the City's written approval.

29.1. If the term "OR EQUAL" follows the names of approved manufacturers, then other manufacturers desiring approval may submit the product to the City for approval during the bidding phase. The manufacturer should include the following items in this pre-submittal:

29.1.1. Descriptive literature, including information on Materials used, minimum design standards features, manufacturing processes and facilities, and similar information, which will indicate experience and expertise in the manufacture of the product being evaluated;

29.1.2. Performance Specifications applicable to the manufacturer's standard design, which indicate the level of performance to be expected from the product;

29.1.3. A complete set of submittal Drawings of similar Equipment that has been completed and placed into operation;

29.1.4. A list of existing installations of equipment similar in type and size;

29.1.5. Evidence of technical ability of the manufacturer to design and manufacture Equipment and systems meeting project requirements. Evidence submitted shall include, at a minimum, descriptions of engineering and manufacturing staff capabilities;

29.1.6. Information required to satisfy specified experience requirements or a copy of the bond to be submitted in lieu of experience;

29.1.7. A complete description of field service capabilities, including the location of field service facilities which would serve the proposed facility and the number and qualifications of personnel working from that location;

29.1.8. A complete list of all requirements of the Drawings and Specifications with which the manufacturer cannot conform, including reasons why alternate features are considered equivalent; and

29.1.9. All other information necessary to fully evaluate the product for consideration.

29.2. This pre-submittal shall reach the City no later than three (3) weeks prior to the Proposal due date. Manufacturers will be advised of approval or rejection in writing no later than fourteen (14) days prior to the Proposal due date. Rejected submittals may be supplemented with additional information and resubmitted no later than one (1) week prior to the Proposal due date. Manufacturers making supplementary submittals will be advised of approval or rejection in writing no later than three (3) days prior to the Proposal due date.

29.2.1. NOTE: Proposals based on Equipment, which has not received the approval of the City, will render the Proponent as non-responsive and cause rejection of the Proposal.

29.2.2. If the term "EQUAL TO" precedes the names of approved manufacturers in the Specifications, the Proponent may, after receiving the Notice to Proceed, submit Shop Drawings on the substitute product for the approval of the City.

29.2.3. Any Proponent intending to furnish substitute products is cautioned to verify that the item being furnished will perform the same functions and have the same capabilities as the item specified. The Proponent shall include in his Proposal the cost of accessory items, which may be required by the substitute product and any architectural, structural, mechanical, piping, electrical or other modifications required to accommodate the substitution.

29.2.4. Approval of the City is dependent on his determination that the product offered is essentially equal in function, performance, quality of manufacture, ease of maintenance, reliability, service life and other criteria to that on which the design is based, and will require no major modifications to structures, electrical systems, control systems, or piping systems.

30. Illegal Immigration Reform and Enforcement Act: This RFP is subject to the Illegal Immigration Reform and Enforcement Act of 2011 ("**IIREA**" or "the **Act**"). IIREA was formerly known as the Georgia Security and Immigration Compliance Act or GSCIA. Pursuant to the Act, the Proponent must provide with its Proposal proof of its registration with and continuing and future participation in the E-Verify Program established by the United States Department of Homeland Security. A completed Contractor Affidavit (**Form 1**), set forth in Part 4; Illegal Immigration Reform and Enforcement Act Forms, must be submitted on the top of Volume II of the Proposal at the time of submission, prior to the time for opening the Proposal. Under state law, the City cannot consider any Proposal which does not include completed forms. Where the business structure of a Proponent is such that Proponent is required to obtain an Employer Identification Number (EIN) from the Internal Revenue Service, Proponent must complete the Contractor Affidavit (**Form 1**) on behalf of, and provide a Federal Work Authorization User ID Number issued to, the Proponent itself. Where the business structure of a Proponent does not require it to obtain an EIN, each entity comprising Proponent must submit a separate Contractor Affidavit (**Form 1**). It is not the intent of this notice to provide detailed information or legal advice concerning the Act. All Proponents intending to do business with the City are responsible for independently apprising themselves of and complying with the requirements of the Act and assessing its effect on City procurements and their participation in those procurements. For additional information on the E-Verify program or to enroll in the program, go to: https://e-verify.uscis.gov/enroll. Additional information on completing and submitting the Contractor Affidavit (**Form 1**) precedes the Affidavit.

31. Multiple Awards: The City reserves, at its sole discretion, the option to award to multiple Proponents. The award(s) will be based on the Scope of Work in its entirety or by components. Multiple awards may be made on the total Scope of Work or to components of the Scope of Work.

32. Joint Venture: Proponents will be required to form a Joint Venture ("JV"); each member of the JV will be required to fully complete and submit the required submittal forms in accordance with the instructions on the forms in Part 4.

33. **Conflict of Interest:** The City has contractual commitments and may have engaged numerous firms providing/or have provided various professional services to the Owner for this Project. These firms and their respective sub-consultant firms may be contractually prohibited from participation in specific work phases of the Project. The Proponent must ensure that all entities with which it contracts have reviewed their contractual obligations and that a conflict of interest would not exist by performing Work on the Project.

PART II

Contents of Proposals and Required Submittals

Part 2; Contents of Proposals/Required Submittals

1. **General Contents of Proposals:** A Proponent must submit a complete Proposal in response to this RFP in the format specified in this RFP; no other format will be considered. A Proposal will consist of two (2) separate documents:
   1.1. Informational Proposal; and
   1.2. Cost Proposal (Form provided by City at Part 4; Required Submittal Forms; Cost Proposal). Part 4-Cost Proposal will become part of the Construction Agreement attached to this RFP, if an Agreement is awarded pursuant to this procurement.

2. **Informational Proposal:** An Informational Proposal is comprised of two (2) sources of information:
   2.1. Volume I, information drafted and provided by a Proponent; and
   2.2. Volume II, information provided by a Proponent on forms provided by the City (or required to be created by a Proponent) in this RFP.

   The Informational Proposals must be tabbed as indicated to reflect the sections listed in the Outline below.

3. **Information Required to Be Included in Informational Proposal**:

   3.1. Summary: The following is a summary of information required to be contained in an Informational Proposal:
      3.1.1. Information Drafted and Provided By a Proponent: This information should be included in **Volume I** of the Proposal:
         3.1.1.1. Executive Summary;
         3.1.1.2. Organizational Structure;
         3.1.1.3. Experience and Qualifications of Key Personnel;
         3.1.1.4. Overall Experience, Qualifications and Performance on Previous Similar Projects; and
         3.1.1.5. Project and Technical Approach/ Management Plan.

      3.1.2. Information Provided by a Proponent on Forms Provided by the City: This information should be included in **Volume II** of the Proposal:
         3.1.2.1. Forms attached to this RFP at Part 4: This information should be included in **Volume II** of the Proposal**:**
            3.1.2.1.1. Form 1; Georgia Illegal Immigration Reform and Enforcement Act **(**IIREA**)** Form;
            3.1.2.1.2. Form 2; Contractor Disclosure Form and Questionnaire;
            3.1.2.1.3. Form 3; Proponent Financial Disclosure;
            3.1.2.1.4. Form 4.1; Certificate of Insurance Ability
            3.1.2.1.5. Form 4.2; Certification of Bonding Ability
            3.1.2.1.6. Form 5; Acknowledgment of Addenda;
            3.1.2.1.7. Form 6; Proponent Contact Directory;
            3.1.2.1.8. Form 7; Reference List; and

3.1.2.1.9. Form 8; Proposal Bond and
3.1.2.1.10. Form 9; Required Submittal Checklist
Site Tour Release Form

Cost Proposal **(This should be included in a separate sealed envelope and labeled "Cost Proposal");**

- Georgia Utility Contractor's License
- General Contractor License
- Authority to Transact Business in Georgia
- Statement of Bidder/Proponent's Qualifications:
- Safety Record Form
- Joint Venture Agreement

Appendix A; City's OCC Programs; Office of Contract Compliance Submittals;

NOTE: Every space on every form must be completed. If the form requires a Notary, please comply. Failure to complete each form as required may deem you non-responsive. If there are any questions regarding any form, it is strongly recommended that you submit your question(s) to the Contracting Officer listed in the RFP prior to the deadline for submitting questions.

3.2. Information Requirements Details: The following is a more detailed summary of the requirements of certain portions of the Informational Proposal. Each Outlined Item should be included in your Proposals and tabbed as indicated:

3.2.1. **Executive Summary (Tab in Volume I)**

3.2.1.1. Cover Letter: The executive summary must include a letter with the Proponent's name, address, telephone number and fax number, signed by a person authorized to act on behalf of the Proponent. The letter should also include the name, title, address, e-mail address, telephone number and fax number of the person signing the letter and the name, title, address, e-mail address, telephone number and fax number of one (1) contact person to whom all future correspondence and/or communications may be directed by the City concerning this procurement, if that person is different from the person executing the letter. The letter should also designate the type of business entity that proposes to enter into a Contract with the City and the identity of any other business entities that will comprise the Proponent and include a brief history of the Proponent and statement of the Proponent's approach to providing the services solicited in this RFP.

3.2.1.2. Detailed Executive Summary: The purpose of the Detailed Executive Summary is to provide an overview of the Proponent's qualifications to accomplish the project. At a minimum, the Detailed Executive Summary must contain the following information:

3.2.1.2.1. Complete legal name of the Proponent and the name of the legal entities that comprise the Proponent. The Proponent must provide the domicile where each entity comprising it is organized, including entity name, brief history of the entity, contact name, address, phone number, and facsimile number, as well as the legal structure of the entity and a listing of major satellite offices;

3.2.1.2.2. The general and specific capabilities and experience of the Proponent's Team. Each Proponent should identify examples where team members have worked if applicable. Discuss how the team was formed and how the team will function as an integrated unit in providing services to the City;

3.2.1.2.3. A description of the Proponent's plan for complying with the City's EBO goals. This section should include detailed information regarding the essential subcontractors/ subconsultants the Proponent intends to use and should indicate the roles and responsibilities these firms will be assigned. Each Proponent must provide a letter from each essential subcontractor/subconsultant indicating that the firm concurs with the role and responsibility Proponent has described; and

3.2.1.2.4. Litigation Disclosure Statement. A declarative statement as to whether the Proponent or any member of the Proponent's team has an open dispute with the City or is involved in any litigation associated with work in progress or completed work in either the private or public sector during the past five (5) years.

3.2.2. **Organizational Structure (Tab in Volume I):**

The Proponent's Organizational Structure Section of the Proposal should introduce the proposed Proponent's team by:

3.2.2.1. providing the Proponent's Management Organizational Chart both graphically and in narrative format with the percentage of time each key personnel will dedicate to the project. The Organizational Chart and narrative should provide a description of the Proponent's views on how it will organizationally provide the Services, as well as depict the relationship of its key personnel roles and contractors to that of the Principal-in- Charge and other key members of the management team;

3.2.2.2. providing a descriptive of how this organizational structure will facilitate managing the services outlined in Exhibit A and how an efficient flow of information will be realized from the organizational structure with emphasis on the role of the Subcontractors; and

3.2.2.3. providing the names of proposed candidates for each function on the chart with key personnel notated.

3.2.2.4. What kind of geographical classification applies to your company.

- Local (operates in only one (1) city or state)
- Regional (operates in only one geographical area)
- Multi-regional (operates in only one region, but not national)
- National (provides service across the U.S. only)
- International (conducts business in the U.S. and abroad)

3.2.3. **Key Personnel (Tab in Volume I):**

3.2.3.1. Identify and provide organizational chart and resumes for the individuals that the Proponent will use as Key Personnel. Key Personnel may include but not limited to the following:

3.2.3.1.1. Project Manager – Minimum completion of at least two (2) completion of two (2) contracts involving construction or replacement of similar systems at water/wastewater treatment facilities with at least 5 years of project management experience. These projects are to also demonstrate and document experience with installation of electrical, fiberoptic and instrumentation systems with a construction value for this portion of the Project of not less than $1,000,000 each. Preference will be given to proposed staff that have directly worked on an upgrade of a Foxboro DCS in an active facility.

3.2.3.1.2. Onsite Lead Or Superintendent – Minimum completion of at least two (2) contracts involving upgrades and/or refurbishment of existing instrumentation or control systems at wastewater treatment facilities. The person must have direct experience with Foxboro Intelligent Automation (IA) Distributed Control System (DCS). These projects are to also demonstrate and document experience with installation of electrical, fiberopitic and instrumentation systems with a construction value for this portion of the Project of not less than $750,000 each. Preference will be given to proposed staff that have directly worked on upgrade of a Foxboro DCS in an active facility.

3.2.3.1.2. System Integrator must have successfully managed and completed at least three (3) water or wastewater treatment facility new or upgrade projects with the portion of instrumentation and control construction work greater or equal to $1,000,000 in the past five (5) years. At least one (1) of the projects shall have been completed in the past two (2) years. System Integrator shall be a named or an Or Equal per Section 17000 requirements.

3.2.3.2. Resumes should be organized as follows:

3.2.3.2.1. Name and Title;

3.2.3.2.2. Professional Background;

3.2.3.2.3. Current and Past Relevant Employment;
3.2.3.2.4. Education;
3.2.3.2.5. Certifications;
3.2.3.2.6. List of (4) Relevant projects, including:
3.2.3.2.6.1. client name;
3.2.3.2.6.2. project description including subcontractor utilized;
3.2.3.2.6.3. project value;
3.2.3.2.6.4. role of the individual;
3.2.3.2.6.5. the original contract schedule and budget to start and complete the project; and
3.2.3.2.6.6. the actual start and completion dates of the project and final dollar amount .
3.2.3.2.6.7. the client's contact current direct telephone number and email address

Projects listed in section 3.2.4 should be specifically highlighted in the resumes.

3.2.3.3. Submission of these names constitutes a commitment to use these individuals if the Proponent is selected, and changes may be made only with the prior written consent of the City. In the event there is a need to replace key team members during the course of the project, Proponent must describe its back-up personnel plan.

3.2.4. Overall Experience, Qualifications and Performance on Similar Projects (Tab in Volume I):

3.2.4.1. Proponents should detail their relevant experience, qualifications, performance, capabilities, and any innovative elements for enhancing the efficiency of the program for performing the services outlined in the Exhibit A; Scope of Work. Proponents should also include examples from similar projects. Proponents must have successfully completed at least Two (2) contracts involving construction or upgrade of Foxboro IA DCS at a water or wastewater treatment facility. The Foxboro IA DCS portion of the project shall have a construction value of $250,000 or greater. These projects are to also demonstrate and document experience with installation/upgrade of electrical, fiberoptics and instrumentation systems. Key personnel on this project shall be highlighted. The Team Members must each have an established Safety Program with:

- Workman's Compensation Ratings (EMR-Experience Modification Rate) must not exceed 1.0 for any year during the last three (3) years (Provide by Team Member)

- The Team Members OSHA Incidence Rates must not exceed the most current Industry Standard published by the U.S. Department of Labor for the last three (3) years. The following will be provided for Proponent for each member of the Design Build Team

a. Total Case Rates
b. Days away, restricted, and transfer (DART) Case Rates
c. Days Away from Work (DAFWII) Case Rates
d. Current Industry Standard for a. – c. by Team Member

- If there have been any fatalities during the last five (5) years on any projects performed by the Design Builder or on any work performed under the direct supervision of a proposed Project Manager or Construction Superintendent and either was cited by OSHA for "Willful" or "Serious" in performing the work in which the fatality occurred, the Contractor will be disqualified based on the City's review. The Contractor may also be disqualified in the event that a Recordable Incident occurred due to the same condition that existed when a previous fatality occurred and resulted in an OSHA citation or failure to implement a corrective action plan.

  a. Fatalities during the last five (5) years where Contractor was cited by OSHA for "Willful" or "Serious" Violation

  b. Fatalities during the last five years where the proposed Project Manager was cited by OSHA for "Willful" or "Serious" Violation.

3.2.4.2. A detailed description of Proponent's subcontractor's/ subconsultant's prior work performing the services outlined in the Exhibit A.

3.2.4.3. Excluding the System Integrator, all Instrumentation and Controls Subcontractors which include Instrumentation and Controls, Control System and Telemetry System Subcontractors must have successfully managed and completed at least two (2) water or wastewater treatment facility new or upgrade projects with the portion of instrumentation and control construction work greater or equal to $500,000 in the past five (5) years.

3.2.4.4. Three (3) references where the Proponent implemented similar projects. Include a current contact name, address, phone number, email address and project value (minimum project budget of two million dollars ($1,000,000.00) each).

3.2.5. **Project Approach and Technical/Management Plan (Tab in Volume I):** Based on the Proponent's Organizational structure, describe how the Proponent will manage the Services, specifically addressing the following:

3.2.5.1. Proponent's approach to team leadership;

3.2.5.2. How the Proponent will:

3.2.5.2.1. ensure proper communications among pertinent project team members;

3.2.5.2.2. assure the City that the Scope of Services will be kept within any established time and budget constraints;

3.2.5.2.3. assure the City that a plan is established to address coordination with active operations and address emergency situations and contingencies for severe weather impacting ability to take units offline for upgrade;

3.2.5.2.4. coordinate and maintain cooperative relationships with subcontracts and necessary project activities within that team relationship;

3.2.5.2.5. identify the tools that are intended to be used to manage these project elements; and

3.2.5.2.6. Proponent's proposed method to:

A. Identify and resolve issues during the project duration;

B. Detail how emergencies will be handled; including response times for emergencies (include a map of Proponent's local office in relation to the City's center.)

C. Make critical decisions.

D. Manage a QA/QC Plan for the program

3.2.5.2.7. Describe the management process the Proponent will implement to ensure all work and services performed are to the highest quality. Describe the proponent corrective action plan. Describe how the Proponent's organization structure supports this plan and clearly identify responsible and accountable parties.

3.2.5.2.8. Proponent must provide a description of the approach to the Scope of Service. All proposals must be comprehensive and include a complete project timeline to go along with their narrative.

3.2.5.2.9. Proponent must describe the overall general project and technical approach for providing all equipment, materials, labor and services required for this RFP. The Proposal Documents required for this section should be organized and submitted in the order requested, divided and labeled for each subsection.

3.2.5.2.10. Provide project approach that will be used to implement the Project, meeting milestones and overall project goals, and the project stages. Include a list of critical assumptions and critical needs/decision points for the City based upon the approach. Provide a draft project schedule taking into account the milestone dates listed below. Additionally proponent shall provide a list of any additional proposed milestones and a schedule of values associated with each milestone. The list shall be in a table form, noting the title, the contents, value of milestone,

whether a milestone deliverable, the review time (if warranted) by the City, and the date from NTP. The approach shall take into account the following preliminary milestones, Substantial Completion, and Final Acceptance dates.

- Milestone 1: 1 month after NTP, fiber backbone installation shall be initiated.
- Milestone 2: 8 months after NTP, Foxboro DCS Switch Ethernet (AKA Mash Network) required shall be established in the affected building and Uninterrupted Power Supplies (UPS) installed.
- Milestone 3: 14 months after NTP, Upgrade shall be Substantially Complete and the system operational.
- Final Milestone: 16 months after NTP: Final Acceptance and Project Final Complete.

3.2.5.2.11. Provide technical approach, including the scope of supply, should be provided by the Proponent to meet the Project's objectives and goals. The Proponent's technical approach shall include, but not be limited to, the methods, technology and/or services to accomplish the following:

- Implement construction sequencing provided in project schedule, including milestone activities;
- Identify and coordinate any anticipated plant operations interruptions or shutdowns of units or partial units:
- Identify necessary work to be completed at low flow conditions (approximately 2 am to 6 am daily when no weather event);
- Identify critical systems/units that will require complete shutdown for upgrade; and
- Identify critical elements of the project, potential issues/challenges that can substantially impact the project and the alternative actions/plans to manage them to minimize project impacts.

4. **Cost Proposal.** Each Proponent must submit a Cost Proposal using the form provided by the City at Part IV; Required Submittal Forms; Cost Proposal. The Cost Proposal must support the Scope of Services contained in the RFP and fully encompass all activities in the Proponent's Proposal. The Cost Proposal shall serve as the baseline for final fee negotiation with the City. Submit one (1) original, marked "Original" and seven (7) copies in a separate envelope.

5. **Submission of Proposals:** See Part I, Paragraph 14.0, "How to Submit Proposals of this RFP."

6. **Responsiveness and responsibility for each Proponent can be observed as the following:**

A. The responsiveness of a Proponent is determined by, but not limited to, the following:

1. A timely and effective delivery of all services, materials, documents, and/or other information required by the City;
2. The completeness of all material, documents and/or information required by the City; and
3. The notification of the City of methods, services, supplies and/or equipment that could reduce cost or increase quality.

B. The responsibility of a Proponent is determined by, but not limited to, the following:

1. The ability, capacity and skill of the Proponent to perform the Agreement or provide the Work required;
2. The capability of the Proponent to perform the Agreement or provide the Work promptly, or within the time specified without delay or interference;
3. The character, integrity, reputation, judgment, experience and efficiency of the Proponent;
4. The quality of performance of previous contracts or work;
5. The previous existing compliance by the Proponent with laws and ordinances relating to the Agreement or Work;
6. The sufficiency of the financial resources and ability of the Proponent to perform Agreement for providing the Work;
7. The quality, availability and adaptability of the supplies or contractual Work to the particular use required; and
8. The successful Proponent shall assume full responsibility for the conduct of his agents and/or employees during the time such agents or employees are on the premises for the purpose of performing the Work herein specified.

7. The City will carefully evaluate the responsiveness and responsibility of each Proponent. The selection criteria shall include but not be limited to, those factors contained in subsection 2-1188(k) of the City of Atlanta Code of Ordinances; and the following (the responsibility is solely on the Proponent to adhere to all evaluation factors as outlined in the City of Atlanta Code of Ordinances).

PART III

Evaluation of Proposals

PART 3: EVALUATION OF PROPOSALS

All Proposals will be evaluated in accordance with the City's Code of Ordinances and the criteria specified on the Percentage Evaluation Form and considering the information required to be submitted in each Proposal. An Evaluation Committee will review the Proposals in accordance with this RFP.

All Proposals will be evaluated using the following Evaluation Form:

Relative Weight	Graded Item	Score
5	Executive Summary / Organizational Structure/Management Plan	
20	Key Personnel, Overall Experience, Qualifications and Performance on Previous Projects	
20	Project Approach	
5	Technical Approach	
15	OCC Requirements	
10	Financial Capability	
25	Cost Proposal	
100	**TOTAL SCORE**	

PART IV

Required Submittals Forms

PART 4: REQUIRED SUBMITTAL FORMS

All Respondents, including, but not limited to, corporate entities, limited liability companies, joint ventures, or partnerships, that submit a Proposal or Bid in response to this solicitation must fill out all forms in their entirety, and all forms must be signed, notarized or sealed with the corporate seal (if applicable), as required per each form's instructions.

If Respondent intends to be named as a Prime Contractor(s) with the City, then Respondent must fill out all the forms listed in this solicitation document; otherwise, Respondent may be deemed non-responsive.

Required Submittal (FORM 1)

Illegal Immigration Reform and Enforcement Act Forms (Page 1 of 3)

INSTRUCTIONS TO PROPONENTS:

All Proponents must comply with the Illegal Immigration Reform and Enforcement Act of 2011, O.G.G.A § 13-10-90, et seq. (IIREA). IIREA was formerly known as the Georgia Security and Immigration Compliance Act or GSICA. Proponents must familiarize themselves with IIREA and are solely responsible for ensuring compliance. Proponents must not rely on these instructions for that purpose. They are offered only as a convenience to assist Proponents in complying with the requirements of the City's procurement process and the terms of this RFP.

1. The attached Contractor Affidavit must be filled out COMPLETELY and submitted with the Proposal prior to Proposal due date.

2. The Contractor Affidavit must contain an active Federal Work Authorization Program (E-Verify) User ID Number and Date of Registration.

3. Where the business structure of a Proponent is such that Proponent is required to obtain an Employer Identification Number (EIN) from the Internal Revenue Service, Proponent must complete the Contractor Affidavit on behalf of, and provide a Federal Work Authorization User ID Number issued to, the Proponent itself. Where the business structure of a Proponent does not require it to obtain an EIN, each entity comprising Proponent must submit a separate Contractor Affidavit.

   Example 1, ABC, Inc. and XYZ, Inc. form and submit a Proposal as Happy Day, LLC. Happy Day, LLC must enroll in the E-verify program and submit a single Contractor Affidavit in the name of Happy Day, LLC which includes the Federal Work Authorization User ID Number issued to Happy Day, LLC.

   Example 2, ABC, Inc. and XYZ, Inc. execute a joint venture agreement and submit a Proposal under the name Happy Day, JV. If, based on the nature of the JV agreement, Happy Day, JV. is not required to obtain an Employer Identification Number from the IRS, the Proposal submitted by Happy Day, JV must include both a Contractor Affidavit for ABC, Inc. and a Contractor Affidavit for XYZ, Inc.

4. All Contractor Affidavits must be executed by an authorized representative of the entity named in the Affidavit.

5. All Contractor Affidavits must be duly notarized.

6. All Contractor Affidavits must be submitted with the Proponent's Response to the RFP.

7. Subcontractor and sub-subcontractor affidavits are not required at the time of proposal submission, but will be required at contract execution or in accordance with the timelines set forth in IIREA.

Required Submittal (FORM 1)

Illegal Immigration Reform and Enforcement Act Forms (Page 2 of 3)

Contractor Affidavit under O.C.G.A. § 13-10-91(b)(1)

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of the City of Atlanta has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91(b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____ _____

Federal Work Authorization User Identification Number Date of Authorization

Name of Contractor: _____

Name of Project: FC-8437 RM Clayton WRC - Instrumentation and Control Reliability Restoration

Name of Public Employer: City of Atlanta

I hereby declare under penalty of perjury that the forgoing is true and correct.

Executed on _____, ____, 20__ in _____(city), _____(state)

_____

Signature of Authorized Officer or Agent

_____

Printed name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE
ME ON THIS THE ___, DAY OF _____, 20____

_____

NOTARY PUBLIC
My Commission Expires: _____

Required Submittal (FORM 1)

Illegal Immigration Reform and Enforcement Act Forms (Page 3 of 3)

Subcontractor Affidavit under O.C.G.A. § 13-10-91(b)(3)

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with (_____ (name of contractor)) on behalf of the City of Atlanta has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the subcontractor with the information required by O.C.G.A. § 13-10-
91(b). Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub-subcontractor to the contractor within five business days of receipt. If the undersigned subcontractor receives notice of receipt of an affidavit from any sub-subcontractor that has contracted with a sub-subcontractor to forward, within five business days of receipt, a copy of such notice to the contractor. Subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____ _____
Federal Work Authorization User Identification Number Date of Authorization

Name of Subcontractor: _____

Name of Project: FC-8437 RM Clayton WRC - Instrumentation and Control Reliability Restoration

Name of Public Employer: City of Atlanta

I hereby declare under penalty of perjury that the forgoing is true and correct.

Executed on _____, ____, 20__ in _____(city), _____(state)

_____
Signature of Authorized Officer or Agent

_____
Printed name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE
ME ON THIS THE ___, DAY OF _____, 20_____

_____

NOTARY PUBLIC
My Commission Expires: _____

Required Submittal (FORM 2)
Contractor Disclosure Affidavit (Page 1 of 7)

DEFINITIONS FOR THE PURPOSES OF THIS DISCLOSURE AFFIDAVIT

"Affiliate"	Any legal entity that, directly or indirectly through one of more intermediate legal entities, controls, is controlled by or is under common control with the Respondent or a member of Respondent.
"Contractor"	Any person or entity having a contract with the city.
"Control"	The controlling entity: (i) possesses, directly or indirectly, the power to direct or cause the direction of the management and policies of the controlled entity, whether through the ownership of voting securities or by contract or otherwise; or (ii) has direct or indirect ownership in the aggregate of fifty one (51%) or more of any class of voting or equity interests in the controlled entity.
"Respondent"	Any individual or entity that submits a proposal in response to a solicitation. If the Respondent is an individual, then that individual must complete and sign this Disclosure Affidavit where indicated. If the Respondent is an entity, then an authorized representative of that entity must complete and sign this Disclosure Affidavit where indicated. **If the Respondent is a newly formed entity (formed within the last three years), then an authorized representative of that entity must complete and sign this Disclosure Affidavit where indicated, and each of the members or owners of the entity must also complete and sign separate Disclosure Affidavits where indicated.**

Instructions: Provide the following information for the entity or individual completing this Statement (the "Individual/Entity").

A. Basic Information:

1. Name of Individual/Entity responding to this solicitation:

2. Name of the authorized representative for the responding Entity:

B. Individual/Entity Information:

1. Principal Office Address:

2. Telephone and Facsimile Numbers:

3. E-Mail Address:

4. Name and title of Contact Person for the Individual/Entity:

5. Is the individual/Entity authorized to transact business in the state of Georgia?

☐ Yes **(Attach Certificate of Authority to transact business in Georgia from Georgia Secretary of State.)**

☐ No

C. Questionnaire

If you answer "YES" to any of the questions below, please indicate the name(s) of the person(s), the nature, and the status and/or outcome of the information, indictment, conviction, termination, claim or litigation, the name of the court and the file or reference number of the case, as applicable. Any such information should be provided on a separate page, attached to this form and submitted with your Proposal.

1. Please describe the general development of the Respondent's business during the past ten (10) years, or such shorter period of time that the Respondent has been in business.

	YES	NO
2. Are there any lawsuits, administrative actions or litigation to which Respondent is currently a party or has been a party (either as a plaintiff or defendant) during the past ten (10) years based upon fraud, theft, breach of contract, misrepresentation, safety, wrongful death or other similar conduct?	☐	☐
3. If "yes" to question number 2, were any of the parties to the suit a bonding company, insurance company, an owner, or otherwise? If so, attach a sheet listing all parties and indicate the type of company involved.	☐	☐
4. Has the Respondent been charged with a criminal offense within the last ten (10) years?	☐	☐
5. Has the Respondent received any citations or notices of violation from any government agency in connection with any of Respondent's work during the past ten (10) years (including OSHA violations)? Describe any citation or notices of violation which Respondent received.	☐	☐

6. Please state whether any of the following events have occurred in the last ten (10) years with respect to the Respondent. If any answer is yes, explain fully the circumstances surrounding the subject matter of the affirmative answer:

	YES	NO
(a) Whether Respondent, or Affiliate currently or previously associated with Respondent, has ever filed a petition in bankruptcy, taken any actions with respect to insolvency, reorganization, receivership, moratorium or assignment for the benefit of creditors, or otherwise sought relief from creditors?	☐	☐
(b) Whether Respondent was subject of any order, judgment or decree not subsequently reversed, suspended or vacated by any court permanently enjoining Respondent from engaging in any type of business practice?	☐	☐
(c) Whether Respondent was the subject of any civil or criminal proceeding in which there was a final adjudication adverse to Respondent which directly arose from activities conducted by Respondent.	☐	☐

Required Submittal (FORM 2)
Contractor Disclosure Affidavit (Page 3 of 7)

7. Has any employee, agent or representative of Respondent who is or will be directly involved in the project, in the last ten (10) years:

(a) directly or indirectly, had a business relationship with the City? **YES** ☐ **NO** ☐

(b) directly or indirectly, received revenues from the City? **YES** ☐ **NO** ☐

(c) directly or indirectly, received revenues from conducting business on City property or pursuant to any contract with the City? **YES** ☐ **NO** ☐

8. Whether any employee, agent, or representative of Respondent who is or will be directly involved in the project has or had within the last ten (10) years a direct or indirect business relationship with any elected or appointed City official or with any City employee? **YES** ☐ **NO** ☐

9. Whether Respondent has provided employment or compensation to any third party intermediary, agent, or lobbyist to directly or indirectly communicate with any City official or employee, or municipal official or employee in connection with any transaction or investment involving your firm and the City? **YES** ☐ **NO** ☐

10. Whether Respondent, or any agent, officer, director, or employee of your organization has solicited or made a contribution to any City official or member, or to the political party or political action committee within the previous five (5) years? **YES** ☐ **NO** ☐

11. Has the Respondent or any agent, officer, director, or employee been terminated, suspended, or debarred (for cause or otherwise) from any work being performed for the City or any other Federal, State or Local Government? **YES** ☐ **NO** ☐

12. Has the Respondent, member of Respondent's team or officer of any of them (with respect to any matter involving the business practice or activities of his or her employer been notified within the five (5) years preceding the date of this offer that any of them are the target of a criminal investigation, grand jury investigation, or civil enforcement proceeding? **YES** ☐ **NO** ☐

13. Please identify any Personal or Financial Relationships that may give rise to a conflict of interest as defined below *[Please be advised that you may be ineligible for award of contract if you have a personal or financial relationship that constitutes a conflict of interest that cannot be avoided]*:

(a) Personal relationships: executives, board members and partners in firms submitting offers must disclose familial relationships with employees, officers and elected officials of the City of Atlanta. Familial relationships shall include spouse, domestic partner registered under section 94-133, mother, father, sister, brother, and natural or adopted children of an official or employee. **YES** ☐ **NO** ☐

(b) Financial relationships: Respondent must disclose any interest held with a City employee or official, or family members of a City employee or official, which may yield, directly or indirectly, a monetary or other material benefit to the Respondent or the Respondent's family members. Please describe: **YES** ☐ **NO** ☐

_____

_____

_____

D. REPRESENTATIONS

Anti-Lobbying Provision. All respondents, including agents, employees, representatives, lobbyists, attorneys and proposed partner(s), subcontractor(s) or joint venturer(s), will refrain, under penalty of the respondent's disqualification, from direct or indirect contact for the purpose of influencing the selection or creating bias in the selection process with any person who may play a part in the selection process.

Certification of Independent Price Determination/Non-Collusion. Collusion and other anticompetitive practices among Proponents are prohibited by city, state and federal laws. All Respondents shall identify a person having authority to sign for the Respondent who shall certify, in writing, as follows:

> "I certify that this bid proposal is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting an bid or offer for the same supplies, labor, services, construction, materials or equipment to be furnished or professional or consultant services, and is in all respects fair and without collusion or fraud. I understand collusive bidding is a violation of city, state and federal law and can result in fines, prison sentences, and civil damages awards. By signing this document, I agree to abide by all conditions of this solicitation and offer and certify that I am authorized to sign for this Respondent."

Certify Satisfaction of all Underlying Obligations. (If Applicable) If a Contract is awarded through this solicitation, then such Contractor should know that before final payment is made to a Contractor by the City, the Contractor shall certify to the City in writing, in a form satisfactory to the City, that all subcontractors, materialmen suppliers and similar firms or persons involved in the City contract have been paid in full at the time of final payment to the Contractor by the City or will be paid in full utilizing the monies constituting final payment to the Contractor.

Confidentiality . Details of the proposals will not be discussed with other respondents during the selection process. Respondent should be aware, however, that all proposals and information submitted therein may become subject to public inspection following award of the contract. Each respondent should consider this possibility and, where trade secrets or other proprietary information may be involved, may choose to provide in lieu of such proprietary information, an explanation as to why such information is not provided in its proposal. However, the respondent may be required to submit such required information before further consideration.

Equal Employment Opportunity (EEO) Provision. All bidders or Proponents will be required to comply with sections 2-1200 and 2-1414 of the City of Atlanta Code of Ordinances, as follows: During the performance of the agreement, the Contractor agrees as follows:

a. The Contractor shall not discriminate against any employee, or applicant for employment, because of race, color, creed, religion, sex, domestic relationship status, parental status, familial status, sexual orientation, national origin, gender identity, age, disability, or political affiliation. As used here, the words "shall not discriminate" shall mean and include without limitation the following:

Recruited, whether by advertising or other means; compensated, whether in the form of rates of pay, or other forms of compensation; selected for training, including apprenticeship; promoted; upgraded; demoted; downgraded; transferred; laid off; and terminated.

The Contractor agrees to and shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officers setting forth the provisions of the EEO clause.

b. The Contractor shall, in all solicitations or advertisements 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, creed, religion, sex, domestic relationship status, parental status, familial status, sexual orientation, national origin, gender identity, age, disability, or political affiliation.

c. The Contractor shall send to each labor union or representative of workers with which the Contractor may have a collective bargaining agreement or other contract or understanding a notice advising the labor union or workers' representative of the Contractor's commitments under the equal employment opportunity program of the City of Atlanta and under the Code of Ordinances and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The Contractor shall register all workers in the skilled trades who are below the journeyman level with the U.S. Bureau of Apprenticeship and Training.

d. The Contractor shall furnish all information and reports required by the contract compliance officer pursuant to the Code of Ordinances, and shall permit access to the books, records, and accounts of the Contractor during normal business hours by the contract compliance officer for the purpose of investigation so as to ascertain compliance with the program.

e. The Contractor shall take such action with respect to any subcontractor as the city may direct as a means of enforcing the provisions of paragraphs (a) through (h) herein, including penalties and sanctions for noncompliance; provided, however, that in the event the Contractor becomes involved in or is threatened with litigation as a result of such direction by the city, the city will enter into such litigation as is necessary to protect the interest of the city and to effectuate the equal employment opportunity program of the city; and, in the case of contracts receiving federal assistance, the Contractor or the city may request the United States to enter into such litigation to protect the interests of the United States.

f. The Contractor and its subcontractors, if any, shall file compliance reports at reasonable times and intervals with the city in the form and to the extent prescribed by the contract compliance officer. Compliance reports filed at such times directed shall contain information as to employment practices, policies, programs and statistics of the Contractor and its subcontractors.

g. The Contractor shall include the provisions of paragraphs (a) through (h) of this equal employment opportunity clause in every subcontract or purchase order so that such provisions will be binding upon each subcontractor or vendor.

h. A finding, as hereinafter provided, that a refusal by the Contractor or subcontractor to comply with any portion of this program, as herein provided and described, may subject the offending party to any or all of the following penalties:

(1) Withholding from the Contractor in violation all future payments under the involved contract until it is determined that the Contractor or subcontractor is in compliance with the provisions of the contract;

(2) Refusal of all future bids for any contract with the City of Atlanta or any of its departments or divisions until such time as the Contractor or subcontractor demonstrates that there has been established and there shall be carried out all of the provisions of the program as provided in the Code of Ordinances;

(3) Cancellation of the public contract;

(4) In a case in which there is substantial or material violation of the compliance procedure herein set forth or as may be provided for by the contract, appropriate proceedings may be brought to enforce those provisions, including the enjoining, within applicable law, of Contractors, subcontractors or other organizations, individuals or groups who prevent or seek to prevent directly or indirectly compliance with the policy as herein provided.

Prohibition on Kickbacks or Gratuities/Non-Gratuity. The undersigned acknowledges the following prohibitions on kickbacks and gratuities:

a. It is unethical for any person to offer, give or agree to give any employee or former employee a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation or any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy or other particular matter pertaining to any program requirement or a contract or subcontract or to any solicitation or proposal therefor.

b. It is unethical for any employee or former employee to solicit, demand, accept or agree to accept from another person a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation or any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy or other particular matter pertaining to any program requirement or a contract or subcontract or to any solicitation or proposal therefor.

c. It is also unethical for any payment, gratuity or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime Contractor or higher tier subcontractor or any person associated therewith as an inducement for the award of a subcontract or order.

Declaration

Under penalty of perjury, I declare that I have examined this Disclosure Affidavit and Questionnaire and all attachments to it, if applicable, and, to the best of my knowledge and belief all statements contained herein and in any attachments, if applicable, are true, correct and complete.

I certify that this offer is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting an offer for the same supplies, services, construction, or professional or consultant services, and is in all respects fair and without collusion or fraud. I understand collusive bidding is a violation of city, state and federal law and can result in fines, prison sentences, and civil damages awards. I agree to abide by all conditions of this solicitation and offer and certify that I am authorized to sign for this Respondent.

Sign here if you are an individual:

Printed Name: _____

Signature: _____

Date: _____, 20___

Subscribed and sworn to or affirmed by _____ (name) this ___ day of _____, 20____.

_____

Notary Public of _____ (state)

My commission expires: _____

Sign here if you are an authorized representative of a responding entity or partnership:

Printed Name of Entity or Partnership:_____

Signature of authorized representative:_____

Title: _____

Date: _____, 20__

Subscribed and sworn to or affirmed by _____(name), as the _____(title) of _____(entity or partnership name) this_____day of _____, 20___.

_____

Notary Public of _____(state)

My commission expires: _____

Required Submittal (FORM 3)

Proponent Financial Disclosure (Page 1 of 5)

Instructions: It is necessary for the City to evaluate, verify, and understand the Proponent's financial capability and stability to undertake and perform the Services contemplated in this Solicitation. To accomplish this task, the Proponent must provide accurate and legible financial disclosures to the City as requested below.

A "Proponent" is an individual, entity or partnership submitting a proposal or Proposal in response to a Solicitation.

1. If the Proponent is an individual, financial disclosures for that individual must be provided.

2. If the Proponent is an entity or partnership, financial disclosures for that entity or partnership must be provided.

3. If the Proponent is a newly formed entity or partnership (formed within the last three years), financial disclosures for that entity or partnership must be provided together with full financial disclosure from the entity's or partnership's owners. Financial Disclosure includes a full response to all questions and requests for documentation listed in this Form.

For example, if the Proponent is a newly formed entity (formed within the last three years) made up of two separate entities (e.g., a majority interest owner and a minority interest owner), then financial disclosure is required from the Proponent entity, and financial disclosure is also required from each of the two owners (majority entity owner and minority entity owner) as well.

The Proponent (and its owners, if applicable) must submit hard copies of all financial disclosures in response to this Form.

Required Submittal (FORM 3)

Proponent Financial Disclosure (Page 2 of 5)

Part A - General Information:

Name of the Proponent: _____

Name of individual, entity or partnership completing this Form: _____

Relationship of individual, entity or partnership completing this Form to the Proponent: _____

Contact information of individual, entity or partnership completing this Form: _____

Address _____

Phone Number(s) _____

Email: _____

Required Submittal (FORM 3)

Proponent Financial Disclosure (Page 3 of 5)

Part B: Financial Information:

1. The Proponent, and its owners, if applicable, should demonstrate its financial capability and stability by selecting and providing documentation from one of the following three groups of requests (see below). Please circle which group, (a), (b), or (c), is selected and provide the supporting documentation with the proposal/Proposal.

(a) Financial statements for the three (3) most recent consecutive fiscal years, audited by a Certified Public Accountant ("CPA"), including:

(i) Income Statement;
(ii) Balance Sheet; and
(iii) Statement of Cash Flows.

(b) Financial statements for the three (3) most recent consecutive fiscal years, either reviewed or compiled by a Certified Public Accountant ("CPA"), including:

(i) Income Statement;
(ii) Balance Sheet; and
(iii) Satisfactory proof of Proponent's ability to obtain a Performance Bond for the amount described in Appendix B, if applicable.

(c) Unaudited, self-prepared financial statements for the three (3) most recent consecutive fiscal years, including:

(i) Income Statement;
(ii) Balance Sheet;
(iii) Satisfactory proof of Proponent's ability to obtain a Performance Bond for the amount described in Appendix B, if applicable;
(iv) Two (2) banks or other institutional lenders' references; and
(v) Dunn and Bradstreet report for the last two (2) years.

Required Submittal (FORM 3)

Proponent Financial Disclosure (Page 4 of 5)

2. Fill in the blanks below to provide a summary of all of the Proponent's assets and liabilities for the three (3) most recent years (calculated from the date of the end of the fiscal year).

ALL FIGURES BELOW MUST BE REPRESENTED IN U.S. CURRENCY ($).

Standard currency of Proponent's Financial Statements: _____

The exchange rate used: _____ = US $_____

Most recent three (3) years

	Year: 2013 (Thousands)	**Year: 2014** (Thousands)	**Year: 2015** (Thousands)
Current Assets	$.....	$.....	$.....
Current Liabilities	$.....	$.....	$.....
Property & Equip.	$.....	$.....	$.....
Working Capital	$.....	$.....	$.....
Sales/ Revenue	$.....	$.....	$ .....
Total Assets	$.....	$.....	$.....
Total Liabilities	$.....	$.....	$.....
Interest Charges	$.....	$.....	$.....
Net Income	$.....	$.....	$.....
Net-Worth	$.....	$.....	$.....

3. Do you plan to use or require an open line of credit for the project? Yes or No.

If yes, the Proponent must provide the source of the line of credit on bank letterhead for the bank providing the line of credit. The bank contact information must include: contact name, title, address, telephone, fax and e-mail address.

Required Submittal (FORM 3)

Proponent Financial Disclosure (Page 5 of 5)

Declaration

Under penalty of perjury, I declare that I have examined this Affidavit Disclosure form and all attachments to it, if applicable, and, to the best of my knowledge and belief, and all statements contained in it and all attachments, if applicable, are true, correct and complete.

Whether you are an individual executing this form or you are an authorized representative of an entity executing this form, the person signing below must sign or affirm in the presence of a Notary Public. The Notary Public's signature and seal must be provided, together with the date of the notarial act.

Sign here if you are an individual:

Printed Name: _____

Signature: _____

Date: _____, 20____

Subscribed and sworn to or affirmed by _____ (name) this _____ day of _____, 20___.

_____

Notary Public of _____(state)

My commission expires: _____

Sign here if you are an authorized representative of a responding entity:

Printed Name of Entity: _____

Signature of authorized representative: _____

Title: _____

Date: _____, 20___.

Subscribed and sworn to or affirmed by _____ (name), as the _____ (title) of _____ (entity name) this _____ day of _____, 20___.

_____

Notary Public of _____(state)

My commission expires: _____

Required Submittal (FORM 4.1)

Certification of Insurance Ability Instructions:

Proponents **MUST** submit **a completed copy of this form executed by their insurance company**. Failure to submit completed form will result in the Proponent being deemed non-responsive.

I, _____ [*insert an individual's name*], on behalf of _____ [*insert insurance company full name*], a _____ [*insert type of entity LLC, LLP, corporation, etc.*](“**Insurer**”), hereby represent and certify each of the following to the City of Atlanta, a municipal corporation of the State of Georgia (“**City**”) on this _____ day of _____, 20____ [*insert date*]:

(a) Insurer is licensed by the Insurance and Safety Fire Commissioner of the State of Georgia to transact insurance business in the State of Georgia;

(b) Insurer has reviewed the Agreement attached to the solicitation for Project Number: FC-8437 RM Clayton WRC - Instrumentation and Control Reliability Restoration (**“Project”**) and its corresponding **Appendix for Insurance Requirements;**

(c) Insurer certifies that if, as of the date written above, _____ (“**Proponent**”) was selected as the successful Proponent for the Project, Insurer would provide insurance to Proponent for this Project in accordance with the terms set forth in the corresponding **Appendix B for Insurance Requirements**; and

PLEASE NOTE: If this Form 4.1 is executed by an Attorney-in-Fact, then Insurer must attach a copy of a duly executed Power-of-Attorney evidencing such authority in addition to correctly completing this Form 4.1. If Proponent is unable to provide City with insurance that comply with the terms of the corresponding Appendix for Insurance Requirements within ten (10) days of receiving notice of intent to award the Project from the City, the City may, in its sole discretion, retain Proponent's security submitted with its offer and/or disqualify Proponent from further consideration for the award of the Agreement.

By executing this certification, Insurer represents that all of the information provided by Insurer herein is true and correct as of the date set forth above.

Insurer: [*insert company name on line provided below*]

Authorized Signatory

_____

By:_____

Print Name:_____

Title:_____

_____

Notary Public of _____ (state)

My commission expires: _____

Required Submittal (FORM 4.2)

Certification of Bonding Ability Instructions:

Proponents **MUST** submit **a completed copy of this form executed by their surety.** Failure to submit completed form will result in the Proponent being deemed non-responsive.

I, _____ [*insert an individual's name*], on behalf of _____ [*insert surety company full name*], a _____ [*insert type of entity LLC, LLP, corporation, etc.*](“**Surety**”), hereby represent and certify each of the following to the City of Atlanta, a municipal corporation of the State of Georgia (“**City**”) on this _____ day of _____, 20____ [*insert date*]:

(a) Surety is licensed by the Insurance and Safety Fire Commissioner of the State of Georgia to transact surety business in the State of Georgia;

(b) Surety has reviewed the Agreement attached to the solicitation for Project Number: FC-8437 RM Clayton WRC - Instrumentation and Control Reliability Restoration (**“Project”**) and its corresponding **Appendix B for Insurance and Bonding Requirements;**

(c) Surety certifies that if, as of the date written above, _____ _____(“**Proponent**”) was selected as the successful Proponent for the Project, Surety would provide bonding to Proponent for this Project in accordance with the corresponding **Appendix B for Insurance and Bonding Requirements**; and

(d) **Surety only**: The Surety states that Proponent's uncommitted bonding capacity (not taking into account this Project) is approximately $ _____ (U.S.). Surety's statement set forth in this Section (d) does not represent a limitation of the bonding capacity of Proponent or that Proponent will have the bonding capacity noted above at the time of contract execution for this Project.

PLEASE NOTE: If this Form 4.2 is executed by an Attorney-in-Fact, then Surety must attach a copy of a duly executed Power-of-Attorney evidencing such authority in addition to correctly completing this Form 4.2. If Proponent is unable to provide City with bonds that comply with the terms of the corresponding Appendix for Insurance Requirements within ten (10) days of receiving notice of intent to award the Project from the City, the City may, in its sole discretion, retain Proponent's security submitted with its offer and/or disqualify Proponent from further consideration for the award of the Agreement.

By executing this certification, Surety represents that all of the information provided by Surety herein is true and correct as of the date set forth above.

Surety: [*insert company name on line provided below*]

_____

By:_____

Print Name: _____

Title:_____

_____

Notary Public of _____ (state)

My commission expires: _____

Required Submittal (FORM 5)

Acknowledgment of Addenda

Proponents should sign below and return this form with their Proposal(s) to the Department of Procurement, 55 Trinity Avenue, City Hall South, Suite 1900, Atlanta, Georgia 30303, as acknowledgment of receipt of certain Addenda.

This is to acknowledge receipt of the following **Addenda** for **FC-8437; RM Clayton WRC – Instrumentation and Control Reliability Restoration:**

1. _____;
2. _____;
3. _____; and
4. _____.

Dated the _____day of _____, 20__.

Corporate Proponent: [Insert Corporate Name]	Non-Corporate Proponent: [Insert Proponent Name]
_____	_____
By:_____	By:_____
Print Name:_____	Print Name:_____
Title:_____	Title:_____
_____ Corporate Secretary/Assistant Secretary (Seal)	_____ Notary Public (Seal) My Commission Expires:_____

Required Submittal (FORM 6)

Proponent Contact Directory[1]

NAME	POSITION/TITLE	MAILING ADDRESS	OFFICE PHONE	CELL PHONE	EMAIL ADDRESS AND FAX NUMBER

[1] The purpose of the Proponent Contact Directory is to provide the City with a centralized, easily identified source of important contacts and other information regarding each of the business entities constituting a Proponent. This Proponent Contact Directory should include the names, positions/titles, firms, mailing addresses, phone and fax numbers and e-mail addresses for each of the following as it pertains to each of the firms in a Proponent's team:

1. At least two (2) individuals, one primary the other(s) secondary, authorized to represent the firm for purposes of this RFP; and
2. Proponent Service Provider Key Personnel (as appropriate) listed in the Services Agreement included in this RFP at Part 5.

Required Submittal (FORM 7)

Reference List

Each Proponent must provide a list of at least three (3) references using the below-referenced format. The City is interested in reviewing references that are able to attest to a Proponent's performance ability and credibility in a particular industry or trade.

Reference: Name
Address
City, State, Zip
Phone
Fax

Project Title:

Contact Person: _____
Direct Telephone: _____
Email Address: _____

Date(s) of Project: _____

Description of Services:

Total Amount of Contract Including Change Orders:

Proponent's Role and Responsibilities:

Current Completion Status:

_____

(Use the Same Format to Provide the Additional References)

Required Submittal *"Unless a Proponent Elects to Submit an Alternative Form of Payment"* (FORM 8)

Proposal Bond (Page 1 of 2)

KNOW ALL MEN BY THESE PRESENTS, THAT WE_____
_____
hereinafter called the PRINCIPAL, and _____
_____
hereinafter called the SURETY, a corporation chartered and existing under the laws of the State of _____, and duly authorized to transact Surety business in the State of Georgia, are held and firmly bound unto the City of Atlanta, Georgia **(OBLIGEE)**, in the penal sum of either: [i] _____ Dollars and Cents ($_____); or [ii] 5% of PRINCIPAL'S Proposal amount for **PROJECT NUMBER FC-8437 RM Clayton WRC – Instrumentation and Controls Reliability Restoration**, good and lawful money of the United States of America, to be paid upon demand of the OBLIGEE, to which payment well and truly to be made we bind ourselves, our heirs, executors, administrators and assigns, jointly and severally and firmly by these presents.

WHEREAS the PRINCIPAL has submitted to the OBLIGEE, for **PROJECT NUMBER FC-8437 RM Clayton WRC – Instrumentation and Controls Reliability Restoration,** a Proposal;

WHEREAS the PRINCIPAL desires to file this Bond in accordance with law, in lieu of a certified Proponent's check otherwise required to accompany this Proposal;

NOW THEREFORE: The conditions of this obligation are such that if the Proposal be accepted, the PRINCIPAL shall within ten (10) calendar days after receipt of written notification from the CITY of the award of the Contract execute a Contract in accordance with the Proposal and upon the terms, conditions and prices set forth therein, in the form and manner required by the City of Atlanta, Georgia, and execute sufficient and satisfactory Performance and Payment Bonds payable to the OBLIGEE, each in the amount of one hundred percent (100%) of the total Contract price in form and with security satisfactory to said OBLIGEE, then this obligation to be void; otherwise, to be and remain in full force and virtue in law; and the SURETY shall upon failure of the PRINCIPAL to comply with any or all of the foregoing requirements within the time specified above immediately pay to the OBLIGEE, upon demand the amount hereof in good and lawful money of the United States of America, not as a penalty but as liquidated damages.

In the event suit is brought upon this Bond by the OBLIGEE and judgment is recovered, the SURETY shall pay all costs incurred by the OBLIGEE in such suit, including attorney's fees to be fixed by the Court.

PLEASE NOTE: If this Form 8 is executed by an Attorney-in-Fact, then Surety must attach a copy of a duly executed Power-of-Attorney evidencing such authority in addition to correctly completing this Form 8.

Required Submittal *"Unless a Proponent Elects to Submit an Alternative Form of Payment"* (FORM 8)

Proposal Bond (Page 2 of 2)

This Proposal Bond is for the Penal Sum of:

[i] _____ Dollars and Cents ($_____), being in the amount of 5% of the CONTRACT Sum; or [ii] 5% of PRINCIPAL'S Proposal amount for **PROJECT NUMBER FC-8437 RM Clayton WRC – Instrumentation and Controls Reliability Restoration**. The money payable on this Bond shall be paid to the OBLIGEE, for the failure of the Proponent to execute a CONTRACT within ten (10) days after receipt of the Contract form and at the same time furnish a Payment Bond and Performance Bond.

IN TESTIMONY THEREOF, the PRINCIPAL and SURETY have caused these presents to be duly signed and sealed this _____day of _____20__.

Corporate Proponent:
[Insert Corporate Name]

_____
Signature:_____
Print Name:_____
Title:_____

_____
Corporate Secretary/Assistant Secretary
(Seal)

Non-Corporate Proponent:
[Insert Proponent Name]

_____
Signature:_____
Print Name:_____
Title:_____

_____
Notary Public (Seal)

My Commission Expires:_____

SURETY:

Signature:_____

Attorney-in-Fact:_____

Print Name: _____

Required Submittal (FORM 9)

Required Submittal Checklist

The following submittals shall be completed and submitted with each Proposal see table below "Required Proposal Submittal Check Sheet." Please verify that these submittals are in the envelope before it is sealed. *Disclaimer:* **It is each Proponents sole responsibility to ensure that their proposal to the City is inclusive of all required submittal documents outlined on the below-referenced checklist; as well as within other parts of the solicitation document.**

Submit one (1) Original Proposal, signed and dated, and seven (7) complete copies of the Original Proposal including all required attachments.

In addition to the hard copy submissions, each Proponent shall submit two (2) digital versions of its Proposal Submission in Adobe Portable Document Format ("PDF") on compact disk (CDs). CD One (1) version should be a duplicate of the hard copy of the Proposal with no deviations in order or layout of the hard copy proposal. CD Two (2) version should be a redacted version of the hard copy Proposal Submission. Please refer to the Georgia Open Records Acts (O.C.G.A. § 50-18-72) for information not subject to public disclosure.

The City assumes no liability for differences in information contained in the Proponent's printed Proposal Submission and that contained on the CDs. In the event of a discrepancy, the City will rely upon the information contained in the Proponent's printed material (Hard Copy). Each CD should be labeled with the Project Number, Project Name, and the CD Number.

Item Number	**Required Proposal Submittal Check Sheet**	**Check** ☐
1	**Volume I –** Informational Proposal: ☐ Executive Summary ☐ Organizational Structure ☐ Resumes of Key Personnel ☐ Overall Experience, Qualifications and Performance on Previous Similar Projects ☐ Management Plan/Conceptual Submittal (Project Approach)	
2	**Volume II -** Office of Contract Compliance (**Appendix A** Required Submittals Forms 1-5)	
3	**Volume II** – All Required Procurement Documents (**if any of the required submittal documents are not submitted or incomplete within your Proposal submittal package, your firm may be deemed non-responsive**). Required Submittals include but are not limited to: ☐ Form 1; Illegal Immigration Reform and Enforcement Act ☐ Form 2; Contractor Disclosure Form ☐ Form 3; Proponent Financial Disclosure ☐ Form 4.1; Certification of Insurance Ability ☐ Form 4.2; Certification of Bonding Ability ☐ Form 5; Acknowledgement of Addenda ☐ Form 6; Proponent Contact Directory ☐ Form 7; Reference List ☐ Form 8; Proposal Bond ☐ Form 9; Required Submittal Checklist ☐ Site Tour Release Form ☐ Cost Proposal Form/ Price Schedule and Pricing Form ☐ Georgia Utility Contractor's License ☐ General Contractor License ☐ Authority to Transact Business in Georgia ☐ Statement of Bidder/Proponent's Qualifications: • Safety Record Form • Joint Venture Agreement	
3A	**Separate Sealed Envelope** ☐ **Cost Proposal**	
4	**Proponent's Official Company Name:** **Company Physical Address:**	
5	**President/Vice President/Owner Name:** **Title:**_____ **Office Telephone Number:**_____ **Direct Cell Telephone Number:**_____ **Email Address:**_____	
6	**Primary Point-of-Contact Concerning RFP:**_____ **Title:**_____ **Office Telephone Number:**_____ **Direct Cell Telephone Number:**_____ **Email Address:**_____	

SITE TOUR RELEASE FOR FC-8437 , RM Clayton WRC-Instrumentation and Control Reliability Restoration_

Release and Waiver: Prospective Bidders (**"Bidder")** agrees to accept and assume all risks arising directly or indirectly out of any visit or entry by Bidders or its Authorized Persons to the R.M. Clayton Water Reclamation Center, 2240 Bolton Road, NW, Atlanta, Georgia 30318 (hereinafter, called "**Facilities**"). Bidder agrees that the City of Atlanta (the "**City**") and its agents, employees and consultants shall have no duty of care to keep the Facilities sage for entry or use. Bidder agrees that the City does not, grant its permission, assume responsibility or incur liability for any injury, death, loss or damage to any person or property arising out of the activities of Bidder or its Authorized Persons on the Facilities, and Bidder hereby releases the City and its employees, consultants and other agents from any an all actions, causes of action, suits, claims, liabilities, losses, damages, judgments and executions of any kind arising after the date hereof that Bidder, its Authorized Agents, or their respective employees, representatives, affiliates and/or agents may have by reason of, arising out of, related to, or resulting from any visit, entry, inspection, study, test or other action by Bidder or its Authorized Persons.

Indemnity: Notwithstanding any general liability or other insurance that may be maintained by Bidder, Bidder shall defend, indemnify and hold the City harmless (using counsel reasonably satisfactory to the City) from any and all actions, causes of action, suits, claims, liens, demands, liabilities, losses, costs, expenses (including, without limitation, reasonable attorneys' fees) and damages of any kind or nature that the City sustains or incurs by reason of or in connection with any visit, entry, inspection, study, test or other actions by Prospective Bidder or its Authorized Persons; provided, however, that the indemnity obligations of Bidder shall not apply to any liability of damages arising out of bodily injury to persons or damage to property caused by or resulting from the sole negligence or willful misconduct of the City and its agents or employees.

Confidential Information: Bidder recognizes that their employee and/or agent may be exposed to Confidential Information and that the City desires to prevent unauthorized disclosure of such information. Except as required by law or by a court of competent jurisdiction, each party agrees that it will not disclose any Confidential Information of the other party and further agrees to take appropriate action to prevent such disclosure by its employees or agents.

PROSPECTIVE BIDDER:

Company Name: _____

Name: _____

Title: _____

Date: _____

Telephone Number: _____

E-mail Address: _____

Fax Number: _____

Cost Proposal Form

CITY OF ATLANTA

FC-8437
RM CLAYTON WRC – RM Clayton WRC Instrumentation and Controls Upgrade

BID SCHEDULE/COST PROPOSAL

BID ITEMS:
The quantities of work shown on the Bid Schedule are approximate and the City reserves the right to add or delete quantities under each Bid Item and the Contractor agrees to perform the Work for the unit price listed in its bid.

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price
	PART 1 –BASE BID				
1.	Furnishing all products, materials and equipment, and performing all labor necessary to complete and put into operation improvements relating the RM CLAYTON WRC, RM Clayton WRC Instrumentation and Controls Upgrade, – as described in Exhibit D, Scope of Work ("SOW") and Technical Specification, including all work specified.	1	Lump Sum Bid Price		$_____
2.	5 year Service Agreement	1			$_____
	PART 2 – ALLOWANCES (3 through 5)				
3.	Additional Field Instrumentation Allowance:	1	Allowance		$700,000.00
4.	Unforeseen Conditions Allowance:	1	Allowance		$500,000.00
5.	Partnering Allowance:	1	Allowance		$1,500.00

6. TOTAL BID (Added totals for Items 1 through 5) ***Not to Exceed Price for the Project***	$_____

**TOTAL BID: PARTS 1 AND 2, INCLUSIVE:

_____

_____
(In Words)

*Lump Sum Prices shall include all business expenses (e.g., personnel, administrative, training, quality control, etc.) that will be assumed by Proponent for the Work.

Lump Sum Bid Price* for the RM Clayton WRC Instrumentation and Controls Upgrade inclusive of the Service Agreement, as described in Section 01010.

PART IV

Georgia Utility Contractor’s License

Required Submittal

GEORGIA UTILITY CONTRACTOR'S LICENSE CERTIFICATION

FC-8437, RM Clayton WRC – Instrumentation and Controls Reliability Restoration

Contractor's Name: _____

Utility Contractor's License Number: _____

Expiration Date of License: _____

FC Number and Project Name: **FC-8437, RM Clayton WRC – Instrumentation & Controls Reliability Restoration**

Copy of License must be included in Proposal

PART IV

General Contractor’s License

GENERAL CONTRACTOR'S LICENSE

FC-8437 RM Clayton WRC – Instrumentation and Controls Reliability Restoration

Contractor's Name: _____

General Contractor's License Number: _____

Expiration Date of License: _____

FC Number and Project Name: **FC-8437, RM Clayton WRC – Instrumentation & Controls Reliability Restoration**

Copy of License <u>must</u> be included in Proposal

AUTHORITY TO TRANSACT BUSINESS IN GEORGIA

(Copy of authorization <u>must</u> be included in Proposal)

AUTHORITY TO TRANSACT BUSINESS IN GEORGIA

FC-8437 RM Clayton WRC – Instrumentation and Control Reliability Restoration

(Attach Certificate of Authority to transact business in Georgia from Georgia Secretary of State)

PART IV

Statement of Bidder/Proponent Qualifications

STATEMENT OF PROPONENT'S QUALIFICATIONS

This Statement is to accompany proposals submitted for the following project: **FC-8437, RM Clayton WRC- Instrumentation and Controls Reliability Restoration. Proponents must meet the minimum qualification criteria set forth under items 5, 7, 8, 9 10, and 11 of this section and must provide the organization chart as set forth under item 6 of this section to be deemed a "Responsible and Responsive Proponent".**

1. NAME OF PROPONENT: _____

2. BUSINESS ADDRESS: _____

_____

3. TELEPHONE NUMBER: _____

4. OFFICIAL REPRESENTATIVE AND TITLE: _____

_____

5. Using the forms provided in this Section, list previously completed or current projects which are similar in scope and complexity to this project which were completed or assigned to your firm or joint venture, including: Name of project, location of project, owner's name, address and phone number, description of work performed, initial contract amount, final contract amount, start date, scheduled completion date and actual completion date. (If a joint venture, list separately for each joint venture partner.) Limit to 5.

Proponents must have successfully completed at least Two (2) contracts involving construction or upgrade of Foxboro IA DCS at a water or wastewater treatment facility with a value of at least one million dollars ($1,000,000). The Foxboro IA DCS portion of the project shall have a construction value of two hundred fifty thousand dollars ($250,000) or greater. These projects are to also demonstrate and document experience with installation/upgrade of electrical, fiberoptics and instrumentation systems.

Proponent shall provide the City with a five (5) year Customer FIRST Program Support and Service Agreement, in a form acceptable to the City, for the Foxboro System.

6. Provide the following information for the organization proposed for this project:

   a. Organizational chart.

   b. Indicate the participation by the various members in the organization, with the percentage of their time to be dedicated to the project, as shown on the organizational chart; in the management; and in the division of work (If a joint venture, indicate percent of man hours and percent of project cost to be performed by each joint venture member).

7. Using the forms provided in this Section, provide information for key project personnel: Project Manager and onsite Lead or Supervisor.

   a. Project Manager – Minimum completion of at least two (2) completion of two (2) contracts involving construction or replacement of similar systems at water/wastewater treatment facilities with at least 5 years of project management experience. These projects are to also demonstrate and document experience with installation of electrical, fiberoptic and instrumentation systems with a construction value for this portion of the Project of not less than $1,000,000 each. Preference will be given to proposed staff that have directly worked on an upgrade of a Foxboro DCS in an active facilty..
   b. Onsite Lead Or Superintendent – Minimum completion of at least two (2) contracts involving upgrades and/or refurbishment of existing instrumentation or control systems at wastewater treatment facilities. The peron must have direct experience with Foxoboro Intellegent Automation (IA) Distributed Control System (DCS). These projects are to also demonstrate and document experience with installation of electrical, fiberopitic and instrumentation systems with a construction value for this portion of the Project of not less than $750,000 each. Preference will be given to proposed staff that have directly worked on upgrade of a Foxboro DCS in an active facility.
   c. System Integrator must have successfully managed and completed at least three (3) water or wastewater treatment facility new or upgrade projects with the portion of instrumentation and control construction work greater or equal to $1,000,000 in the past five (5) years. At least one (1) of the projects shall have been completed in the past two (2) years. System Integrator shall be a named or an Or Equal per Section 17000 requirements

8. The Proponent must have an established Safety Program that as a minimum includes those items as listed on the attachment entitled *"SAFETY RECORD FORM,"* Section IV Safety Program Information where applicable to this type of work.

9. The Proponent's Workman's Compensation Ratings (EMR-Experience Modification Rate) must not exceed an average of 1.0 over the last three (3) years (provided for each team member).

   Proponent's Workman's Compensation Ratings (EMR-Experience Modification Rate) _____

10. The Proponent's, including all team members identified in the Proposal, OSHA Incidence Rates must not exceed the most current Industry Standard published by the U.S.

Department of Labor (2013), www.bls.gov/iif/oshsum.htm, for the last three (3) years for for their classification. The following will be provided by the Proponent for each of their team members:

a. Total Recordable Case Rates,

b. Injuries and Illness with Lost Work Days,

c. Injuries and Illness with Job Transfer or Restricted Work Days.

11. "If there have been any fatalities during the last five (5) years on any projects performed by the Proponent or on any work performed under the direct supervision of a proposed Project Manager and the Proponent or proposed Project Manager was cited by OSHA for "Willful", in performing the work in which the fatality occurred, the Proponent will be disqualified based on the City's review. The Proponent may also be disqualified in the event that a Recordable Incident occurred due to the same condition that existed when a previous fatality occurred and resulted in an OSHA citation or failure to implement a corrective action plan."

    a. Fatalities during the last five (5) years where Proponent was cited by OSHA for "Willful" or "Serious" Violation. _____

    b. Fatalities during the last five (5) years where the proposed Project Manager was cited by OSHA for "Willful" or "Serious" Violation._____

The previous statements and attachments are true, correct, and complete to the best of my knowledge.

Date: _____

Proponent's Firm Name: _____

By: _____

Title: _____

Sworn to and subscribed before me

This ____ day of _____ , 2016

Notary Public

STATEMENT OF PROPONENT'S QUALIFICATIONS

Project Name	
Project Type & Design	
Project Location	
Design Builder	
Key Personnel's Role	
Owner's Representative: Name and Phone Number	
Design Engineer's Representative: Name and Phone Number	
Relevant Project Experience from Project:	
Initial Contract Amount	$
Final Contract Amount	$
Reason for Cost increase, if any	
Project Duration	Date Started: Date Completed:
Was Project Completed on Time?	
If not Completed on Time, Why?	
Description of Major Project Components as they apply to this proposal	

STATEMENT OF PROPONENT'S QUALIFICATIONS

KEY PERSONNEL EXPERIENCE

NAME: _____

TITLE: _____

Project Name	
Project Type & Design	
Project Location	
Design Builder	
Key Personnel's Role	
Owner's Representative: Name and Phone Number	
Design Engineer's Representative: Name and Phone Number	
Relevant Project Experience from Project:	
Initial Contract Amount	$
Final Contract Amount	$
Reason for Cost increase, if any	
Project Duration	Date Started: Date Completed:
Was Project Completed on Time?	
If not Completed on Time, Why?	
Description of Major Project Components as they apply to this proposal	

I. General Information

Name of Firm:	
Business Address:	
Telephone:	Fax:
Prepared by/Title:	Date prepared:

II. Experience Modification Rates

A. List your firm's Workers Compensation Experience Modification Rates (EMR) for the last three years.

Year	Experience Modification Rate (EMR)

III. OSHA Incidence Rates

A. List your firm's Occupational Safety Health Administration (OSHA) total recordable incidence rates for the last three years.

Year	Total Recordable Incidents	Total Hours Worked	OSHA Incidence Rate*

* Use your OSHA Form No. 200 and the formula:

(Total Incidents x 200,000 hours) ÷ (Number of hours worked) = Incidence Rate

III. OSHA Incidence Rates (cont'd)

B. Provide your incidence rates over the last three years for the following categories:

	Incidence Rate by Year*		
Category	**Year** _____	**Year** _____	**Year** _____
Injuries and Illness with Lost Work Days			
Injuries and Illness with Job Transfer or Restricted Work Days			

* Use your OSHA Form No. 200 and the formula:

(Total Incidents x 200,000 hours) ÷ (Number of hours worked) = Incidence Rate

C. Provide your incidences of fatality over the last five years:

	Fatalities by Year				
Category	**Year** _____	**Year** _____	**Year** _____	**Year** _____	**Year** _____
Number of Fatalities					

D. Does your firm have any upheld OSHA citations in the past five years?

Yes ☐ No ☐ (If yes, attach explanation)

IV. Safety Program Information

A. Do you have a written safety program?

Yes ☐ No ☐ (If yes, attach outline)

B. Which of the following does your safety program contain:

1. Does your company require health and safety training of its subcontractors?

   Yes ☐ No ☐

2. Is documentation of health and safety training required?

   Yes ☐ No ☐

3. Do you have a Hazard Communication Program (29 CFR 1910.1200, CCR Title 8 Section 5194)?

   Yes ☐ No ☐

4. Do you have a Confined Space Entry and Rescue Program (29 CFR 1910.146, CCR Title 8 Section 5156-5159)?

Yes ☐ No ☐ (If yes, attach explanation)

5. Do you have a "Hot Work" permit program (29 CFR 1910.146, CCR Title 8 5156-5159)?

   Yes ☐ No ☐ (If yes, attach explanation)

6. Do you have a "Lock-Out/Tag-Out" program (29 CFR 1910.417)?

   Yes ☐ No ☐ (If yes, attach explanation)

C. Do you have an Equipment Maintenance Program for the following:

1.	Miscellaneous construction tools and equipment?	Yes ☐	No ☐
2.	Ladders?	Yes ☐	No ☐
3.	Scaffolds?	Yes ☐	No ☐
4.	Heavy Equipment?	Yes ☐	No ☐
5.	Vehicles?	Yes ☐	No ☐

D. Do you have a new employee safety orientation program?

Yes ☐ No ☐

1. If yes, does it include instruction in the following:

(a)	Company Safety Policy	Yes ☐	No ☐
(b)	Company Safety Rules	Yes ☐	No ☐
(c)	Safety Meeting Attendance	Yes ☐	No ☐
(d)	Company Safety Record	Yes ☐	No ☐
(e)	Hazard Recognition	Yes ☐	No ☐
(f)	Hazard Reporting	Yes ☐	No ☐
(g)	Injury Reporting	Yes ☐	No ☐
(h)	Non-Injury Accident Reporting	Yes ☐	No ☐
(i)	Personal Protective Equipment	Yes ☐	No ☐
(j)	Respiratory Protection	Yes ☐	No ☐
(k)	Fire Protection	Yes ☐	No ☐
(l)	Housekeeping	Yes ☐	No ☐
(m)	Toxic Substance	Yes ☐	No ☐
(n)	Electrical Safety	Yes ☐	No ☐
(o)	Fall Protection	Yes ☐	No ☐
(p)	First-Aid/CPR	Yes ☐	No ☐
(q)	Driving Safety	Yes ☐	No ☐
(r)	Hearing Conservation	Yes ☐	No ☐
(s)	Lock-Out/Tag-Out	Yes ☐	No ☐
(t)	Bloodborne Pathogens	Yes ☐	No ☐
(u)	Asbestos	Yes ☐	No ☐
(v)	Confined Spaces	Yes ☐	No ☐
(w)	Hazard Communication	Yes ☐	No ☐

IV. Safety Program Information (cont'd)

E. Do you conduct safety meetings for your employees? Yes ☐ No ☐

1. If yes, how often:

   Daily ☐ Weekly ☐ Bi-weekly ☐ Monthly ☐ As Needed ☐

F. Do you conduct health and safety audits of work in progress?

Yes ☐ No ☐

1. If yes, who conducts the audits?

   _____

2. How often are the audits conducted?

   _____

G. Do you notify all employees of accidents and precautions related to accidents and near misses?

Yes ☐ No ☐

1. If yes, how is this notification accomplished?

   (a) Safety meetings Yes ☐ No ☐
   (b) Post notification in office Yes ☐ No ☐
   (c) Post notification at the site where the incident occurred Yes ☐ No ☐
   (d) Other _____

H. Is safety a criteria in evaluating the performance of:

1. Employees Yes ☐ No ☐
2. Supervisors Yes ☐ No ☐
3. Management Yes ☐ No ☐

I. Does your firm hold "tailgate" safety meetings? Yes ☐ No ☐

1. If yes, how often:

   Daily ☐ Weekly ☐ Bi-weekly ☐ Monthly ☐ As Needed ☐

J. Does your company have a drug and alcohol testing policy?

Yes ☐ No ☐

K. Does your company require that subcontractors participate in a drug surveillance/testing program?

Yes ☐ No ☐

L. Does your company have a method of disseminating safety information?

Yes ☐ No ☐

Required Submittal

JOINT VENTURE AGREEMENT

FC-8437 RM Clayton WRC – Instrumentation and Controls Reliability Restoration

Copy of Joint Venture Agreement must be included in Proposal

PART V

City-Contractor Agreement

Draft City-Contractor Agreement

STATE OF GEORGIA **FC-8437**
COUNTY OF FULTON

Draft Agreement for FC-8437, RM CLAYTON WRC - Instrumentation and Controls Reliability Restoration

Contractor: _____

Contract No.: **FC-_8437____, RM CLAYTON WRC - Instrumentation and Controls Reliability Restoration**

Address: _____
_____
_____ (T) _____
(F) _____

Contact: _____

This Agreement is entered into the day of, 201__, between the City of Atlanta, (the "**City**") and _____ ("**Contractor**").

WHEREAS, Contractor has the necessary personnel and facilities to perform the Work; and

WHEREAS, the Department of Watershed Management as recommended Agreement award to Contractor; and

WHEREAS, the Georgia Security and Immigration Compliance Act of 2006 pursuant to O.C.G.A. § 13-10-91 and Georgia Department of Labor Rule 300-10-1-02 is effective as of July 1, 2007, and applies to contracts for services which are physically performed with a public entity. The Contractor is required to submit the attached Georgia Security and Immigration Compliance Act of 2006 Required Submittal, the Contractor Affidavit and the Subcontractor Affidavits as shown in Exhibit "D". Contractor's failure to comply with this requirement shall constitute a material default in the contract, which may result in termination of this Contract Agreement.

NOW, THEREFORE, for and in consideration of the mutual Agreement between the parties hereinafter, and for other good and valuable consideration, the parties hereto do agree as follows:

1.

The City hereby engages Contractor to perform, and Contractor agrees to perform for the City, all Work required by the Agreement Documents relative to the Project. Contractor shall commence the Work within thirty (30) calendar days after receipt of Notice to Proceed and shall substantially complete within the time stated in the Bid Solicitation.

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2.

a) Contractor represents that it has, or will secure at its own expenses, all personnel required to perform all Work to be completed under this Agreement;

b) All the Work required hereunder will be performed by Contractor or under the direct supervision of Contractor. All personnel engaged in the Work by Contractor shall be fully qualified and shall be authorized or permitted under applicable State and local law to perform such Work;

c) None of the Work or services covered by this Agreement shall be transferred, assigned, or subcontracted by Contractor without the prior written consent of the City.

3.

The Agreement Documents relative to this Agreement consist of:

This City-Contractor Agreement;
- The Performance Bond;
- The Payment Bond;
- Bid Guarantee;
- Statement of Bidders Qualifications;
- Affidavits;
- Equal Business Opportunity Program:
  - Policy Statement;
  - Equal Business Opportunity (EBO) M/FBE Availability;
  - Equal Business Opportunity Program Reminders;
  - Covenant of Non-discrimination (EBO-1);
  - Subcontractor Contact Form (EBO-2);
  - Equal Business Opportunity Subcontractor Project Plan (EBO-3)
  - First Source Jobs Information (Form-4);
  - First Source Jobs Agreement (Form-5)
- Bid Proposal; and Any Bid Schedule and/or Bid Data;
- General Conditions;
- Technical Specifications;
- Plans for the Project;
- Legislation;
- Special Conditions
- Exhibits;
- Any Project Network Schedules;

Illegal Immigration Reform and Enforcement Act
- Contractor's Georgia Utility License Certificate; and
- Any Addenda thereto or Modification thereof (as defined in the General Conditions).
- Special Conditions
- Exhibits;
- Any Project Network Schedules;
- Any Addenda thereto or Modification thereof (as defined in the General Conditions).

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These collectively form the Agreement, and are all as fully a part of the Agreement as if attached to this Agreement or repeated herein.

4.

All reports, information, data, or other documents, given to, prepared by or assembled by Contractor under this Agreement shall be kept confidential and shall not be made available to any individual or organization by Contractor without the prior written approval of the City.

5.

The City may, from time to time, request changes in the Scope of Work to be performed by Contractor hereunder. No such change, including any increase or decrease in the amount of the compensation, which may be mutually agreed upon by and between the City and Contractor, shall be effective and enforceable until and unless a written amendment or change order to this Agreement has been executed by both parties and attached hereto.

6.

Contractor warrants that it has not employed or retained any company or person, other than a bona fide employee working for Contractor to solicit or secure this Agreement; and that it has not paid or agreed to pay any person, company, association, corporation, individual or firm, other than a bona fide employee working for Contractor any fee, commission, percentage, gift, or any other consideration contingent upon or resulting from the award or making of this Agreement. For the breach or violation of the above warranty and upon a finding after notice and hearing, the City shall have the right to terminate this Agreement without liability and, at its discretion, to deduct from the Agreement price or otherwise recover, the full amount of such fee, commission, percentage, gift or consideration.

7.

During the performance of this Agreement, Contractor agrees to comply with all provisions of Part 2, Chapter 2, Article X, Division 11, including Section 2-1414 of the Code of Ordinances ("**Ordinance**"), City of Atlanta, and to warrant the following:

a) The Contractor shall not discriminate against any employee, or applicant for employment because of race, color, creed, religion, sex, domestic relationship status, parental status, familial status, sexual orientation, national origin, gender identity, age, disability, or political affiliation. As used here, the works "shall not discriminate" shall mean and include, without limitation, the following:

Recruited whether by advertising or other means; compensated, whether in the form of rates of pay, or other forms of compensation; selected for training, including apprenticeship; promoted; upgraded; demoted; downgraded; transferred; laid off; and terminated.

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The Contractor agrees to and shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the City setting forth the provisions of the non-discrimination clause.

b) The Contractor shall, in all solicitation or advertisement for employees, placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for the employment without regard to race, color, creed, religion, sex, domestic relationship status, parental status, familial status, sexual orientation, national origin, gender identity, age, disability, or political affiliation.

c) The Contractor shall send to each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding a notice advising the labor union or worker's representative of the Contractor commitments under the Equal Employment Opportunity Program of the City and under the Code of Ordinances and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The Contractor shall register all workers in the skilled trades, who are below the journeyman level, with the U.S. Bureau of Apprenticeship and Training.

d) The Contractor shall furnish all information and reports required by the Contract Compliance Officer pursuant to the Code of Ordinances, and shall permit access to the books, records and accounts of the Contractor during the normal business hours by the contracting agency and the Contract Compliance Officer for the purpose of investigation so as to ascertain compliance with the program.

e) The Contractor shall take such reasonable action with respect to any Subcontractor as the City may direct, as a means of enforcing the provisions of paragraphs (a) through (h) herein, including penalties and sanctions for non-compliance; provided, however, that in the event the Contractor becomes involved in or is threatened with litigation as may be necessary to protect the interest of the City and to effectuate the Equal Employment Opportunity Program of the City; and, in the case of contracts receiving federal assistance, the Contractor or the City may request the United States to enter into such litigation to protect the interest of the United States.

f) The Contractor and its Subcontractors, if any, shall file compliance reports at reasonable times and intervals with the City in the form and to the extent prescribed by the Contract Compliance Officer of the City. Compliance reports filed at such time directed shall contain information as to employment practices, policies, programs and statistics of the Contractor and its Subcontractors.

g) The Contractor shall include the provisions of paragraphs (a) through (h) of this Equal Employment Opportunity Clause in every subcontract or purchase order which materially affects the Project so that such provisions will be binding upon each such Subcontractor or vendor.

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h) A finding, as hereinafter provided, that a refusal by the Contractor or subcontractor to comply with any portion of this program, as herein provided and described, may subject the offending party to any or all of the following penalties:

(1) Withholding from the Contractor in violation all future payments under the involved public contract until it is determined that the Contractor or Subcontractor is in compliance with the provisions of the Agreement.

(2) Refusal of all future bids for any public contract with the City or any of its departments or divisions until such time as the Contractor or Subcontractor demonstrates that there has been established and there shall be carried out all of the provisions of the program as provided in this article.

(3) Cancellation of the public Agreement.

(4) In a case in which there is substantial or material violation, or the threat of substantial or material violation, of the compliance procedure therein set forth or as may be provided for by this Agreement, an appropriate proceeding may be brought to enforce these provisions, including the enjoining of Contractor, Subcontractor, or other organizations, individuals or groups who prevent or seek to prevent directly or indirectly compliance with the policy as herein provided.

8.

During the performance of this Agreement, Contractor agrees to comply with Part 2, Chapter 2, Article X, Division 12, including Sections 2-1441 through 2-1460 of the Code of Ordinances of the City of Atlanta, the Equal Business Opportunity ("**EBO**") Program and to warrant the following:

"The Contractor agrees to engage non-discriminatory practices in all efforts to meet the M/FBE availability sited in this Agreement by making available opportunities for Minority Business Enterprises ("**MBE**"), African American Business Enterprises ("**AABE**"), Hispanic Business Enterprises ("**HBE**"), Asian Business Enterprises ("**ABE**") and Native American Business Enterprises ("**NABE**") and Female Business Enterprises ("**FBE**") for utilization in the work set forth within this Agreement and shall take the following action as part of their good faith efforts:

1. Notification to M/FBEs that the Contractor has subcontracting opportunities available and maintenance of records of the M/FBE responses.

2. Maintenance by the Contractor of a file of the names and addresses of each Subcontractor contracted and action taken with respect to each such contract.

3. Dissemination of the Contractor EBO policy externally by informing and discussing it with all management and technical assistance sources; by advertising

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in news media and by notifying and discussing it with Subcontractor and Supplier.

4. Specific and continuing written and oral recruitment efforts directed at M/FBE Contractor organizations, M/FBE assistance organizations.

5. Sub-divisions for the contract economically feasible segments as practical to allow the greatest opportunity for participation by M/FBEs.

6. Increasing where possible the number of aggregate purchase items so as to eliminate the requirement of front-end purchases material for as many M/FBE Subcontractors as possible.

7. Adoption of the EBO Plan submitted in its response to the Invitation for Bids or Requests for Proposals obligations under this Agreement, as approved by the Office of Contract Compliance.

8. Submission of monthly reports on the forms and to the extent required by the Director of the Office of Contract Compliance, to be due on or before the 5th day of each month following the award of the Work set forth in this Agreement.

9. The Contractor further agrees that breach of the EBO provisions contained herein shall subject them to any or all of the following penalties:

a). Withholding of ten percent (10%) of all future payments under the involved eligible project until it is determined that the Contractor is in compliance.

b). Withholding of all future payments under the involved Project until it is determined that the Contractor is in compliance.

c). Refusal of all future bids or offers for any eligible project with the City of Atlanta or any of its department or divisions until such time as the Contractor demonstrates that there has been established and there shall be carried out all of the EBO provisions contained herein.

d). Cancellation of the eligible project.

9.

The City agrees to pay Contractor for the Work performed pursuant to this Agreement on an as needed basis per the unit price as stated in the Bid Sheet, hereinafter attached as Exhibit B, for amount not to exceed **_____Dollars ($_____).**

10.

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The term of this Agreement shall be for a period of five (5) year with three (3) additional five (5) year renewal options at the sole discretion of the City.

11.

Contractor, by the execution of this Agreement, acknowledges that it is possessed of that degree of care, learning, skill, and ability which is ordinarily possessed by other members of its profession and further contracts that in the performance of the duties herein set forth, it will exercise such degree of care, learning, skill and ability as is ordinarily employed by Contractor under similar conditions and like circumstances and shall perform such duties without neglect.

12.

Contractor agrees to obtain and maintain during the entire term of this Agreement all of the insurance called for in the Agreement Documents, with the City as an additional insured in each policy of public liability and property damage insurance, and shall furnish to the City a certificate of insurance showing required coverage. The cancellation of any policy of insurance required by this Agreement shall meet the requirements of notice under the laws of the State of Georgia as presently set forth in the Georgia Code.

13.

In addition to its agreement to obtain and maintain the insurance as set forth herein above, the Contractor agrees that to the fullest extent permitted by law, the Contractor shall at his sole cost and expense indemnify, defend, satisfy all judgments and hold harmless the City, the Designer, the Engineer, and their agents and employees from and against all claims, damages, actions, judgments, costs, penalties, liabilities, losses and expenses, including, but not limited to, attorneys' fees arising out of or resulting from the performance of the Work, provided that any such claim, damage, action, judgment, cost, penalty, liability, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting there from; and (2) is caused in whole or in part by any act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in Appendix B, Insurance and Bonding Requirements, Paragraph F.

In any and all claims against the City, the Engineer or any of their agents or employees by any employee of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation in Appendix B, Insurance and Bonding Requirements, Paragraph F, shall not be limited in any way, including, but not limited by, the limits of the liability insurance required under this Agreement and the Agreement Documents, nor limited by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workers' or workmen's' compensation acts, disability benefit acts or other employee benefit acts.

14.

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The Contractor shall obtain, at its own expense, all permits and licenses required by all municipal, state and federal authorities now in force, or which may hereafter be in force, pertaining to the performance of the work called for by this Agreement. The Agreement Documents, including this Agreement, constitute the entire and integrated Agreement between the City and the Contractor and may be amended only by written instrument approved by both parties. The parties agree that this Agreement shall not become binding on the City, and the City shall incur no liability upon the same, until this Agreement has been executed by the Mayor, officially sealed by the Municipal Clerk and delivered to Contractor.

15.

The Georgia Security and Immigration Compliance Act of 2006 pursuant to O.C.G.A. § 13-10-91 and Georgia Department of Labor Rule 300-10-1-02 is effective as of July 1, 2007, and applies to contracts for services which are physically performed with a public entity. The Contractor is required to submit the attached Georgia Security and Immigration Compliance Act of 2006 Required Contractor Submittal, the Contractor Affidavit and the Subcontractor Affidavits as shown in Exhibit "C". Contractor's failure to comply with this requirement shall constitute a material default in the contract, which may result in termination of this Original Agreement.

16.

Ethics in Contracts.

Gratuities and Kickbacks. In accordance with the City of Atlanta's Code of Ordinances, Section 2-1484, as may be amended, it shall be unethical for any person to offer, give or agree to give any employee or former employee or for any employee or former employee to solicit, demand, accept or agree to accept from another person a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation or any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy or other particular matter pertaining to any program requirement or a contract or subcontract or to any solicitation or proposal therefore. Additionally, it shall be unethical for any payment, gratuity or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith as an inducement for the award of a subcontract or order.

Fraud and Misrepresentation. Any written or oral information provided by Contractor, directly or indirectly related to the performance of the services required by this Agreement, constitutes material representations upon which the City relies for the requirements of the Agreement and compliance with local, state and federal laws, rules and regulations. [Contractor] agrees to notify the City immediately of any information provided to the City that it knows and/or believes to be false and/or erroneous and immediately provide correct information to the City and take corrective action. [Contractor] further agrees to notify the City immediately of any actions or information that it believes would constitute fraud or misrepresentation to the City in performance of this Agreement, whether or not such information actually constitutes fraud

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and/or misrepresentations, by contacting the Integrity Line 1-800-884-0911. [Contractor] agrees to place signage provided by the City regarding the Integrity Line at the location to which [Contractor's] employees report to perform the services required by this Agreement. [Contractor] acknowledges and agrees that a finding of fraud or other impropriety on the part of the [Contractor] or any of its [subcontractors] may result in suspension or debarment of the [Contractor]; and the City may pursue any other actions or remedies that the City may deem appropriate. [Contractor] agrees to include this clause in its [subcontracts] and take appropriate measures to ensure compliance with this provision.

IN WITNESS WHEREOF, the Commission and Contractor have executed this Agreement by their duly authorized officers, as of the date first above written.

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IN WITNESS WHEREOF, the City and Contractor have executed this Agreement by their duly authorized officers, as of the date first above written.

CITY OF ATLANTA:

_____
Mayor

ATTEST:

_____
Municipal Clerk (SEAL)

RECOMMENDED:

_____
Commissioner, Department of
Watershed Management

APPROVED:

_____
Chief Procurement Officer

APPROVED AS TO FORM:

_____
City Attorney

CONTRACTOR:

_____
President/Vice President

ATTEST:

_____
Corporate Secretary/Asst. Secretary

(affix seal)

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Exhibit A

General Conditions

GENERAL CONDITIONS

GC-1 AGREEMENT AND AGREEMENT DOCUMENTS

The General Conditions, Special Conditions, Technical Provisions, Drawings, Changes, and all other parts of the Agreement Documents are complementary, and a requirement occurring in one shall be as binding as though occurring in all. The parts of the Agreement are complementary and describe and provide for completion of the Work. 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 Agreement Documents and in no way affect, and shall not be considered in the interpretation of the provisions to which they refer.

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

The intent of the Agreement Documents is to include all items necessary for the proper execution and completion of the Work. Work not specifically covered in the Agreement Documents shall be required if it is consistent therewith and reasonably inferable there from as being necessary to produce the intended results. Words and abbreviations that have well-known technical or trade meanings are used in the Agreement Documents in accordance with such recognized meanings.

If and to the extent of any inconsistency, ambiguity, conflict, discrepancy or error in the Agreement Documents (a “discrepancy”), Contractor shall immediately notify the Owner in writing and seek clarification from the Owner (within 24 hours of discovery). In the event that the Owner fails to clarify such discrepancy within a reasonable time under the circumstances, Contractor shall proceed with the Work and give precedence to the Agreement Documents in the following order of priority:

(1) Written modifications (including without limitation Change Orders and Change Directives) issued after execution of the Agreement;

(2) Addenda issued in writing prior to the execution of the Agreement;

(3) The Agreement;

(4) Addendum, if any, to the General Conditions and Special Conditions;

(5) Special Conditions;

(6) The General Conditions;

(7) The Specifications; and

(8) The Plans and Drawings.

If the application of the foregoing procedure fails to resolve the discrepancy, then unless Contractor sought and obtained the clarification of the discrepancy prior to entering into this Agreement, then the discrepancy shall be resolved by construing the provision in favor of the Owner and in such a manner as will further the Owner's best interests and which may impose the more expensive or greater obligation upon Contractor. When Contractor fails to provide this notice and seek clarification, Contractor assumes full responsibility to correct or adjust work performed pursuant to Agreement Documents known, or which should have been known, to contain such a discrepancy.

GC-2 ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

During the progress of the Work, the Engineer may issue additional instructions and Drawings supplemental to those listed in the Special Conditions showing additional details required for the performance of the Work, and may issue revised Drawings pursuant to Change Orders or Change Directives, or for correction of errors in the Plans. The additional instructions and Drawings thus supplied will become a part of the Agreement Documents. Contractor shall carry out the Work in accordance with the additional instructions and Drawings.

GC-3 DEFINITIONS

The following terms as used in this Agreement are respectively defined, as follows:

Abandonment - Shall mean the permanent termination of the use of, or of service from in or on, a facility.

Approved, Directed, Ordered, Or Their Derivatives - Approved, as directed, or ordered by the Engineer or the City, unless otherwise clearly indicated.

Acceptance - The formal written acceptance by the City of the fully and finally completed Work.

Addenda - Revisions to the Proposal Documents issued by the City prior to opening of the Bid.

Agreement - The written agreement for the performance of and payment for the Work, which includes by reference and is a part of the Agreement Documents, executed on behalf of the City and the Contactor, also called City-Contractor Agreement.

Agreement Documents - The Agreement Documents are defined in other portions of the Agreement, but include, at least, the following, if applicable to this Project:

This City-Contractor Agreement (Part 1);
Addenda (Part 2);
Illegal Immigration Reform and Enforcement Forms (Part 4);
Authorizing Legislation (Part 6);
General Conditions (Exhibit A);
Special Conditions (Exhibit B);
Pricing Forms (Exhibit C);
Scope of Work and Technical Specifications (Exhibit D);
Drawings (Exhibit E);
Required Submittals (Exhibit H);
Contract Compliance Requirements (Appendix A);
Insurance and Bonding Requirements (Appendix B);
LOCAL Bidder Preference Program (Appendix C);

The Agreement Documents may also be referred to from time to time as the "Contract Documents."

Agreement Price - The price or prices for the Work or items of Work set forth in the Bid.

Agreement Time - The number of calendar days stated in the Agreement Documents for the Substantial Completion of the Work or Final Completion of the Work, or the achievement of a specific interim milestone, as the context may require.

Applicant - Shall mean any person, company or corporation who intends or plans to request for water services for a new development.

Application for Payment - The form approved by the City that is to be used by Contractor in requesting progress payments or final payment, together with such supporting documentation as is required in the Agreement Documents. The Application for Payment may also be called Payment Application or Progress Payment.

Bid - The offer or bid of the Bidder submitted in the prescribed manner on the prescribed form setting forth the prices for the Work to be performed together with supplemental information as required by the Agreement Documents.

Bidder - Any person, firm, partnership, corporation or any combination thereof submitting a Bid for the Work.

Bonds - Bid, Performance Bonds, Payment Bonds, and other instruments of security furnished by Contractor and its surety in accordance with the Agreement Documents.
Bond means a written instrument of surety approved by the City with a valid Certificate of Authority issued by the United States Department of Treasury under Sections 9304 to

9308 of Title One of the United States Code as security to the City, on behalf of a Bidder or the Contractor, to guaranty faithful performance of acts, duties or obligations under the Contract Documents and includes the following.

- Bid Bond means the security instrument furnished with a Bid to guaranty that, if the Bidder is awarded the Contract, the Bidder will execute the Agreement within the time specified in the Bidding Documents.

- Maintenance Bond, if required on the Project, means the security instrument furnished by the Contractor and its surety on the approved form as a guaranty, in addition to other warranties and guaranties, to remedy any defects in the Work of the Contractor which may develop during the warranty period after Completion of the Contract.

- Payment Bond means the security instrument furnished by the Contractor and its surety on the Payment Bond Form as a guaranty that Contractor will pay in full all bills and accounts for materials and labor used in the Work.

- Performance Bond means the security instrument furnished by the Contractor and its surety on the Performance Bond Form as a guaranty that the Contractor will complete the Work in accordance with the terms of the Contract.

Change - Any change in the Work authorized by the Engineer, including Field Changes, Work Authorizations or Change Orders.

Change Directive – A written order prepared by the Owner and signed by the Owner directing a Change in the Work prior to or absent an agreement or adjustment, if any, in the Agreement Price or Agreement Time, or both.

Change Order - A written agreement signed by the Owner and Contractor, stating their agreement upon all of the following: (1) change in the Work that includes the addition or reduction or Work; (2) the amount of the adjustment, if any, in the Agreement Price; and (3) the extent of the adjustment, if any, in the Agreement Time and includes at least one of the above Changes. A Change Order does not include a Field Change, Work Authorization or Change Directive.

City - Shall mean the City of Atlanta, Georgia, and shall include all agencies, establishments or officials of the government of the City. The City may also be referred to from time to time as the “Owner.”

City-Contractor Agreement - The written agreement for the performance of and payment for the Work executed on behalf of the City and the Contactor, which is both a part of

the Agreement Documents and includes all Agreement Documents by reference. The City-Contractor Agreement may also be called “Agreement.”

City’s Contractor - Shall mean the legally authorized representative of the City, a private contractor, or other concerned agency performing Work under a direct Agreement with the City.

Construction - Shall mean the actual site preparation, building and all related Work, including facility relocation and adjustments.

Construction Easement/Temporary Easement - Any space or area dedicated to the City or other entity for the purpose of utilities or location of utilities for a specific period of time.

Construction Equipment - Equipment used in the performance of the Work but not incorporated therein.

Contract Documents - The Agreement Documents referenced above.

Contractor - Any firm, partnership, corporation, joint venture, LLC or any combination thereof who enters into a contractual Agreement with the City. This excludes Subcontractors/Sub-consultants.

CPM Schedule – A logic tied computerized network schedule incorporating all elements of the Work, prepared and updated in accordance with the requirements of the Special Conditions, subject to approval of the City.

Day - A calendar day of twenty-four (24) hours lasting from midnight one day to midnight the next day.

Department - Shall mean the Department of Watershed Management.

Designer - Shall refer to the firm licensed to practice engineering in the State of Georgia that seals the plans and specifications prior to bid.

Drawings - That part of the Agreement Documents which show the shape, outlines, dimensions, characteristics, scope of and other similar requirements governing the Work, or portions thereof, prepared by the Designer and including revisions thereto. The term is used interchangeably with the word "Plans" and includes without limitation Standard Details and Drawings.

Engineer - City of Atlanta or duly authorized representative assigned to administer the technical aspects of the Agreement. The terms Resident Engineer, Contract Administrator, or Contract Manager may be used interchangeably to denote the person designated expressly by the City with authority to administer the Agreement.

Equipment - Equipment incorporated or to be incorporated in the Work.

Field Change – A Change in Work that includes changes or adjustments to quantities or budget items but does not include a Change in the overall Agreement Price, overall Agreement Time or use of allowance items, which is required as a result of field conditions that require such adjustments. A Field Change does not include a Work Authorization, a Change Order or a Change Directive and is agreed upon and executed by an authorized City representative and the Contractor.

Force Account - A method of payment, other than lump sum or unit price, for Work ordered by Change Order and paid for in accordance with force account procedures indicated in "Force Account" Section of the General Conditions.

General Conditions - The General Conditions of the Agreement for construction that govern the rights, duties, and obligations of the parties.

GDOT - The Georgia Department of Transportation.

Inspector - The authorized representative of the Engineer or the City assigned to make detailed inspection of any or all portions of the Work or Materials thereof.

MARTA - Shall mean the Metropolitan Atlanta Rapid Transit Authority, or its designated legal representatives.

Materials - Materials incorporated or to be incorporated in the Work unless otherwise clearly indicated.

Modifications – Binding changes, addenda, revisions, or the like, to the Work or the Agreement Documents, including Changes to Work made by Change Order, Work Authorization, Field Change or Change Directive as required by GC-41.

Notice of Intent or Letter of Intent to Award - The written notice of the acceptance of the Bid from the City to a Bidder.

Notice to Proceed - ("NTP") Written communication issued by the City to Contractor authorizing it to proceed with the Work and establishing the date of commencement of the Agreement time and on which Contractor shall start to perform its obligations in accordance with the Agreement Documents.

Owner - Same as "City" above.

Permanent Easement - Any space or area dedicated to the City or other entity for the purpose of constructing and/or maintain existing or future utilities.

Plans - That portion of the Agreement Documents describing in drawings, the shapes, outlines, dimensions, characteristics, scope and other similar requirements governing

the Work, or portions thereof, prepared by the Designer and including revisions thereto. The term is used interchangeably with the word "Drawings" and includes without limitation Standard Details and Drawings.

Project - The Project is identified in the City-Contractor Agreement and is the total construction of which the Work performed under the Agreement Documents is a part.

Public Space/Public Right-of-Way - Shall mean the area between private property lines under the jurisdiction of the City, county, state or federal government, including, but not limited to, an alley, roadway, median, sidewalk, public way, or any combination thereof.

Punch List - Shall mean the lists prepared by the City's Representative or Design Consultant prior to Substantial Completion and through Final Completion indicating items of Work not in accordance with the requirements of the Contract Documents and which must be performed, corrected and accomplished prior to acceptance of the Work.

Replacement Facility - Shall mean that facility, meeting the Department's current standards, which will be constructed or provided, as a consequence of the rearrangement of an existing facility or portion thereof.

Resident Engineer - The City's Engineer who is assigned to the Site or any part thereof.

Responsive Bid - A Bid which is accurate and complete with respect to Bid schedules and information submitted relative to the technical qualifications and financial responsibility and is able to comply with Equal Opportunity and other requirements of the Agreement Documents.

Samples - Shall mean physical examples furnished by Contractor, which illustrate materials, equipment or workmanship. Approved Samples in conformance with the Contract Documents establish the standards of the Work.

Shop Drawings - Shall mean drawings, diagrams, illustrations, schedules or other data illustrating the Work, and all illustrations, brochures, standard schedules, performance charts, specifications, instructions, diagrams, and other information prepared by a Subcontractor, Supplier, vendor or manufacturer and submitted by Contractor as required in the Contract Documents.

Scope of Services - See "Work."

Sidewalk Area - Shall mean that portion of a street between the curb lines and the adjacent property lines intended primarily for the use of pedestrians whether paved or in use.

Site - The areas required for the performance of the Work.

Special Conditions - Terms which supplement items covered in General Conditions.

Specifications, Technical Specifications - Shall mean those portions of the Contract Documents consisting of written technical descriptions, provisions or requirements of the Work to be performed under the Contract Documents, including, but not limited to, the quantities or quality of materials, equipment, construction systems or applications. Standards for specifying materials or testing that are cited in the Specifications are part of the Contract Documents.

Standards - Shall mean those current Standards of Engineering analysis and design, including Installation and Material Specifications, which the City utilizes in the design and construction of its own projects.

State - The State of Georgia.

Subcontractor - An individual, firm, corporation or any combination thereof having a direct contract with Contractor for the performance of a part of the Work at the site.

Substantial Completion - The date certified by the Engineer when all or a part of the Work, identified in the Engineer's certification, is sufficiently completed in accordance with the requirements of the Agreement Documents so that the identified portion of the Work can be utilized for the purposes for which it is intended.

Supplier - Any individual, firm, or corporation who supplies Material or Equipment for the Work (including that fabricated to a special design) but who does not perform or provide significant labor at the Site.

Temporary Facility - Shall mean a facility constructed for whatever purpose and not intended to be permanent.

Utility - Shall mean and include all public, private, or cooperatively owned lines, facilities and systems for producing, transmitting or distributing communications, power, electricity, heat, gas, oil, crude products, water, steam, waste, storm water, and other similar commodities, such as public owned fire and police signal systems, which directly or indirectly serve the public or any part thereof.

Work - All the services specified, indicated, shown, or contemplated by the Agreement Documents and the furnishing by Contractor of all Materials, Equipment, labor, methods, processes, construction and manufacturing materials and equipment, tools, plants, supplies, power, water, transportation and other things necessary to complete such services in accordance with the Agreement Documents and that will ensure a functional and complete facility.

Work Authorization – A Change in Work that adds, changes or removes scope of work from the Agreement but does not include a change in Agreement Time or Agreement Price; or the utilization of an allowance or contingency item, as permitted and defined by the Agreement documents. A Work Authorization does not include a Change Order, a

Field Change or a Change Directive and is agreed upon and executed by an authorized City representative and the Contractor.

Working Days - Generally, Monday, Tuesday, Wednesday, Thursday, and Friday; however, on some projects, Saturday and/or Sunday may be considered working days, if specified as working days by the City or Engineer. Holidays are not considered Working Days.

Written Notice - A written statement transmitted from one party to an authorized representative of another party.

GC-4 APPLICABLE CODES, SPECIFICATIONS, AND STANDARDS

GC-4.1 General

All codes, Specifications, regulations, laws, ordinances, and standards referred to in the Agreement Documents shall mean, and are intended to be, the latest editions, amendment, and revisions of such reference standard in effect as of the date of the Invitation to bid for this Agreement, and as may be updated or amended to be applicable to the Project.

GC-4.2 Standards

Reference to a technical society, institution, association, or governmental authority, or pronoun in place of them, is made in the Agreement Documents in accordance with the following abbreviations:

ANSI	American National Standards Institute;
ASTM	American Society for Testing and Materials;
AWS	American Welding Society;
AASHTO	American Association of State Highway and Transportation Officials;
ACI	American Concrete Institute;
AFBMA	Anti-Friction Bearing Manufacturer's Association;
AI	Asphalt Institute;
AISI	American Iron and Steel Institute;
AISC	American Institute of Steel Construction;
AMCA	Air Moving and Conditioning Association;
API	American Petroleum Institute;
ASME	American Society of Mechanical Engineers;
ASTM	American Society for Testing and Materials;
AWG	American (Brown and Sharpe) Wire Gauge;
AWS	American Welding Society;
AWWA	American Water Works Association;
CRSI	Concrete Reinforcing Steel Institute;
EPA	Environmental Protection Agency (Federal);
EPD	Environmental Protection Division (Georgia State);

GDOT	Georgia Department of Transportation (**"**GDOT**"**);
MARTA	Metropolitan Atlanta Rapid Transit Authority;
NACE	National Association of Corrosion Engineers;
NFPA	National Fire Protection Association;
NSF	National Sanitary Foundation;
OSHA	Occupational Safety and Health Administration; and
UL	Underwriter's Laboratories Incorporated.

GC-5 ADEQUACY OF DESIGN

Before placing its Bid to the City, and continuously after the execution of the Agreement, Contractor shall carefully study and compare the Agreement Documents and shall at once report any error, ambiguity, inconsistency or omission that may be discovered, including any requirement which may be contrary to any law, ordinance, rule, regulation, or order of any public authority bearing on the performance of the Work. By submitting its Bid for the Agreement and the Work under it, Contractor agrees that the Agreement Documents, along with any supplementary written instructions issued by or through the Engineer that have become a part of the Agreement Documents, appear accurate, consistent, and complete. Contractor shall perform no portion of the Work at any time without Agreement Documents or, where required, approved shop Drawings, product data, or samples for such portion of the Work.

No claims shall be made by Contractor based on claims of defects, errors, omissions, ambiguities or inconsistencies in the Agreement Documents which were reasonably discoverable by a review of the Agreement Documents and correlation thereof with the actual conditions at the Project Site. No observation of the Engineer or City, and no inspections, tests or approval shall relieve Contractor from its obligation to perform the Work in strict conformity with the Agreement Documents.

Contractor has determined, by its own investigation and research, all the conditions affecting the work to be done and materials to be furnished and does not rely upon any representation by the City in connection therewith.

THE CITY, ITS AGENTS AND EMPLOYEES MAKE NO REPRESENTATION OR WARRANTY OF ANY NATURE WHATSOEVER TO CONTRACTOR CONCERNING THE AGREEMENT DOCUMENTS. By the execution hereof, Contractor acknowledges and represents that it has received, reviewed and carefully examined such documents, has found them to be complete, accurate, adequate, consistent, coordinated and sufficient for construction, and that Contractor has not, does not, and will not rely upon any representations or warranties by the City concerning such documents as no such representations or warranties have been or are hereby made.

Prior to execution of the Contract, Contractor has evaluated and satisfied itself as to the condition and limitations under which the Work is to be performed, including, without limitation, (i) the location, condition, layout, and nature of the Project Site and surrounding areas, (ii) generally prevailing climatic conditions, (iii) anticipated labor

supply and costs, (iv) availability and cost of materials, tools and equipment, and (v) other similar issues. With the exception of any differing site conditions clause, if any, that may be included in the Agreement Documents, the City assumes no responsibility or liability for the physical condition of the Project Site, or any improvements located on the Project Site. Contractor shall be solely responsible for providing a safe place for the performance of the Work.

Contractor acknowledges and agrees that its obligation to construct the Work in accordance with the Agreement Documents is not in any way altered or affected by the observations or inspections of the City or the Designer. Further, Contractor acknowledges and agrees that any warranty periods included herein merely set forth the time period during which Contractor is contractually required to specifically perform corrective work and that these warranty periods are not and shall not be construed to be exclusive remedies of the City. Instead, Contractor acknowledges and agrees that it shall be liable to the City for the cost of correcting Work not performed in accordance with the Agreement Documents for the full period of the applicable statute of limitations.

GC-6 CITY OF ATLANTA ORDINANCES

Contractor shall be bound by the provisions of all City of Atlanta Ordinances. It is Contractor's responsibility to be aware of and adhere to all existing or future ordinances that are in effect during the performance of the Agreement.

GC-7 PERMITS AND REGULATIONS

All applicable federal laws, state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Agreement throughout to the extent that such requirements do not conflict with federal laws or regulations and in the event of a conflict, federal laws shall govern. All Work performed within the right of way of GDOT shall be in accordance with GDOT regulations, policies, and procedures.

Except as expressly stated in the Contract Documents, Contractor shall secure and will provide all building permits, licenses, and other applicable legal documents required for Contractor’s performance of the Project.

Contractor shall give all notices and comply with all permits, laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn and specified.

If any permit, license or certificate expires or is revoked, terminated or suspended as a result of any action on the part of Contractor or any person or entity for which Contractor is responsible, it shall neither be entitled to any additional compensation, nor to an extension of Agreement Time.

GC-8 TAXES

Contractor shall pay all sales, retail, occupational, service, excise, old age benefit and unemployment compensation taxes, consumer, use and other similar taxes as well as any other taxes or duties on the Material, Equipment and labor for the Work or portions thereof provided by Contractor which are legally enacted by any municipal, county, federal or state authority or department or agency thereof at the time Bids are received, whether or not yet effective.

All records maintained by Contractor pertaining to such taxes and levies and payment thereof shall be made available to the City at reasonable times for inspection, audit and copying.

GC-9 ARREARS TO OFFSET DEBT AGAINST CITY

No money shall be paid by the City upon any claim, debt, demand or account whatsoever, to any person, firm, or corporation who is in arrears to the City for taxes, or any other debt or claim, and the City shall be entitled to counterclaim and/or offset any such debt, claim, demand or account in the amount of taxes so in arrears or other debts or claims of the City, and no assignment or transfer of such debt, claim, demand, or account after the said taxes are due or after any such debt or claim is asserted by the City, shall affect the right of the City to so offset the said taxes, debts, or other obligations against the same.

Contractor agrees that the City shall be allowed to setoff and recoup any claim or demand that it may have against Contractor (or any of its constituent members if Contractor is a joint venture) whether such claim or demand is liquidated or unliquidated. Contractor further agrees that in the event it assigns or sells any amounts due or to become due under this Agreement, notice to the City of such assignment or sale shall not affect the City's rights of setoff or recoupment against Contractor for claims subsequently arising on this or any other project. Any assignee or purchaser of any amounts due Contractor under this Agreement shall be bound to these provisions and shall assume the risk of subsequently arising claims of setoff or recoupment.

GC-10 LIENS

Contractor acknowledges that neither it nor any of its Subcontractors or Suppliers have lien rights on public property. Contractor will furnish the City with evidence, satisfactory to the City that all persons who have done Work or furnished materials in performance of this Agreement have been fully paid before it shall demand final payment due or unpaid under this Agreement. In case such evidence is not furnished, an amount necessary to meet the lawful claims of the persons aforesaid may be retained from any monies due or that may become due the said Contractor under this Agreement until the lawful claims aforesaid shall be fully discharged, and it is understood and agreed that the City assumes no obligation nor in any way undertakes to pay such lawful claim out

of any funds due or that may become due the said Contractor out of the City's own funds.

If, in its sole discretion, the City wishes to make joint payment to Contractor and any of its Subcontractors or Suppliers, Contractor agrees that the City may do so, and Contractor agrees to cooperate with the City in identifying the amounts due Subcontractors and Suppliers to facilitate the making of said joint payment.

GC-11 ASSIGNMENTS

Contractor shall retain personal control and shall give personal attention to the fulfillment of this Agreement. Contractor shall not assign the whole or any part of this Agreement or any monies due or to become due hereunder without the written consent of the City. In case Contractor assigns all or any part of any monies due or to become due under this Agreement, the instrument of assignment shall contain, or shall be deemed to contain, a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to Contractor shall be subject to claims of all persons, firms, and corporations for services rendered or materials supplied for the performance of the Work called for in this Agreement and to setoffs and recoupments by the City as set forth in GC-9 above. Any assignment of this Agreement in whole or in part or any assignment of monies due or to become due hereunder must bind the assignee to all terms and conditions of this Agreement and protect and preserve all rights and remedies of the City as against Contractor and extend to the City the same rights and remedies against assignee. In the event that any person or entity should claim entitlement to all or any part of any monies due or to become due under this Agreement under the doctrine of subrogation, it further agrees that its rights shall be subject to claims of all persons, firms, and corporations for services rendered or materials supplied for the performance of the Work called for in this Agreement and to setoffs and recoupments by the City as set forth in GC-9 above.

GC-12 PATENTS AND ROYALTIES

Contractor shall indemnify and hold harmless the City and its officers, agents, servants, and employees from liability or all claims of any nature or kind, including costs, attorneys' fees, and expenses for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Agreement, including its use by the City, unless otherwise specifically stipulated in the Agreement Documents.

If Contractor uses any design, device or Materials covered by letters, trademarks, patent or copyright, it shall provide for such use by suitable agreement between the City and the holder of such design, device or Material. It is mutually agreed and understood that, without exception, the Agreement Price shall include all royalties or costs arising from the use of such design, device, or Materials in any way involved in the Work. Contractor or its sureties or both shall indemnify and hold harmless the City, its officers

and employees 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 Agreement and Contractor shall indemnify the City 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, including any costs or expenses for experts and attorneys' fees.

GC-13 OUT-OF-STATE CONTRACTORS

If the lowest responsive Bidder is a foreign corporation, partnership, or sole proprietorship, the Bidder hereby irrevocably appoints the Secretary of State of Georgia as its agent for services of all legal process for the purpose of this Agreement only and shall obtain all required certificates and licenses required by the Georgia Law.

GC-14 CONTRACTOR'S OBLIGATIONS

GC-14.1 Supervision and Construction Procedures

GC-14.1.1

Contractor shall supervise and direct the Work, using Contractor's best skill and attention. Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures and shall coordinate all portions of the Work under the Agreement. All Work under the Agreement shall be performed in a skillful and workmanlike manner. Contractor shall exercise its control over all means, methods, techniques, and procedures so as to carefully and diligently coordinate the work of all Subcontractors and Suppliers or anyone working by, through, or under Contractor or a Subcontractor or Supplier.

GC-14.1.2

Contractor shall be responsible to the City for the acts and omissions of Contractor's employees, Subcontractors, Suppliers, and their agents and employees, and any other persons performing any of the Work under a contract with Contractor or a Subcontractor or Supplier.

GC-14.1.3

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

GC-14.1.4

Contractor shall carefully study and compare the Agreement Documents with each other and with the site conditions and other information furnished by the Owner and shall at once report in writing to the Owner alleged errors, inconsistencies or omissions. If Contractor performs any construction activity involving an error, inconsistency or omission in the Agreement Documents that Contractor recognized or reasonably should have recognized and without having given written notice to the Owner, Contractor shall assume complete responsibility for such performance and shall bear the full amount of the attributable costs for correction.

GC-14.1.5

Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information available to Contractor with the Agreement Documents before commencing activities. Errors, inconsistencies, or omissions discovered shall be reported in writing to the Owner at once and shall be subject to the provisions of the last sentence of GC-14.1.4 above.

GC-14.2 Labor and Materials

GC-14.2.1

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

GC-14.2.2

Contractor shall, at all times, enforce strict discipline and good order among Contractor's employees and Subcontractors, and shall not employ on the Work any Subcontractor, unfit person or anyone not skilled in the task assigned them. The City may, after Written Notice, require Contractor to remove from the Work any employee the City deems incompetent, careless, or otherwise objectionable, including any employee of a Subcontractor or Supplier.

GC-14.2.3

All Work at the site shall be performed during regular working hours, except upon the City's written consent given after prior Written Notice.

GC-14.3 Contractor's Construction Schedule

Contractor shall comply with all scheduling requirements set forth in the Agreement Documents, including but not limited to the Special Conditions requirements for a CPM Schedule for performance of the Work.

GC-14.4 Conditions Affecting the Work

Contractor shall be responsible for having taken all steps necessary to ascertain the nature and location of the Work and the general and local conditions that can affect the Work or the cost thereof. Failure by Contractor to fully acquaint itself with conditions that may affect the Work, including but not limited to conditions relating to transportation, handling, storage of Materials, availability of labor, water, roads, weather, topographic and subsurface conditions, as-built conditions, other separate contracts to be entered into by the City relating to this Project that may affect the Work of Contractor, applicable provisions of law, and the character and availability of equipment and facilities needed prior to and during the prosecution of the Work, shall not relieve Contractor of its responsibilities under the Agreement Documents and shall not constitute a basis for an equitable adjustment or additional compensation under any circumstances. The City assumes no responsibility for any understanding or representations concerning conditions made by any of its officers, agents, or employees prior to the execution of the Agreement, unless such understanding or representations are expressly stated in the Agreement Documents.

GC-15 RIGHT OF ENTRY

The City reserves the right to enter the Site of the Work herein contracted for, by such agent or agents as they may elect, for the purpose of inspecting the Work, or for the purpose of installing such collateral Work as the City may desire. Contractor shall cooperate and coordinate with other contractors prosecuting other phases of the construction. Furthermore, if deemed necessary by the Engineer, Contractor will incorporate work activities of other City contractors directly into the schedule such that no phase of the Project(s) is delayed or impacted.

GC-16 NOTICES

Any notice, consent, approval, or other communication which is provided for or required by the Agreement Documents must be in writing and may be delivered in person to any party or may be sent by a facsimile transmission or by registered or certified U.S. mail, with postage prepaid, return receipt requested. Copies of all facsimiles shall also be sent via first class mail. Any such notice or other written communication shall be deemed received by the party to whom it is sent (i) in the case of delivery by hand or delivery by reputable national or local courier (such as United Parcel Service or Federal Express), on the date of delivery to the party to whom such notice is addressed, (ii) in the case of facsimile transmission, one working day after the date of successful

transmission (provided that an additional first class mail copy of such notice is subsequently received within five (5) days of the facsimile transmission), and (iii) in the case of registered or certified mail, the date receipt is acknowledged on the return receipt for such notice. All such notices and other written communications shall be sent to the persons and addresses listed below

If to Owner:

Contract Administrator
Department of Public Works
City Hall-South
55 Trinity Avenue, SW
Atlanta, Georgia 30303

and

Chief Procurement Officer
Department of Procurement
Suite 1900
55 Trinity Avenue, City Hall South
Atlanta, Georgia 30303

If to Contractor:

Representative: _____
Contractor: _____
Address: _____
City, State, Zip: _____

The addresses and persons listed may be changed at any time by giving Written Notice in accordance with this Article GC-16.

GC-17 SAFETY PRECAUTIONS AND PROGRAMS

The City, the Engineer, or their agents, employees or representatives are not responsible for the means, methods, techniques, sequences or procedures utilized by Contractor, or for the safety precautions and programs in connection with the Work. Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work and for complying with all applicable rules, ordinances, state and federal laws and regulations.

GC-18 SAFETY OF PERSONS AND PROPERTY

GC-18.1 Damage, Injury, or Loss

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

(1) All employees on the Work and all other persons who may be affected thereby;
(2) All the Work and all Materials and Equipment to be incorporated therein, whether in storage on or off the site, under the care, custody, or control of Contractor or any of Contractor's Subcontractors;
(3) Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and
(4) The Work of the City or other separate contractors.

GC-18.2 Notice

Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations, and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury, or loss.

GC-18.3 Warning, Signage

Contractor shall erect and maintain, as required by existing conditions and the progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.

GC-18.4 Hazardous Materials

When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

GC-18.5 Remedy

Contractor shall promptly remedy all damage or loss to any property caused in whole or in part by Contractor, any Subcontractor, Supplier or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, except damage or loss attributable solely to the acts or omissions of the City, the Engineer or anyone directly or indirectly employed by any of them in any way, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of Contractor. The foregoing obligations of Contractor are in addition to Contractor's obligations under the Insurance Section of the General Conditions or other provisions of the General Conditions.

GC-18.6 Project Safety Coordinator

Contractor shall provide a project safety coordinator who shall be devoted full time toward accident prevention during construction. The qualifications of the project safety coordinator shall be submitted to the Department of Watershed Management Office of Security and Safety (OSS) for approval. If the candidate meets the qualifications, the candidate will be interviewed by OSS to confirm the candidate's experience. Individuals must meet the requirements outlined below to be qualified for the position.

(1) (a) Four (4) year Bachelor's degree and Five (5) years of construction loss control or construction safety experience; OR
(b) Ten (10) years of construction loss control or construction safety experience, AND

(2) Current certifications as listed below in a, b, and c:
(a) OSHA 510 or equivalent 30 hours of construction safety training.
- Trenching and Excavation (Standards- 29 CFR- 1926.651)
- Confined Space Entry (Standards- 29 CFR- 1910.146 App. E), AND

(b) Traffic Control/flagging (Certified GDOT flagger), AND
(c) First Aide/CPR/AED (Standards- 29 CFR- 1910.266 (App. B).

GC-18.7 Loads

Contractor shall not load or permit any part of the Work to be loaded so as to endanger its safety.

GC-18.8 Emergencies

In any emergency affecting the safety of persons or property, Contractor shall act, at Contractor's discretion, to prevent threatened damage, injury or loss. Any additional compensation or extension of time claimed by Contractor on account of emergency Work shall be determined as provided in the Agreement Documents, including GC-26 and GC-41.

GC-18.9 Miscellaneous

GC-18.9.1

Contractor acknowledges that it is fully aware of appropriate and safe procedures regarding blasting, including the contents and requirements of Official Code of Georgia Annotated § 25-9-1 through § 25-9-12, Blasting or Excavating Near Underground Gas Pipes and Facilities, any amendments thereto and rules and regulations issued pursuant thereto, and Contractor shall fully comply therewith. Contractor agrees and acknowledges that any failure on its part to adhere to appropriate procedures and said laws, rules and regulations shall not only be a violation of law but shall also be a breach of Agreement.

GC-18.9.2

Contractor acknowledges that it is fully aware of appropriate and safe procedures regarding high voltage lines, including the contents and requirements of Official

Code of Georgia Annotated § 46-3-30 through § 46-3-39, Safeguards Against Contact with High Voltage Lines, any amendments thereto and rules and regulations issued pursuant thereto, and Contractor shall fully comply therewith. Contractor also confirms that representatives of Contractor have visited the site of the Work and have taken into consideration the location of all electric power lines on and adjacent to all areas onto which the Agreement Documents require or permit Contractor to Work, to store materials or to stage operations, and that Contractor has obtained from the owner or owners of the aforesaid electric power lines advice in writing as to the amount of voltage carried by the aforesaid lines. Contractor agrees that any failure on its part to adhere to appropriate procedures and said laws, rules and regulations shall not only be a violation of the law but shall also be a breach of Agreement.

GC-18.9.3

Contractor acknowledges and agrees that he is the person responsible under the law and that he is the person employing or directing others to perform labor within the meaning of Official Code of Georgia Annotated § 34-1-1, Labor and Industrial Relations. He acknowledges and agrees likewise that he will comply with said law.

GC-18.9.4

Contractor shall protect all Work, including but not limited to, excavations and trenches, from rain water, surface water, and backup of drains and sewers. Contractor shall furnish all labor, pumps, shoring, enclosures, and Equipment necessary to protect and keep the Work free of water.

GC-18.9.5

The provisions, terms and conditions of this Section, although very specific, are in no way intended to limit the general requirements hereof or the applicability of laws relating to Work conditions, safety or accident prevention and no specific provision or combination of specific provisions in any of said subsections or in any other parts or sections of the Agreement Documents shall be deemed to limit the obligations or responsibility of Contractor contained in general provisions with respect thereto or in laws, statutes, acts, rules or regulations which are applicable thereto but which are not specifically referred to in any part of the Agreement Documents.

GC-19 USE OF PREMISES AND CLEAN UP

GC-19.1 Storage, Cleanup and Cutting

Contractor expressly undertakes at no additional cost to the City:

(1) To store its Materials, Supplies and Equipment at the Site of the Work in such orderly fashion and in such locations as approved by the Engineer

that will not unduly interfere with the progress of the Work, or the Work of any other contractors or the activities of City personnel.

(2) To clean up all refuse, rubbish, scrap materials, and debris caused by its operations to the end that at all times the Site of the Work shall present a neat orderly and workmanlike appearance. No items shall be left or discarded elsewhere on the Site, or any other City sites. Items that are to be discarded shall be removed to approved dump areas.

(3) To remove all surplus material, false work, temporary structures, including foundations thereof, temporary plants of any description and debris of every nature resulting from its operations, and to put the Site in a neat, orderly condition before final payment. Such final cleanup Work shall be performed within the time specified for completion of Work, with such exceptions as may be approved in writing by the City. Unless otherwise provided in the Specifications, Contractor shall clean any portion of Work for which a separate time for completion is specified and the Site thereof to the above standards within the specified time, with such exceptions as may be approved in writing by the City.

(4) To effect all cutting, fitting or patching of its Work required to make the same to conform to the Plans and Specifications and except with the consent of the City, not to cut or otherwise alter the Work of any other contractor.

GC-19.2 Protection and Use of Site

Contractor shall, at no additional cost to the City:

(1) Coordinate all of Contractor's operations with, and secure approval from, the City before using any portion of the Site. Contractor shall assume full responsibility for any damage to any such land or area, or to the City or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work.

(2) Cause its agents and employees to park their vehicles only at locations directed by the City. Contractor's agents and employees shall clean vehicles leaving the Site so as not to muddy roads in the vicinity of the Site. Vehicles shall be brought to the Site only in connection with necessary Work on the Project. In no event shall vehicles be brought to the Site outside normal working hours unless the City gives specific written permission in advance.

(3) In connection with Contractor's operations, provide for the free flow of traffic over roads or streets in or adjacent to the Site. Contractor shall keep roads and streets free from obstructions of any character that might present a hazard or interference with traffic and in such condition that traffic can be adequately accommodated. When operations in connection with the Work necessitates the closing of traffic lanes, Contractor shall arrange in advance with the City, any adjacent property owners affected, and appropriate local authorities for such closing and shall provide as necessary appropriate barricades, signs, markers, flares and other

devices and flagmen as may be required by the Engineer or the local authorities for traffic guides and public safety.

(4) Provide facilities for its use and only at locations approved or directed by the City. Unless otherwise specified in the Agreement Documents, Contractor shall provide all power and lighting necessary for its Work, complying in all cases with local and national electrical codes, OSHA regulations, and any other applicable laws. The City shall direct the point or points to be used for service connection. Contractor shall provide telephone facilities for its own use and only at locations approved or directed by the City.

(5) Unless otherwise specifically provided in the Agreement Documents, Contractor shall provide its own temporary facilities, including an office and a watertight, closed area for storage and protection of Materials and Equipment to be used for, or incorporated in, the Work, except as specifically agreed in the Agreement Documents. Contractor's shanties, material storage rooms, field offices and the like will be approved by the City and placed in locations designated by the City. If it becomes necessary during the course of the Work for Contractor to relocate its field operations, it will do so in an expeditious manner and at no additional cost.

(6) Contractor shall take measures to control the blowing or spreading of dust, smoke, dirt, mud and refuse from its Work to avoid nuisance and inconvenience to others whether on or off the Site. These measures shall be in compliance with, without being limited to, all applicable laws, and shall be subject to the City's approval. Contractor shall furnish all necessary labor and Materials such as water, approved chemicals, and Equipment.

(7) Contractor shall be responsible for the removal or drainage of all water interfering with the proper prosecution of its Work. It shall, at all times, assure such drainage and shall not be a nuisance or inconvenience to the City, other contractors or their Work, or the occupants or users of any other public or private area on or off the Site. This Article supplements, and does not supersede, any drainage or dewatering called for elsewhere in the Agreement Documents.

(8) Contractor shall not use permanent installed systems or equipment without permission of the City. If such permission is granted prior to completion of the Work, Contractor shall restore all parts of the system or equipment used by replacing materials, traps, valves, filters, motors, lamps, and the like to the extent that the City considers them to have been damaged or if their usefulness has been impaired or diminished by their temporary use by Contractor.

(9) No part of any surface shall be loaded during construction with more weight than it can safely bear at the time. Should damage occur through violation of this requirement by Contractor, it shall be solely liable for such damage and any consequence.

(10) It shall be Contractor's responsibility to receive and unload its Materials and pay all charges therefor, including, without limitation, demurrage or

charges for delays in loading. Contractor shall instruct vendors or Suppliers making such deliveries exactly where they shall go. Contractor shall constantly keep the City advised of its Material delivery schedule and shall update it as required by the City so that Materials will be available to complete the Work on time. Contractor shall schedule Material deliveries so as to interfere as little as possible with anyone else's Work on the Project but within the normal Work hours. Contractor shall require that Materials and Equipment delivered shall be identified with Contractor's name, purchase order, and identification numbers. Contractor shall sign for all Materials delivered and shall be responsible for their safekeeping.

GC-20 PROTECTION OF AGREEMENT WORK

Contractor shall be responsible for:

(1) Maintenance and protection of Work until final completion and acceptance, including, but not limited to, the storage of Materials and Equipment, erection of temporary structures and provisions for drainage as necessary to protect Work from injury, damage or loss;

(2) Any injury, damage, or loss to Work resulting from the action of the elements or any other cause, irrespective of fault or negligence, excepting only such injury, damage, or loss as is caused solely by the negligence or willful misconduct of the City;

(3) Protection of its Work and materials and the Work and materials of its Subcontractors or Suppliers from damage or injury from the weather; and

(4) Exercising due care to avoid injury or damage to the Work of other contractors on site.

Any portion of Work suffering injury, damage, or loss for which Contractor is responsible under 1, 2, 3 or 4, above, will be considered defective and shall be corrected or replaced without additional cost to City.

GC-21 DEFECTS IN THE WORK AND UNAUTHORIZED WORK

Contractor shall promptly remove from the premises all Work rejected by the City for failure to comply with Agreement Documents, whether incorporated in the construction or not, and Contractor shall promptly replace and re-execute the Work in accordance with the Agreement Documents and without expense to City and shall bear the expense of making good all Work of other contractors destroyed or damaged by such removal, or replacement. All removal and replacement Work shall be done at Contractor's expense.

If Contractor defaults or neglects to carry out all or any part of the Work in accordance with the Agreement Documents, and fails within three (3) working days after receipt of Written Notice from the City to commence and continue correction and cure of such default, noncompliance, or neglect with diligence and promptness, the City may, after twenty-four (24) hours following receipt by Contractor of an additional Written Notice and without prejudice to any other remedy the City may have, make good such

deficiencies and may further elect to perform and to complete all or any part of Work thereafter through such means as the City may select, including the use of a new or supplemental contractor. In such case an appropriate Change Order shall be issued deducting from the payments then or thereafter due Contractor, the cost of correcting such deficiencies. If the payments then or thereafter due Contractor are not sufficient to cover such amount, Contractor shall pay the difference to the City on demand.

Minor, inconsequential defects may be waived in writing by the City, but the City's failure or refusal to exercise such authority shall not be subject to claim by Contractor. If a waiver (whether minor or major, consequential or inconsequential) will result in an appreciable saving of costs to Contractor, including costs of Work in place and savings when compared to potential costs of rejection and replacement under this clause, it will be made only upon an equivalent adjustment in compensation.

GC-22 GUARANTEE OF WORK AND MATERIALS

GC-22.1 Warranty of Materials, Equipment and Work

Contractor warrants to the City and the Engineer that all Materials and Equipment furnished under this Agreement will be new and of workmanlike quality unless otherwise specified, and that all Work will be of good quality, free from faults and defects and in conformance with the Agreement Documents. All Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the Engineer, Contractor shall furnish satisfactory evidence as to the kind and quality of Materials and Equipment. This warranty is not limited by any other provision of the Agreement Documents. The Warranties set forth in this Article and elsewhere in the Agreement Documents shall survive final acceptance of the Work. All warranties are in addition to the rights, remedies, and redress that the City has at law or in equity, and none of Contractor’s warranties shall be deemed a sole or exclusive remedy to the City.

GC-22.2 Warranty of Continued Liability of Electronics

Contractor shall warrant to Owner that all goods or equipment which Contractor is required to purchase under the Agreement and which contain embedded codes, chips, microprocessors, microcontrollers, clock circuits (including integrated circuits), computer operating systems, computer software, custom application programming, or other similar systems/technologies that calculate date or time data shall correctly and without failure, malfunction, or need for operator intervention, display, calculate, compute, and process date or time data before, during, and beyond any changes in the date, including leap year, and including changes at year end, decade end, and century end, as needed.

GC-22.3 Guarantee and Repair

If within one (1) year after the Date of Final Completion and Final Acceptance of the Work by the City, or within such longer period of time as may be prescribed by law or by the term of any applicable special warranty required by the Contract Documents, any of

the Work is found to be defective or not in accordance with the Agreement Documents, Contractor shall correct it promptly after receipt of a Written Notice from the City to do so. This obligation shall survive both final payment for the Work or designated portion thereof and termination of the Agreement. The City shall give such notice promptly after discovery of the condition. Contractor acknowledges that this one (1) year period provides a period during which Contractor has a duty to repair and does not in any way limit Contractor's liability for Work that is not in accordance with the Agreement Documents, including any that may be discovered more than one (1) year after the Date of Final Completion and Final Acceptance.

GC-22.4 Manufacturer Warranties

Without limiting the responsibility or liability of Contractor under the Agreement, all warranties given by manufacturers on Materials or Equipment incorporated in the Work are hereby assigned by Contractor to the City at no additional cost to the City. If requested, Contractor shall execute enforceable formal assignments of said manufacturer's warranties to the City at no additional cost to the City. Contractor shall not obtain any Materials or Equipment under warranties, which do not run directly to the benefit of the City, and all such warranties shall be directly enforceable by the City, but Contractor understands and agrees that it is jointly and severally liable with the manufacturers for any warranties provided.

GC-22.5 Non-Exclusive Nature of Warranties

The foregoing warranties, and those contained elsewhere in the Agreement Documents or implied by law, shall be deemed cumulative and not alternative or exclusive. No one or more of them shall be deemed to alter or limit any other.

GC-23 TERMINATION OF AGREEMENT

GC-23.1 Termination for Contractor Default

If Contractor becomes insolvent, or makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of Contractor's insolvency, or if Contractor refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper Materials, or fails to make prompt payment to Subcontractors or for Materials or labor, or disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, or otherwise is guilty of a material violation of a provision of the Agreement Documents so as to be in material breach and default of the Agreement, then City may terminate the Agreement for default, either in whole or in part, without prejudice to any other right or remedy the City may have after giving Contractor and its surety seven (7) days to cure the default. For purposes of this Article, a material violation shall include, without limitation, any violation of or failure to comply with any obligation of the Agreement which the City, in its sole discretion, determines is likely to result in any damage to the City, the Work, or any public or private interest.

If the surety and/or Contractor does not cure the default within seven (7) days from the date of the mailing to Contractor and the surety of notice of default, City may, without further notice, terminate for default and may take over Work and prosecute the same to completion by contract or by Force Account or by whatever means it deems appropriate for the account and the expense of Contractor and Contractor and its surety shall be liable to City for any excess cost incurred thereby, and in such event City may take possession of and utilize in completing Work, such materials, appliances, and plant as may be on the Site of Work and necessary therefore. Upon such termination Contractor shall:

(1) Preserve all Materials, Drawings and records and Plans at Site of the Work until notified in writing of those items that will be used in completing Work.
(2) Remove from Site of the Work all construction materials, equipment and plant not designated for use in such notice.
(3) Assist the City in making an inventory of all Materials and Equipment in storage at the Site of Work, in route to the Site of Work, in storage or manufactured at other locations, and on order from Suppliers.

The City shall further have the right to declare a default without terminating the Agreement for default in whole or in part. In such event, the City shall have the right, at its sole discretion, to supplement Contractor's forces if the City so chooses and deduct the cost of same from the amounts otherwise due Contractor. The City's failure to declare a default or terminate the Agreement in whole or in part shall not determine whether Contractor is, in fact, in material breach of the Agreement because the City shall also have the option to allow Contractor's defective performance to continue and collect such damages as the City may incur from Contractor and its surety.

In the event that the City incurs costs or expenses in performing or completing any portion of Contractor's scope of Work, the City's actual damages shall, at the City's discretion, include a fee up to 15% of such actual costs for performing such work. Such fee shall be computed on the actual costs incurred by the City for labor, materials, equipment, services, administrative and personnel costs and additional design and professional consulting fees, incurred as a result of Contractor's default.

Contractor acknowledges and agrees that an appropriate termination for default is adequate grounds for Contractor's disqualification from future City contracts. This provision shall survive the expiration or termination of this Agreement and any amendments to this Agreement.

In the event any termination for default is found to be wrongful or improper, Contractor agrees that its sole and exclusive remedy is to have the termination treated as a termination for convenience in accordance with the provisions of this Agreement.

GC-23.2 City's Right to Stop the Work

If Contractor fails to correct defective Work as required by the Agreement Documents, or fails to carry out the Work or supply labor or Materials in accordance with the Agreement Documents, or otherwise fails to meet or satisfactorily complete any of its obligations under this Agreement, the City, in writing, may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the City and the Engineer to stop the Work shall not give rise to any duty on the part of the City to exercise this right for the benefit of Contractor or any other person or entity. Contractor shall not be entitled to any extension of time or for compensation of any sort in the event that the City stops work pursuant to this provision.

GC-23.3 Intentionally Omitted

GC-23.4 Termination for Convenience of City

GC-23.4.1

The City may, at any time upon ten (10) days Written Notice to Contractor, terminate (without prejudice to any right or remedy of the City) the whole or any portion of the Work for the convenience of the City.

GC-23.4.2

If, after Contractor has been terminated for default, it is determined that Contractor was not in default or that the termination for default was improper for any reason, then such termination shall be considered a termination for convenience.

GC-23.4.3

If the City terminates the whole or any portion of the Work for convenience, then the City shall only be liable to Contractor for those costs reimbursable to Contractor in accordance with Article 23.4.4; provided, however, that if it reasonably appears to the City that Contractor would have sustained a loss on the entire Agreement had it been completed, no profit shall be included or allowed hereunder and an appropriate adjustment shall be made reducing the amount of settlement so that Contractor's loss on the portion of the Agreement it did perform is proportioned, from a percentage completion basis, to the loss Contractor would have sustained on the entire Agreement. In no event shall Contractor be entitled to anticipated profit on work not performed. Contractor shall, however, be entitled to any profit earned on the work performed to date, but Contractor acknowledges (1) that unit rates may be subject to adjustment, either upward or downward, based upon the variation in estimated quantity provisions of this Agreement, and (2) if the City determines that Contractor's schedule of values was materially unbalanced (or "front-end loaded"), payments previously made to Contractor shall be refunded to the City or withheld from

amounts otherwise due Contractor. The intent of this Article is to avoid any Contractor windfall at the City's expense while at the same time preserving the benefit of the bargain, either positive or negative, for Contractor.

GC-23.4.4

If the City terminates the whole or any portion of the Work for convenience, the City shall pay Contractor the amounts determined by the Engineer as follows:

(1) To the extent not previously paid for, Contractor shall be paid on a percentage completion basis in accordance with any approved schedule of values for the value of the work completed to date, including items such as mobilization and general conditions costs (based on percent complete).

(2) To the extent not previously paid for and to the extent that the Agreement Documents call for payment on the basis of unit rates, Contractor shall be paid for all work actually performed at the unit rate established in the Agreement Documents, with such adjustment, if any, as may be required either upward or downward by the variation in estimated quantity provisions applicable to unit rates under the Agreement.

(3) The reasonable costs of settlement, including accounting, clerical, and other expenses reasonably necessary for the preparation of settlement claims and supporting data with respect to the terminated portion of the Agreement and for the termination and settlement of subcontracts thereunder, together with reasonable storage, transportation, and other costs incurred in connection with the protection or disposition of property allocable to this Agreement. This amount shall not include any attorneys' fees or other legal costs or claim preparation costs or expert or consulting fees and Contractor shall not be entitled to recovery or compensation of any such costs or fees under any circumstances.

GC-23.4.5

Contractor shall specifically require its Subcontractors and suppliers and those with whom they contract to agree to the provisions of this Article governing termination for convenience. In no event shall the City be responsible for anticipated profit on work not performed or "restocking charges." The City's potential liability for convenience termination costs shall be based on work actually performed and costs actually incurred, provided that the termination shall not in any event transform a Contractor or Subcontractor's probable net loss position into a profitable or "cost plus" recovery.

GC-23.5 General Termination Provisions

GC-23.5.1

If the City terminates the whole or any part of the Work for default, then the City may procure, upon such terms and in such manner as the City may deem appropriate, supplies or services similar to those so terminated, and Contractor shall be liable to the City for any excess costs for such similar supplies or

services. Contractor shall continue the performance of this Agreement to the extent not terminated hereunder.

GC-23.5.2

In the event of a Contractor default under any of the provisions of the Agreement, after written notice and a failure to cure within seven (7) days of that notice, Contractor and its surety shall be responsible to pay to the City such reasonable attorneys' fees as the City may expend as a result of the default, including all costs, expenses and filing fees incidental thereto, including, without limitation, expert fees, consultants' fees, arbitrator fees (if any), and prejudgment interest at the commercial account rate on all sums due, whether liquidated or unliquidated. Any judgment or arbitration award entered in favor of the City against Contractor or its surety shall bear interest from the time of entry of the judgment or the date of the arbitration award at the commercial account rate.

GC-23.5.3

After receipt of a notice of termination from the City, whether for default or for convenience, and except as otherwise directed by the City, Contractor shall:

(1) Stop Work under the Agreement on the date and to the extent specified in the notice of termination;

(2) Place no further orders or subcontracts for Materials, services, or facilities, except as may be necessary for completion of such portion of the Work under the Agreement as is not terminated;

(3) Terminate all orders and subcontracts to the extent that they relate to the performance of Work terminated by the notice of termination and are not assigned as set forth below;

(4) If so requested by the City, assign to the City in the manner, at the times and to the extent directed by the City, all of the rights, title, and interest of Contractor under the orders and subcontracts so selected and requested for assignment;

(5) Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the City to the extent the Engineer may require, in accordance with the provisions of this Agreement;

(6) Transfer title and deliver to the entity or entities designated by the City, in the manner, at the times and to the extent, if any, directed by the City, and to the extent specifically produced or specifically acquired by Contractor for the performance of such portion of the Work as has been terminated:

    (a) The fabricated or unfabricated parts, Work in progress, partially completed supplies, and Equipment, Materials, parts, tools, dies, jigs, and other fixtures, completed Work, supplies and other material produced as part of, or acquired in connection with the performance of the Work terminated by the notice of termination; and

(b) The completed or partially completed Plans, Drawings, information, and other property related to the Work, including as-built information;

(7) If so requested by the City, use best efforts to sell for the benefit of the City, in the manner, at the times, to the extent, and at the price or prices directed or authorized by the City, any property of the types referred to in Article GC-23.5.3(6); provided, however, that Contractor:

(a) Shall not be required to extend credit to any buyer; and

(b) May re-acquire any such property under the conditions prescribed by and at a price or prices approved by the City; and, provided, further that the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the City to Contractor under this Agreement or shall otherwise be credited to the price or cost of the Work covered by this Agreement or paid in such other manner as the City may direct;

(8) Complete performance of such part of the Work as shall not have been terminated by the notice of termination; and

(9) Take such action as may be necessary, or as the City may direct, for the protection and preservation of the property related to the Agreement, which is in the possession of Contractor and in which the City has or may acquire an interest.

GC-23.5.4

Contractor shall preserve and make available to the City, at all reasonable times at the office of Contractor, but without direct charge to the City, all its books, records, documents and other evidence bearing on the costs and expenses of Contractor and any Subcontractor or Supplier under the Agreement, and any photographs, microphotographs, or other authentic reproductions thereof and Owner shall have the right at any time to audit the same.

GC-23.5.5

In arriving at any amount due Contractor for any termination for default or convenience, there shall be deducted:

(1) All unliquidated advance or other payments on account theretofore made to Contractor applicable to the termination portion of this Agreement;

(2) Any claim which the City may have against Contractor;

(3) Such claim as the Engineer determines to be necessary to protect the City against loss because of outstanding or potential claims of any type or nature; and

(4) The agreed price for, or the proceeds of sale of, any Materials, supplies, or other things acquired by Contractor or sold, pursuant to the provisions of Article GC-23.5.3(7) and not otherwise recovered by or credited to the City.

GC-23.5.6

Contractor shall refund to the City any amounts paid by the City to Contractor in excess of Contractor's entitlement specified hereunder.

GC-23.5.7

The City may, at its option, have costs audited and certified by independent certified public accountants selected by the City.

GC-23.5.8

Contractor shall be entitled to only those damages and that relief from termination by the City as specifically provided hereunder.

GC-24 SUSPENSION OF WORK

GC-24.1 Right to Suspend Work

The City may order Contractor, in writing, to suspend, delay, or interrupt all or any part of the Work for such period of time as the City may determine to be appropriate for the convenience of the City.

GC-24.2 Rights Upon Certain Unreasonable Suspensions

If the performance of the Work is, for an unreasonable period of time, suspended, delayed, or interrupted by an act of the City or Engineer in the administration of the Agreement, or by failure of any one of them to act within the time specified in the Agreement (or if no time is specified, within a reasonable time), or by any act of either of them which is attributable to their fault or neglect, adjustment shall be made in the Agreement Time only for any extension in the time required for performance of the Work necessarily caused by such unreasonable suspension, delay, or interruption and the Agreement modified in writing accordingly. However, no adjustment shall be made under this Article for any suspension, delay, or interruption for which an adjustment is provided or excluded under any other provision of the Agreement Documents, and no adjustment shall be made to the extent that performance would have been so suspended, delayed or interrupted by any other cause, including the fault or negligence of Contractor or excusable delays that are unforeseeable and not attributable to the fault or neglect of the City or Contractor and beyond the control of each of them. No claim for a time adjustment under this Article shall be allowed unless it is presented in accordance with the provisions of the Agreement governing Claims and compliance with the claims provision shall be a condition precedent to the right to a time adjustment.

GC-24.3 Damages Upon Suspension

Nothing contained in this Article authorizes the recovery of delay or impact damages, except as expressly authorized in this Agreement; and compliance by Contractor with the claims provision shall be a condition precedent to the right to any Contract adjustment on account of a suspension of the Work. Contractor expressly agrees that it shall not be entitled to any increase in the Agreement Price or to any monetary damages on account of a suspension, delay, interruption, interference or impact, unless the notice, documentation, and pricing requirements of this Agreement have been met.

GC-24.4 Time Extension Upon Suspension

Under the terms of this Agreement, in order for Contractor to receive extensions of time for excusable delays, the delays must (i) be on the critical path, (ii) be beyond the reasonable control of Contractor and those for whom it is responsible including its Subcontractors and Suppliers and others working by or through them, (iii) not be attributable to any factor for which Contractor has assumed the risk of performance (such as labor availability), (iv) not be attributable in whole or in part to Contractor's fault or neglect or the fault or neglect of those for whom Contractor is responsible, including Subcontractors and Suppliers and others working by or through them, and (v) not be concurrent with non-excusable delays that are on the critical path. If Contractor meets these five (5) requirements, then Contractor's sole remedy for such delay shall be an extension of the Agreement Time for the period of time during which all five (5) elements continue to be met, which shall be implemented by Change Order; provided, however, Contractor shall not be entitled to any extension of the Agreement Time (i) if Contractor fails to comply with notice requirements in the Contract, (ii) if such delays do not cause Contractor to achieve Substantial Completion of the entire Work later than the then current Substantial Completion Date, or (iii) if Contractor fails to work around such delay where such work around was available to Contractor. In all events, Contractor must comply with the notice and claim provisions set forth in this and other provisions of the Agreement in order to be entitled to any extension of the Agreement Time.

GC-24.5 Damages for Non-Excusable Delays

Under the terms of this Agreement, liquidated or actual damages (as specified in the Agreement and as appropriate) shall be assessed for all non-excusable delays. Unless and until Contractor satisfies its obligations under and satisfies all criteria set forth in GC-24.4, delays shall be deemed non-excusable. The burden of proof shall be upon Contractor to establish that delays and untimely completion are attributable to excusable delays.

GC-24.6 Abnormal Weather

Abnormal weather may constitute an excusable delay if other requirements for excusable delays are met (for example, weather-sensitive work must be on the critical path.) The Agreement Time will not, however, be extended due to normal inclement

weather. Unless Contractor can substantiate that there was greater than normal inclement weather using a ten (10) year average of accumulated record mean values from climatological data compiled by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration for Atlanta, Georgia, and that such alleged greater than normal inclement weather qualifies as excusable delay as set forth above, Contractor shall not be entitled to an extension of time. In no event will “dry-out” delay days be allowed. Any time extension shall be based on the number of additional days of adverse weather and not upon the time required to recover from said weather.

GC-24.7 Impacts From Adjacent Property

Contractor acknowledges and agrees that it will be interacting with numerous citizens and residents of the City and will be working in close proximity to their homes, businesses, and private property. Contractor warrants that it has made due allowance for dealing with the concerns and complaints of these citizens and residents and any delays, interruptions, interferences, disruptions, or other impacts resulting therefrom. Contractor further warrants and agrees that it will fully cooperate with the City to minimize the adverse affects of the Project on the City’s residents by resequencing work or adjusting its means, methods, techniques, and procedures to minimize and mitigate the effect upon the City’s residents and that the cost of these mitigation efforts has been included in Contractor’s price to the City.

GC-25 COMMENCEMENT AND PROSECUTION OF THE WORK

Contractor shall, within fifteen (15) days after receipt from the City of a written Notice to Proceed, commence Work to be done under this Agreement. Contractor shall diligently prosecute Work and all portions thereof to completion within the times specified therefor. The capacity of Contractor's construction and manufacturing equipment and plans, sequence and methods of operations, and forces employed, including management and supervisory personnel, shall be such as to ensure completion of Work within the specified time.

It is expressly understood and agreed by and between Contractor and City that Agreement Time for the completion of Work described herein is a reasonable time, taking into consideration the unique requirements of the Work (including performance of the Work in close proximity to the private property of the citizens and residents of the City), the average climate and economic conditions in the area, and other factors prevailing in the locality of the Work (such as, without limitation, the availability of labor, equipment and materials).

GC-26 TIME

GC-26.1 Progress and Completion

GC-26.1.1

All time limits stated in the Agreement Documents are of the essence of the Agreement.

GC-26.1.2

Contractor shall begin the Work within ten (10) days after the issuance of written Notice to Proceed. Contractor shall carry the Work forward expeditiously with adequate forces and shall achieve Substantial Completion of the Work and Final Completion within the times stated in the Agreement Documents.

GC-26.2 Delay, Damages, and Extensions of Time

GC-26.2.1

Contractor shall not be entitled to payment or compensation of any kind from the City for direct, indirect, impact, or delay damages, including but not limited to costs of delay, disruption, interference, impact or hindrance from any cause whatsoever, whether such delay, disruption, interference, impact or hindrance be reasonable or unreasonable, foreseeable or unforeseeable, or avoidable or unavoidable, except as expressly provided in this Agreement.

In any and all events, the City's liability for damages for delay, disruption, interference, impact or hindrance shall be limited to the following actual direct job site related costs that are solely incurred as a function of time: (1) costs of job site supervision, (2) direct cost of general conditions items, including job site office expenses for trailer rental, telephone, electricity, heat, and water, (3) except for tunnel boring machines which shall be governed by the terms of GC-41.6, equipment expenses at the Force Account rates specified in the provisions of this Agreement governing changes; and (4) a markup for profit and overhead on actual direct costs, in accordance with the Force Account rates specified in the provisions of this Agreement governing changes.

GC-26.2.2

The Agreement Time shall be adjusted only for excusable delays. In the event Contractor requests an extension of the Agreement Time, it shall furnish such justification and supporting evidence as the City may deem necessary for a determination as to whether Contractor is entitled to an extension of time under the provisions of the Agreement. The City, after receipt of such justification and supporting evidence, shall make a decision thereon and shall advise Contractor in writing thereof. If the City finds that Contractor is entitled to any extension of the Agreement Time, the City's determination as to the total number of days'

extension shall be based upon the current CPM and on all data relevant to the extension as described in the Agreement Documents. Contractor acknowledges and agrees that delays in activities that according to the approved and current CPM Schedule do not affect the critical path do not have any effect upon the Agreement Time and therefore will not be the basis for a change thereof.

GC-26.2.3 [Intentionally Omitted]

GC-26.2.4 [Intentionally Omitted]

GC-26.2.5 [Intentionally Omitted]

GC-26.2.6 [Intentionally Omitted]

GC-26.2.7

In order for Contractor to be entitled to any extension of the Agreement Time, Contractor must comply with the Claim provisions of GC-41 and GC-26. Such statement of the claim, in addition to complying with all other provisions of the Agreement relating to Claims and delays, must provide all information required by the scheduling requirements of the Agreement Documents and further provide the following specific information:

(1) Nature of the delay;
(2) Date (or anticipated date) of commencement of delay;
(3) Activities on the approved current CPM Schedule affected by the delay, and/or new activities created by the delay and their relationship with existing activities;
(4) Identification of person(s) or organization(s) or event(s) responsible for the delay;
(5) Anticipated extent of delay; and
(6) Recommended action to avoid or minimize the delay.

GC-26.2.8

The City shall receive and process such claims for extensions of time in accordance with the procedures set forth in Article GC-41, except that any Change Order issued shall only amend the time for completion.

GC-26.2.9

The failure of Contractor to file any claims for extension of time within the time limits prescribed and in the form and manner required shall be deemed a material prejudice to the interests of the City in canceling and mitigating such impacts, and shall constitute an absolute waiver of the claim and the right to file or thereafter prosecute the same. The purpose of the time limits, notice and form and manner requirements are, in part, to eliminate disputes over the existence,

scope, and nature of events giving rise to claims, and the failure to abide by same will result in material prejudices to the City, even if the City were otherwise on notice of facts giving rise to the claim because, in part of the impact to the City's ability to document, dispute, or resolve issues as they arise, and also because of the impact to the City's efforts to entirely avoid disputes over claims not asserted in accordance with the Agreement Documents.

GC-26.2.10

If no schedule or agreement is made stating the date upon which written interpretations as set forth in the Agreement Documents shall be furnished, then no claim for delay shall be allowed on account of failure to furnish such interpretations until fifteen (15) days after demand is made for them, and not then unless such claim is reasonable.

GC-27 RESPONSIBILITY FOR COMPLETION

GC-27.1 Duty to Accelerate

Subject to the other provisions of the Agreement Documents, Contractor shall furnish such manpower, Materials, facilities, and Equipment and shall work such hours, including night shifts, overtime operations and Sundays and holidays, as may be necessary to ensure the prosecution and completion of the Work in accordance with the approved and currently-updated CPM Schedule. If Work actually in place falls behind the currently updated and approved CPM Schedule, and it becomes apparent from the current approved CPM Schedule that the Work will not be completed within the Agreement Time, Contractor agrees that it will, as necessary or as directed by the City, take some or all of the following actions at no additional cost to the City to improve its progress:

(1) Increase manpower in such quantities and crafts as will eliminate, in the judgment of the City, the delay and backlog of Work;

(2) Increase the number of working hours per shift, shifts per working day, working days per week, the amount of equipment or any combination of the foregoing, sufficiently to eliminate in the judgment of the City, the delay and backlog of Work;

(3) Reschedule activities as necessary to eliminate in the judgment of the City the delay and backlog of Work; and

(4) Any other measure required by the schedule requirements of the Special Conditions.

In addition, the City may require Contractor to submit a proposed revised CPM Schedule Recovery Plan demonstrating its program and proposed plan to make up lag in scheduled progress and to ensure completion of the Work within the Agreement Time. If the City finds the proposed plan not acceptable, the City may require Contractor to submit a new and/or revised plan with direction and other input from the City and Engineer.

GC-27.2 Recoverable Acceleration Expenses

In the limited and exclusive event that (1) the City directs Contractor to accelerate, and (2) it is subsequently determined that Contractor was entitled to time extensions for excusable delays which the City failed or refused to grant, and (3) Contractor in fact succeeds in accelerating substantial completion of the Project by substantially completing the Project significantly and materially sooner than what would have been the case had the City granted all time extensions to which Contractor was entitled, then, and only then, Contractor may be entitled to recoverable acceleration expenses as defined below if Contractor properly and timely complies with the provisions related to time, notice and form and substance of claims of the Agreement (including, without limitation, Articles GC-24, GC-26, and GC-41) Recoverable acceleration expenses shall be limited to the following without any markup for overhead and profit:

(1) the premium portion only of overtime costs for hours worked in a single week that exceed 40 hours per week

(2) if the overtime continues for more than 65% of the skilled labor on the site (including subcontractor personnel) for a continuous period of 8 weeks or more, then beginning in the 9th week, a multiplier of 10% of the premium portion of the overtime costs may be added as recoverable acceleration expenses to cover the cost of any loss or damage or additional expense resulting from the acceleration.

No expenses other than the two items noted above shall be allowed as recoverable acceleration expenses. No claims for acceleration for work that is not on the critical path shall be permitted.

GC-27.3 Acceleration by City's Forces

Failure of Contractor to substantially comply with the requirements of Article GC-27.1 may be considered grounds for a determination by the City and/or the Engineer that Contractor is failing to prosecute the Work with such diligence as will ensure its completion within the time specified. In such case, upon forty-eight (48) hours prior Written Notice to Contractor, City shall have the right to furnish such additional labor and Materials as may be required to comply with the schedule, and Contractor shall be liable for such costs incurred by City as provided elsewhere in this Agreement.

GC-27.4 Set-Off of Acceleration Costs

Any monies due to the City under this Article may be set-off by the City against monies due from the City to Contractor.

GC-27.5 Acceleration Remedies Cumulative

The remedies of the City set out in this Section are in addition to, and without prejudice to, all other rights and remedies of the City including those stated elsewhere in the Agreement Documents. The remedies of Contractor, however, are sole and exclusive and contingent upon compliance with the Agreement provisions as to time, notice, form,

and substance of Claims, including, without limitation, Articles GC-24, GC-26, and GC-41.

GC-28 WORKING DRAWINGS, SHOP DRAWINGS, DATA ON MATERIAL AND EQUIPMENT, SAMPLES, AND LICENSES

GC-28.1 General

GC-28.1.1

Contractor shall submit to the Engineer for review and exception, if any, such working Drawings, Shop Drawings, test reports and data on Materials, licenses, and Equipment (hereinafter in this article called data), and material samples (hereinafter in this article called samples) as are required for the proper control of Work, including but not limited to, those working Drawings, Shop Drawings, data and samples specifically required elsewhere in the Specifications and Agreement Documents. Submittals are required for any product that becomes a part of, or affects, the permanent Work.

GC-28.1.2

Data on Materials and Equipment include, without limitation, Materials and Equipment lists, catalog data sheets, cuts, diagrams and similar descriptive material. Materials and Equipment lists shall give, for each item thereon, the name and location of the Supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent data.

GC-28.1.3

It is the duty of Contractor to check all Drawings, data and samples prepared by or for it before submitting them for review. Drawings and schedules shall also be checked and coordinated with the Work of all trades involved. Drawings and other submittals originating from Subcontractors will be reviewed and checked similarly by Contractor. Pursuant to this required review, Contractor shall indicate its approval, before they are submitted for review by the City, by affixing its stamp of approval, properly initialed and dated. All submittals shall be referenced to the applicable item, section or division of the Specifications.

GC-28.1.4

The Engineer's review of Drawings, data and samples submitted by Contractor will cover only general conformity to the Specifications, external connections, and dimensions which affect the installation. The Engineer's review and exception, if any, will not constitute an approval of dimensions, quantities, and details of the Material, Equipment, device, or item shown.

GC-28.1.5

Contractor shall not begin any of the Work covered by a Drawing, data, or a sample returned for correction until a revision or correction thereof has been reviewed and returned to it.

GC-28.1.6

The CPM Schedule shall include respective dates for the submission of shop and work Drawings, the beginning of manufacture, testing, and installation of Materials, Supplies, and Equipment.

GC-28.1.7

Acceptable submittals will be marked "No Exceptions Taken." Submittals requiring minor corrections before the Material or Equipment is acceptable will be marked "Make Corrections Noted." Contractor may order, fabricate, or ship the items included in the submittal, provided the indicated corrections are made. Drawings must be resubmitted for review prior to installation of Equipment or use of Materials, unless otherwise directed in writing by the Engineer.

GC-28.1.8

Submittals marked "Amend and Resubmit" must be revised to reflect required changes, and the initial review procedure repeated.

GC-28.1.9

The "Rejected - See Remarks" notation is used to indicate Materials or Equipment that are not acceptable. Upon return of a submittal so marked, Contractor shall repeat the initial review procedure utilizing acceptable Materials or Equipment.

GC-28.1.10

Drawings on other submittals not bearing the Engineer's "No Exceptions Taken" notation shall not be issued to Subcontractors or utilized for construction purposes. No Work shall be done or equipment installed without a drawing or submittal bearing the "No Exceptions Taken" notation. Contractor shall maintain at the job site a complete set of Drawings and other submittals bearing the Engineer's stamp.

GC-28.1.11

In the event Contractor obtains the City's approval for the use of equipment other than that which is called for in the Agreement Documents, Contractor shall, at its own expense and using methods approved by the City, make any changes to structures, piping and electrical work that may be necessary to accommodate this equipment. If Contractor substitutes any specified item of Material or

Equipment with another item of Contractor's choosing as an "or equal" item, Contractor warrants the accuracy and adequacy of the design and performance of the substituted item and further warrants that it has exercised due diligence to ensure that the substituted item will function properly as a component into the integrated Project of which it is a part.

GC-28.1.12

Contractor shall submit all Drawings and schedules sufficiently in advance of construction requirements to provide no less than thirty (30) calendar days for checking and appropriate action.

GC-28.1.13

The review of Drawings and schedules will be general, but approval shall not be construed: (a) as permitting any departure from the Agreement requirements; (b) as relieving Contractor of responsibility for any errors, including details, dimensions, and Materials; and (c) as approving departures from details furnished by the City, except as otherwise provided herein.

GC-28.2 Shop Drawings

GC-28.2.1

When used in the Agreement Documents, the term "Shop Drawings" shall be considered to mean fabrication drawings, wiring and control diagrams, cuts, or entire catalogs, pamphlets, descriptive literature, and performance and test data. The Drawings shall be submitted using standard transmittal forms in accordance with detailed instructions furnished by the City. A separate transmittal sheet shall be used for reference to each item, section or division of the Specifications.

GC-28.2.2

Contractor shall submit six (6) sets of each Shop Drawing for review. On electrical and instrumentation and control submittals Contractor shall submit seven (7) copies of each for review.

GC-28.2.3

Each Shop Drawing shall include the following:

(1) Number and title of the submittal;
(2) Date of Drawing or revision;
(3) Name of Project;
(4) Name of Contractor and/or Subcontractor submitting Drawing and with its seal of approval;
(5) Specification title and number; and
(6) Clear identification of contents and location of the Work.

GC-28.2.4

Drawings for Work on utility facilities, streets and other facilities, which are constructed for owners other than the City, shall be coordinated so that information required by these owners is included on the Shop Drawings for their facilities.

GC-28.2.5

If Drawings show variations from Agreement requirements, Contractor shall describe such variations in its letter of transmittal. If acceptable, proper adjustment in the Agreement shall be implemented where appropriate. If Contractor fails to describe such variations, it shall not be relieved of the responsibility for executing the Work in accordance with Agreement, even though such Drawings have been reviewed.

GC-28.2.6

If the Drawings or schedules as submitted describe variations and show a departure from the Agreement requirements which the City finds to be in the interest of the City and to be so minor as not to involve a change in Agreement Price or Time, the City may return the reviewed Drawings without noting an exception.

GC-28.2.7

If no exceptions are taken by the City, each of the Shop Drawings will be identified by being so stamped and dated. Shop Drawings stamped "Rejected - See Remarks" and with required corrections shown, will be returned to Contractor for correction and re-submittal. On re-submittals, Contractor shall direct specific attention, in writing or on resubmitted Drawings, to revisions other than the corrections requested by the City on previous submissions. Contractor shall make any corrections required by the City. If Contractor considers any correction indicated on the drawings to constitute a change to the Agreement Drawings or Specifications, Contractor shall give Written Notice thereof to the City in accordance with GC-41. At least two (2) copies of Drawings or data submittals will be returned to Contractor.

GC-28.2.8

When the Drawings or data submittals have been completed to the satisfaction of the City, Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the City.

GC-28.2.9

After final review in which there are no exceptions noted or referenced, and before final payment is made, Contractor shall furnish to the City two (2) sets of record Shop Drawings, all clearly revised and completed and brought up to date, showing the permanent construction as actually made and marked FINAL/AS-BUILTS. One (1) set of such Shop Drawings shall be either drawn in ink on tracing cloth, or reproduced on mylar from which clear prints can be made. The other set could be a complete paper print.

GC-28.2.10

Contractor shall be responsible for and bear all cost of damages which may result from the ordering of any Material or from proceeding with any part of Work prior to the review, without exception, by the City of the necessary Shop Drawings.

GC-28.3 Working Drawings

GC-28.3.1

When used in the Agreement Documents, the term "Working Drawings" shall be considered to mean Contractor's plans, including a detailed narrative, for temporary structures such as temporary bulkheads, support of open cut excavation, support of utilities, ground water control systems, forming and false work; for underpinning; and for such other work as may be required for construction but does not become an integral part of the Project.

GC-28.3.2

Copies of Working Drawings shall be submitted to the City where required by the Agreement Documents or requested by the City and shall be submitted at least thirty (30) calendar days in advance of their being required for Work.

GC-28.3.3

Working Drawings shall be signed and sealed by an engineer licensed to practice in the State of Georgia and shall convey, or be accompanied by, calculation of other sufficient information to completely explain the structure, machine, or system described and its intended manner of use. Prior to commencing such Work, Working Drawings must have been reviewed to the satisfaction of the City, and each Working Drawing identified by the City with the Engineer’s stamp of "No Exception Taken." Review of the Working Drawings by the Engineer will not relieve Contractor in any way from its responsibility with regard to the fulfillment of the terms of Agreement. All risks of error are assumed by Contractor. The City and the Engineer shall have no responsibility therefor.

GC-28.4 Record Agreement Drawings

Contractor shall keep at least one (1) record copy of all Agreement Documents, reference documents, and all technical submittals at the Site in good order and annotated to show all changes made during the construction process. Record drawings shall be updated and kept current on a monthly basis by Contractor. The record drawings will be reviewed monthly by the Engineer prior to approval of Contractor's monthly Payment Application. Final "as-built" plans of the Work, shall be satisfactory to the Engineer, and will be provided at Contractor's expense within thirty (30) days following Substantial Completion of the Work or any portion thereof. The provision of such as-built documents satisfactory to the Engineer shall be an express condition precedent to final payment. Upon request, the Engineer will provide one (1) set of reproducibles of the original Agreement Drawings, at no cost, to Contractor within two weeks subsequent to the execution of this Agreement.

GC-28.5 Samples

GC-28.5.1

Contractor shall furnish at no additional cost, for the approval of the City, samples required by the Agreement Documents or requested by the City. Samples shall be delivered to the City as specified or directed. Contractor shall prepay all shipping charges on samples. Materials or Equipment for which samples are required shall not be used in Work until approved by the City.

GC-28.5.2

Each sample shall have a label indicating:

(1) Name of Project;
(2) Name of Contractor and Subcontractor;
(3) Material or Equipment Represented;
(4) Place of Origin;
(5) Name of Producer and Brand (if any); and
(6) Location in Project.

GC-28.5.3

Contractor shall prepare a transmittal letter for each shipment of samples containing the information required in Article B above. It shall enclose a copy of this letter with the shipment and send a copy of this letter to the City. Approval of a sample shall be only for the characteristics or use named in such approval and shall not be construed to change or modify any Agreement requirement. Substitutions will not be permitted unless they are considered to be to the City's best interest.

GC-28.5.4

Approved samples not destroyed in testing shall be sent to the City or stored at the Site of the Work. Approved samples of the hardware in good condition will be marked for identification and may be used in the Work. Materials and

Equipment incorporated in the Work shall match the approved samples. Samples which failed testing or were not approved will be returned to Contractor at its expense if so requested at time of submission.

GC-28.5.5

Contractor will provide architectural samples to the City in a composite color board format for review and color coordination. These samples shall be of the precise Material and color specified and of sufficient size for comparison to other material samples.

GC-28.5.6

Custom colors and coatings may be required to complete the Project within acceptable architectural standards. Contractor shall comply with the Architect's selection and provide Materials that precisely match the approved samples.

GC-28.6 Operation and Maintenance Manuals

GC-28.6.1

Operation and maintenance manuals are operator and shop maintenance instructions that enable an average journeyman mechanic without prior knowledge of the specific type, make, or model to maintain and repair the Equipment. The manuals shall include repair parts data that provides positive identification for an item of the complete Equipment with reference to the manufacturer or dealer facilities to identify ordering part numbers in support of procured Equipment.

GC-28.6.2 Preparation Instructions

An operation and maintenance manual set is required to cover each specific make, model, year and serial numbered piece of Equipment scheduled for delivery under terms of this Agreement. It is the intent of these requirements to use standard commercial manuals modified to meet the minimum Specification set forth herein. The manuals shall provide instructions, illustrations, and other associated data for operations, preventive and corrective maintenance and repair, including a complete catalog of parts used in the assembly of the end item. The manuals provided shall contain complete instructions and information as set forth below for all Equipment components, assemblies, subassemblies, attachments, and accessories manufactured by the prime Supplier or those purchased by the prime Supplier from other sources and assembled in the finished end item.

GC-28.6.3 Contents of Operation and Maintenance Manuals

The contents of complete set of manuals shall include, at a minimum, the following:

(1) Table of Contents;
(2) Operating instructions;
(3) Preventive maintenance, service, and corrective maintenance or repair instructions;
(4) Parts list with recommended quantity; and
(5) Approved Shop Drawing(s).

GC-28.6.4 Binding and Delivery

The manual(s) shall be bound or otherwise securely enclosed in an oil and moisture resistant binder(s). Each binder cover shall indicate in bold type the manufacturer's name, contract number, model number, and serial number of the unit or equipment. Five (5) copies of the manual(s) shall be delivered with the Shop Drawings and must be approved with the Shop Drawings.

GC-29 CONTRACTOR'S TITLE TO MATERIALS

No Materials or supplies for the Work shall be purchased by Contractor or by any Subcontractor subject to any chattel mortgage, security agreement, or under a conditional sales contract or other agreement by which any security interest is retained by the seller. Contractor warrants that it has good title to all Materials and supplies used in the Work, free from all liens, claims or encumbrances.

GC-30 INSPECTION AND TESTING OF MATERIALS

All Materials and Equipment used in the construction of the Project shall be subject to adequate inspection and testing in accordance with accepted standards and the requirements of the Agreement Documents. The laboratory and inspection agency shall be provided by Contractor and approved by the City for these tests; provided, however, that if the City has already secured the services of identified testing consultants/agencies, then Contractor shall engage the services of the testing consultant/agency designated by the City. Additional tests performed after rejection of Materials or Equipment shall be at Contractor's expense.

Materials of construction, particularly those upon which the strength and durability of the structure may depend, shall be subject to inspection and testing to establish conformance with Specifications and suitability for uses intended, but failure to inspect Materials will in no way waive the City's right to reject defective Materials or to condemn Work in which they are used. Contractor will provide for travel expenses, factory

performed testing and set up costs for the factory inspection and testing of all major architectural elements, mechanical, electrical or process equipment. A factory visit for both designers' representative and a City representative may be required. No funds for stored materials or fabrication items will be released until the factory inspection is completed and a certified Payment Application is submitted.

All tests performed by Contractor shall be witnessed by the City unless the requirement therefor is waived in writing. Contractor shall give the City reasonable advance notice of all such tests. The City may perform additional tests on materials tested by Contractor, and Contractor shall furnish samples for this purpose as requested.

In the event that the City directs additional testing or inspection of the Work and the testing or inspection reveals that the Work is not in accordance with the Agreement Documents, Contractor shall pay for all costs of correction of the Work as well as for all costs of testing and inspection. In the event that any portion of Contractor's Work depends upon the Work of the City or any of its separate contractors, the Contractor agrees that the City's Work or that of its separate contractor is adequate and installed such that it is ready and sufficient in all respects to accept Contractor's Work, unless written notice of any defect or deficiency is provided by the Contractor to the City prior to the Contractor beginning performance of the Work.

GC-31 MATERIALS AND EQUIPMENT

Contractor shall furnish all Materials and Equipment to be incorporated into the Work. Only Materials and Equipment conforming to the requirements of the Drawings and Specifications shall be incorporated into the Work. Except as otherwise specified or approved in specific instances, all such Materials and Equipment shall be new and unused and of the highest quality available. Materials and Equipment for which no specific requirements are given in the Drawings or specifications shall be those best suited for the specified use, considering function, strength, durability and resistance to corrosion. Manufactured Materials and Equipment shall be obtained from sources which are currently manufacturing such Materials or Equipment, except as otherwise approved in writing.

If so ordered by the Engineer, sources of Materials shall be approved by him before delivery from those sources is commenced. Approval of a source of Materials may be withdrawn by the Engineer at any time that the Materials delivered from that source are found to be defective, and Contractor shall thereupon cease all deliveries from that source.

Manufacturer's warranties, certifications, guarantees, manuals, instruction sheets and parts lists provided with Materials and Equipment shall be furnished to the Engineer before final payment is made and receipt of same is a condition precedent to any obligation to make final payment.

GC-32 STORAGE OF MATERIALS AND EQUIPMENT

Materials and Equipment to be incorporated in the Work shall be stored in such a manner as to preserve their quality and fitness for incorporation in the final project. They shall be stored in a manner acceptable to the Designer and Owner and in an accessible facility that allows inspection. If at any time the City determines that any Materials or Equipment are not being properly stored, they may issue a directive to correct the storage or reject the Material for incorporation in the Project. No additional payment will be made for storage requirements. No payment will be made on Materials stored improperly or replaced due to improper storage.

No Equipment may be stored outside without the express written permission of the City on that specific piece of equipment stating that unit's unique I.D. numbers.

For any Equipment or units that have rotating parts or bearing assemblies and must be stored for more than sixty (60) days, Contractor shall set up a schedule to manually rotate the units every fifteen (15) days and maintain a certification log to preserve the service life and warrantees.

GC-33 REPORTS, RECORDS, AND DATA

GC-33.1 General

Contractor shall submit to the City schedules of quantities and costs, progress schedules, reports, estimates, records, certificates, and other data as the City may request concerning Work performed or to be performed under this Agreement.

GC-33.2 Payroll Reports

Contractor shall be required to furnish weekly payroll reports to the City, certifying conformance with the wage rates listed in the Specifications. The requirement applies to Contractor, its Subcontractors, and any lower-tier Subcontractor providing labor at the site. These reports shall show completed payroll information, and such certificates and statements of compliance as required in the Federal Labor Standards and by the City relative to payrolls. The schedule of wage rates shall be posted on a bulletin board available to the workers.

GC-33.3 Contractor's Daily Reports

As soon as Contractor has started Work on the Project, it shall compile written daily reports of the Work performed the previous day by its employees, including the employees of Subcontractors.

The reports shall be prepared by Contractor's representative and shall bear his signature. Each report shall contain at least the following information:

(1) Description of Work items and references to payment items;
(2) Work forces and construction Equipment employed;

(3) Materials and Equipment installed;
(4) Work performed by Subcontractors; and
(5) Description of any accidents, interruptions, impacts, delays, problems, visitors, impediments, etc. encountered or continued.

Contractor shall require similar reports from Subcontractors for each day on Site and shall attach copies to Contractor's Daily Report when submitted.

GC-34 CONTRACTOR'S SUPERVISION OF THE WORK

GC-34.1 General

Contractor shall provide competent, efficient supervision of the Work. All Work shall be performed in a skillful, workmanlike and orderly manner, and Contractor and its supervisory personnel shall enforce this requirement at all times.

GC-34.2 Contractor's Representative

Before beginning Work, Contractor shall notify the City in writing of one (1) person within its organization, satisfactory to the City, who shall have complete authority to supervise Work, to receive orders from the City, and to represent and act for Contractor in all matters arising under Agreement. Contractor shall not remove its representative without first designating, in writing, a new representative, who meets all of the foregoing requirements. Upon ten (10) days notice, the City or the Engineer may request replacement of Contractor's Representative if, in the City's opinion, it is necessary to ensure the timeliness or quality of the Work.

Contractor's representative shall normally be present at or about the Site of Work while the Work is in progress. Before leaving the Site of Work for any extended period, whether or not the Work is in progress, Contractor's representative shall notify the City, in writing, of the designation of an assistant, satisfactory to the City, with full authority to act for the representative in his absence, or shall make substitute arrangements satisfactory to the City. When neither Contractor, its representative, nor the representative's authorized assistant is present on a part of Work, the superintendent, foreman, or other employee or Contractor in charge of that part of the Work shall be an authorized representative of Contractor for the purposes set forth above.

GC-35 SUBCONTRACTORS AND SUPPLIERS

Contractor may utilize the services of specialty Subcontractors on those parts of Work that, under normal contracting practices, are performed by specialty Subcontractors, except as otherwise required by the Agreement Documents.

In addition to the designation of Subcontractors in the proposal documents, Contractor shall submit to the City a listing of the Subcontractor name, full address and telephone

number, contact person, class or trade of work, list of similar past projects worked on, including reference names, telephone numbers, and other information as applicable to that Subcontractor and the provisions of the Agreement Documents. Contractor shall make Subcontractor submittals sufficiently in advance of construction requirements to provide the Engineer and City with no less than sixty (60) days for review and appropriate action.

Contractor shall be as fully responsible to the City for the acts and omissions of all Subcontractors and Suppliers, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it. Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to Work to bind Subcontractors and Suppliers to Contractor by the terms of the General Conditions and other Agreement Documents, insofar as applicable to the work of Subcontractors and Suppliers, and to give Contractor the same power as regards terminating any subcontract that the City may exercise over Contractor under any provisions of the Agreement Documents.

Nothing contained in this Agreement shall create any contractual relation between any Subcontractor or Supplier and the City. The Contractor shall not award more than seventy-five percent (75%) of the Work to Subcontractors, provided that, to the extent that a more stringent standard is required in the Special Conditions, the more stringent standard shall control.

GC-36 INSPECTION OF WORK

GC-36.1 General

All of Work shall be subject to inspection by the City for conformity with the Drawings and Specifications, Working Drawings, Shop Drawings, data on Materials and Equipment, and material samples. Inspection of the balance of Work will be in accordance with this article, unless otherwise expressly indicated. Material tests and all other specified tests will be considered part of the inspection process and shall be subject to all of the provisions of this clause.

GC-36.2 Engineer’s Access to Work

The Engineer shall have access to, and may inspect Work at all times and places. He shall have access to, and may inspect, Materials and Equipment to be incorporated in Work at all times at the place of production or manufacture and at the shipping point, as well as at Site of Work.

The Engineer will designate the Materials and Equipment to be inspected at the place of production or manufacture. Contractor shall give the Engineer fourteen (14) days advance written notice of the start of manufacture or production of Materials and Equipment so designated. The Engineer's failure to so designate Materials and Equipment shall in no way limit his right to inspect them at the place of production of manufacture.

Contractor's Materials and Equipment contacts shall include a notice to the Supplier or Subcontractor of the inspection requirements of this clause.

GC-36.3 Cooperation And Safety

The Engineer will perform inspections in such manner as not to delay Work unnecessarily, and Contractor shall perform the Work in such manner as not to delay inspection unnecessarily. Contractor shall give the Engineer reasonable advance notice of operations requiring special inspection of a portion of Work at any time by reasonable advance notice to the Engineer.

If requested by the Engineer, Contractor shall submit written certification, in a form approved by the Engineer, that he has inspected the Work prior to inspection by the Engineer, and that it complies with the Agreement Documents.

Contractor shall bear any additional inspection costs resulting from Contractor's failure to have a portion of Work ready for inspection at the time requested by Contractor for its inspection, or from reinspection of any previously rejected portion of Work where the defects requiring such rejection were due to Contractor's fault or negligence. Such costs may be deducted, in whole or in part, from any money due or that may become due Contractor under the Agreement.

Contractor shall furnish the Engineer all reasonable facilities for his safety and convenience in inspecting the Work, at all times and at all places where inspection may take place. If the Engineer finds that conditions are unsafe for inspection at a particular location, he may, upon notice to Contractor, refuse to inspect in that location until such conditions are corrected. Contractor shall bear any additional costs incurred to permit subsequent inspection of any portion of Work covered or completed at the location after correction of the conditions, whether or not such portion of Work is found to meet the requirements of the Agreement Documents.

GC-36.4 Inspection of Covered or Completed Portions of Work

If so ordered in writing by the Engineer, Contractor shall uncover, remove, tear out, or disassemble, in whole or in part, any covered or completed portion of Work to permit its inspection. If that portion of Work is found to be defective or unauthorized, Contractor shall bear all costs of uncovering, removal, tearing out, or disassembly. If such portion of the Work is found to conform with the Agreement Documents, including Agreement Drawings and Specifications, it shall be recovered, replaced, reassembled, or otherwise restored by Contractor to its original condition and, except as stated below, all Work required in connection with the inspection will be considered extra Work. If such portion of Work was covered or completed without the approval of the Engineer, where such approval was required by the Specifications or required in advance by the Engineer, Contractor shall bear all costs involved in the inspection, notwithstanding conformance

of such portion of Work with the Agreement Documents including the Agreement Drawings and Specifications.

GC-36.5 Inspection Not a Waiver or Acceptance

Neither the inspection nor lack of inspection of any portion of the Work, nor the presence or absence of the Engineer during performance of any of the Work, nor acceptance of the whole or any part of the Work by the Engineer, nor any possession taken by the City or its employees shall operate as a waiver of any provision of this Agreement Documents or any power herein reserved to City or any rights to damages herein provided. Should an error in the estimate, or conclusive proofs of defective Work or materials used by or on the part of Contractor be discovered after the final payment has been made, the City reserves the right to claim and recover by process of law such sums as may be sufficient to correct the error or to make good the defects in the Work and Materials.

GC-36.6 Correction of Non-Compliant Work

If Contractor is found to have Work that fails to meet the intent of the Plans and Specifications or other Agreement Documents, or is in other aspects unsuitable it may be issued a notice of non-compliance on that portion of the Project Work. Contractor shall remedy the defective or incorrect Work within twenty-four (24) hours unless a different schedule is agreed to in writing. This non-compliance status may be issued on temporary installations that fail to protect the Work or site conditions.

GC-37 CITY'S AUTHORITY

The City shall have authority to decide all questions as to interpretation and fulfillment of the requirements and obligations of the Agreement Documents, including, without limitation, all questions as to the prosecution, progress, quality, and acceptability of Work. The City may implement and enforce its decisions by orders, instructions, notices, and other appropriate means.

Any decision, order, instruction, or notice of the City will be confirmed in writing. Such confirmation shall state the specific subject of the decision, order, instruction, or notice and its date, time, place, author and recipient.

Inspectors may be appointed to inspect all Materials used and all Work performed. Such inspection may extend to all or any part of the Work and to the preparation or manufacture of the Materials to be used. Inspectors will not be authorized to approve or accept any portion of the completed Work or to issue instructions contrary to the Plans and Specifications or other Agreement Documents. Inspector will have authority to reject defective Material and to suspend Work that is being improperly performed, subject to the final decision of the City. Inspector shall, in no case, act as foreman or perform other duties for Contractor.

GC-38 PROGRESS PAYMENTS

GC-38.1 Progress Estimates

Within the time set forth in the Special Conditions or, if none, then prior to the submittal of the first Payment Application, Contractor shall submit to the Engineer for approval, in the form directed or acceptable to the Engineer, a complete schedule of values of the various portions of the Work, including quantities and unit prices, aggregating the Agreement Price (except in cases and to the extent that accepted unit prices form the basis of payment). The schedule shall subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction and to coordinate with the progress schedule required under the Special Conditions, and shall be supported by such data to substantiate its correctness as the Engineer may require. Each item in the schedule of values shall include its proper share of overhead and profit. An unbalanced breakdown providing for overpayment to Contractor on items of Work which would be performed first will not be approved. The schedule of values, when approved by the Engineer, shall be used only as a basis for Contractor's monthly request for payment and shall not be used as the basis for computing additions to or deductions from the Agreement Price.

Subject to the provisions of this clause, Contractor shall prepare a written report for the Engineer's approval, on the form approved by the City, of the total amount of value of Work performed under the proposal items of Agreement to the time of such estimate and in accordance with the progress report based on the approved schedule.

No progress estimate or payment shall be considered an approval or acceptance of any Work performed, Material, or Equipment furnished. All estimates and payment will be subject to correction in subsequent estimates and the final estimate.

Progress payments will be made for all completed activities and for suitably stored Materials as herein provided.

GC-38.2 Progress Payments

Upon completion of each monthly estimate of Work performed and Materials furnished, the Engineer, subject to the provisions of the Agreement Documents, shall recommend payment to Contractor for the estimated value of such Work, Materials, and Equipment, less the amount of all prior payments and all liquidated damages and other amounts to be deducted or retained under the Agreement. Contractor will be paid one hundred (100%) percent, less retainage, of the cost of Materials received and properly stored but not incorporated into the Work. Payments for Materials or Equipment stored on the Site shall be conditioned upon submission by Contractor of bills of sale or such other procedures satisfactory to the Engineer to establish the City's title to such Materials or Equipment or otherwise protect the City's interest, including applicable insurance. No progress estimate or payment needs to be made when, in the Engineer's judgment, the increment in the estimated value of Work performed and Materials and Equipment furnished since the preceding estimate is less than Ten Thousand Dollars ($10,000.00).

Contractor will be paid on or before the twenty-fifth day following receipt of the approved estimate from the Engineer.

GC-38.3 Retention from Progress Payments

The amounts retained by the City from each progress payment shall be as follows:

(1) Except as noted below, withholding ten percent (10%) of the estimated value of the Work performed until 50 percent of the Contract value, including change orders and other additions to the Contract value provided for by the Contract Documents, is due and the manner of completion of the Contract Work and its progress are reasonably satisfactory to the City.

(2) At the discretion of the City and with the approval of Contractor, the retainage of each Subcontractor may be released separately as the subcontractor completes his or her work.

(3) Upon receipt of written request from Contractor, the City may, in its unilateral discretion, reduce retainage to Contractor for payment of retainage to Subcontractors who have completed their Work. If such retainage is released, Contractor shall furnish the City with an affidavit certifying that all monies due the Subcontractor have been paid. If the City determines that the released retainage has not been paid to the Subcontractor, the amount released shall be reinstated.

(4) The City may, in its unilateral discretion, elect to reduce Contractor's retainage and that of Subcontractors who have not completed all their work if the City believes it to be in its interest to do so.

(5) If reduced, the City may reinstate ten percent (10%) withholding if it believes it necessary or desirable to do so. Contractor agrees that the City is free to do so.

(6) If, after discontinuing the retention, the City determines that the Work is unsatisfactory or has fallen behind schedule, retention may be resumed at the previous level. If retention is resumed, Contractor and Subcontractors shall be entitled to resume withholding retainage accordingly.

GC-38.4 Additional Payment Conditions

GC-38.4.1

The submission and approval of the CPM Schedule and periodic updates thereof, as required by the Schedule requirements of the Special Conditions, shall be an integral part and basic element of the application upon which Progress Payments shall be made. Contractor shall be entitled to Progress Payments only as determined from the currently approved and updated CPM Schedule.

GC-38.4.2

Contractor shall promptly pay each Subcontractor upon receipt of payment from the City, out of the amount paid to Contractor on account of such Subcontractor's Work, the amount to which said Subcontractor is entitled, reflecting the percentage actually retained, if any, from payments to Contractor on account of such Subcontractor's Work. Contractor shall, by an appropriate agreement with each Subcontractor, require each Subcontractor to make payments to their Subcontractors in similar manner.

GC-38.4.3

The City may, on request and at its discretion, furnish to any Subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for by Contractor and the action taken thereon by the City on account of Work done by such Subcontractor.

GC-38.4.4

Neither the City nor the Engineer shall have any obligation to pay or to see to the payment of any Subcontractor or Supplier, but may at its sole option, withhold payment from Contractor on account of claims of nonpayment by Subcontractors and Suppliers in accordance with GC-38.5.1.

GC-38.4.5

No certification of Progress Payment (any progress payment), or any partial or entire use or occupancy of the Project by the City, shall constitute an acceptance or approval of any Work not fully in accordance with the Agreement Documents.

GC-38.4.6

Any and all funds paid to Contractor pursuant to the City-Contractor Agreement are hereby declared to constitute trust funds in the hands of Contractor, to be applied first to the payment of claims of Subcontractors, laborers, and Suppliers arising out of the Work, to claims for utilities furnished and taxes imposed, and to the payment of premiums on surety and other bonds and on insurance, before application to any other purpose. Whenever required by the Engineer, it shall be the duty of Contractor to file with the Engineer a verified statement, in form satisfactory to the Engineer, certifying the amounts then due and owing from Contractor for labor and materials, setting forth therein the names of the person whose charges or claims for labor or materials are unpaid, and the undisputed amount due to each respectively. The City, at its option, may also require the Contractor to furnish evidence of payment of Subcontractors and Suppliers in any form satisfactory to the City in addition to the requirements of GC-38.6.

GC-38.4.7

No payments made hereunder by City to Contractor prior to Final Payment shall be deemed conclusive as to the actual value of the Work performed by Contractor or of Contractor's performance of the Agreement.

GC-38.4.8

City reserves the right to issue any Progress Payment and Final Payment by check jointly to Contractor and any Subcontractor or Supplier at City's option.

GC-38.4.9

Should the City fail to issue any Progress Payment within sixty (60) days of approval of an acceptable monthly estimate of Work performed and Materials furnished, annual interest on the payment amount may accrue at the Prime Rate, plus one percent. The Prime Rate shall be based on that published in the ***Wall Street Journal*** on the first business day of January or June, whichever has most recently passed, of the current year. Nothing stated herein shall invalidate any other conditions of Progress Payment approval.

GC-38.4.10

Contractor agrees to execute such payment application forms and release of claim forms as the City may require as a condition precedent to the City's obligation to make payment.

GC-38.4.11

This Article 38 shall completely supersede the Georgia Prompt Payment Act as it relates to Owner payments and any modifications or successors to it to the full extent allowed by law.

GC-38.5 Payments Withheld

GC-38.5.1

The City may decline to approve payment and may withhold any payment, in whole or in part, to the extent necessary to reasonably protect the City from loss because of:

(1) Defective Work not remedied;
(2) Third party claims filed or reasonable evidence indicating probable filing of such claims;
(3) Failure of Contractor to make payments properly to Subcontractors, or for labor, Materials or Equipment;
(4) Reasonable evidence that the Work cannot be completed for the unpaid balance of the Agreement Price;
(5) Damage or the reasonable expectation of damage to the City or another contractor;

(6) Reasonable evidence that the Work will not be completed within the Agreement Time;
(7) Failure to carry out the Work in accordance with the Agreement Documents;
(8) Failure of Contractor to fully comply with the Schedule requirements of the Special Conditions;
(9) Failure to comply with insurance and safety requirements;
(10) Failure to keep current "As-Built" Records; or
(11) Failure of Contractor to comply with the requirements of the Agreement Documents in connection with the Payment Application process.

GC-38.5.2

When the grounds in Article GC-38.5.1., above are removed, payment shall be made for amounts withheld because of them.

GC-38.6 Waiver and Preservation of Claims In Periodic Application of Payments

Contractor has been employed by the City to furnish labor, Material, services, and other improvements. Upon receipt of the amounts requested in any monthly Application for Payment, Contractor waives and releases any and all claims it may have against the City or the Engineer through the date of that Payment Application, excepting those rights that Contractor may have in any retained amounts on account of labor or Materials, or both, furnished by Contractor and the unresolved claims, if any, enumerated in the Application for Payment. Contractor expressly warrants by submission of its periodic Application for Payment that all due and payable bills with respect to the Work have been paid to date or shall be paid from the proceeds of the Application for Payment, and waivers and releases from all Subcontractors and material men have been or will be obtained and delivered to the City in such form as to constitute effective waivers and releases of claims under all applicable laws. Upon receipt of payment of the amounts certified in the Application for Payment, Contractor does thereby waive, release, and relinquish any claims for additional compensation or an extension of time which Contractor has then or may have had arising out of the performance of the work or the furnishing of the labor or materials by Contractor through the date of the Application for Payment. This waiver and release applies to all facts, events, circumstances, changes, constructive or actual delays, acceleration, extra work, disruption, interferences, impacts and the like, which have occurred or may be claimed to have occurred prior to the date of the Application for Payment, excepting only claims which are then currently unresolved for which written notice has previously been provided to the City **and** which Contractor specifically enumerates in its Application for Payment. Failure to so enumerate claims shall be a final waiver and relinquishment of claim, whether or not such claims were previously submitted in accordance with GC-41.

GC-39 SUBSTANTIAL COMPLETION ("Substantial Completion")

GC-39.1 Certificate of Substantial Completion

When Contractor considers that the Work, or a designated portion thereof which is acceptable to the City, is Substantially Complete, Contractor shall prepare for the Engineer a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of Contractor to complete all Work in accordance with the Agreement Documents. When the Engineer, on the basis of an inspection, determines that the Work or designated portion thereof is Substantially Complete, they will then prepare a Certificate of Substantial Completion of the Work which shall establish the Date of Substantial Completion of the Work, shall state the responsibilities of the City and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance and shall fix the time within which Contractor shall complete the items listed therein. The Certificate of Substantial Completion of the Work shall be submitted to the City and Contractor for their written acceptance of the responsibilities assigned to them in such Certificate.

GC-39.2 Warranty Commencement

Warranties required by the Agreement Documents shall commence on the Date of Final Completion of the Project or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion of the Work or designated portion thereof.

GC-39.3 Intentionally Omitted

GC-40 FINAL PAYMENT ("Final Payment")

GC-40.1 Certificate for Final Payment

Following the Engineer's issuance of the certificate of Substantial Completion of the Work or designated portion thereof, and Contractor's Completion of the Work, Contractor shall forward to the Engineer a Written Notice that the Work is ready for final inspection and acceptance, and shall also forward to the Engineer a final Application for Payment. Upon receipt, the Engineer will make the necessary evaluations. When the Engineer finds the Work acceptable under the Agreement Documents and the Agreement fully performed, the Engineer will issue a certificate for Payment that will approve the final Payment due Contractor ("Final Payment").

GC-40.2 Final Payment Conditions

Neither the Final Payment nor the retainage shall become due until Contractor submits to the Engineer:

(1) An affidavit that all payrolls, bills for Materials and Equipment, and other indebtedness connected with the Work have been paid or otherwise satisfied;
(2) Consent of surety, if any, to Final Payment;
(3) Clear title for all vehicles and/or trailers, if any, to remain as City property;

(4) Complete set of as-built record Drawings;

(5) Documentation for all state sales taxes paid by Contractor including completed State Department of Revenue Refund forms and all necessary back up documentation required by the Department of Revenue;

(6) If required by the Engineer or City, other data establishing payment or satisfaction of all such obligations, such as receipts, releases, and waivers of liens arising out of the Agreement, to the extent and in such form as may be designated by the Engineer or City. If any Subcontractor refuses to furnish a release or waiver required by the Engineer or City, Contractor may furnish a bond satisfactory to the City to indemnify the City against any such loss. If any lien or indebtedness remains unsatisfied after all payments are made, Contractor shall refund to the City all monies that the latter may be compelled to pay in discharging such lien or other indebtedness, including, without limitation, all costs, expenses, arbitration fees, reasonable attorneys' fees, expert fees, or consultant fees incurred in connection with same; and

(7) As a condition of Final Payment on the Project, Contractor shall, prior to final payment, complete and submit to the City, all of the invoice documentation and the State of Georgia Revenue Department forms required to obtain the sales tax refund on all applicable equipment expenditures. This submittal shall include the certified forms and auditable back-up necessary to substantiate the expenditures for State refund.

GC-40.3 Intentionally Omitted

GC-40.4 Waiver of Claims by Contractor Upon Final Payment

The acceptance of Final Payment shall constitute a waiver of all claims by Contractor except those previously made in writing and identified **and** enumerated by Contractor as unsettled at the time of the application for Final Payment. Failure to so enumerate unsettled claims shall be a final waiver and relinquishment of claim, whether or not such claims were previously submitted in accordance with GC-41.

GC-41 CLAIMS, CHANGES, AND EXTRA WORK

Contractor acknowledges the extreme importance to Owner of identifying and resolving Claims on an "as-you-go" basis in order for Owner to maintain its relationship with all available funding sources, including local taxpayers as well as the state and federal governments. Contractor further acknowledges the extreme prejudice suffered by Owner as a result of any attempted assertion by Contractor of Claims except as specifically permitted herein in the precise manner and within the time limits established herein, which prejudice includes, but is not limited to that resulting from the trouble and expense of having to deal with disputes over claims, if any, that were not made in accordance with the precise manner and within the time established herein.

GC-41.1 Claims and Contractor's Obligation to Proceed in the Face of Disputes

GC-41.1.1

A claim is any demand, contention, or assertion by Contractor seeking additional time or money under the Agreement Documents. Claims by Contractor must be made in writing as specified herein. Claims from Contractor must contain all of the following:

(1) A narrative statement referencing and attaching the supporting documentation and specifically describing the legal, factual, and contractual basis of the claim;

(2) If the claim alleges delay to the work or requests an extension time for excusable delay, the claim must include the precise number of days claimed, all alleged impacts on the work, as well as a detailed critical path as-built schedule analysis illustrating that the delays claimed were on the critical path of the Project, and that no concurrent delays were experienced during the critical path delay;

(3) If the claim alleges improper acceleration of the work pursuant to GC-27.2, the claim must include the precise number of days' time extension Contractor contends it would have been entitled to receive, but for the acceleration, and the precise number of days by which the work has been accelerated. No claims for acceleration for work that is not on the critical path shall be permitted. Claims for acceleration must be accompanied by a detailed CPM analysis. Claims for acceleration shall be limited to the recoverable acceleration expenses referenced in Article GC-27 of this Agreement; and

(4) If the claim is for additional compensation, the claim must include a detailed calculation of the precise amount claimed with all supporting documentation and shall also comply with Atlanta Procurement Code §2-1201 for claims expected to exceed $20,000.00. All claims must reference the specific contract provisions relied upon to support the claim. Claims that are not based upon a contractual provision or remedy shall be void as Contractor agrees that its entitlement is limited to the remedies offered by the terms of this Agreement. All claims must specifically reference, by name, this Article, and the fact that the claim is being submitted under this Article. Any writing or other form of notice, however designated, which fails to specifically reference this Article, by name, shall not be deemed to constitute a valid claim hereunder.

Items (1), (2), (3) and (4) above shall hereinafter be referred to as the "Final Accounting."

Initial written notice of Contractor's intent to assert a claim (the "Initial Notice") must be made in writing within seven (7) days after the occurrence of the event giving rise to the claim or the right to submit a

claim is waived. Contractor shall submit all information reasonably available to it that is otherwise required in the Final Accounting at the time of the Initial Notice.

Except for Claim events that continue more than thirty (30) days, within thirty (30) days after the conclusion of the event giving rise to the Claim, Contractor shall provide the Final Accounting. Failure to timely provide the Final Accounting shall constitute a waiver of the Claim even if timely Initial Notice is provided. Any waiver by the City of the notice requirements for the Initial Notice or the Final Accounting for a single claim, event, or occurrence shall not constitute a waiver of these notice requirements for any other claim, event, or occurrence. Each request for time or money by Contractor shall be considered a separate claim. All information required in the Final Accounting must be submitted within the time limits established herein, and no supplementation of the information or claims shall be permitted. Any attempted reservation of the right to submit or supplement an earlier made claim shall be void.

For events giving rise to a claim that Contractor contends continues for more than thirty (30) days, including any alleged continuing claims or continuing impacts that Contractor contends continue to accrue beyond thirty (30) days, then Contractor shall give the Initial Notice as required herein, stating therein that the event or impact is continuing. Within thirty (30) days of the start of the event (as documented by the Initial Notice), Contractor shall provide all information available to it that is required in the Final Accounting, including without limitation a quantification of any costs incurred to date. Contractor shall supplement the required information, including without limitation any additional damages accrued during the period and any scheduling information required, every thirty (30) days thereafter until the event or impact ceases, culminating in the Final Accounting within thirty (30) days thereafter. Failure to timely provide: (a) the Initial Notice; (b) the information due within thirty (30) days thereafter; (c) timely and complete supplements; or (d) the timely Final Accounting shall be deemed a waiver of any claim for time or money for events occurring after the date Contractor last timely and completely complied with the requirements hereof. Any attempt to reserve the right to supplement at a different time or to accrue costs or impacts beyond thirty (30) days shall be void and shall be deemed a waiver of any further claim relating thereto.

The Final Accounting shall be accompanied by a sworn statement from a representative of Contractor who is the person most knowledgeable of the facts and circumstances surrounding the Claim and personally familiar with such facts and circumstances certifying that (a) the claim is submitted in good faith, (b) the cost data and all backup information submitted are true, accurate, and complete, and (c) that the amount requested

accurately reflects the amount for which Contractor and the Affiant believe the City is liable.

GC-41.1.2 Claim Review

Upon receiving a statement of claim, and with the advice and assistance of the Engineer as appropriate, the City may review the statement of claim submitted by Contractor. In conducting this review, the Engineer or other person designated by the City shall have the right to require Contractor to submit such additional or supporting documents, data and other information as the City and/or the Engineer may require, and the failure to submit such additional documents, data or other information within thirty (30) days following written request shall be deemed a waiver of the claim. Contractor agrees that it will produce any documents requested that would otherwise be produceable in a civil action under O.C.G.A. § 9-11-34. Upon completion of such review, to take place within such time as the City may designate following receipt of the additional documents, data or other information as may have been required by the City and/or the Engineer, the City in consultation with the Engineer may issue a written determination, and if it deems appropriate accept such parts of the claim as are found in good faith to be proper. If Contractor agrees, a Change Order shall be issued to amend the Agreement Price, the time for completion or either of them as may be found proper. If Contractor disputes the determination made by the City, Contractor as a condition precedent to any further action to resolve such dispute must notify the City and the Engineer in writing within ten (10) days following receipt of the decision of the factual basis of such dispute and permit the City fifteen (15) additional days to reconsider and, if it deems it appropriate, issue a modified decision.

GC-41.1.3 No Waiver

Nothing contained in this section shall operate to limit or extinguish any right or defense of the City contained elsewhere in the Agreement Documents or available at law or in equity or constitute a waiver by the City of any right or defense otherwise available. Nothing in this Article GC-41 shall alter Article GC-24 or GC-26 or give Contractor the right to recover additional compensation not authorized by other items of the Contract Documents or precluded thereby.

GC-41.1.4 Absolute Conditions Precedent

The failure of Contractor to file any claim within the time limits prescribed herein or in the form or manner precisely as required hereby shall be deemed a material prejudice to the interests of the City and shall constitute an absolute waiver of the claim and the right to file or thereafter prosecute the same.

GC-41.1.5

Claims by the Owner shall not be subject to the requirements of Section 41.1, Claims by the Owner shall be asserted within a reasonable time of discovery of the claim and shall include information necessary for Contractor to reasonably evaluate the claim. The Owner agrees to notify Contractor in writing of its claims within a reasonable time but not later than the close of discovery in any arbitration or litigation conducted hereunder.

GC-41.1.6

Pending final resolution of a Claim, except as otherwise agreed in writing, Contractor shall proceed diligently with performance of the Work and the Owner shall continue to make undisputed payments in accordance with the Agreement Documents. The making of any payment by Owner shall not constitute a waiver of any Claims by the Owner or an acknowledgement by Owner that Contractor is entitled to additional time or money.

GC-41.1.7

Contractor acknowledges the extreme importance to the City of completing the Work as expeditiously as possible and the prejudice the City may suffer if the Work is not completed as scheduled. Contractor further acknowledges the strong likelihood that disputes between the parties will arise and that Contractor will likely be required to perform disputed work which the City contends to be included within Contractor's scope of work, or that if acknowledged as changed or extra work, the likelihood that the City may dispute the amount of Contractor's alleged entitlement. Irrespective of whether it is within the general scope of the Work, Contractor agrees to perform all work, whether disputed or undisputed, that the City directs. No dispute or controversy shall interfere with the progress of construction, and Contractor shall proceed with the work without interruption, deficiency, or delay. Contractor warrants and represents that Contractor and its Surety have sufficient capitalization and resources to complete the Work, including all disputed work whether or not it is within the general scope of the work, and resolve disputes in accordance with the terms of this Agreement. Contractor therefore agrees that any failure or refusal by Contractor to perform disputed work which the City directs Contractor to perform shall be a material and substantial breach of the Agreement for which Contractor and its surety are jointly and severally liable. Contractor acknowledges and agrees that its failure or refusal to perform disputed work will cause the City significant damage and that such damages may include increased costs to have another contractor complete the work at a premium over the costs Contractor would have incurred to perform the disputed work. Contractor acknowledges and agrees that should it refuse to proceed in the face of disputes, it is liable for all additional costs incurred in completing both Contractor's base Agreement scope of work and any changed, extra, or additional work.

GC-41.2 Changes in the Work

GC-41.2.1 General

GC-41.2.1.1

Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Agreement, by Change Order, Field Change, Work Authorization or Change Directive. For purposes of this Agreement, the terms “extra work” or “additional work” shall have the same meaning as “changed work” and be governed by the same Agreement provisions governing changes.

GC-41.2.1.2

Changes in the Work shall be performed under applicable provisions of the Agreement Documents, and Contractor shall proceed promptly, unless otherwise provided in the Change Order, Field Change, Work Authorization or Change Directive. A change in the Agreement Price or the Agreement Time shall be accomplished only by Change Order or Change Directive, and no other compensation shall be due to Contractor other than that permitted pursuant to a Change Order or a Change Directive. Accordingly, no course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that Owner has been unjustly enriched by any change to the Work, whether or not there is, in fact, any unjust enrichment, shall be the basis of any claim for an increase in any amounts due under the Agreement Documents or a change in any time period provided for the Agreement Documents. Any failure to comply with the notice and other claim procedure requirements included herein or any other Agreement requirements shall be a waiver of the right to additional time or money.

GC-41.2.1.3

Any written directive which Contractor believes to constitute a Change hereunder must be accompanied by the notice required under Article GC-41 governing claims. ALL CONTRACTOR CLAIMS FOR CHANGES MUST BE ASSERTED IN ACCORDANCE WITH ARTICLE GC-41 OR THEY ARE WAIVED AND RELEASED.

GC-41.2.2 Change Orders

GC-41.2.2.1 [Intentionally Omitted]

GC-41.2.2.2 [Intentionally Deleted]

GC-41.2.2.3

Methods used in determining adjustments to the Agreement Price for Change Orders shall be limited to those listed, below:

Any Change Order accepted by Owner and Contractor constitutes a full and final settlement and accord and satisfaction of all effects of the change, including but not limited to any and all impact, delay and/or disruption relating thereto upon any and all aspects of the Work or the Agreement Documents, and will compensate Contractor fully. In such case, Contractor expressly waives any and all right to make a Claim or to take any action or proceeding for any other consequences of any Change Order, whether the consequences result directly or indirectly from the Change Order. In addition, Contractor expressly waives and releases any Claim it may have against the Owner for any adjustment in the Substantial Completion Date or Final Completion Date resulting from, arising out of, or related to the change reflected in any such Change Order, including, but not limited to, any impact that such change may have on the unchanged portion of the Work or the Substantial or Final Completion Date. In addition, Contractor expressly waives and releases any Claim it may have against the Owner for any additional compensation or damages resulting from, arising out of, or related to, the change reflected in any such Change Order, including, but not limited to any Claim for damages due to delay, disruption, hindrance, impact, ripple effect, cumulative impact, interference, cardinal change, abandonment, inefficiencies or extra work arising out of, resulting from, or related to the change reflected in any such Change Order, including, but not limited to, any impact that such change may have on the unchanged portion of the Work or the Substantial or Final Completion Date.

GC-41.2.3 Change Directives

GC-41.2.3.1

The Owner may, by Change Directive, without invalidating the Contract, order Changes in the Work consisting of additions, deletions or other revisions, the Agreement Price and Agreement Time being adjusted accordingly to the extent necessary. Any Claim arising from a Change Directive must be made in accordance with the terms of this Contract.

GC-41.2.3.2

A Change Directive shall be used in the absence of total agreement on the terms of a Change Order, Field Change, or Work Authorization.

GC-41.2.3.3

If the Change Directive warrants an adjustment to the Agreement Price, the adjustment shall be based on one of the following methods:

(1) Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

(2) Unit prices stated in the Agreement Documents or subsequently agreed upon;

(3) Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

(4) By Force Account as provided hereafter.

GC-41.2.4 Force Account

When no agreement is reached for Changed Work to be done at Lump Sum or Unit Prices or another mutually agreed manner, such work may be authorized by the City to be done on a Force Account basis. A Force Account estimate that identifies all anticipated costs shall be prepared by Contractor. Work shall not begin until the Force Account is approved. Payment for Force Account work will be in accordance with the following:

GC-41.2.4.1 Labor

For all labor, equipment operators, and supervisors, excluding superintendents, in direct charge of the specific operations, Contractor shall receive the rate of wage agreed upon in writing before beginning work for each and every hour that said labor, equipment operators, and supervisors are actually engaged in such work.

Contractor shall receive the actual costs paid to, or in behalf of, workers by reason of subsistence and travel allowances, health and welfare benefits, pension fund benefits, or other benefits, when such amounts are required by collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on The Work.

An amount equal to 10% of the sum of the above items will also be paid Contractor. Said 10% shall be deemed to include 3% for Contractor’s fee and 7% for Contractor’s overhead.

GC-41.2.4.2 Bond, Insurance, and Tax

For bond premiums, property damage, liability, and worker's compensation insurance premiums, unemployment insurance contributions, and Social Security taxes on the Force Account work, Contractor shall receive the actual cost, to which cost no percentage will be added. Contractor shall furnish satisfactory evidence of the rate or rates paid for such bond, insurance, and tax.

GC-41.2.4.3 Materials

For materials accepted by the Engineer and used, Contractor shall receive the actual cost of such material incorporated into The Work, including Contractor paid transportation charges (exclusive of machinery rentals as hereinafter set forth), to which cost 10% will be added. Said 10% shall be deemed to include 3% for Contractor's fee and 7% for Contractor's overhead.

GC-41.2.4.4 Equipment

For any machinery or special equipment (other than small tools) including fuel and lubricant, plus transportation costs, the use of which has been authorized by the Engineer, Contractor shall receive the rental rates indicated below for the actual time that such equipment is in operation on the Work or the time, as indicated below, the equipment is directed to stand by.

Equipment rates shall be based on the edition in effect at the time of Contractor's original bid of the *Rental Rate Blue Book for Construction Equipment* or *Rental Rate Blue Book for Older Construction Equipment*, whichever applies, as published by EquipmentWatch using all instructions and adjustments contained therein and as modified below.

Allowable Equipment Rates shall be established as defined below:

- Allowable Hourly Equipment Rate = Monthly Rate/176 x Adjustment factors x 70%.
- Allowable Hourly Operating Cost = Hourly Operating Cost x 70%.
- Allowable Rate Per Hour = Allowable Hourly Equipment Rate + allowable Hourly Operating Cost.
- Standby Rate = Allowable Hourly Equipment Rate x 35%

NOTE: The monthly rate is the basic machine plus any attachments.

Standby rates shall apply when equipment is not in operation and is directed by the Engineer to standby for later use. In general, Standby rates shall apply when equipment is not in use, but will be needed again to complete The Work and the cost of moving the equipment will exceed the accumulated standby cost. Payment for standby time will not be made on any day the equipment operates for 8 or more hours. For equipment accumulating less than 8 hours operating time on any normal workday, standby payment will be limited to only that number of

hours which, when added to the operating time for that day equals 8 hours. Standby payment will not be made on days that are not normally considered workdays.

The City will not approve any rates in excess of the rates as outlined above.

Payable time periods will not include:

- Time elapsed while equipment is broken down;
- Time spent in repairing equipment; or
- Time elapsed after the Engineer has advised Contractor the equipment is no longer needed.

If a piece of equipment is needed which is not included in the above *Blue Book* rental rates, reasonable rates shall be agreed upon in writing before the equipment is used. All equipment charges by persons or firms other than Contractor shall be supported by invoices.

Transportation charges for each piece of equipment to and from the site of the Work will be paid provided:

- The equipment is obtained from the nearest approved source;
- The return charges do not exceed the delivery charges;
- Haul rates do not exceed the established rates of licensed haulers; and
- Such charges are restricted to those units of equipment not already available and not on or near the Project.

No additional compensation will be made for equipment repair.

GC-41.2.4.5 Miscellaneous

No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

GC-41.2.4.6 Compensation

Contractor's representative and the Engineer shall compare records and agree on the cost of work done as ordered on a Force Account basis at the end of each day. Should Contractor fail or refuse to fulfill this daily record keeping function by meeting with the Engineer and agreeing upon the cost of Force Account Work, Contractor agrees that it forfeits and releases any right to payment or right to claim for the Force Account Work for that day.

GC-41.2.4.7 Subcontract Force Account Work

For work performed by an approved Subcontractor or lower-tier Subcontractor, all provisions of this Section that apply to Contractor in respect to labor, materials and equipment shall govern. Contractor shall coordinate the work of its Subcontractor. The prime Contractor will be allowed an amount to cover administrative cost equal to 5% of the Subcontractor's amount earned but not to exceed $5,000.00 per Subcontractor for each Change in Work performed by Force Account. Markup for lower-tier Subcontract work will not be allowed. The 5% shall be for Contractor's overhead in administering the change.

Should it become necessary for Contractor or Subcontractor to hire a firm to perform a specialized type of work or service which Contractor or Subcontractor is not qualified to perform, payment will be made at reasonable invoice cost. To each invoice cost a markup to cover administrative cost equal to 5% of the total invoice but not to exceed $5,000.00 will be allowed Contractor or Subcontractor but not both. If paid to Contractor, the 5% shall be for Contractor's overhead in administering the change.

GC-41.2.4.8 Statements

No payment will be made for work performed on a Force Account basis until Contractor has furnished the Engineer with duplicate itemized statements of the cost of such Force Account work detailed as follows:

(1) Name, classification, date, daily hours, total hours, rate, and extension for each laborer, equipment operator, and supervisor, excluding superintendents;

(2) Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment;

(3) Quantities of materials, prices, and extensions;

(4) Transportation of materials; and

(5) Cost of property damage, liability, and worker's compensation insurance premiums, unemployment insurance contributions, and Social Security tax.

Statements shall be accompanied and supported by invoices for all materials used and transportation charges. However, if materials used on the Force Account work are not purchased specifically for such work but are taken from Contractor's stock, then, in lieu of the invoices, Contractor shall furnish an affidavit certifying that such materials were taken from its stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to Contractor.

Payment based on Force Account records shall constitute full payment and settlement of all additional costs and expenses caused by, arising from, or associated with the Work performed, including any time related or impact costs in connection with the Force Account work or any unchanged work impacted thereby.

GC-41.2.5

If any change or Change Directive meets the requirements for excusable delay and a change in the Agreement Time is warranted as a direct result of the change or Change Directive, then the four items of delay damage compensation identified in Article GC-26.2.1 for the unenforceability exception to the recoverability of delay damages under the Agreement may be included as a part of the adjustment in the Agreement Price for the change or change directive if Contractor has met all other requirements of the Agreement, including the notice and claim procedure requirements. Provided, however, Contractor shall, under no circumstances, be allowed to duplicate any costs included under this Article so as to receive a double recovery. In the event that Contractor is entitled to the four items of delay damage compensation referenced above, there shall be deducted from said entitlement all amounts paid or allowed Contractor for overhead pursuant to the percentage markups included herein.

GC-41.2.6

Upon receipt of a Change Directive, Contractor shall promptly proceed with the Change in the Work involved and advise the Owner of Contractor's agreement or disagreement with the method, if any, provided in the Change Directive for determining the proposed adjustment in the Agreement Price or Agreement Time utilizing the notice and claim procedures set forth herein.

GC-41.2.7

A Change Directive signed by Contractor indicates the agreement of Contractor therewith, including adjustment in Agreement Price and Agreement Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order, Field Change or Work Authorization, as applicable.

GC-41.2.8

If Contractor does not respond promptly or disagrees with the method for adjustment in the Agreement Price, the method and the adjustment shall be based upon the actual expenditures and savings attributable to the change, as determined in accordance with Article 41.2.4.

GC-41.2.9

The amount of credit to be allowed by Contractor to the Owner for a deletion or change which results in a net decrease in the Agreement Price shall be the actual cost, and that proportion of Contractor's Fee (including both profit and overhead) allocable to such actual cost.

GC-41.2.10

Pending final determination of the total cost of a Change Directive to the Owner, amounts not in dispute for such changes in the Work may be included in Applications for Payment accompanied by a Change Order, Field Change or Work Authorization (as applicable) indicating the parties' agreement with part or all of such costs. For any portion of such cost that remains in dispute, the Owner may make an interim determination for purposes of monthly certification for payment for those costs. That interim determination of cost, if made, shall be subject to the right of the Owner to change or withdraw the same unless and until finalized by Change Order, Field Change or Work Authorization, as applicable.

GC-41.2.11

When Contractor agrees with the determination made by the Owner concerning the adjustments in the Agreement Price and Agreement Time, if any, or Owner and Contractor otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order, Field Change or Work Authorization, as applicable.

GC-41.3 No Oral Changes

It is expressly agreed that, except in an emergency endangering life or property, no modifications, additions or changes to the Work shall be made except upon written order of Contractor, and Contractor shall not be liable to Subcontractor for any extra labor, materials or equipment furnished without such written order. No officer, employee or agent of Contractor is authorized to direct any extra or Changed work by verbal order nor is Subcontractor authorized to proceed with any work upon verbal order.

No eliminations, additions, or alterations shall be made in the Work except upon written order of The City. No course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that the City has been unjustly enriched by any alteration or addition to the Work, whether or not there is, in fact, any unjust enrichment to the Work, shall be the basis of any claim for an increase in any amounts due under the Agreement Documents or an increase in any time period provided for in the Agreement Documents. No action, conduct, omission, prior failure, or course of dealing by the City shall waive, modify, change, or alter the requirement that Change Orders, Field Changes, Work Authorizations and Change Directives must be in

writing signed by the City and/or Contractor, and that written Change Orders are the exclusive methods for effecting any change to the Agreement Price or Agreement Time. Contractor understands and agrees that the Agreement Price and Agreement Time cannot be changed by implication, oral contracts, verbal directives, actions, inactions, course of conduct, or constructive change order. Contractor shall be under no obligation to perform pursuant to an oral directive to perform work in addition to the Project scope excepting the case of an emergency threatening personal injury or property damage. Contractor acknowledges and agrees that no one in the City's organization has the authority to order changes without a signed writing.

GC-42 WORK AUTHORIZATIONS

When directed by the City's Representative through a Work Authorization, the Contractor will perform Work that is expressly or generally contemplated under any allowance or contingency items designated by the Agreement Documents, which may include a Change for the addition of Work that does not result in an increase in the overall Agreement Price. Work Authorizations may include Work items that are not necessarily shown in the Agreement Documents, but may be necessary for the successful completion of the Project. The performance of the Work Authorization items must conform to the standards of the Agreement Documents. The funding for Work Authorizations is an allowance only and not a compensable pay item. The City is solely responsible for the appropriation of the funds. The Contractor shall have no claims to such funds. The City will retain ownership of any such funds not used after the completion of Work. The Work shall be assigned and directed by the City's Representative in written form. Measurement, Payment, Invoicing and Pricing of Adjustments for Work Authorizations will be in accordance with the Agreement Documents.

GC-43 OWNERSHIP AND USE OF DOCUMENTS

All Contract Documents furnished to the Contractor remain the property of the City. The Contract Documents are to be used only with respect to this Project and are not to be used on any other project. All Contract Documents are to be returned to the City upon request at the completion of the Work. The Contractor may maintain a record set of the Contract Documents for its records, but will maintain the confidentiality of the record set, except as required by law. The Contractor can use the Contract Documents for any purposes required for the Project that will not be considered publication in derogation of the common law copyright or other reserved rights of the holder.

Neither Contractor nor any Subcontractor, Sub-Subcontractor, Supplier, vendor or other person or organization performing or furnishing any of the Work under a direct or indirect contract with City acquires any title to or ownership rights in any of the Contract Documents. The Contractor may not reuse the Contract Documents for extensions of the Project or for any other project without written consent of the City.

GC-44 CHANGED CONDITIONS

Contractor shall notify the Engineer in writing of the following conditions, hereinafter called "changed conditions," promptly upon their discovery and before they are disturbed, in any event no later than seven (7) calendar days after their discovery:

(1) Subsurface or latent physical conditions at the site of Work differing materially from those indicated in this Agreement; or

(2) Unknown physical conditions at the site of the Work of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Agreement.

The Engineer shall promptly investigate the conditions, and if he finds that such conditions do materially so differ and cause an increase or decrease in Contractor's cost of, or the time required for, performance of any part of the Work under this Agreement, whether or not changed as a result of such conditions, an equitable adjustment shall be made and the Agreement modified in writing in accordance with the provisions of this Agreement, subject to the provisions regarding Change Orders, Change Directives, notice and claims procedure and excusable delays. If the Engineer determines that conditions of which he has been notified by Contractor do not justify an adjustment in compensation, he will so advise Contractor in writing. Should Contractor disagree with such determination, it may submit a notice of claim to the Engineer as provided herein and follow the claims procedures of Article GC-41.

In computing any equitable adjustment sought by Contractor, the actual costs incurred by Contractor, computed in accordance with the Force Account provisions for changes shall be the standard for determining Contractor's entitlement. Provided, however, that if the City shows that conditions encountered by Contractor on the Project were more favorable and less costly than what Contractor reasonably should have expected to encounter, the net effect on Contractor from both the favorable and unfavorable conditions shall be considered in determining the amount of any equitable adjustment.

GC-45 INTENTIONALLY OMITTED

GC-46 INTENTIONALLY OMITTED

GC-47 INTENTIONALLY OMITTED

GC-48 INTENTIONALLY OMITTED

GC-49 MEASUREMENT AND PAYMENT

GC-49.1 Measurement

All items of Work to be paid for at Agreement Prices per unit of measurement will be measured or certified by the Engineer.

GC-49.2 Payment at Agreement Prices

The Agreement prices for items of Work shall include full compensation for all costs of items, including the costs for any Work, Materials and Equipment incidental to the items but not specifically shown or described in the Drawings and Specifications, subject only to such express limitations as may be stated in the Specifications defining the items or prescribing payment thereof.

GC-50 HISTORICAL, SCIENTIFIC, AND ARCHEOLOGICAL DISCOVERIES

All articles of historical or scientific value, including, but not limited to, coins, fossils, articles of antiquity, which may be uncovered by Contractor during process of Work, shall become the property of City. Such findings shall be reported immediately to the Engineer who will determine the further operations of Contractor, the method of removal, where necessary, and the final disposition thereof.

GC-51 SEPARATE AGREEMENTS

GC-51.1 Separate Contractors

The City reserves the right to award other Agreements in connection with this Project. Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate its Work with theirs. If the proper execution of any part of Contractor's Work depends upon the work of another contractor, Contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable for such proper execution and results.

GC-51.2 Cooperation

The City may perform additional work related to the Project by itself, or it may let other contracts containing provisions similar to these. Contractor shall afford the other contractors who are parties to such contracts and/or the City, if it is performing the additional work itself, reasonable opportunity for the introduction and storage of materials and equipment and the execution of work and shall properly connect and coordinate its work with theirs.

GC-51.3 Review of Separate Contractor's Work

If any part of Contractor's Work depends for proper execution or results upon the work of the City or any separate contractor, Contractor shall, prior to proceeding with the Work, promptly report to the Engineer any apparent discrepancies or defects in such other work that render it unsuitable for such proper execution and results. Failure of

Contractor so to report shall constitute an acceptance of the City's or separate contractor's work as fit and proper to receive the work, except as to defects which may subsequently become apparent in such work by others.

GC-51.4 Notice to Contractor

If the performance of additional work by other contractors of the City is not noted in the Agreement Documents prior to the execution of the Agreement, Written Notice thereof shall be given to Contractor prior to starting any such additional work.

GC-51.5 Damage to Separate Contractor

Should Contractor wrongfully delay, impact, or cause damage to the work or property of any separate contractor, Contractor shall, upon due notice, promptly attempt to settle with such other contractor by agreement, or otherwise to resolve the dispute. If such separate contractor sues or initiates a proceeding against the City or the Engineer on account of any delay or damage alleged to have been caused by Contractor, the City shall notify Contractor, who shall defend such proceedings at Contractor's expense, and if any judgment or award against the City or the Engineer arises therefrom, Contractor shall pay or satisfy it and shall reimburse the City for all costs and expenses, including without limitation, attorneys' fees, expert fees, consultant fees, court costs, and litigation or arbitration fees or expenses that the City has incurred.

GC-51.6 City's Right to Clean Up

If a dispute arises between Contractor and separate contractors as to their responsibility for cleaning up or for accomplishing coordination, the City may clean up and carry out such work and charge the cost thereof to Contractors responsible therefor as the Engineer shall determine to be just.

GC-52 OFFICIAL NOT TO BENEFIT

No officer or employee of the City shall be permitted to participate in the performance of this Agreement or receive any benefit or compensation arising out of the performance of such Agreement, and any Agreement entered into by the City in which any officer or employee of the City shall be personally interested shall be void, and no payment shall be made thereon by the City or any officer thereof; but this provision shall not be construed to extend to the Agreement if made with a corporation for its general benefit.

A bribe or attempt to bribe any representative or officer of City by Contractor shall be considered as a breach of the Agreement in bad faith, and shall thus empower City to complete Work and deduct the entire cost thereof from any monies due or to become due Contractor under the Agreement.

GC-53 GRATUITIES AND KICKBACKS

The Contractor's Contract may be terminated in accordance with the Clause titled "TERMINATION FOR DEFAULT" if, after notice and hearing, the City determines that the Contractor, its agent, or another representative offered or gave a gratuity or kick-back to an officer, official, or employee of the City and intended, by the gratuity, to obtain a contract or favorable treatment under a contract.

The rights and remedies of the City provided in this Clause are not exclusive and are in addition to any other rights and remedies provided by law or under this Contract.

The Contractor warrants that: (1) it has not employed nor retained any company or person, other than a bona fide employee working for the Contractor, to solicit or secure the contract; and that the Contractor has not paid or agreed to pay any person, company, association, corporation, individual or firm, other than a bona fide employee working for the Contractor, any fee, commission, percentage, gift or any other consideration contingent upon or resulting from the award or making of the contract. After Notice and hearing and upon a finding in contradictions to this Paragraph constituting a breach or violation of the above warranty, the City has the right to terminate the contract or take other appropriate actions.

GC-54 PRECONSTRUCTION CONFERENCE

Within twenty (20) days after delivery of the executed agreement by City to Contractor, but before issuance of Notice to Proceed, a conference will be held to review progress schedules, to review the insurance and safety program, to establish procedures for handling Shop Drawings and other submittals and for processing progress payments, and to establish a Working understanding between the parties as to the Project.

Contractor shall submit to the City for approval, prior to the preconstruction conference, a preliminary schedule of Shop Drawing submittals, and certification of insurance as required by Appendix B.

GC-55 TIME OF COMPLETION AND LIQUIDATED DAMAGES

GC-55.1 Liquidated Damages

It is understood and agreed that the City will sustain substantial monetary and other injury and damages, including, but not limited to, increased costs, expenses and liabilities in the event of failure by Contractor to perform its Work in accordance with the Completion and any Interim Milestone Date(s) set forth in the CPM Schedule prepared in accordance with the Special Conditions. Accordingly, should Contractor not complete the Work, or any such portion thereof, within the date(s) required by the CPM Schedule initially approved by the Engineer, as they may be adjusted pursuant to the Agreement Documents, then charges shall be assessed against any money due or that may become due Contractor in accordance with the following schedule:

For Each day of delay in Substantial Completion of the entire Work: $500.00/ day

For Each day of delay in Final Completion of the entire Work: $200.00/ day

The amount of such charges is hereby agreed upon as fixed liquidated damages due the City after the expiration of the Agreement Date(s) for completion specified in the CPM Schedule for the Work or portions thereof. Contractor and its surety shall be liable for any liquidated damages in excess of the amount due Contractor on the Final Payment.

If the CPM Schedule projects an untimely completion with unexcused delay and the City in good faith believes that retainage will be insufficient to cover the City's damages, Contractor agrees that the City may withhold additional funds to assure the payment of the liquidated damages owed by Contractor.

GC-55.2 No Penalty

The fixed liquidated damages are not established as a penalty but are calculated and agreed upon in advance by the City and Contractor due to the uncertainty and impossibility of making a determination as to the actual direct, incidental and consequential damages which are incurred by the City as a result of the failure on the part of Contractor to complete the Work within the Agreement Time and completion date(s) specified in the Agreement Documents. Liquidated damages shall start in accordance with the above schedule upon notification to Contractor in writing that all apparent Agreement Time allowed to achieve the relevant completion date has been consumed. Liquidated Damages as they accrue will be deducted from periodic partial payments to the extent they are sufficient to cover the liquidated damages owing; provided that any excess liquidated damages owing over the periodic partial payment amount may be deducted from retainage. Such deduction shall be in addition to the retainage provided for in the Agreement Documents. The remaining amount of liquidated damages owing upon completion will be deducted from any amounts owing as Final Payment to Contractor or its surety. Any excess amount owing as liquidated damages shall be paid upon demand.

GC-56 RIGHT TO AUDIT

Contractor shall keep and maintain accurate books and records, and supporting data, documentation, correspondence, reports, instructions, Drawings, receipts, vouchers, and memoranda regarding performance of Work hereunder and including specifically, but without limitation, such information as estimates (pre and post Bid), costs incurred, labor and Materials consumed, schedules and progress records and quality control. Such books and records shall be available for inspection, audit, and copying by the City or its authorized representative for any purpose during the Work and for a period of three (3) years after Final Payment.

GC-57 DISPUTES

GC-57.1 Mediation

In the event of any controversy, claim, dispute or other matter in question arising out of or relating to this Agreement of the breach thereof or otherwise in connection with the Project to which this Agreement pertains, at the City's sole and exclusive option the parties shall, if the City so elects and as an express condition precedent to any party to this Agreement commencing legal action against the other relating to or arising out of the dispute, mediate the dispute utilizing a mutually agreeable mediator. Prior to commencing any legal action against the City, Contractor must either mediate the dispute, at the City's election, or obtain a written waiver from the City of its right to mediate.

GC-57.2 Arbitration at the City's Election

At the Owner's sole election, any Claim arising out of or related to the Agreement shall be subject either to binding arbitration or litigation at the City's option. Prior to arbitration or litigation, the parties shall endeavor to resolve Claims or disputes in accordance with the terms of this Contract.

GC-57.2.1

If Claims are not resolved by negotiation, mediation, or otherwise, and the Owner elects arbitration, the arbitration shall be held in Atlanta, Georgia and shall be in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently then in effect or such other similar rules and organization as the Owner may elect. The demand for arbitration shall be in writing and filed with the appropriate organization selected by the Owner and shall be served on the other party to the Contract. The agreement to arbitrate shall be specifically enforceable under applicable law in any court having jurisdiction thereof. In any arbitration or litigation, the arbitrators or the Court shall have the jurisdiction to award the City costs, arbitrator fees, expert fees, and attorneys' fees, and the arbitrators or the Court shall award all such fees to the City if it is the prevailing party.

GC-57.2.2

Except at Owner's sole discretion and with its consent, no arbitration arising out of or relating to the Agreement shall include, by consolidation or joinder or in any other manner, any other person or entity, including but not limited to the Designer and its employees and consultants, any of Contractor's subcontractors and suppliers, and any other separate contractors or suppliers. The Owner's consent or election to allow consolidation or joinder or shall not constitute consent to arbitration of any claim not subject to arbitration pursuant to this Contract.

GC-57.2.3

Any award rendered by an arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

GC-57.3 Litigation If Arbitration Not Elected

If the Owner does not elect arbitration, any Claims shall be resolved in Fulton County, Georgia Superior Court. Contractor hereby submits to jurisdiction and venue in Fulton County, Georgia, and waives all defenses based on a lack of jurisdiction and/or venue. Contractor acknowledges that this Agreement was negotiated, at least in part, in Fulton County, Georgia. In any arbitration or litigation, the arbitrators or the Court shall have the jurisdiction to award the City costs, arbitrator fees, expert fees, and attorneys' fees, and the arbitrators or the Court shall award all such fees to the City if it is the prevailing party.

GC-58 AGREEMENT ADMINISTRATION DOCUMENTS

A substantial number of documents will be required for the administration of the Agreement. Some of these documents are identified in this document and elsewhere in the Agreement Documents (such as the Payment and Performance Bond forms) and others may not be. The Engineer shall have full power and authority to designate and prepare the documents to be used and Contractor and all Subcontractors and Material Suppliers shall utilize the documents so prepared and provided to them by the Engineer and shall follow the instructions of the Engineer with respect thereto in all regards save and excepting only those documents, if any, which Contractor reasonably determines contain terms or requirements contrary to or in addition to and not reasonably inferable from the terms of the Agreement Documents. If Contractor believes that any form or other document provided by the Engineer under the authority of this Section is subject to rejection by Contractor under the terms hereof, it shall notify the Engineer thereof within ten (10) days following its first receipt of the particular document or form giving specific reasons why the document or form is entitled to rejection. Thereafter, the form or document will be withdrawn, amended, or utilized as the Engineer finds in good faith to be appropriate after reviewing the notice provided by Contractor. All agreement administration documents may be revised at any time by the Engineer.

GC-59 MISCELLANEOUS PROVISIONS

GC-59.1 Governing Law

The Agreement shall be governed by the law of the State of Georgia.

GC-59.2 Contingent Assignment

Effective as of any termination of the Agreement, Contractor hereby assigns to City all of Contractor's interest in those subcontracts and purchase orders entered into by Contractor prior to termination if the City specifically requests such an assignment by Written Notice. All Subcontractors and Purchase Orders shall provide that they are freely assignable by Contractor to the City and its assigns. City shall be at liberty to negotiate with and engage (for itself) any Subcontractors, Suppliers, or others that Contractor dealt with prior to termination.

GC-59.3 Rights and Remedies

GC-59.3.1

The duties and obligations imposed by the Agreement Documents and the rights and remedies available there under shall be in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

GC-59.3.2

No action or failure to act or to require in any one or more instances upon the strict performance of any one or more of the provisions of the Agreement Documents, or to exercise any right here in contained or provided by law by the City or the Engineer, shall constitute a waiver of any right or duty afforded any of them under the Agreement Documents, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach hereunder, nor shall it be construed as a waiver of the right to subsequently demand strict performance or exercise such rights, and the rights shall continue unchanged and remain in full force and effect, except as may be specifically agreed in writing.

GC-59.3.3

Contractor agrees that it can be adequately compensated by money damages for any breach of this Agreement which may be committed by the City and hereby agrees that no default, act, or omission of the City, or the Engineer, shall constitute a material breach of the Agreement entitling Contractor to cancel or rescind the provisions of this Agreement or (unless the City shall so consent or direct in writing) to suspend or abandon performance of all or any part of the Work. Contractor hereby waives any and all rights and remedies to which it may otherwise be or become entitled, save only its right to money damages.

GC-59.4 Unenforceability of any Article

If any Article or term of the Agreement Documents is held as a matter of law to be unenforceable or unconscionable, the remainder of the Agreement shall be enforceable without such clause or term, and only the narrowest possible portion of the clause or term that is allowed by law shall be unenforceable.

GC-59.5 Obligation to Perform

Contractor shall carry on the Work and adhere to the approved current CPM Schedule during and notwithstanding all disputes or disagreements with City. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as Contractor and City may otherwise agree in writing.

GC-59.6 Labor Relations

Work on the Project may be performed by both union and nonunion separate contractors, Subcontractors, Suppliers, and other entities and persons. In the event of any strike, picket, sympathy strike, work stoppage, or other form of labor dispute at the Project whether directed at Contractor, other separate contractors, Subcontractors, Suppliers or other persons, Contractor shall continue to perform its Work required hereby without interruption or delay. In the event Contractor fails to continue its Work without interruption or delay, because of any or such events, the City, in addition to all other rights it has in the Agreement Documents and at law, may terminate the Agreement after giving Contractor forty-eight (48) hours written notice of its intent to do so for reason of Contractor's failure to perform. Additionally, if Contractor is party to one or more labor agreement, Contractor shall take all reasonable action to avoid any Work stoppage, and in the event of a work stoppage, Contractor shall within twenty-four (24) hours take all legal action permitted by such labor agreements or by law in order to expedite resumption of Work on this Project.

GC-59.7 Covenant Not to Sue

Should the City elect to terminate the employment of Contractor for default as provided herein, then Contractor covenants that it will not file any suit or proceeding of any kind against the City by reason thereof until the City shall have either abandoned the Project or completed the Work as defined under the Agreement Documents. If Contractor should breach this “Covenant Not To Sue,” then Contractor shall be liable to the City for all costs resulting to the City therefrom, including, without limitation, all attorneys' fees expended by the City in defending said suit or proceeding, unless a positive determination is made therein that Contractor's termination by the City was motivated by fraud and bad faith and was without justification of any kind.

GC-59.8 Publicity and Advertising

The Contractor will not make any announcement, take any photographs, or release any information concerning the Work, this Contract, or the Project to any member of the public, press, business entity, or any official body, unless prior written consent is obtained from the City's Representative. The Contractor may not erect any signs without the written approval of the City's Representative.

GC-60 STATEMENT OF NON-DISCRIMINATION

During the performance of this Agreement, Contractor agrees to comply with all provisions of Part 2, Chapter 2, Article X, Division 11, including Section 2-1414 of the Code of Ordinances, City of Atlanta, as may be hereafter amended.

GC-61 EQUAL BUSINESS OPPORTUNITY (EBO)

During the performance of this Agreement, Contractor agrees to comply with all provisions of Part 2, Chapter 2, Article X, Division 11, including Section 2-1441 through 2-1460 of the Code of Ordinances of the City of Atlanta, the Equal Business Opportunity ("EBO") Program as may be hereafter amended.

GC-62 WAGE RATES AND REPORTING PROCEDURES

GC-62.1 Certified Payrolls

Contractor shall maintain accurate payroll records and be prepared to submit certified copies for the prime contractor and all subcontractors. Payrolls reporting an employee for the first time must contain the complete name, address, and social security of the employee.

GC-62.2 Submittals

All required payrolls shall be submitted to the Office of Contract Compliance. Any questions concerning these submittals can be addressed:

Office of Contract Compliance
55 Trinity Avenue, Suite 1700
Atlanta, Georgia 30303
(404) 330-6010

GC-62.3 [Intentionally Omitted]

Exhibit B

Special Conditions

SPECIAL CONDITIONS

SC-1 PRECONSTRUCTION VIDEO SURVEY AND INSPECTIONS

Contractor is expressly advised that the protection of buildings, structures, equipment, electrical systems, instrumentation and related work adjacent and in the vicinity of its operations, wherever they may be, is solely its responsibility. Conditional inspection of buildings, structures, equipment, electrical systems and instrumentation shall be performed by and be the responsibility of the Contractor.

Repairs or replacement of all conditions disturbed by the construction shall be made to the satisfaction of the Engineer. This does not preclude conforming to the requirements of the insurance underwriters. Two (2) copies of surveys, photographs, videos, reports, etc., shall be given to the Engineer.

The Contractor shall retain an independent Consultant, specializing in preconstruction surveys, to conduct the required inspections. The preconstruction survey will be performed by a firm specializing in performing such surveys. The qualifications and experience of the proposed consultant shall be submitted to the Engineer for approval prior to assignment of the Services.

Perform a preconstruction video survey and inspection in advance of construction to document the existing condition of buildings, facilities, structures, utilities, roads, driveways and related work.

The video surveys and inspections shall clearly document the existing conditions and be completed before any operations have begun and subject areas disturbed by any construction activities. The video surveys and inspection notes, reports, etc. shall be submitted to the Engineer. The video surveys and inspections shall make an examination of the interior and exterior of buildings, structures, facilities and utilities, and record by notes, measurements, photographs, videos, etc., conditions which might be aggravated by construction activities. Prior to any type of blasting, video surveys and inspections of residences and other private structures existing within the survey and inspection corridor shall have been completed.

The cost of all pre-construction video surveys and inspections shall be borne by the Contractor.

SC-2 RIGHT OF WAY AND CONSTRUCTION ACCESS

The City will furnish all rights of way for the performance of Services included in this Agreement. Areas designated on the Agreement Drawings as the Contractor's Work Area will be provided to the Contractor for the duration of construction, without charge. The Contractor will be responsible for observing the limits of the right-of-way and shall prohibit any Services being done on or any damage to property outside the bounds of the right-of-way. Additional work and storage space, if required, shall be obtained by the Contractor at no additional costs to the City.

SC-3 SAFETY AND HEALTH

The Contractor shall comply with all applicable health and safety standards and provisions required by the City of Atlanta, Fulton County, State of Georgia, and the Federal Government and its regulatory agencies. The Contractor shall maintain an accurate record of all cases of death, occupational diseases, and injury requiring medical attention or causing loss of time from work arising out of and in the course of employment on work under the Contract. This project involves work in and around operating combined and sanitary sewer systems. In these areas as well as in shafts and tunnels, the potential exists for toxic and/or explosive gases. The Contractor shall exercise caution when entering any confined space. The atmosphere shall be tested for oxygen levels, presence of chemicals, and explosivity before entry. Contractor alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods, and for any damage, which may result from their failure or their improper construction, maintenance, or operation.

A. Emergency phone numbers (fire, medical, police) shall be posted at the Contractor's phone and its location known to all.
B. Accidents shall be reported immediately to the Engineer by messenger or phone.
C. All accidents shall be documented and a fully detailed written report submitted to the Engineer after each accident.

SC-4 LAYOUT OF THE WORK AND SURVEYING

SC-4.1 General

A. The Services required include providing field engineering services, which includes establishing and maintaining survey control points and baselines as necessary to control the alignment (vertical and horizontal) and all parts of the Services within the specified tolerances, and documentation of the results.

B. The Contractor shall be responsible for the development and implementation of a surveying program capable of satisfying all Project survey and accuracy requirements. This program shall be subject to the review of the Engineer before commencement of the work. The review shall in no way release the Contractor of liabilities associated with or dependent on this part of the Services.

C. Control datum for the survey has been established by the Engineer and is indicated on the Drawings.

SC-4.2 Quality Control

A. Planning and execution of the field engineering services shall be supervised by engineers or land surveyors registered in the State of Georgia and shall be conducted by personnel with documented experience in the specific types of work required.
B. The allowable combined errors of land surveys shall be compatible with excavation, and pipe placement tolerances.

SC-4.3 Submittals Related to Contractor's Field Engineering Services

A. Submit qualifications of land surveyor supervisor(s) with detailed references made to projects requiring application of similar surveying procedures and techniques including name, address, and telephone number to the Engineer for review prior to commencement of any survey work.

B. Submit detailed description of proposed survey method, network diagrams and equipment type, accompanied with manufacturer's literature specifying probable accessories, calibration procedures, requirements and frequencies.

C. Submit shop drawings showing survey monument materials and methods of installation, preservation and recovery.

D. Submit mathematical pre-analysis to demonstrate that the required accuracies can be achieved using the proposed methods.

E. Submit, upon request, a complete and accurate log of control and survey work including documentation verifying accuracy of survey work as it progresses, and upon completion of the Work. Documentation shall include, but not be limited to, survey field books, sketches, drawings and layouts.

SC-4.4 General Requirements Related to Contractor's Field Engineering Services

A. The Engineer has established basic survey control points as shown on the Drawings. The Contractor shall examine and verify locations of survey control points, and shall notify the Engineer of any discrepancies discovered, within forty-eight (48) hours of discovery and before starting the Services.

B. Establish, verify and maintain a minimum of **three (3)** additional survey monuments for the work.. The monuments shall be permanent on site and referenced to the established survey control points. Record locations, with horizontal and vertical data, on Project Record Documents. Monuments will also be checked and verified by the construction verification surveyor. Survey notes relating to the monuments and primary control points shall be submitted to the Engineer.

C. At all times, protect, preserve and maintain survey control points used for the Services. Report to the Engineer the loss, destruction or relocation of any survey control point and replace survey control points based on original survey control. Make no changes without prior written notice to the Engineer.

D. Use equipment and implementation techniques such as forced centering techniques at survey control points as necessary to achieve required accuracies.

E. Furnish information to adjust, move or relocate existing structures, utility poles, lines, services or other appurtenances located in, or affected by, construction. Through the Engineer, coordinate with local authorities having jurisdiction.

F. Establish elevations, lines and levels. Locate and layout by instrumentation and similar appropriate means:

1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes and invert elevations.

2. Grid or axis for structures.

3. Foundation and wall locations, sloping floor elevations, and embedment centerlines and elevations.

G. Where the dimensions and locations of existing structures are of critical importance in the installation or connection of any part of the work, verify such dimensions and

locations in the field before the fabrication of any material or embedment, which is dependent on the correctness of such information.

SC-4.5 Calibration and Data Processing

A. Calibrate all procedures and instruments as required and as recommended by the instrument manufacturer. Maintain a log showing date and type of calibration performed indicating the name of the individual performing the calibration.

B. Data reduction shall incorporate calibrations and meteorological corrections, and rigorous reduction of measurements to the ellipsoid and thence to the coordinate system. Correct distance measurements by electro-optical distance measurement instrument for scale, cyclic error, zero error, and meteorological effects. Correct azimuths using the Laplace correction and include the effect of the deflection of the vertical components on angles and azimuth measurements.

C. Data processing shall include, as required, rigorous least squares adjustments. Employ data outlier detection. Determine horizontal and vertical confidence intervals.

SC-5 DISPOSAL OF WASTE MATERIAL

The disposal of all excavated material or spoil not required for use in the permanent work shall be the responsibility of the Contractor. He shall remove all excess excavated material or spoil from the site of the Work and dispose of the same in a legal manner at no additional cost to the City. Burning of debris on site will not be allowed.

SC-6 REMOVAL OF CONDEMNED MATERIAL

Material on the site, which has been determined by the Engineer to be unsuitable or not in conformity with the Contract documents shall be removed from the vicinity of the work without delay and disposed of in an approved area.

If the Contractor fails to do so within forty-eight (48) hours after the receipt of notice, the condemned materials may be removed by the City and the cost of said removal shall be borne by the Contractor.

SC-7 DETECTION OF MOVEMENT

In order to detect any movement of buildings or structures that may be affected by his work, Contractor shall, prior to excavation, establish a system of vertical and horizontal control points on or about such buildings or structures, tied to bench marks and indices sufficiently remote to not be moved by his operations. A plan of this system shall be submitted to the Engineer for review. Reading shall be taken of these points and permanently recorded prior to the start of excavation. The City will not assume any responsibility for alleged damages to any building or structure arising from the Services performed under this Agreement.

SC-8 EXISTING UTILITIES

SC-8.1 Verification of the Location of the Existing Utilities

Representations of existing utilities, facilities, and structures in the Contract Documents are based upon the best available information. The City and the Engineer will not be responsible for the completeness or accuracy thereof nor for any deductions, interpretations, or conclusions drawn therefrom. The Contractor shall verify to his own satisfaction by test pit or other means, the actual location of existing utilities prior to construction in their vicinity.

A. Should the Contractor in the course of his operations encounter any underground utilities the presence of which was not previously known, or a different type than shown, he shall immediately notify the Engineer and take all necessary precautions to protect the utility and maintain continuance of service until said utilities can be adjusted by the appropriate owners.

B. Contractor will notify all public utility corporations, jurisdictional agencies, or other owners to make all necessary adjustments to public utility fixtures and appurtenances within or adjacent to the limits of construction. Delays and additional cost resulting from a failure of the Contractor to notify the utility or to provide adequate notice to the utility shall be at no additional cost to the City, when such facilities are indicated in the Agreement Documents, and in such case, no extension of time will be granted for delays caused by utility adjustments.

C. Damage caused to utilities either directly or indirectly by the Contractor shall be repaired and the facilities restored to their original condition to the satisfaction of the Engineer and the utility owner, at no additional cost to the City.

SC-8.2 Work in Vicinity of Existing Utilities

At least three (3) working days prior to starting work in the vicinity of utility structures and appurtenances, Contractor shall notify Engineer and appropriate utility companies and jurisdictional agencies. Contractor shall support and protect all utility structures and appurtenances in accordance with the requirements of the Agreement Documents and the utility companies, and shall take any other steps necessary to protect the structures from disturbance or damage.

A substitute City of Atlanta Ordinance adopted March 13, 1978 requires Contractors to contact each gas company maintaining underground gas pipes or facilities within the city limits prior to the start of excavation work by blasting or mechanized excavating equipment.

SC-8.3 Access to Utilities Facilities

The Contractor shall at all times permit free and clear access to the various affected facilities by personnel of the utility owners or operators who are working within the limits of work for the purpose of inspection, maintenance, or providing additional service requirements, and the construction of new facilities. When personnel of the utility owners or operators are working within the limits of work to be performed by Contractor, the Contractor will not be relieved of his responsibility for the maintenance and protection of such facilities.

SC-9 WORK IN FLOOD PLAIN AREAS

The Contractor shall comply with all regulations of Section 16-26006 of the Zoning Ordinance of the City of Atlanta concerning work in Flood Hazard Districts, and Fulton County Zoning Resolutions regarding Flood Protection.

SC-10 MAINTENANCE OF TRAFFIC

Contractor shall provide, erect, maintain, and finally remove all barricades, danger warning and detour signs necessary to properly protect and divert traffic. All barricades and signs, including detour signs, shall be illuminated at night or when visibility is reduced. The Contractor will be held responsible for all damage to the Services due to failure of the signs and barricades to properly protect the Services from traffic, pedestrians, animals, and from all other sources, and whenever evidence of any such traffic is found upon the Services the Engineer will order that the Work, if in his opinion it is damaged, be immediately removed and replaced by the Contractor at no additional cost to the City. The devices used will be in accordance with the manual of Uniform Traffic Control Devices for Streets and Highways compiled by the State Department of Transportation. Access to City streets and roads will be limited and will require the use of flagmen or the installation of traffic control signals, or both. The City must approve haul routes.

A City of Atlanta Substitute Ordinance adopted March 13, 1978 requires that Contractors obtain a permit for work involving blockage of a public street. Open pits, trenches, unpaved streets, debris, or other obstructions due to construction that will prevent the normal flow of traffic during an extended construction stoppage for any reason, will not be permitted. In the event an extended construction stoppage is found to be necessary, Contractor shall, at his own expense, provide normal traffic flow during extended construction stoppage. Extended stoppage will be defined by the City.

SC-11 ENVIRONMENTAL PROTECTION

SC-11.1 General

Contractor shall conduct his operation in a manner to prevent pollution of the environment surrounding the area of work by every means possible and shall be responsible for furnishing all necessary items for fulfilling the work described herein.

SC-11.2 Material Transport

Contractor shall comply with Section 11-2021 of the Code of Ordinances of the City of Atlanta pertaining to the duties of the Contractor in hauling material over City owned rights-of-way. This includes but is not limited to, approval of proposed haul routes, prevention of dropping of materials or debris on the streets from trucks arriving and leaving the site, providing a suitable vehicle inspection and cleaning installation with permanent crew, and the removal of any material spilled in public areas at no additional cost to the local government agency.

SC-11.3 Waste Materials

No waste or erosion materials shall be allowed to enter natural or manmade water or sewage removal systems. Erosion materials from excavations, borrow areas, or stockpiled fill shall be contained within the work area. Contractor shall develop methods for control of waste and erosion, which shall include such means as filtration, settlement, and manual removal to satisfy the above requirements.

SC-11.4 Burning

No burning of waste shall be allowed.

SC-11.5: Dust Control

The Contractor shall at all times control the generation of dust by his operations. Control of dust shall be accomplished by water sprinkling or by other methods approved by the Engineer.

SC-11.6 Noise Control

The Contractor shall take every action possible to minimize the noise caused by his operation.

When required by agencies having jurisdiction, noise-producing work shall be performed in less sensitive hours of the day or week as directed by the Engineer.

The Contractor shall provide equipment that operates with the least possible noise. The use of noisy equipment is prohibited. Hoists and compressor plants shall be electrically operated unless otherwise permitted. The air intake of compressors shall be equipped with silencers, and machinery operated by gearing shall be provided with a type of gearing designed to reduce noise to a minimum. Internal combustion engines shall be equipped with mufflers in good order.

Noise generated by mobile construction equipment, stationary construction equipment, and other equipment involved in the construction of the work shall not exceed the decibel levels indicated below. Noise generated by mobile and stationary construction equipment will be measured three to 6 feet from building lines, and on the A weighing network of Type-2 general purpose sound level meter set at fast response.

	Combined Residential and Commercial
Allowable Sound Levels of Mobile Construction Equipment: - From 7 a.m. to 10 p.m., Monday thru Saturday, Except Legal Holidays - At times other than those listed above	 85 dBA 70 dBA
Allowable Sound Levels of Stationary Construction Equipment: - From 7 a.m. to 10 p.m., Monday thru Saturday, Except Legal Holidays - At times other than those noted above	 70 dBA 60 dBA

Contractor shall assure compliance by measuring noise levels as may be required.

SC-11.7 Use of Chemicals

All Chemicals used during construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either EPA or FDA. Use of all such chemicals and disposal of residues shall be in conformance with instructions.

SC-11.8 By-Passing During Construction

No wastewater shall be by-passed at sewage collection or treatment facilities during project construction unless a by-passing schedule has been approved by City and the Georgia Environmental Protection Division. It shall be the responsibility of the Contractor to prepare and secure the approval of any by-passing not specifically identified in the Agreement Documents.

SC-11.9 Responsibility for Spills and Accidental Discharges

In the event that the Contractor causes or has a spill or accidental discharge for which the City is fined by the State of Georgia EPD, the Contractor agrees to remediate the spill or discharge immediately in accordance with current EPD regulations and to pay any fines assessed against the City and/or Contractor, and pay for the City's cost associated with efforts to remediate the situation.

SC-12 RIGHT TO OPERATE

As soon as any portion of structures and equipment are ready for use, the City shall have the right to operate such portion upon written notice to the Contractor by the City. The City shall also issue a certificate of completion for that portion of the work. Guarantee period on that portion of Service will begin upon issuance of certificate of completion for that portion.

Testing of equipment and appurtenance and training of City's personnel as specified hereinunder shall not constitute operation.

The execution of the bonds shall constitute the consent of the surety.

The Contractor shall provide an endorsement to his insurance permitting occupancy of the structures and use of equipment during the remaining period of construction.

SC-13 LIST OF MATERIALS, FIXTURES AND EQUIPMENT

A. Within thirty (30) days after issuance of the Notice to Proceed, before any materials, fixtures or equipment are purchased, and prior to start of construction, the Contractor shall submit for approval by the Engineer the names and addresses of the manufacturers, and their catalog numbers and trade names for all materials, equipment and fixtures listed under the following Sections of the Agreement Documents:

   Divisions 2, 3, 5, 7, 8, 9, 11, 12, 13, 15 and 16

   The Contractor shall furnish other detailed information when so directed, under the various items. No consideration will be given to partial lists submitted from time to time except that approval of long delivery items of equipment may be requested individually. Items which are not in accordance with the Specification requirements may be rejected. The Contractor shall furnish a statement giving a complete description of all points wherein the equipment he proposes to furnish does not comply with the Specifications as well as any exceptions he may take to the Specifications. Failure to furnish such statements will be interpreted to mean that the equipment meets all requirements of the Specifications.

B. In the event the Contractor wishes to resubmit items of materials, fixtures and equipment for review subsequent to obtaining approval as indicated in "A" above, then the Contractor shall pay the cost of the Engineering review of each such resubmittal including shop drawing review if this review has been performed.

SC-14 CITY OF ATLANTA PROJECT SIGN

The basic design of the Project sign shall conform ***to Attachment 1 herein*** including the names of all current Council Members, the Mayor and the Commissioner, Department of Watershed Management. The City seal portion of the sign must be shaded, such that it is visible from fifty (50) yards. A full color shop drawing submittal is required before fabrication. The Project sign will be no less than 48" x 96" and the City requires a Project sign at the designated entrance to the Project.

In addition to the Project sign, there is to be adequate temporary signage for identifying the Project areas, offices, delivery areas and any other designations the Engineer and/or the Contractor feel are needed. These signs will designate which Phase of the Agreement that they pertain to as part of the Project coordination.

SC-15 PROJECT MEETINGS

The Engineer shall schedule weekly progress meetings. The progress meetings will be held at least weekly and may be scheduled at a more frequent interval by the Engineer if necessary. Progress meetings shall be held at a location designated by the Engineer.

Progress meetings shall be attended by the Engineer, Contractor, Subcontractors as appropriate to the agenda, suppliers as appropriate to the agenda and others as required.

The meeting agenda shall generally include review and approval of minutes of previous meeting, review of work progress since previous meeting, field observations, problems, and conflicts, problems which impede Construction Schedule, review of off-site fabrication and delivery schedules, corrective measures and procedures to regain project schedule, revisions to Construction Schedule, progress and schedule of the preceding work period, coordination of schedules, review of submittal schedules and status, status of requests for information, maintenance of quality standards, pending changes and substitutions, and other business.

SC-16 CONSTRUCTION SCHEDULE

Timely performance is of the essence on this Project. The Contractor may complete the Project or any part of the Project earlier than is stipulated in the Contract and the Milestone requirements. The Contractor may schedule his work to complete earlier than required by the Contract or stipulated in the approved schedule, however, under no circumstances shall the Contractor be entitled to added compensation for delays, which occur during the originally stipulated contract period.

The City has purchased the entire scheduled time period by virtue of this Contract and further stipulates that only those delays which meet the tests set forth in GC-26 will be considered for adjustment and only to the extent that they delay the work past the originally contractually stipulated milestones.

SC-16.1 Procedures

A. The Work under this Contract shall be planned, scheduled, executed, reported and accomplished using the Precedence Diagramming Critical Path Method (hereinafter referred to as CPM). The work required by this section includes the requirement to prepare, maintain, and update all detailed schedules as described in this section. The CPM Schedules shall be prepared in such a manner as to permit the orderly planning, organization, and execution of the Work and be sufficiently detailed to accurately depict

all the Work required by the Contract. Contractor shall resource (labor, material and equipment) and cost load its Schedule as specified herein.

B. Contractor hereby agrees that in the process of preparing its baseline schedule and monthly updates, it will consult with all key Subcontractors and suppliers to assure concurrence with the feasibility and achievability of Contractor's planned start dates, sequencing, durations, and completion dates. A copy of the computer input files, XER format shall be submitted on CD-R with each submittal. The procedures, technical details and Contractor's participation and responsibilities shall be as hereinafter described.

C. Contractor is responsible for determining the sequence of activities, the time estimates for the detailed construction activities and the means, methods, techniques and procedures to be employed. The Schedules identified herein shall represent the Contractor's best judgment of how it will prosecute the Work in compliance with the Contract requirements. Contractor shall ensure that the Schedule is current and accurate and is properly and timely monitored, updated and revised as Project conditions may require and as required by the Contract Documents.

D. Contractor's construction schedule shall be prepared using the latest version of Primavera Project Planner (P6)for Windows. Any and all costs incurred by the CONTRACTOR in researching, training and/or educating its personnel in CPM and/or P6 (or the utilization of outside consultants) shall be part of the Contractor's bid price and not reimbursed separately by the City

1. The Project Network Schedule Diagram, mathematical analysis, written narrative and monthly updates will be reviewed by either the Engineer or an independent consultant selected by the Engineer. Items will be reviewed for compliance with these Specifications and accurate reporting by the Contractor of work in place, resource loading and work activity durations.

2. Submit to the Engineer an accepted final CPM Construction Schedule and Final Schedule of Values including Allowance Items, allocated to the CPM Schedule activities within 45 days of the Notice to Proceed. Requirements for the final CPM Construction and Final Schedule of Values are further described hereinafter. Contractor's Application for Payment will not be approved until the final CPM Schedule and Schedule of Values have been accepted. The Contract Baseline Schedule submittal shall not show any progress until it is accepted by Engineer

<u>SC-16.2 Standards</u>

A. Definition: CPM, as required by this Section, shall comply with the standards outlined in the Associated General Contractors' publication, "Construction Planning and Scheduling" unless specifically changed by this Section.

B. CPM Construction Schedule: The Contractor's CPM Construction Schedule shall include a graphic time scaled logic network, computerized tabular reports and resource loading as described below. To be acceptable, the schedule must demonstrate the following:

1. A logical succession of Work from start to finish. This logical succession, when accepted, is the Contractor's work plan and, contrary to normal CPM standards, is

designated as early start/early finish solely to accommodate the Primavera software.

2. Clear definition of each activity including cost, manpower, equipment and material quantities as resources. The assigned dollar value (cost loading) of each activity shall cumulatively equal the contract price.

3. Proper interfacing of related activities including submittals, major material and equipment deliveries, procurement, required permits and other constraints such as equipment or manpower/crew availability. Submittal dates must include review periods and permit schedules must include agency review and issue dates. The narrative shall explain the rationale for all constraints, lags and unusual relationships.

4. Agreement with the interim milestones, schedule coordination requirements, and completion dates indicated in the Contract Documents.

C. CPM Graphic Logic Network

1. The CPM graphic logic network or diagram shall be in the form of a time-scaled diagram of the customary precedence diagram and may be divided into a number of separate pages with suitable notation relating the interface points among the pages. Individual pages shall not exceed 34-inch by 44-inch. Notation on each activity line shall include activity descriptions, total float, and durations as a minimum.

2. All construction activities and procurement shall be indicated in a time-scaled format, and a calendar shall be shown on all sheets along the entire sheet length. Each activity shall be plotted so the beginning and completion dates of said activity can be determined graphically by comparison with the calendar scale. A legend shall be included clearly distinguishing between critical and non-critical path activities and progress to date.

D. Duration: The duration indicated for each activity shall be in units of whole working days and shall represent the single best time considering the scope of the Work and resources planned for the activity including time for holidays and inclement weather. The calendar for the network shall be in calendar days. Except for certain non-labor activities, such as submittal preparation and review, curing concrete, delivering and fabrication of materials, or other activities described specifically in the Contract, activity durations shall not exceed 14 Days, be less than one Day, nor exceed $50,000 in value unless otherwise accepted by the Engineer.

E. For all equipment and materials to be fabricated or supplied for the Project, the Contract Baseline Schedule shall show a sequence of activities including: (a) preparation of shop drawings and sample submissions; (b) thirty (30) calendar days for review of shop drawings and samples (c) shop fabrication, delivery and storage, (d) erection or installation; and, (e) testing of equipment and materials

F. The Interim Schedule and Contract Baseline Schedule shall show dependencies (or relationships) between each activity. Each activity must have a successor and predecessor, except for the Project Start and Finish Milestone. The use of date constraints shall be limited to Contract Milestones and Contract Completion dates only, unless approved by the Engineer.

G. Contract Baseline Schedule shall contain or be able to demonstrate that the following items have been addressed: (a) the Project's name; (b) the Contractor's name; (c) revision or edition number; (d) activities of completed work, (e) activities relating to different areas of responsibility, such as subcontracted Work which is distinctly separated from that being done by the Contractor directly; (f) labor resources distinguished by craft or crew requirements; (g) equipment and material resources distinguished by equipment and material requirements; (h) distinct and identifiable subdivisions of work such as structural slabs, beams, columns; (i) locations of work within the contract limit lines that necessitates different times or crews to perform; (j) outage schedules for existing utility services that will be interrupted during the performance of the Work; (k) acquisition and installation of equipment and materials supplied and/or installed by the Owner or its separate contractors; (l) material to be stored on site; (m) Phases; and (n) Interim Milestones and the Contract Completion dates.

H. Computerized Tabular Reports: Reports shall include the following for each activity depicted in the schedule.

1. Activity ID
2. Activity Description
3. Duration (original and remaining)
4. Early Start Date
5. Early Finish Date
6. Total Float
7. Percent Complete
8. Activity Cost and Resources
9. Actual Start Date
10. Actual Finish Date

I. Project Information: Each report shall be prefaced with the following summary data.

1. Project Name
2. Contractor
3. Type of Tabulation (Initial or Updated)
4. Project Duration
5. Project Scheduled Completion Date
6. Projected Completion Date

J. The Contract Baseline Schedule shall include coding (both activity and project coding) to allow additional grouping and sorting means. The Engineer shall provide the coding dictionary. Coding shall include (but shall not be limited to) the following:

1. Area
2. Department
3. Phase
4. CSI Code
5. Responsibility
6. Crew/ Craft

SC-16.3 Acceptance

A. The finalized CPM Construction Schedule will be acceptable to the Engineer when it provides an orderly progression of the Work from Notice to Proceed to Final Completion in accordance with the Contract requirements, adequately defines the Contractor's Work plan, provides a workable arrangement for processing submittals in accordance with the requirements, and properly allocates resource values for manpower, major materials,

equipment and costs to each activity (free of unbalances in resources) as determined by the Engineer. Manpower may be represented as composite crews in the CPM Construction Schedule. The network diagram and tabular reports when accepted by the Engineer shall constitute the CPM Construction Schedule until revised and re-accepted.

B. When the CPM Construction Schedule has been accepted, the Contractor shall submit to the Engineer:

1. six (6) copies of the CPM graphic logic network,

2. six (6) copies of a computerized, tabular report in which activities have been sequenced by early starting date,

3. two (2) copies of the schedule on CD

4. six (6) copies of the narrative..

C. The Engineer's review and acceptance of the Contractor's CPM Construction Schedule is for conformance to the requirements of the Contract Documents only. Review and acceptance by the Engineer of the Contractor's CPM Construction Schedule does not relieve the Contractor of any of its responsibility whatsoever for the accuracy or feasibility of the CPM Construction Schedule, or of the Contractor's ability to meet interim milestone dates and the Contract completion date, nor does such review and acceptance expressly or impliedly warrant, acknowledge, or admit the reasonableness of the logic, durations, and resource value loading of the Contractor's CPM Construction Schedule.

D. The Contractor shall participate in a conference with the Engineer to review the Engineer's comments on the schedule and evaluation of the proposed network diagram, mathematical analysis and monetary value of activities. The intent is to reach a clearer understanding of the CPM and reach consensus on any revisions to be made. Any revisions necessary as a result of this review shall be resubmitted to the Engineer within 10 calendar days after the conference. The accepted schedule shall then be used by the Contractor for planning, organizing and directing the work and for reporting progress. If the Contractor desires to make changes in his method of performing the Work, he shall notify the Engineer in writing stating the reason for the changes and receive written acceptance of the change prior to putting the change into the accepted schedule.

SC-16.4 Qualifications

A. The Contractor shall demonstrate competence in the use of CPM scheduling through the submission of a fully compliant CPM Construction Schedule with the initial CPM submission. In the event the Contractor fails to so demonstrate competence in the CPM scheduling, the Engineer may direct the Contractor to employ the services of a Scheduling Firm that can demonstrate competence. The Contractor shall comply with such directive.

B. The Contractor shall use the services of scheduler who has verifiable training and credentials in preparing and maintaining a computerized CPM Construction Schedule using Primavera software as specified herein. The scheduler must qualify within the planning period.

1. Required Experience: Performed CPM scheduling on at least 2 completed construction projects of value at least 75 percent as large as this one and having at

least 75 percent as many schedule items as this one. Scheduling of both projects shall have been done using Primavera software (P6 for Windows) or equal.

2. Submit the following:

   a. Descriptions of at least 2 projects of the value and complexity above.
   b. Copy of a CPM schedule from one of the previous projects.
   c. Names and telephone numbers of facility owner representative, design engineer, and construction manager for each project.
   d. Evidence supporting the above qualifications shall be submitted to the Engineer.

SC-16.5 Submittal Requirements

A. Initial submittal, revisions and monthly updates of the network diagram, mathematical analysis, and written narrative shall be submitted in six hard copies and two data copies on CD. Submittals will not be accepted unless they are complete as described herein.

B. The Contractor shall submit the following:

   1. A CPM timescaled logic network, computer generated using Primavera Project Planner software (The latest version of P6 for Windows).

   2. Computerized Tabular Reports.

      a. Activity sort by early start, organized by facility or area.
      b. Predecessor/successor listing.
      c. Activity code dictionary.
      d. Resource code dictionary.

   3. Basis of schedule narrative describing the logic and reasoning of the schedule. The narrative shall summarize the overall approach to construction sequencing, including but not limited to 1) anticipated lost days due to weather. 2) the rationale for all constraints, lags and unusual relationships. 3) the definition of labor and crews. 4) a list and durations for all major pieces of equipment and resources, and 5) work proposed to be performed on a other than single shift 5 day workweek basis

   4. Resource value allocation by activity.

   5. Breakdown of specific cost amount for each component of multi-component activities in the CPM Schedule in spreadsheet format (using Microsoft Excel) showing component unit quantities as well as costs. Such breakdown, when accepted by the Engineer shall constitute the Schedule of Values for the Project.

   6. CD copy of entire schedule, narrative and spreadsheet.

SC-16.6 SCHEDULE ORIENTATION SESSION

A. Contractor shall, upon notification from the Engineer, attend a Schedule Orientation Session relating to the Schedules and Reports requirements for this Contract. The Schedule Orientation Session is designed to review in detail, the objectives of the Schedules and Reports requirements and the requirements. Contractor shall arrange

for its Project Manager, Superintendent, and Scheduler to attend the Schedule Orientation Session.

B. The following items shall be discussed during the Schedule Orientation Session: (a) The procedures and requirements for the preparation of the Contract Baseline Schedule, and monthly updates by Contractor. (b) how the requirements of the Contract Documents will be monitored and enforced by the Engineer. (c) long-lead items and time requirements for the Work by Subcontractors will be identified and included in the Contract Baseline Schedule. (d) testing and startup. (e) coding and logic for the Contract Baseline Schedule, and (f) identification and scheduling of shop drawings and other submittals.

SC-16.7 Schedule of Values

A. Submittals

1. Contractor shall allocate a dollar value for each activity on the Contract Baseline Schedule. The dollar value for the activity shall be the cost of the Work including labor, materials and equipment. Allowances shall be loaded on activities specifically included for this purpose. No activity on the Contract Baseline Schedule shall exceed a value of $50,000, unless approved by the Engineer. The sum of all activity costs shall equal the Contract Price. Contractor shall revise the resource and value loading as necessary to gain the acceptance of the Engineer

2. The Final Schedule of Values shall incorporate all comments associated with the Contractor's Schedule/Schedule of Values submittals.

3. Submit documentation to support the values with data, which will substantiate their correctness, as requested by the Engineer.

4. The Schedule of Values, when accepted by the Engineer, shall be used as the only basis for the Contractor's Applications for Payment. The total price paid for mobilization shall be as approved by the Engineer, but in no case shall it exceed two per-cent (2%) of the total bid amount and shall be substantiated with invoices and other backup documentation.

5. The Schedule of Values shall be derived from the assigned Progress Schedule Activity Values and identified by Activity ID.

B. Form and Content of Schedule of Values

1. Identify the Schedule of Values submittal with:

   a. Title of Contract and location.
   b. Contract Number.
   c. Name and address of Contractor.
   d. Date of submission.

2. The Contractor's Schedule of Values shall list the installed value of the component parts of the Work in sufficient detail to serve as the basis for computing values for progress payments during construction.

3. Identify accounts with the location code and area code as defined in the Primavera Schedule format and list the number and title of the respective major Section of the Specifications.

4. All accounts in the Schedule of Values shall be derived from the activities in the Progress Schedule. Account data pertaining to the Schedule of Values shall, at a minimum, include the following for each Account:

   a. CPM Activity number.
   b. City of Atlanta Standard Code listed on the Bid Schedule.
   c. Account representative quantities (cubic yards of concrete, tons of steel, etc.), unit costs, person-hours, item and account dollar value.
   d. WBS code (as used Primavera Project Planner scheduling software), including location, responsibility and area codes.
   e. CSI Specification Section Number.
   f. Account Type: Lump Sum (LS), Unit Price (UP), Allowance (AL), or Change Order (CO)

b. The Schedule of Values must be developed separately from the baseline schedule in a tabular electronic format (i.e. a Microsoft Excel Spreadsheet). Upon approval of the Schedule of Values and the Project Baseline Schedule, the Schedule of Values will be merged with the Project Baseline Schedule in P6.

C. Lump Sum Accounts (LS):

1. The Lump Sum Items established in the Contractor's Bid shall be further divided into pay and progress items by the Contractor and submitted to the Engineer for approval, and as specified in Paragraph E.1 above. Payment for Lump Sum (LS) Accounts will be based upon physical progress (percent complete) for each related activity in the Progress Schedule.

2. The dollar value allocated to Lump Sum Accounts shall be representative of the Contractor's actual costs for performing the work including overhead and profit, and shall be balanced to ensure that sufficient funds are allocated for each portion of the work and shall be subject to acceptance by the Engineer.

3. In the event account values can not be agreed to between the Engineer and the Contractor, the Engineer shall have the exclusive right to determine the account dollar amounts contained in the Schedule of Values.

4. Mobilization costs shall be specifically identified in the Schedule of Values. All mobilization sub-accounts contained in the Schedule of Values must have a corresponding CPM Schedule activity. Payments for mobilization sub-accounts will be based upon lump sum (LS) values as accepted by the Engineer.

D. Allowance Accounts (AL): Payment for Allowance Accounts will be based upon invoices submitted by the Contractor subject to conditions and limitations of the Contract Documents. Refer to Section 01200, Measurement and Payment, for requirements. The City will have sole discretion on determining when to make adjustments to the Allowance.

E. Cost of materials shall be assigned to the appropriate item of work, and allocated to a materials Sub-account. All materials items contained in the Schedule of Values must have a corresponding CPM Schedule activity, for various portions of the Work:

1. Except for Allowance Accounts identified in Section 01200, each account shall include a directly proportional amount of the Contractor's overhead and profit.

2. For accounts on which progress payments will be requested for materials suitably stored on site, break down the value into:

   a. The cost of each material delivered and unloaded.
   b. Paid invoices will be required for materials.

F. The Contractor shall include in his Schedule of Values items for site maintenance, and compliance with the terms of permit stipulations, as appropriate. These items will be monitored on a monthly basis. Non-compliance will result in monies being deducted from the appropriate items.

G. A new account will be added to the Schedule of Values for approved Change Order work. Payment for Time and Expense Change Order work (CO) shall be based upon the General and Supplementary Conditions of these Specifications.

H. The sum of all Account Values listed in the Schedule of Values shall equal the total Contract Price, excluding Allowance Items.

16.7.1 Sub-Accounts

A. Include a breakdown of major accounts into sub-accounts on which progress payments will be requested. The sub-account breakdown shall include elements for pay items/progress items as appropriate, and show the weight of each sub-account; e.g., fabrication, installation, etc., with the total weight of the sub-accounts equal to 100 percent of the major account.

B. The form of the submittal shall be consistent with the Schedule of Values, with each account identified the same as the line item in the Schedule of Values.

C. The Contractor's Schedule of Values shall list the delivered value of the products, manuals and services provided under the various Specification Sections. The lists shall be sufficiently detailed to serve as a basis for computing values for progress payments during the construction period.

D. The unit quantity for bulk materials shall include an allowance for waste.

E. The unit values for the materials shall be broken down into:

   1. Cost of the material delivered and unloaded at the site.
   2. Copies of paid invoices for component material shall be included with the payment request in which the material first appears.

F. The installed unit value multiplied by the quantity listed shall equal the cost of that account in the Schedule of Values.

G. Quantities and unit values identified in the Component Materials sub-accounts shall be used for determining progress payments only, and are not considered to be unit price pay items.

SC-16.8 Monthly Application for Payment

A. Monthly Application for Payment: Contractor shall provide monthly Schedule Update, monthly Payment Report and monthly Narrative Report as his monthly Application for Payment package. Failure to submit all of the aforementioned submittals will result in the cessation of the pay application process until all documents are received.

B. Monthly Schedule Update: The Contractor shall submit, at intervals of 30 calendar days, an update of all activities in the as-planned CPM schedule. The Period-Ending Date shall be the 25th of each month. Update shall be created by updating the mathematical analysis and the corresponding computerized network diagram of the Schedule.

1. The schedule shall be updated by entering the following: Actual start and completion dates of completed activities and the actual start date and remaining duration of activities in progress.

2. The updated network diagram shall be submitted in the same format as noted in Specification Section SC-16.1, with the calendar starting from the date of the update.

3. The updated mathematical analysis shall be submitted in the same format noted in Specification Section SC-16.1.

4. The schedule update shall include an update of the cash flow projections in the same format as the original approved submittal.

5. The schedule update will state the percentage of the work actually completed and scheduled as of the report date.

C. The Monthly Payment Report shall show the activities or portions of activities completed during the reporting period, their total monetary values and the monetary values earned as a basis for the Contractor's Application for Payment. A mutually agreed upon percent complete will be assigned to each completed and partially completed activity to be used for calculating the monetary value earned to date. For activities underway, the percent complete shall not be related to the remaining duration.

D. A monthly narrative report shall be submitted including, but not limited to the following:

1. Description of work accomplished.

2. Summary of safety and quality issues occurring during the month and corrective actions taken.

3. Contractor evaluation of actual progress versus progress planned.

4. If the project is behind schedule, progress along all paths with negative float shall be reported along with the reasons for the delay.

5. A description of all revisions made to the schedule including: all accepted added, deleted, and revised activities; all logic revisions; and all duration revisions.

6. A description of the problem areas, current and anticipated delaying factors and their impact, and an explanation of corrective actions taken or proposed.

E. If the Contractor fails to submit any of the required components of the Application for Payment, the Engineer will withhold approval of the Application for Payment until such time as the Contractor submits the required components.

SC-16.9 Progress Meetings and Look-Ahead Schedules

A. For the weekly progress meetings, the Contractor shall submit a four week Look-Ahead Schedule. This schedule will cover four weeks: the immediate past week, the current week, and the forthcoming two weeks. This schedule will include all activities which are complete, started, are incomplete or underway, or scheduled to be worked during this four week time frame. This schedule shall list all activities from the accepted CPM Construction Schedule which are complete, are scheduled for Work during the period, are currently planned to be worked, even if out of sequence, and Work which is unfinished but scheduled to be finished. Actual start and completion dates shall be provided for the Work that has been completed the prior week; forecast start and finish dates shall be provided for the Work that is in-process or upcoming.

B. Each activity noted above shall be identified by activity number corresponding to the accepted CPM Construction Schedule and detailed description of the activity.

C. The Look-Ahead Schedule shall be delivered to the Engineer twenty-four (24) hours prior to the weekly progress meeting.

D. The Look-Ahead Schedule shall be in a format approved by the Engineer.

E. Tabular reports for manpower and equipment resources shall be provided for and with each Look-Ahead Schedule.

SC-16.10 CPM Construction Schedule Revisions

A. The Engineer may direct and, if so directed, the Contractor shall propose, revisions to the CPM Construction Schedule upon occurrence of any of the following instances:

1. The actual physical progress of the Work falls more than five percent (5%) behind the accepted CPM Construction Schedule, as demonstrated by comparison to the accepted monthly CPM Construction Schedule updates or as determined by the Engineer if a current accepted CPM Construction Schedule does not exist.

2. The Engineer considers milestone or completion dates to be in jeopardy because of “activities behind schedule”. “Activities behind schedule” are all activities that have not or cannot be started or completed by the dates shown in the CPM Construction Schedule, regardless of the existence of positive float on the activity.

3. A Change Order has been issued that changes, adds, or deletes scheduled activities or affects the time for completion of scheduled activities.

B. When the instances requiring revision to the CPM Construction Schedule occur, the Contractor shall submit the proposed revised CPM Construction Schedule within ten (10) working days after receiving direction from the Engineer to provide such Schedule. No additional payment will be made to the Contractor for preparation and submittal of proposed revised CPM Construction Schedules. However, if the Engineer accepts the proposed revised CPM Construction Schedule, it shall replace and supersede all

previous CPM Construction Schedules and substitute for the next monthly CPM Construction Schedule update that would otherwise be required.

C. Revisions to the CPM Construction Schedule shall comply with all of the same requirements applicable to the original schedule.

SC-16.11 Schedule Recovery

A. If a revised CPM Construction Schedule accepted by the Engineer requires the Contractor to employ additional manpower, equipment, hours of work or work shifts, or to accelerate procurement of materials or equipment, or any combination thereof, as schedule recovery measures to meet Contract milestones, the Contractor shall implement such schedule recovery measures without additional charge to the City. All schedules containing negative float shall mandate the submission of a recovery schedule.

B. Furthermore, if efforts to recover are not deemed effective as determined by the Engineer, or if prior to submittal of the recovery schedule, the Engineer determines that critical milestones are in jeopardy, the Engineer may direct the Contractor to implement the above or any other recovery efforts at no additional costs to the City.

SC-16.12 Time Impact Analysis Requirement

A. When delays are experienced by the Contractor and a time extension is requested, the Contractor shall submit to the Engineer a written Time Impact Analysis illustrating the influence of all changes or all delays on the current Project completion date. The time impact analysis shall be constructed on an As-Built Schedule Analysis approach. The As-Built Schedule that is created will incorporate all actual start and finish dates, actual durations of activities, actual sequences of construction (referred to as the As-Built Logic) current as of the time the Time Impact Analysis is performed. This Time Impact Analysis shall incorporate all delays (including Engineer, Contractor and third party delays without exception) in the time frame that they actually occurred with actual logic ties. The As-Built Schedule data shall be obtained from the most recent approved monthly schedule update. The As-Built Schedule shall be created as an early start schedule with the actual start and finish dates coinciding with the early start and finish dates from the most recent approved monthly schedule update. The As-Built Schedule shall show the original activity durations equal to the actual duration and the actual logic driving all activities. The Engineer will validate this As-Built Schedule. All requests for time extension shall be based upon an analysis of this As-Built Schedule. The critical path will be established and all Engineer -caused delays on the critical path will be identified. The time extension will be based solely upon the cumulative duration of all City and third party caused delays that are on the critical path. Any time extensions to the project's Interim Milestone Dates, if any, shall be non-compensable time extensions only.

B. Each Time Impact Analysis shall demonstrate the estimated time impact based on the events of delay, the status of construction at that point in time, and the event time computation of all activities affected by the change or delay. The event times used in the analysis shall be those included in the latest approved update of the project schedule, in effect at the time the change or delay was encountered.

SC-17 COOPERATION WITH OTHER CONTRACTORS AND FORCES

During progress of work under this Agreement, it will be necessary for other contractors and persons employed by the City to work in or about the Project. The City 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 City deems proper. The Contractor shall not impede or interfere with the work for such other contractors engaged in or about the Services and shall so arrange and conduct his work that such other contractors may complete their work at the earliest date possible.

When the Contractor and any contractor or subcontractor performing Services under or pursuant to another City Agreement are employed on related or adjacent work, or are using the same materials source, storage area, or disposal area, the contractor shall be responsible to the other for any injury, damage, or loss caused the other by his operations, by his unnecessary delay or hindrance of the other's work, or by his failure to complete the Services or any portion thereof within the time specified for its completion. The Contractor shall indemnify and save harmless the City and the Engineer, and all officers and employees of the City connected with the Services from all claims, suits, or actions of any nature brought on account of any injury, damage, or loss.

Contractor's responsibilities under the preceding paragraph shall be not greater as to any injury, damage, or loss than those imposed on the Contractor or subcontractor under the comparable provision of this Agreement or subcontract.

The Engineer will decide any disputed questions regarding the performance of the Services, access and cleaning up of the site, and priority in all relations between the Contractor and other contractors in utility companies, and maintenance crews.

The Contractor shall cooperate with all other contractors requiring access to the Services for the purpose of maintenance of security, temporary facilities, cleaning of the site, and like matters requiring common effort.

SC-18 EXTENDED SHIFT, WEEKEND AND HOLIDAY WORK

The City observes the following holidays:

New Year's Day, Martin Luther King's Birthday, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day and following Friday, and Christmas Day.

Should the Contractor deem it necessary to work on Saturdays, Sundays, holidays or longer than eight hours (8) per shift in order to comply with his construction schedule, or because of any emergency, the Contractor shall request permission of the Engineer to do so at least seven (7) calendar days in advance.

SC-19 PROJECT CLOSEOUT

SC-19.1 Restoration of Miscellaneous Surface Facilities

Construction operations on the Work may disturb or otherwise damage the surface contours and vegetation of natural and landscaped areas. Restoration of these areas shall be part of the Agreement. Restoration of pavements, trees, and ground vegetation is specified in the Technical Specifications.

SC-19.2 Pavement Restoration

Contractor shall secure permits from the appropriate jurisdictional Agency for all pavement restoration prepared in accordance with the requirements of the Agreement Documents and the jurisdictional Agency and submit them to the Engineer.

SC-20 EQUIPMENT SERVICE

The Contractor shall furnish the services of a competent factory representative of the manufacturer of the equipment to be installed, for the purpose of supervising and/or inspecting the installation, placing the equipment in service, and calibrating and adjusting each item of equipment. Qualification of the representative shall be appropriate to the type of equipment furnished and subject to the approval of the Engineer. Where equipment furnished has significant process complexity, engineering personnel knowledgeable in the process involved and the function of the equipment shall be furnished. These services shall be furnished in accordance with the requirements of the Technical Specifications.

When approved by the Engineer, periods of service on more than one item of equipment furnished by the same manufacturer may run concurrently. Each of these manufacturers shall furnish supervisory and/or inspection services for all equipment, which he furnishes.

During the initial operation period, a functional test shall be performed on each piece of equipment. The test shall consist of operation of the equipment on a normal duty cycle for a sufficient period of time to determine satisfactory operation (twenty-four [24] hours minimum). To the maximum extent practical, the full capabilities of all equipment shall be exercised, including remote operation, instrumented control schemes, alternate modes of operation, and emergency operation.

SC-21 CONCRETE POUR CARD

An approved concrete pour card must be obtained by the Contractor prior to the placement of concrete. The card shall be as provided to the Contractor by the Engineer. The pour card shall be completed by the contractor and approved by the Engineer before concrete is placed.

SC-22 PARTNERING STATEMENT

The City intends to encourage the foundation of a cohesive partnership with the Contractor and its subcontractors. This partnership will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are effective and efficient Agreement performance, intended to achieve completion within budget, on schedule, and in accordance with plans and specifications.

This partnership will be bilateral in makeup, and participation will be totally voluntary. Any costs associated with effectuating this partnership will be agreed to by both parties and will be shared equally with no change in Agreement price.

An integral aspect of partnering is the resolution of disputes in a timely, professional, and non-adversarial manner. Alternative dispute resolution methods will be encouraged to promote and maintain amicable working relationships at all levels of the project and to strengthen the partnership.

The mutual goals and objectives of the stakeholders form the Partnering Charter. The charter for each project, then, will be unique to that project. The charter may be a simple statement about communication and cooperation in all matters and resolution of conflicts at the lowest level. The following provides an idea of objectives, which might be included in the charter:

A. We are a team dedicated to providing a quality project in accordance with the Agreement. We are committed to both employee and public safety, protection of the environment, and minimizing inconvenience to the public.

1. Communication Objectives: We intend to deal with each other in a fair, reasonable, trusting and professional manner including:

    a. Communicate and resolve problems within the terms of the Agreement;
    b. Decision making at the lowest possible level;
    c. Open, honest communication;
    d. Treat each other with mutual respect, resolve conflicts immediately, and avoid personal attacks;
    e. Timely notification of future meetings; and
    f. Do not allow personal antagonism to interfere with professionalism.

2. Conflict Resolution System:

    a. Step 1: It is preferred that conflict be discussed and resolved at the level on which it originates;
    b. Step 2: When conflict is not resolved at the originating level, it is taken to the next level of supervision;
    c. Step 3: When conflict is not resolved at the immediate supervisory level, it is taken to the project manager and engineer; and
    d. Step 4: When conflict is not resolved by the project manager and engineer, it is submitted to the Disputes Review Board for adjudication.

3. Performance Objectives:

    a. Complete the project without litigation;
    b. Utilize cost reduction incentive proposals;
    c. Finish the project on time;
    d. No delays to project;
    e. No lost time injuries;
    f. Promote positive public relations;
    g. Make the project enjoyable to work on;
    h. Render a finished product everyone can be proud of; and

i. Construct and administer the Agreement so that all parties are treated fairly.

SC-23 COLOR COORDINATION

The City will require a color coordination of architectural materials. All coatings are to be custom matched.

SC-24 TIE-INS OR MODIFICATIONS TO EXISTING SYSTEMS

Anytime the Contractor ties into or modifies an existing system, a detailed work plan shall be required. Submittal of this work plan must be a minimum of thirty (30) days in advance of commencement of the subject work. This work plan shall include a detailed description of the work, a step-by-step plan of the modification or tie-in, a schedule, a detailed list of materials and equipment required, demonstrated communications capacity, and a listing of any gates or valves, which must be operated. Working drawings shall be submitted as required under GC-28 for any permanent or temporary structural modifications. A temporary safety plan covering the period of the work, and a listing of contingency plans and supplies, including but not limited to spill prevention planning and spill containment kits, shall be required. A coordination meeting with the City's plant operating staff, the Contractor, the Engineer and the Designer must be held at least seven (7) days prior to the commencement of the modification or tie-in. The day before the commencement of the modification or tie-in, a final coordination shall be held giving final detailed work assignments to all parties involved.

The City and the Engineer have the right to require, at no additional cost to the City, stand-by equipment on any item(s) deemed critical enough to delay the work. The Contractor shall have available stand-by personnel to supplement the committed forces should problems arise. The Contractor is responsible for meeting all OSHA standards including entrance and exit safety, confined space entry, fall protection, scaffolding, rigging, etc.

SC-25 NOTICES OF COMMENCEMENT

A. The Contractor shall file all "Notice of Commencement" required for this Project in accordance with O.C.G.A. § 36-91-92et. seq., as applicable, setting forth:

1. The name, address, and telephone number of the person providing the labor, material, machinery, or equipment;

2. The name and address of each person at whose instance the labor, material, machinery, or equipment is being furnished;

3. The name and location of the public work; and

4. A description of the labor, material, machinery, or equipment being provided and, if known, the Agreement Price or anticipated value of the labor, material, machinery, or equipment to be provided or the amount claimed to be due, if any.

B. The Contractor shall respond to all requests for copies of a Notice of Commencement. Should the City or Engineer receive such a request, this request will be forwarded to the Contractor for further handling. The name and address of the City shall be as stated as follows:

City of Atlanta
Department of Watershed Management
55 Trinity Avenue, S. W.
South Tower
Suite 5400
Atlanta, Georgia 30303

C. The name and description of the Project shall be as stated in the Invitation to Bid.

SC-26 VALUE ENGINEERING CHANGE PROPOSALS

A. Value Engineering Change Proposals

1. The Contractor may submit Value Engineering Change Proposals (VECP) for changes that the Contractor believes will result in instant Contract savings of at least fifty thousand dollars ($50,000.00). VECPs will only be considered if the proposed change:

   a. will result in a net reduction in the Agreement Price;

   b. will not impair any essential form, fit, function or characteristic of the Work, such as but not limited to, safety, service life, reliability, economy of operation, ease of maintenance, aesthetics and necessary standard features; and

   c. will not require an extension of the Agreement Time.

2. A VECP shall not increase the risk to cost or schedule of completion.

3. A VECP, if accepted, will be accepted and implemented by Change Order in accordance with this Article.

B. Definitions

1. “Collateral Costs”, as used herein, means City costs of operation, maintenance, logistics support, or City-furnished property.

2. “Collateral Savings”, as used herein, means those measurable net reductions resulting from a VECP in the City's overall projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.

3. “Contractor's Development Costs”, as used herein, mean those costs the Contractor incurs on a VECP specifically in developing, testing, preparing and submitting the VECP. Contractor's development costs will not be recoverable. If the VECP is adopted, the Contractor's share of the savings as hereinafter defined shall be considered full compensation to the Contractor for the VECP.

4. “Implementation Costs”, as used herein, means those costs the Contractor incurs to make the contractual changes required by the City's acceptance of a VECP. Such costs will be subject to City audit.

5. “City Costs”, as used herein, means those costs the City incurs that result directly from developing and implementing the VECP, such as but not limited to, any net increases in

the cost of engineering, testing, operations, maintenance and logistic support. The term also includes the administrative costs of review and processing the VECP.

6. “Instant Agreement Savings”, as used herein, means the reduction in Contractor cost of performance (which includes overhead and profit attributable to the reduced or eliminated work), resulting from acceptance of the VECP, minus implementation costs and City costs.

C. VECP Preparation

1. As a minimum, the Contractor shall include in each VECP the information described below:

   a. A description of the difference between the existing Agreement requirement and that proposed, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, and the effect of the change on the end item's performance;

   b. A list and analysis of the Agreement requirements that must be changed if the VECP is accepted, including a recommendation as to how the revisions must be made;

   c. A separate, detailed cost estimate for (i) the affected portions of the existing Agreement requirement and (ii) the VECP. The cost estimate shall include, without limitation, both capital cost savings, and life cycle cost savings. The cost reduction associated with the VECP shall take into account the Contractor's implementation costs;

   c. A description and estimate of costs the City may incur in implementing the VECP, such as test and evaluation and operating and support costs;

   e. A prediction of any effects the proposed change would have on collateral costs to the City.

   f. A statement of the time by which a Change Order accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the Agreement Time, achievement of any milestones, or delivery schedule;

   g. Identification of any previous submissions of the VECP, including the dates submitted, and previous actions, (including those of the City) if known;

   h. All specifications, instructions, plans and drawings detailing the implementation of the VECP. All drawings and specifications must be prepared by and sealed by a professional engineer registered in the State of Georgia;

   i. A revised Schedule of Values;

   j. A revised schedule for the affected portion(s) of the Work; and

   k. Any other information required in the judgment of the City to review and/or implement the VECP. Such information shall be provided by the Contractor as soon as practicable after the City's request thereof.

D. Processing Procedures

1. Two (2) copies of each VECP shall be submitted to the Engineer. VECPs will be processed expeditiously, however, the City will not be liable for any delay in acting upon or for failure to act upon, any VECP submitted pursuant to this Article. The Contractor may withdraw, in whole or in part, a VECP not accepted by the City within the period specified in the VECP.

2. The City will be the sole judge of the acceptability of a VECP and of the savings and costs from the adoption of all or any part of such proposal. In determining the savings, the right is reserved to disregard the Agreement bid prices if, in the judgment of the City, such prices do not represent a fair measure of the value of the work to be performed or to be deleted. The decision of the City regarding acceptability or unacceptability of the VECP, as well as the savings and costs, shall be final.

3. The City may require the Contractor to modify the VECP to make it acceptable. If any modification increases or decreases the savings resulting from the VECP, the Contractor's fair share will be determined upon the basis of the VECP as modified.

4. The City may accept, in whole or in part, a VECP submitted pursuant to this Article by issuing a Change Order. However, pending issuance of a Change Order, the Contractor shall remain obligated to perform in accordance with the terms of the Agreement.

E. Sharing Arrangements

The Contractor and City shall each receive a fifty percent (50%) share in the Instant Agreement Savings. Upon acceptance of a VECP, a Change Order will be issued reducing the Agreement Price by fifty percent (50%) of the Instant Agreement Savings.

F. Warranty

1. The Contractor shall be, and remain, liable for the effectiveness of the design of the change proposed.

2. The Contractor warrants that such change: shall be free from defects in design, function, configuration and purpose; shall fully perform the function as intended and required by the Agreement Documents; complies with all laws, rules, regulations and ordinances governing such an item; and infringes no patent, copyright, trade secret or other third party proprietary right or interest.

G. Data

To the extent permitted or allowed by law, the City will not disclose, use or duplicate any data provided by the Contractor pursuant to this Article, while such VECP is being evaluated. This restriction shall not apply to any information if it is, or has been obtained, or is otherwise available, from the Contractor or from any other source, without limitation. If a VECP has been accepted, the City shall have the right to duplicate, use and disclose any data in any manner, and for any purpose, and have others do so, under this or any other City Agreement.

SC-27 ENCOUNTERING HAZARDOUS OR POTENTIALLY HAZARDOUS MATERIAL DURING CONSTRUCTION ACTIVITIES

Provide all labor, materials, supplies, and incidentals to protect onsite workers and the surrounding public from exposure to potentially hazardous substances, prevent spread of potentially contaminated or hazardous substances, notify Engineer, and stop all work until notified by the Engineer.

An emergency situation or imminent hazard may include, but is not limited to, the following;

- Buried drums or containers with unknown or known toxic contents.
- Groundwater or soils of unnatural color
- Spills or leaks of chemicals, solvents, or petroleum products.
- Unusual odors
- Other perceived threats

If a potentially hazardous substance is discovered during construction activities, do not remove it from the site. Leave the potentially hazardous substance in place and stop all work in the immediate area. If the material appears to be leaking or spreading, the Contractor shall contain or abate the spread of material. Take all measures to prevent the release of the material to the environment and protect all onsite workers and the public from potential exposure.

During the course of substance containment or evacuation of site personnel, the Contractor shall protect onsite workers, non-workers, and the general public from contact with or exposure to the contaminated substances or materials.

ATTACHMENT 1 PROJECT SIGN

PROJECT SIGN required at entrance of project site

Exhibit C

Technical Specifications

Technical Specifications

Division 1 General

Division 2 Site Construction

Division 16 Electrical

Division 17 Instrumentation & Controls

Attachment A: I/A Advantage Upgrade for City of Atlanta: Distributed Control System (DCS), Foxboro

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SECTION 01005
MISCELLANEOUS REQUIREMENTS

1.01 GENERAL

The Contractor shall conform to all miscellaneous requirements as herein specified.

1.02 INTERFERENCE WITH EXISTING WORKS

A. The Contractor shall at all times conduct his operations so as to interfere as little as possible with existing works. The Contractor shall develop a program, in cooperation with the Engineer and plant personnel, which shall provide for the construction and putting into service of the new works in the most orderly manner possible. This program shall be adhered to except as deviations there from are expressly permitted. All work of connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to interfere with the operation of the existing facilities for the shortest possible time when the demands on the facilities best permit such interference, even though it may be necessary to work outside of normal working hours to meet these requirements. Before starting work which will interfere with the operation of existing facilities, the Contractor shall do all possible preparatory work and shall see that all tools, materials, and equipment are made ready and at hand.

B. The Contractor shall make such minor modifications in the work relating to existing structures as may be necessary, without additional compensation.

C. The Contractor shall have no claim for additional compensation by reason of delay or inconvenience in adapting his operations to meet the above requirements.

1.03 MAINTAINING INSTRUMENTATION AND CONTROLS

It is essential to the operation of the existing facilities system that there be no interruption in the flow of aforementioned utilities, except as expressly scheduled in Section 01100. To this end, the Contractor shall provide, maintain, and operate all temporary facilities such as fiber backbone, patch/cross, root switch, network components, cables, equipment, conduits, and all other labor and equipment necessary to intercept these utilities before it reaches the points where it would interfere with his work..

1.04 MAINTAINING SEWAGE WATER, AND STORM WATER FLOWS AND OTHER UTILITIES AND PROCESS FLOWS

A. It is essential to the operation of the existing facilities system that there be no interruption in the flow of aforementioned utilities, except as expressly scheduled in Section 01100. To this end, the Contractor shall provide, maintain, and operate all temporary facilities such as dams, pumping equipment, conduits, and all other labor and equipment necessary to intercept these utilities before it reaches the points where it would interfere with his work, carry it past its work, and return it to the existing utility below its work.

B. Minimum facility usage flow occurs during the night hours and weekends. The Contractor

may work on the existing utilities at such times if he so chooses at no additional cost to the City.

1.05 PHASE CONSTRUCTION

Work under this contract is to be accomplished in a timely manner and in accordance with the completion time set forth in the Bid Proposal of Volume I, Bidding Documents for this project.

1.06 MOTOR AND STARTING EQUIPMENT DATA LIST

A. Each Contractor shall obtain the necessary data from its equipment suppliers, and shall prepare a complete tabulation of all motors over 1/3 hp., and all electric heaters., to be furnished under his contract.

B. The motor and heater tabulation shall include firm and accurate information as follows:

1. Name and identification of equipment.
2. Manufacturer.
3. Horsepower or kilowatt rating.
4. Voltage.
5. Phase.
6. Speed.
7. Full load current.
8. Locked rotor current or code letter.
9. Type of enclosure (open dripproof, totally enclosed, fan cooled, etc.)
10. Automatic control equipment used (if applicable).
11. NEMA size of starter or contactor.
12. Overload heater size.
13. Type of starter (full-voltage, reduced-voltage, autotransformer, etc.).
14. Breaker trip setting or fuse size.
15. Voltage of starter operating coil.
16. If starter is at a motor control center, list motor control center number.

C. The correct submission of starting equipment shop drawings is dependent upon timely submission of the complete motor and electric heater tabulation. To this end, all Contractors shall cooperate fully in the assimilation and dissemination of motor and electric heater data.

D. Three copies of the tabulation shall be furnished to the Engineer. Two copies shall also be furnished concurrently to the Electrical Contractor, to use in preparing his order for starting equipment. The Electrical Contractor shall also prepare a composite tabulation of all of these motors and electric heaters, as specified under ELECTRICAL WORK - GENERAL.

1.07 VOLTAGE RATINGS OF MOTORS

Unless otherwise specified, motors with ratings in excess of 1/3 hp. shall be rated 460-volt (nameplate rating), three-phase, 60-Hertz; motors of 1/3 hp. or less shall be rated 115-volt, single-phase, 60-Hertz.

1.08 HYDRAULIC UPLIFT OF STRUCTURES

The Contractor shall be responsible for the protection of all structures against hydraulic uplift until such structures have been accepted finally by the City.

END OF SECTION 01005

SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. Definition: The Work is defined per General Conditions Section GC-3.

B. Refer to General Notes drawing G-RM-0 for General Scope, Foxboro Integrator scope of work, Foxboro Scope per attached proposal and scope of attached 5 year Customer FIRST Program Support and Services Agreement Premium for City of Atlanta.

C. Refer to Electrical Drawing for installation, replacement and connection of UPS. Contractor and install an uninterruptable power supply system for each Foxboro Control Panel to maintain continuous (zero interruption) and quality power. These systems apply to the nineteen (19) buildings noted in drawings - EP-RM-1, EP-RM-2 AND EP-RM-3.

D. “Foxboro” in these contract documents shall refer to the Foxboro Division of Schneider Electric.

E. City will only deal directly with the Contractor or their City approved representative during progress of all Foxboro work.

F. Although the City and Foxboro have had a long standing relationship of cooperating and coordinating work on the RM Clayton Water Reclamation Center’s Distributive Control Systems, the Contractor is responsible for coordination and performance of all Foxboro work.

I. Summary:

1. Major areas of the Work are in the Administration Building, Blower Building, TWAS Building, Filter Building, UV Building, Mixed Liquor Building, Secondary Clarifiers, Dewatering, Headworks, Nancy Creek Pump Station, West Area CSO Treatment and Pump Station Facility and Digester Building. Refer to Drawings for locations of the Work:

- Work consists of:
    - Installation of new fiber backbone raceways and cables.
    - Installation of various patch/cross connect panels within new cabinet to support new fiber backbone.
    - Relocation of existing root switch from Administration Building to Fiber Building.
    - Installation of network components for second Ethernet network along with connections.
    - Replacement of PLC's and integration with Foxboro DCS.
    - Foxboro advantage upgrades to existing system components.
    - Installation of duct banks and conduit to connect various buildings.
    - Installation of fiber to remote I/O’s from panels at different buildings.
    - Installation of new root switch relocated from Administration Building.
    - Upgrade existing Foxboro workstations.
    - Foxboro work specified above includes Hardware and Software, Engineering and Field Service, 4 weeks training at Foxboro Facilities

including travel and living expenses for four (4) City I&C Engineers, and Reduction Data Migration. .

- o Work includes additional indemnification, insurance, requirements, constraints, terms, conditions and scope required by the Contract Documents that Foxboro refuses to perform for upgrade of the Foxboro Distributive Control System and as needed for the Contractor to subcontract with Foxboro to provide the Work per the Contract Documents. These items and any other roadblocks for the Contractor to perform the Foxboro work shall be coordinated and obtained in a timely manner so as not to affect the progress of the Work.
- o Contractor shall coordinate and help negotiate terms for the 5 year Customer FIRST Program Support and Services Agreement Premium for the City of Atlanta no matter who is determined to contract the work with Foxboro.
- o UPSs in the Foxboro Proposal can be purchased from another vendor. However, Foxboro Services shall be provided so the UPS can be seamlessly incorporated in the turn-key upgrade of the RM Clayton WRC Foxboro Distributed Control System.
- o The Contractor shall provide all additional labor, material and equipment, including fasteners, labeling, supports, tie-ins, wiring, programming, start-up services, training, O&M Manuals and incidentals not provided by Foxboro for a turn-key upgrade of the RM Clayton WRC Foxboro Distributed Control System.

- Foxboro 5 year Customer FIRST Program Support and Services Agreement Premium for the City of Atlanta, with a contract in a form acceptable to the City. The 5 Year Customer FIRST Program Support and Service Agreement Premium for all new equipment installed per this project shall not commence until after the date of Substantial Completion and shall be a condition of substantial completion.

1.02 PERMITTING

A. The Contractor shall be responsible for obtaining permits for the work specified in paragraph 1.01 C.

B. The Contractor shall include in the base bid the cost associated with the permits required to perform the work described in paragraph 1.01 F.

C. Contractor responsibility to determine fee amount for all permits. Contractor shall be required to go to COA Building Department to obtain the information and ask questions as required to determine the permit fees for site, building, electrical, plumbing, mechanical and electrical which will be included in the lump sum bid amount. Review of website or other methods to determine any COA fees are not acceptable.

D. Contractor is advised the City of Atlanta building permit fee will be based on a percentage of the entire bid amount and will exceed 0.7% of the entire bid amount including the allowances. This fee amount is in addition for other City of Atlanta fees for specific work and trades such as Electrical, HVAC, Plumbing, Elevator, Site

Development and other work detailed in these contract documents,

1.03 SUBSTANTIAL COMPLETION AND FINAL COMPLETION DATES

A. 14 months after NTP - Project substantial completion.
B. 16 months after NTP - Project final completion.

END OF SECTION 01010

SECTION 01011
UNIQUE REQUIREMENTS

PART 1 - GENERAL

1.01 SCOPE

A. The scope of this Section is to convey to the Contractor unique and unusual stipulations and requirements, which have been established for this Project. Some of the stipulations and requirements are a result of negotiations with various entities and organizations, which have an interest in this Project. Some requirements are based on technical aspects of the Project, which are not otherwise conveyed to the Contractor.

B. The provisions of this Section shall supersede the provisions of the Division 1 through 17 Specifications, but shall not supersede the Bidding Requirements, Contract Forms or Conditions of the Contract.

1.02 EXISTING FACILITY OPERATIONS

A. The existing facilities must of necessity remain in operation while the new construction is in progress.

B. The Contractor shall coordinate the Work with the City so that the construction will not restrain or hinder the operation of the existing facilities.

C. After having coordinated the Work with the City, the Contractor shall prepare a submittal in accordance with Section GC-26 to include the time, time limits, and methods of each connection or alteration and have the approval of the Engineer before any Work is undertaken on the connections or alterations.

1.03 SEQUENCING

A. General: The Contractor shall be solely responsible for all construction sequencing.

B. Notify the City at least 48 hours prior to relocating piping or diverting flows.

C. Sequence Submittal:

1. Submit a proposed sequence with appropriate times of starting and completion of tasks to Engineer for review.

2. The Contractor may propose alternatives to the sequencing constraints shown in this Section in an attempt to reduce the disruption of the operation of the existing facility or streamline the tasks of this Contract. The City and Engineer are not obligated to accept any of these alternatives.

1.04 RM CLAYTON WRC SITE SPECIAL REQUIRMENTS

A. Work at the RM Clayton WRC site may be performed 24 hours per day, seven days per week.

B. The Contractor shall cooperate with the contractors performing the Work on the RM Clayton WRC with other projects at the site.

C. Parking for Contractor personnel shall be fully contained within the site boundaries. No parking is permitted on any public roads or on any streets within the neighborhood. If necessary, the Contractor shall make arrangements for remote parking for its personnel, at a site approved by the Engineer, at no additional cost to the City.

D. All traffic must enter and exit the site through the WRC Entrance Designated on the Drawings, located on the south side of Bolton Road.

E. Contractor is advised there are numerous pressurized pipes, energized conduits and duct banks, overhead utilities, and gravity flow systems on the site. The Contractor is responsible for protecting the existing utility lines and shall be responsible for the repair and damages resulting from his construction activities to these systems. In addition to the requirements of Section SC-8 the Contractor is required to verify the actual locations of various buried lines shown in the Drawings by carefully excavated test pits and other direct means before starting Work in any given areas at no additional cost to the City. Special care shall be taken during any excavation to mitigate damage potential in case previously unknown and active systems are encountered. Overhead utilities may require raising or relocation to access site.

F. Unless shown otherwise on the Drawings, the Contractor shall restore the site to its original grade. Any fill placed at the site to return it to its original grade shall be controlled fill, approved by the Engineer. The site shall be grassed and strawed. Any final landscaping, including trees and shrubs, but not including grassing, shall be paid for under an allowance item.

G. The Contractor shall be responsible for maintaining and cleaning the Site Access Road from the date it occupies the Construction Site through the final completion of the construction period.

1.05 POWER SUPPLY

Georgia Power will supply the power needs for the Project. They have been advised on the approximate power requirements for the Project and the probable locations for the substations. The Contractor shall contact Georgia Power for specific technical, schedule, and cost information required for the Project. The contact person is as follows:

Ms. Kristie Drury
Key Account Manager for Georgia Power
5215 Minola Drive
Lithonia, Georgia 30038-2310
Telephone Number: (770) 322-5733
Mobile Number: (404) 513-5984
kmdrury@southernco.com

END OF SECTION 01011

SECTION 01014
WORK SEQUENCE

PART 1 - GENERAL

1.01 SCOPE

A. Work under this Section includes construction sequencing and provision of temporary facilities necessary to maintain the efficiency of the wastewater treatment facilities and to prevent wastewater bypasses and basement flooding during the performance of this Work.

B. The existing wastewater treatment plant is currently and continuously receiving and treating sewage, and those functions shall not be interrupted except as specified herein. The Contractor shall coordinate the work to avoid any interference with normal operation of plant equipment and processes. The Contractor shall comply with the following general requirements:

1. Provide temporary pumps and other facilities necessary to meet the requirements of this Section.

2. Notify the Engineer at least 48 hours prior to starting to relocate piping or taking existing components out of service.

3. Bypassing of untreated or partially treated sewage to surface waters or drainage courses is prohibited during construction. In the event accidental bypassing is caused by the Contractor's operations, the City shall immediately be entitled to employ others to stop the bypassing without giving written notice to the Contractor.

C. Penalties imposed on the City as a result of any bypass caused by the actions of the Contractor, his employees, or subcontractors, shall be borne in full by the Contractor, including legal fees and other expenses to the City resulting directly or indirectly from the bypass.

1.02 SUBMITTALS

A. In accordance with the General Conditions, the Contractor shall submit a detailed outage plan and time schedule for operations which will make it necessary to remove a tank, pipeline, channel, electrical circuit, equipment or structure from service. The schedule shall be coordinated with the construction schedule specified in the Special Conditions and shall meet the restrictions and conditions specified in this section. The detailed plan shall describe the Contractor's method for preventing bypassing of other treatment units, the length of time required to complete said operation, the necessary plant, and equipment which the Contractor shall provide in order to prevent bypassing of associated treatment units.

B. Sequence Submittal: The sequence provided in Part 3 of this Section is offered as a suggestion to the Contractor. Submit a proposed sequence with appropriate times of starting and completion of tasks to Engineer for review.

C. Alternate Sequences: Contractor may propose alternate sequences to that shown in Part 3 of this Section in an attempt to reduce the disruption of the operation of the existing facility or streamline the tasks of this Contract.

D. Contractor shall include a copy of the specification section with check marks acknowledging compliance with each paragraph or an explanation of non-compliance.

1.03 QUALITY ASSURANCE

. At least two weeks prior to any proposed activity which will require any portion of the plant to be removed from operation, require bypassing or require interruption of plant flow, the Contractor shall schedule a meeting with Plant Operating Personnel and the Engineer. At this meeting, the Contractor shall present Contractor's detailed plan for the proposed operation for general discussion. The plan shall meet the minimum requirements below:

1. Plan shall be written outline form and presented in a format which shall show the progression of events in sequential and/or concurrent order of activity and the duration of each activity.

2. The written plan shall be supplemented by drawings, sketches, and details as required to show the logic of the plan and make it understandable.

3. The plan shall delineate the responsibilities of the Plant Operating Personnel and the Contractor, so as to eliminate any delay due to conflicting viewpoints upon implementation of the plan.

4. After discussion of the plan at the meeting, any changes agreed upon shall be incorporated into the plan and a copy of the plan and details shall be distributed to Plant Operating Personnel, the Engineer, and Contractor personnel at least one week prior to commencement of activities. On the day prior to commencement of activity a brief meeting of involved parties shall be convened. In this meeting the starting time and initial activity of Plant Operating Personnel and Contractor's personnel shall be agreed upon.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

The sequence of construction is outlined for the major items of Work required; no attempt has been made to describe every detail of the Project. The Contractor shall coordinate his work with the Plant Operating Personnel to minimize disruptions in plant operation. It shall be the Contractor's responsibility to insure that all existing facilities are protected and will not be damaged as a result of this construction. No settlement of existing facilities will be acceptable and all work shall be performed in a safe manner.

3.02 PROPOSED CONSTRUCTION SEQUENCE

The project shall be constructed in stages which will permit continuous operation of the facilities and provide treatment of wastewater to a quality equivalent to the existing tertiary treatment plant or better at all times. The stages of construction shall generally be performed in sequence, with overlap as required to maintain the treatment facilities in service. The five stages proposed are:

(These are examples - Revise for specific project)

Step 1 - Preparatory
Step 2 - Major New Liquid Process Facilities
Step 3 - Modification to Existing Facilities
Step 4 - Solids Handling Facilities
Step 5 - Cleanup and Final Restoration

The following list provides tasks which generally fall within the defined steps.

Step 1 - Preparatory

The following steps may be performed simultaneously.

Step 1 - Preparatory

(Provide List)

Step 2 - New Liquid Process Facilities

(Provide List)

Step 3 - Modifications to Existing Liquid Process Facilities

(Provide List)

Step 4 - Solids Handling Facilities

(Provide List)

Step 5 - Cleanup and Final Restoration

(Provide List)

3.03 COORDINATION WITH OTHER CONTRACTORS

The performance of the project shall be coordinated with other work going on at the same time on the project site. Certain portions of the project are required to be completed so that others can perform their work in a timely manner. The construction schedule prepared by the Contractor shall take in account the intermediate requirements depicted on the sequence diagram included.

3.04 LIMITS OF CONSTRUCTION

Due to the requirement for other contractors to be performing work on the site, Contractor's access to the site may be limited. The Contractor shall have access to some areas of the site only during certain steps during construction. The Contractor shall have access to the property defined within the construction limits throughout the project. Additionally, he shall have access to areas within the

construction limit of others for only the periods of time required to perform the work. The areas available for access by the Contractor during the five steps of the project are shown on the Contractor Site Access drawings for each step included in this specification.

A. Except where indicated otherwise on the drawings, all pipeline and underground construction shall terminate at the construction limit lines indicated on the drawings. The Contractor reaching the construction limit first shall be responsible for adequately capping the line to both allow for testing and for easy continuation of or connection to the line by the Contractor continuing the line.

B. The Contractor shall be responsible for performing work within the construction limits of other contractors. The work to be performed within the construction limits of other contractors includes:

(Provide List)

3.05 MISCELLANEOUS CONSTRUCTION

Miscellaneous work necessary to complete any flow diversion required may include piping, electrical work, diversion plugs, bulkheads, and equipment installation, etc. The cost for these items shall be included in the Contractor's base bid.

3.06 OPERATION OF EXISTING FACILITIES

The City will pay all costs for power and chemicals which are required to operate the existing plant during any flow diversion.

END OF SECTION 01014

SECTION 01016
OCCUPANCY

PART 1 – GENERAL

1.01 PARTIAL OCCUPANCY BY CITY

Whenever, in the opinion of the Engineer, any section or portion of the Work is in suitable condition, it may be put into use upon the written order of the Engineer and such usage will not be held in any way as an acceptance of said work, or any part thereof, or as a waiver of any of the provisions of these Specifications and the Contract. Pending completion and final acceptance of the Work, all necessary repairs, and replacements, due to defective materials or workmanship or operations of the Contractor, for any section of the Work so put into use shall be performed by the Contractor at Contractor's own expense.

END OF SECTION 01016

SECTION 01040
COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

A. Coordinate execution of the Work with subcontractors and the Engineer as required maintaining operation of the existing facilities and satisfactory progress of the Work.

B. Requirements of this Section will be in addition to those stated in the General Conditions.

C. The Engineer may require a written explanation of the Contractor's plan for accomplishing separate phases of the Work.

1.02 CUTTING AND PATCHING

A. The Contractor shall leave all chases or openings for the installation of its own or any of its subcontractor's works, or shall cut the same in existing work, and shall see that all sleeves or forms are at the work and properly set in ample time to prevent delays. See that all such chases, openings and sleeves are located accurately and are of proper size and shape, and shall consult with the Engineer and its subcontractors concerned in reference to this work. In case of its failure to leave or cut all such openings or have all such sleeves provided and set in proper time, the Contractor shall cut them or set them afterwards at its own expense, but in so doing shall confine the cutting to the smallest extent possible consistent with the work to be done. In no case shall structural members be cut without the written consent of the Engineer.

B. Carefully fit around, close up, repair, patch, and point around the work specified herein to the satisfaction of the Engineer.

C. All of this work shall be done by careful workers competent to do such work and with the proper small hand tools. Power tools shall not be used except where, in the opinion of the Engineer, the type of tool proposed can be used without damage to any work or structures and without inconvenience or interference with the operation of any facilities. The Engineer's concurrence with the type of tools shall not in any way relieve or diminish the responsibility of the Contractor for such damage, inconvenience, or interference resulting from the use of such tools.

D. Do not cut or alter the work of any subcontractor, except with the written consent of the subcontractor whose work is to be cut or altered, or with the written consent of the Engineer. All cutting and patching or repairing made necessary by the negligence, carelessness or incompetence of the Contractor or any of its subcontractors, shall be done by, or at the expense of, the Contractor and shall be the responsibility of the Contractor.

1.03 EXISTING UTILITIES

A. Consult with the Engineer on a daily basis while the Contractor is performing demolition,

excavation, or any other alteration activity. No sewer function, utility or structure is to be altered, shut off or removed unless approved in advance, and in writing, by the Engineer. The Contractor shall give the Engineer at least 48 hours advanced notice, in writing, of the need to alter, shut off or remove such function.

B. Coordinate the Work with the Engineer and revise daily activities if needed so as to not adversely affect system operations. Such revisions in the proposed work schedule will be accomplished with no additional compensation to the Contractor.

C. Comply with the requirements of Section 01011 of these Specifications.

END OF SECTION 01040

SECTION 01045
CUTTING AND PATCHING

PART 1 GENERAL

1.01 DEFINITIONS

A. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required restoring surfaces to their original condition
   1. Cutting and patching is performed for coordination of the work, to uncover work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes.
   2. Cutting and patching performed during the manufacture of products, or during the initial fabrication, erection or installation processes is not considered to be "cutting and patching" under this definition. Drilling of holes to install fasteners and similar operations are also not considered to be "cutting and patching".
   3. "Demolition" and "Selective Demolition" are recognized as related- but-separate categories of work, which may or may not require cutting and patching as defined in this section; refer to "Demolition" and "Selective Demolition" sections of Division 2.

B. Refer to other sections of these specifications for specific cutting and patching requirements and limitations applicable to individual units of work.
   Unless otherwise specified, requirements of this section apply to mechanical and electrical work. Refer to Division-15 and Division-16 sections for additional requirements and limitations on cutting and patching of mechanical and electrical work

1.02 SECTION INCLUDES

A. This Section specifies administrative and procedural requirements for cutting and patching.

B. Refer to other sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work. Requirements of this Section apply to mechanical and electrical installations. Refer to Division-15 and Division 16 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

1.03 RELATED SECTIONS

A. Drawings and general provisions of Contract, including; general and Supplementary Conditions and other Division-1 Specification Sections, apply to this section.

B. Demolition of selected portions of the building for alterations is included in Section "Selective Demolition".

C. Contractor shall include a copy of the specification section with check marks acknowledging compliance with each paragraph or an explanation of non-compliance.

1.04 QUALITY ASSURANCE

A. Requirements for Structural Work Do not cut and patch structural elements in a manner

that would reduce their load-carrying capacity or load-deflection ratio.Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems.

1. Primary operational systems and equipment.
2. Air or smoke barriers.
3. Water, moisture, or vapor barriers.
4. Fire Protection Systems.
5. Control Systems.
6. Communication systems.
7. Conveying systems
8. Noise and vibration control elements and systems.

B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decrease operational life or safety.

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in visually unsatisfactory manner. If possible, retain the original installer or fabricator to cut and patch the exposed Work listed below. If it is impossible to engage the original installer or fabricator, engage another recognized experienced and specialized firm.

1. Stonework and stone masonry.
2. Window wall systems.
3. Ornamental metal.
4. Firestopping
5. Stucco and ornamental plaster.
6. Carpeting.
7. Wall Coverings.

D. Before cutting and patching the following categories of work, obtain approval to proceed.

1. Structural steel.
2. Miscellaneous structural metals, including lintels, equipment supports, stair systems and similar categories of work.
   a. Structural concrete.
   b. Foundation construction.
   c. Steel.
   d. Lintels.
   e. Bearing and retaining walls.
   f. Structural decking.
   g. Exterior curtain wall construction.
   h. Equipment Supports.
   i. Piping, ductwork, vessels and equipment.
   j. Structural systems of special construction, as specified by Division- 13 sections.
   k. Shoring, bracing, and sheeting.
   l. Primary operational systems and equipment.

m. Water/moisture/vapor/air/smoke barriers, membranes and flashings.
n. Noise and vibration control elements and systems.
o. Control, communication, conveying, and electrical wiring systems.

E. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years of experience.

F. Products Requiring Electrical Connection: Listed and classified by UL as suitable for the purpose specified and indicated.

1.05 SUBMITTALS

Procedural Proposal for Cutting and Patching: Where prior approval of cutting and patching is required, submit proposed procedures for this work well in advance of the time work will be performed and request approval to proceed. Include the following information, as applicable, in the submittal:

1. Describe nature of the work and how it is to be performed, indicating why cutting and patching cannot be avoided. Describe anticipated results of the work in terms of changes to existing work, including structural, operational and visual changes as well as other significant elements.
2. List products to be used and firms including their qualifications that will perform work.
3. Give dates when work is expected to be performed.
4. List utilities that will be disturbed or otherwise be affected by work, including those that will be relocated and those that will be out-of-service temporarily. Indicate how long utility service will be disrupted.
5. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of unsatisfactory work.
6. When cutting and patching of structural work involves the addition of reinforcement, submit details and engineering calculations to show how that reinforcement is integrated with original structure to satisfy requirements.
7. Contractor shall include a copy of the specification section with check marks acknowledging compliance with each paragraph or an explanation of non-compliance.

1.06 WARRANTY

Existing Warranties: Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void any warranties required or existing.

PART 2 PRODUCTS

2.01 MATERIALS

A. General: Except as otherwise indicated, or as directed by the Contracting Officer, use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics. The use of a trade name and suppliers name and address is to indicate

a possible source of the product. Products of the same type from other sources shall not be excluded provided they possess like physical and functional characteristics.

B. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 EXECUTIONS

3.01 EXAMINATION

A. Before cutting existing surfaces examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

B. Before cutting, examine the surfaces to be cut and patched and the conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the work.
   1. Before the start of cutting work, meet at the work site with all parties involved in .cutting and patching, including mechanical and electrical trades.
   2. Review areas of potential interference and conflict between the various trades. Coordinate layout of the work and resolve potential conflicts before proceeding with the work.

3.02 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas

D. Take precautions necessary to avoid cutting existing pipe conduit, or ductwork serving the building, but schedule to be removed or relocated until provisions have been made to bypass them.

3.03 PERFORMANCE

A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

B. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original conditions.

C. Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original installer; comply with the original installer's recommendations.
   1. In general, where cutting is required, use hand or small tools designed for sawing or grinding, no hammering and chopping. Cut holes and slots neatly to size

required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. To avoid marring existing finish surfaces, cut the exposed or finished side into concealed surfaces.
3. Cut through concrete and masonry using a cutting machine such as carborundum saw or diamond core drill.
4. Comply with requirements of applicable Sections or Division-2 where cutting and patching require excavating and backfilling.
5. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

D. Patching: Patch with durable seams that are as invisible a possible. Comply with specified tolerances.

1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. When removal of walls or partitions extends one finish area into another, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, as necessary to achieve uniform color and appearance.Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken area containing the patch, after the patched area has received primer and second coat.
4. Patch, repair or rehang existing ceiling as necessary to provide an even surface of uniform appearance.

3.04 CLEANING

A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Completely remove paint, mortar, oils, putty, and items of similar nature. Thoroughly clean piping, conduit and similar features before paint or other finishing is applied. Restore damaged pipe covering to its original conditions.

B. Do not permit traffic over unprotected floor surface.

END OF SECTION 01045

SECTION 01060
REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 SCOPE

A. Permits and Responsibilities: The Contractor shall, without additional expense to the City, be responsible for obtaining NPDES permits for stormwater discharges from this project, and for complying with any applicable federal, state, county and municipal laws, codes and regulations, in connection with the prosecution of the Work.

B. The Contractor shall take proper safety and health precautions to protect the Work, the workers, the public and the property of others.

C. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the Work, except for any completed unit of construction thereof which may heretofore have been accepted.

1.02 NPDES PERMITS FOR STORM WATER DISCHARGES

A. The Federal Water Pollution Control Act (also known as the Clean Water Act (CWA)), as amended in 1987, requires National Pollutant Discharge Elimination System (NODES) permits for storm water discharges associated with industrial activity.

B. On November 16, 1990, (55 FR 47990), the Environmental Protection Agency (EPA) issued regulations establishing permit application requirements for storm water discharges associated with industrial activity. These regulations are primarily contained in Section 122.26 of Section 40 of the Code of Federal Regulations (40 CFR Part 122.26).

C. The November 16, 1990 regulation established the following definition of "storm water discharge associated with industrial activity" at 40 CFR 122.26(b)(14):

"Storm water discharge associated with industrial activity" means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. For the categories of industries identified in subparagraphs (i) through (x) of this subsection, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process

waste waters (as defined at 40 CFR 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. The following categories of facilities are considered to be engaging in "industrial activity" for purposes of this subsection:

(ix) and (xi) omitted for brevity.

(x) Construction activity including clearing, grading and excavation activities except: operations that result in the disturbance of less than five acres of total land area which are not part of a larger common plan of development or sale;

D. These regulations are effective for all activities covered by the regulation on or after October 1, 1992.

E. As a minimum, the Contractor shall complete EPA Form 3510-2F. A manual entitled "Guidance Manual for the Preparation of NPDES Permit Applications for Storm Water Discharges Associated With Industrial Activity" as published by the United States Environmental Protection Agency, is available to assist the Contractor in the application process.

END OF SECTION 01060

SECTION 01071
STANDARD REFERENCES

Wherever used in the project manual, the following abbreviations will have the meanings listed:

AA	Aluminum Association Incorporated P.O. Box 753 Waldorf, MD 20604
AABC	Associated Air Balance Council 1518 K Street N.W. Washington, DC 20005
AAMA	American Architectural Manufacturers Association 1540 East Dundee Road, Suite 310 Palatine, IL 60067
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, N.W., Suite 249 Washington, DC 20001
ABMA	American Bearing Manufacturers Association 1200 19th Street N.W., Suite 300 Washington, DC 20036
ACI	American Concrete Institute 22400 West Seven Mile Road P.O. Box 19150, Redford Station Detroit, MI 48219
AEIC	Association of Edison Illuminating Companies 600 North 18th Street P.O. Box 2641 Birmingham, AL 35291
AGA	American Gas Association ATTN: Records 1515 Wilson Boulevard Arlington, VA 22209
AGMA	American Gear Manufacturer's Association, Inc. 1500 King Street, Suite 201 Alexandria, VA 22314
AHA	American Hardboard Association 1210 West Northwest Highway Palatine, IL 60067
AISC	American Institute of Steel Construction One East Wacker Drive, Suite 3100 Chicago, IL 60601
AISI	American Iron and Steel Institute 1101 Seventeenth Street, NW, Suite 1300 Washington, DC 20036
AITC	American Institute of Timber Construction 7012 South Revere Parkway, Suite 140 Englewood, CO 80112
ALSC	American Lumber Standard Committee

	P.O. Box 210 Germantown, MD 20875
AMCA	Air Movement and Control Association, Inc. 30 West University Drive Arlington Heights, IL 60004
ANSI	American National Standards Institute 11 West 42nd Street, 13th Floor New York, NY 10036
APA	American Plywood Association 7011 South 19th Street Tacoma, WA 98466
API	American Petroleum Institute 1220 "L" Street N.W. Washington, DC 20005
ARI	Air-Conditioning and Refrigeration Institute 4301 North Fairfax Drive, Suite 425 Arlington, VA 22203
ASCE	American Society of Civil Engineers United Engineering Center 345 East 47th Street New York, NY 10017
ASCII	American Standard Code for Information Interchange United States of America Standards Institute 10 East 40th Street New York, NY 10016
ASE Code	American Standard Safety Code for Elevators, Dumbwaiter and Escalators American National Standards Institute 1430 Broadway New York, NY 10018
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers, Inc. 1791 Tullie Circle, NE Atlanta, GA 30329
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASTM	American Society for Testing and Materials 100 Barr Harbor Drive West Conshohocken, PA 19428
AWPA	American Wood-Preservers' Association 9549 Old Fredrick Road Ellicott City, MD 21042 or P.O. Box 286 Woodstock, MD 21163-0286
AWS	American Welding Society 550 NW LeJeune Road P.O. Box 351040

	Miami, FL 33135
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
BOCA	Building Officials and Code Administrators, International, Inc. 4051 West Flossmoor Road Country Club Hills, IL 60478
CALTEST	Materials Manual, State of California, Business and Transportation Agency Department of Public Works State of California, Department of Transportation 6002 Folsom Boulevard Sacramento, CA 95819
CALTRANS	Standard Specifications, State of California, Department of Transportation State of California, Business and Transportation Agency P.O. Box 1499 Sacramento, CA 95807
CBM	Certified Ballast Manufacturers 2120 Keith Building Cleveland, OH 44115
CMAA	Crane Manufacturers Association of America, Inc. (Formerly called: Overhead Electrical Crane Institute) (OECI) 8720 Red Oak Boulevard, Suite 201 Charlotte, NC 28217
CRSI	Concrete Reinforcing Steel Institute 933 N Plum Grove Road Schaumburg, IL 60173
CSA	Canadian Standards Association 178 Rexdale Boulevard Rexdale, Ontario, M9W IR3, Canada
DEMA	Diesel Engine Manufacturer's Association 30200 Detroit Road Cleveland, OH 44145
DHI	Door and Hardware Institute 14170 Newbrook Drive Chantilly, VA 22021
DIS	Division of Industrial Safety California Department of Industrial Relations 2422 Arden Way Sacramento, CA 95825
EEI	Edison Electric Institute 90 Park Avenue New York, NY 10016
EIA	Electronic Industries Association Order from: Global Engineering Documents 18201 McDurmott West Irvine, CA 92714
EJMA	Expansion Joint Manufacturers Association

	25 North Broadway Tarrytown, NY 10591
ESO	Electrical Safety Orders California Administrative Code, Title 8, Chap. 4, Subarticle 5 Office of Procurement, Publications Section P.O. Box 20191 8141 Elder Creek Road Sacramento, CA 95820
FEDSPEC	Federal Specifications General Services Administration Specification and Consumer Information Distribution Branch Washington Navy Yard, Bldg. 197 Washington, DC 20407
FEDSTDS	Federal Standards (see FEDSPECS)
FM	Factory Mutual Engineering and Research Corporation 1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, MA 02062
HEI	Heat Exchange Institute 1300 Sumner Avenue Cleveland, OH 44115
HI	Hydraulic Institute 9 Sylvan Way, Suite 180 Parsippany, NJ 07054
HPVA	Hardwood Plywood & Veneer Association 1825 Michael Faraday Drive P.O. Box 2789 Reston, VA 22090-2789
IAPMO	International Association of Plumbing and Mechanical Officials 20001 Walnut Drive S Walnut, CA 91789
ICBO	International Conference of Building Officials 5360 Workman Mill Road Whittier, CA 90601
ICEA	Insulated Cable Engineers Association P.O. Box 440 South Yarmouth, MA 02664
IEEE	Institute of Electrical and Electronics Engineers 445 Hoes Lane P.O. Box 1331 Piscataway, NJ 08855
IES	Illuminating Engineering Society of North America 120 Wall Street New York, NY 10017
ISA	Instrument Society of America 67 Alexander Drive

	P.O. Box 12277 Research Triangle Park, NC 27709
JIC	Joint Industrial Council 7901 West Park Drive McLean, VA 22101
MFMA	Metal Framing Manufacturers Association 401 N. Michigan Avenue Chicago, IL 60611
MILSPEC	Military Specifications Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
MSS	Manufacturers Standardization Society of the Valve & Fittings Industry, Inc. 127 Park Street, N.E. Vienna, VA 22180
NAAMM	National Association of Architectural Metal Manufacturers 11 South La Salle Street, Suite 1400 Chicago, IL 60603
NACE	National Association of Corrosion Engineers 1440 South Creek Drive Houston, TX 77084
NBC	National Building Code Published by BOCA
NEC	National Electrical Code National Fire Protection Association One Batterymarch Park P.O. Box 9101 Quincy, MA 02269
NELMA	Northeastern Lumber Manufacturers Association, Inc. P.O. Box 87A Cumberland Center, ME 04021
NEMA	National Electrical Manufacturer's Association 2101 L Street, NW, Suite 300 Washington, DC 20037
NESC	National Electric Safety Code American National Standards Institute 1430 Broadway New York, NY 10018
NFOR	National Forest Products Association (Formerly National Lumber Manufacturer's Association) 1111 19 Street NW, Suite 700 Washington, DC 20036
NFPA	National Fire Protection Association One Batterymarch Park P.O. Box 9101 Quincy, MA 02269
NHLA	National Hardwood Lumber Association 6830 Raleigh LaGrange

	P.O. Box 34518 Memphis, TN 38184-0518
NSF	National Sanitation Foundation 3475 Plymouth Road P.O. Box 130140 Ann Arbor, MI 48113
OSHA	Occupational Safety and Health Act U.S. Department of Labor Occupational and Health Administration San Francisco Regional Office 450 Golden Gate Avenue, Box 36017 San Francisco, CA 94102
PCI	Precast/Prestressed Concrete Institute 175 West Jackson Blvd., Suite 1859 Chicago, IL 60604
PPIC	The Plumbing & Piping Industry Council, Inc. 510 Shatto Place, Suite 402 Los Angeles, CA 90020
RIS	Redwood Inspection Service California Redwood Association 405 Enfrente Dr., Suite 200 Novato, CA 94949
RMA	Rubber Manufacturers Association 1400 K Street NW, Suite 900 Washington, DC 20005
SAE	Society of Automotive Engineers, Inc. 400 Commonwealth Drive Warrendale, PA 15096
SAMA	Scientific Apparatus Makers Association One Thomas Circle Washington, DC 20005
SBC	Standard Building Code Published by SBCCI
SBCCI	Southern Building Code Congress International Inc. 900 Montclair Road Birmingham, AL 35213
SCMA	Southern Cypress Manufacturers Association 400 Penn Center Boulevard, Suite 530 Pittsburg, PA 15235
SDI	Steel Door Institute 30200 Detroit Road Cleveland, OH 44145
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc. P.O. Box 221230 Chantilly, VA 22021
SPI	Society of the Plastics Industry, Inc. 1275 K Street NW, Suite 400 Washington, DC 20005

SPIB	Southern Pine Inspection Bureau 4709 Scenic Highway Pensacola, FL 32504
SSPC	Society for Protective Coatings 40 24th Street, 6th Floor Pittsburgh, PA 15222
SSPWC	Standard Specifications for Public Works Construction Building News, Inc. 3055 Overland Avenue Los Angeles, CA 90034
TEMA	Tubular Exchanger Manufacturer's Association 25 North Broadway Tarrytown, NY 10591
TPI	Truss Plate Institute 583 D'Onofrio Drive, Suite 200 Madison, WI 53719
UBC	Uniform Building Code Published by ICBO
UL	Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, IL 60062
UMC	Uniform Mechanical Code Published by ICBO
UPC	Uniform Plumbing Code Published by IAPMO
USBR	Bureau of Reclamation U.S. Department of Interior Engineering and Research Center Denver Federal Center, Building 67 Denver, CO 80225
WCLIB	West Coast Lumber Inspection Bureau 6980 SW Varns St. P.O. Box 23145 Portland, OR 97223
WWPA	Western Wood Products Association (Formerly called: West Coast Lumbermen's Association (WCLA)) Yeon Building 522 SW 5th Avenue Portland, OR 97204

END OF SECTION 01071

SECTION 01100
SPECIAL PROJECT PROCEDURES

PART 1 - GENERAL

1.01 CONNECTIONS TO EXISTING SYSTEMS

A. The Contractor shall perform all work necessary to locate, excavate, and prepare for connections to the terminus of the existing systems as shown on the Drawings. The cost for this work and for the actual connection to the existing systems shall be included in the bid price for the project and shall not result in any additional cost to the City. Connections shall be made only after approval by the Engineer.

B. The Contractor shall coordinate with all trades involved to provide a complete and operating systems.

1.02 RELOCATIONS

A. The Contractor shall be responsible for the relocation of structures, including but not limited to light poles, signs, sign poles, fences, piping, conduits, and drains that interfere with the positioning of the Work as set out on the Drawings. The cost of all such relocations shall be included in the bid price.

B. The Contractor shall coordinate and schedule with owner relocating any and all equipment and structure on the project site.

1.03 EXISTING UNDERGROUND PIPING, STRUCTURES, AND UTILITIES

A. The attention of the Contractor is drawn to the fact that during excavation, the possibility exits of the Contractor encountering various water, gas, telephone, electrical, or other utility lines not showed on the Drawings. The Contractor shall exercise extreme care before and during excavation to locate and flag these lines so as to avoid damage to the existing lines. Should damage occur to an existing line, the Contractor shall repair the line at no cost to the City.

B. The locations of existing underground piping structures and utilities are shown without express or implied representation, assurance, or guarantee that they are complete or correct or that they represent a true picture of underground piping to be encountered.

C. The existing piping and utilities that interfere with new construction shall be rerouted as shown, specified, or required. Before any piping and utilities not shown on the Drawings are disturbed, the Contractor shall notify the Engineer of the location of the pipeline or utility and shall reroute or relocate the pipeline or utility as directed.

D. The Contractor shall exercise care in any excavation to locate all existing piping and utilities. All utilities, which do not interfere with complete work, shall be carefully protected against damage. Any existing utilities damaged in any way by the Contractor shall be restored or replaced by the Contractor at its expense as directed by the Engineer.

1.04 HAZARDOUS LOCATIONS

The existing wet wells, manholes and related areas are hazardous locations, in that explosive concentrations of sewage gas may be present. The Contractor is cautioned that the above areas, especially the wet well, may be deficient in oxygen. Checks shall be made by the Contractor whenever personnel are working in these areas to determine if adequate oxygen is available.

1.05 CONNECTIONS TO WORK BY OTHERS

A. As shown on the Drawings, equipment, various network components, fiber, backbone, raceways and cables constructed under this Contract are to be connected to existing instrumentation and control systems to be install by others.

B. Equipment, various network components, fiber, backbone, raceways and cables built under this Contract will be connected to pipelines constructed by others by removing the existing instrumentation and control systems and making the connection..

1.06 SHUTDOWNS FOR INSTRUMENTATION AND CONTROL AND ELECTRICAL WORK

The contractor shall coordinate shutdowns with RM Clayton WRC plant manager before beginning any work schedule any shutdowns of any equipment included in this scope of work indicated within these specifications and design documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01100

SECTION 01200
MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 SCOPE

A. Work includes furnishing all plant, labor, equipment, tools, materials, and performing all operations required to complete the Work satisfactorily, in-place, as specified and as indicated on the Drawings.

B. All costs of required items of work and incidentals necessary for the satisfactory completion of the Work shall be considered as included in the Total Bid. The cost of work not directly covered by the pay items shall be considered incidental to the contract and no additional compensation shall be allowed.

C. The Contractor shall take no advantage of any apparent error or omission on the Drawings or Specifications, and the Engineer shall be permitted to make corrections and interpretations as may be deemed necessary for fulfillment of the intent of the Contract Documents.

1.02 SUBMITTALS

A. The Contractor shall submit to the Engineer for approval, in the form directed or acceptable to the Engineer, a complete schedule of values of the various portions of the Work, including quantities and unit prices, aggregating the Contract Price. An unbalanced breakdown providing for overpayment to the Contractor on items of Work, which would be performed first, will not be approved.

B. Submit application for payment on a form approved by the Engineer showing allowances, lump sum schedule of value items, and unit price items in accordance with Section SC-16.

C. Final payment quantities shall be determined from the record drawings. The record drawing lengths, dimensions, quantities, etc. shall be determined by a survey after completion of all required work. The precision of final payment quantities shall match the precision shown for that item in the Bid Schedule.

1.03 LUMP SUM ITEM

A. Payment of the lump sum item (Bid Item No. 1) established in the Contractor's Bid shall be full compensation for all labor, materials, and equipment required to furnish, install, construct, and test the Work covered under the lump sum bid item including the 5 Year Foxboro Customer First Program Support and Services Agreement, in a form acceptable to the City.

B. Payment of the lump sum item (Bid Item No. 1) established in the Contractor's Bid shall also fully compensate the Contractor for any other work which is not specified or shown, but which is necessary to complete the Work.

C. The lump sum item shall be specifically subdivided by Activity, broken-out in the Schedule of Values.

D. Payments for the lump sum items specifically broken-out in the Schedule of Values will be based upon physical progress for each activity in accordance with the breakdown of the Lump Sum prices agreed to in the Schedule of Values.

1.04 UNIT PRICE (NOT USED)

A. Payment for all work shall be in accordance with the unit price bid items in the Bid Schedule and shall be full compensation for all labor, materials, and equipment required to furnish, install, construct, and test the Work covered under the unit price bid item. Work for which there is no price schedule item will be considered incidental to the Work and no additional compensation shall be allowed.

B. Payment will be made only for the actual quantities of work performed in compliance with the Drawings and Specifications. The Contractor will be paid an amount equal to the approved quantity times applicable unit price. Any unused balance of the unit price work shall revert to the City upon completion of the project.

C. All unit price work shall be considered as part of the Work to be performed within the time limits specified elsewhere for Substantial Completion and Project Completion. No increase in contract time will be allowed for increases in quantities of unit price work performed beyond the quantities shown in the Bid Schedule, unless it can be demonstrated that the additional Work performed under the unit price item is on the critical path of the Project Schedule.

1.05 ALLOWANCES

A. The allowances specified in the Bid Schedule are to establish a fund to pay the cost of items for which the City could not establish accurate quantities and/or detailed scope of work. This work shall be completed only at the written direction of the Engineer, and the cost of such work shall be approved prior to performance of the work.

B. The Contractor shall be responsible for the payment for these services to the appropriate payee providing such service, and shall submit evidence of payments to the Engineer prior to its inclusion in the progress payments.

C. Payment will be made for invoices submitted by the Contractor subject to the conditions and limitations in the Contract Documents.

D. Allowance allocations shall only be paid to the Contractor for completed work authorized by the Engineer. All allowance dollar amounts not expended shall revert to the City at the completion of the project. Should the final allowance costs be less than the specified amount of the allowance the Contract will be adjusted accordingly by change order. The amount of change order will not recognize any changes in handling costs at the site, labor, overhead, profit and other expenses caused by the adjustment to the allowance item.

E. Unforeseen Work Elements: An allowance has been established as the value of this item. This allowance may be used, as authorized and directed by the Engineer, to pay the costs of additional work, where the cost amounts are determined as specified in General Condition Article GC-42.3 for Force Account Work. This work, not shown or specified in the Drawings and Specifications bid by the Contractor and not covered by another item in the Bid Schedule, may be required in the event the Engineer establishes the need for additional work deemed to be necessary for the successful completion of this contract.

F. Additional Field Instrumentation: An allowance has been established as the value of this item. This allowance may be used, as authorized and directed by the Engineer, to pay the costs of replacement and new field instrumentation including replacing defective field instruments that are necessary to provide readings for effective testing of the upgraded PLCs and Foxboro Distributive Control System, where the cost amounts are determined as specified in General Condition Article GC-42.3 for Force Account Work. This work, not shown or specified in the Drawings and Specifications bid by the Contractor and not covered by another item in the Bid Schedule, may be required in the event the Engineer establishes the need for additional work deemed to be necessary for the successful completion of this contract.

G. Partnering: An allowance has been established as the value of this item. This allowance may used, as authorized and directed by the Engineer, to pay the costs of additional work. The additional work would be related to a City directed partnering requirement throughout the construction and start-up activities.

H. The Partnering allowance will be considered “pass through” allowances. As such, the Partnering allowance will not be subject to markup for overhead and profit.

END OF SECTION 01200

SECTION 01320
CONSTRUCTION VIDEOS AND PHOTOGRAPHS

PART 1 - GENERAL

1.01 SCOPE

A. The Contractor shall furnish all equipment, labor, and materials required to provide the Owner with digital construction videos and photographs of the Project.

B. Photo and video files shall become the property of the Owner and none of the videos or photographs shall be published without express permission of the Owner.

1.02 PRE- AND POST-CONSTRUCTION VIDEOS AND PHOTOGRAPHS

A. Prior to the beginning of any work, the Contractor shall take videos and photographs of the work area to record existing conditions.

B. Following completion of the work, another set of videos and photographs shall be made showing the same areas and features as in the pre-construction videos and photographs.

C. All conditions which might later be subject to disagreement shall be shown in sufficient detail to provide a basis for decisions.

1.03 PROGRESS VIDEOS AND PHOTOGRAPHS

A. Progress videos and photographs shall include the date and time marking of the recording.

B. A minimum of twenty-five (25) videos/photographs shall be submitted with each request for payment. The view selections will be as approved by the Engineer.

1.04 FILE FORMAT, MEDIA AND SUBMITTALS

A. Photographs shall be in “jpg” format.

B. Videos shall be in a format viewable by Microsoft Windows Media Player or Apple QuickTime Player. Audio narration is desirable.

C. Files shall be named such that what is being viewed is self evident.

D. Files shall be submitted on a compact disk (CD) or a digital video disk (DVD). If submitted on DVD, disk shall be recorded in “Minus R” format.

E. The pre-construction videos and photographs shall be submitted to the Engineer within twenty-five (25) calendar days after the date of receipt by the Contractor of Notice to Proceed. Post-construction videos and photographs shall be provided prior to final acceptance of the Project.

F. Construction photographs shall be submitted with each payment request. Failure to include photographs may be cause for rejection of the payment request.

END OF SECTION 01320

SECTION 01350
PROJECT DOCUMENT TRACKING AND CONTROL SYSTEM

1.01 SCOPE

A. The Contractor shall utilize the City of Atlanta's Project Document Tracking and Control System (DTCS). The primary function of the system is to facilitate timely processing and approval of all contract documentation in coordination with the overall Project Schedule established by these Specifications and the Contractor. This system will utilize Oracle Unifier for document tracking and control and Lynx Photo Management software. The Oracle Unifier software will:

1. Facilitate communication among the Owner, Engineer and Contractor;

2. Facilitate turn-around time with regard to responses and approvals;

3. Provide a central location for all Project information to facilitate all Project participants in performing their tasks based on the latest Project data;

4. Provide a standard system of project administration with accountability.

B. The Contractor shall be required to utilize the web-based DTCS system that resides on the Department of Watershed Management server to generate documents in the proper format for submission to the City. The Contractor shall access the system through the internet using a compatible web browser from the Contractor's administrative field office location, and/or other locations where work associated with the Project is being performed.

C. The Contractor shall be required to generate Project documents and records utilizing the aforementioned system. The Contractor shall be required to transmit and submit the Project documents within the system to the City.

D. The Contractor shall utilize a high capacity scanner capable of scanning 11 x 17 documents, double sided, on site for the entire duration of the Project. All documents must be scanned in and attached to the appropriate Unifier document, including submittals, shop drawings, O&M's and all other documents requested by the Engineer.

E. The Contractor shall utilize the DTCS to create and maintain Project documents, including, but not limited to the following:

1. Company Directory: Addresses, Phone Numbers, Personnel Contacts, etc.

2. Drawings Log: Current Drawing revision log

3. Submittals (Integrated with Project Schedule through Activity codes)

4. Transmittals

5. Requests for Information and Answers (RFIs)

6. Change Documents, Including:
   a. Requests for Proposal (RFPs)

   b. Work Authorizations (WAs)

   c. Change Order Requests (CORs)

   d. Change Orders (CO)

   e. Design Clarifications (DC)

7. Daily Reports (Daily Diaries)

8. Field Decisions & Clarification Memos

9. Notice of Non-Compliance

10. Construction Issue Memos

11. Punchlists

12. Meeting Minutes & Agendas

13. Correspondence

14. Work Plans

15. Start-up Plans

16. Equipment Operation and Maintenance Training

17. Spare Parts

F. The Contractor shall utilize the complete capabilities of the DTCS to meet the requirements of this Section. The Contractor shall provide a highly trained and experienced construction project controls person knowledgeable in construction work sequencing, productivity, scheduling and application of the Skire Unifier software system. This person, along with the Contractor's management team, shall work closely with the City to deliver the documents outlined in this Section

G. Software Support

1. The Contractor is to provide for a one day training class in the base bid for the Lynx PM software for ten personnel, seven for City of Atlanta and three for the Contractor. Type of class to be determined by the City. The Contractor may contact Lynx PM Representative at 1-877-955-7711.
2. The contractor shall purchase five (5) additional licenses of the Skire Unifier software on behalf of the City for use during the project. At project

close, the licenses will remain City property.

3. The Contractor shall be required to establish an internet connection using DSL or better to connect to the DTCS to permit the forwarding and receipt of documents.

   a. The Skire Unifier software supports the following Email programs, and the Contractor is to utilize:

      (1) Microsoft Outlook 2003

      (2) Microsoft Outlook 2007

      (3) Future versions of Outlook released up to bid date.

   b. The Contractor shall also provide 2 days of consulting services in the base bid for troubleshooting and maintenance of the DTCS at any location designated by the City or at the Contractor's administrative field office (if authorized by the City). Troubleshooting, maintenance, upgrade, configuration, and set up shall be performed by Evans Technology or their authorized representative based on a scope pre-defined by the City of Atlanta. The Contractor shall utilize the custom data fields, dictionaries, and coding systems as required by the City of Atlanta.

H. The Contractor shall be required to attend a 2-day training session on the operation of the City's DTCS, provided by a Skire Authorized Trainer. The Contractor shall provide the training session for ten participants (fee for the Skire Authorized Trainer). The training session shall be attended by the Contractor (limited to three participants) as well as representatives of the Owner (seven participants). The Contractor shall be responsible for the cost of training for additional members of their firm or future retraining, as may be deemed necessary by the Contractor.

I. The Contractor shall meet with the City within 15 days after the Contract is awarded to discuss access requirements and the Contractor's plan to utilize DTCS and execute the document control functions herein.

J. Access through the internet to the DTCS shall be operational within 30 days following the pre-construction meeting date. This must be operational from the contractor's administrative field office location.

1.02 COMPANY DIRECTORY

The Contractor and the City will monitor and manage the Company Directory. The directory must include Company name, Company abbreviation, contact names, address, phone numbers and e-mail addresses.

1.03 DRAWING LOG

The City will maintain a log of initial "issued for construction" drawings in the DTCS. Information shall include drawing number, title and revision number. In addition to logging the initial project drawing list, the City will maintain a log on the DTCS of all subsequent revisions to these drawings and any sketches resulting from clarification memos, RFIs, field orders and Change Orders. It is the Contractor's responsibility to utilize the latest drawings and sketches in the performance of the work.

1.04 SUBMITTALS/SHOP DRAWINGS

A. Requirements: This section specifies supplemental requirements to GC-28, related to the processing of submittals and shop drawings. The Contractor will utilize the DTCS to log and track submittals, as well as generate associated transmittal letters.

B. Submittals & Product Data: A list of all required submittals will be entered into the DTCS by the Contractor. Submittals shall be incorporated into packages, with numbering to be provided by the COA's engineer. The Contractor will log and track all submittals utilizing the DTCS. Each review cycle shall be entered into the DTCS. The Contractor shall identify as activities in the CPM schedule, specified in SC-16, to include all data submittals, as well as those involving complex reviews and long lead deliveries, and all procurement items required for construction activities Submittal schedule information shall be updated monthly with the Contractor's updated project CPM schedule, as specified in SC-16.

C. Samples: A list of all required sample submittals will be entered into the DTCS by the Contractor. Sample submittals shall be identified as individual submittals within the submittal packages with numbering as specified above.

D. Guarantees/Warranties: A list of all required Guarantee/Warranty submittals will be entered into the DTCS by the Contractor. These submittals shall be identified as individual submittals within the submittal packages with numbering as specified above.

E. Work Plans, Start-up Plans, O&M Submittals and Spare Parts: All testing, Start-up and O&M submittals will be entered into the DTCS by the Contractor. These submittals shall be identified as individual submittals within the submittal packages identified with numbering as specified above.

F. Submittal Procedures: The Contractor shall prepare all submittal packages utilizing the submittal numbering system, description and packaging conventions described above. Submittals prepared by the Contractor, which fail to follow the conventions described above, will be returned "amend and resubmit". Should the Contractor determine that a submittal is required and is not covered by the listing within the DTCS, consultation with the City to determine the submittal number, description and packaging will be required.

1.05 CORRESPONDENCE

The City shall monitor and manage the correspondence, Non-Compliance Notices, Field Decisions & Clarification Memos and Construction Issue Memo logs. The Contractor is responsible for generating Project correspondence within the DTCS, and forwarding the correspondence to the City.

1.06 TRANSMITTAL LOG

The Contractor and the City will monitor and manage the transmittal log. All Project transmittals shall be created electronically, automatically sequentially numbered and logged into the DTCS system as they are created. The Contractor is responsible for utilizing the system to create transmittals for items transmitted to the Owner, Engineer, Resident Inspection Staff and other Contractors.

1.07 REQUEST FOR INFORMATION & ANSWERS

The Contractor shall be responsible for generating RFIs on the DTCS system. The Contractor shall notify the City when an RFI is submitted. The City will monitor and manage the RFI log. The City will generate an Answer document in response to each RFI and forward them to the Contractor. The DTCS will track "Ball in Court" for all RFIs and Answers, as well as date of original generation and response date. In addition the RFIs will reference the relative Specification Section and Drawings. The DTCS will identify the date of the request and the originator, responsible party for a response and the date of the response.

1.08 CHANGE DOCUMENTS

Change documents include Request for Proposals (RFPs), Work Authorization Requests (WARs), Work Authorizations (WAs), Change Orders Requests (CORs), Design Clarifications (DCs), and Change Orders (COs). All change documents will be monitored and managed by the City utilizing the DTCS. The DTCS will track "Ball in Court" status of all change documents.

1.09 DAILY REPORTS

The Contractor is responsible for creating daily reports (daily diaries) utilizing the DTCS. The Contractor is required to enter the Daily Reports into the DTCS by 10:00 a.m. of the subsequent day that the Contractor or any subcontractor performs work. All daily reports shall be logged into the DTCS by the Contractor. The Contractor shall also provide one signed hard copy of all daily reports on a weekly basis. Required information shall include Contractor, Date, Day, Temperature, Precipitation, Sky, Wind, Work Activity, Equipment, Field Force, Visitors, Materials, and Scheduled Activities utilizing the Primavera schedule activity codes. Daily reports which fail to link work activities to the active Primavera schedule will not be acceptable.

1.10 PUNCHLISTS

The City will monitor and manage Punchlists, and will create Punchlists to be forwarded to the Contractor. The Contractor shall address the punchlist items that have been assigned to the Contractor and forward updates to the City. Once accepted as complete, the City will access the punchlist in the DTCS and close it out.

1.11 MEETING MINUTES AND AGENDA

The City shall monitor and manage the meeting minute process. The City will forward meeting minutes to the Contractor electronically. The City will log the meeting minute items into the DTCS within 3 days of the meeting date.

1.12 PROGRESS PAYMENTS /REQUISITIONS FOR PAYMENT

The Contractor is responsible for creating progress payment applications directly from the Skire Unifier software and then forwarding them to the City electronically along with hard copies by 4:00 p.m. at the end of each update/billing period. The Contractor shall also simultaneously provide a separate submittal of the updated Primavera progress schedule (P6 or latest version at the time of purchase), as specified in SC-16. All Progress Payments and schedule of values shall be developed as defined in the Special Conditions. Required information within the Pay Application shall be coordinated with the City's Project Manager. Maintenance of the "As Built" record documents by the Contractor shall be verified before processing will be approved. Failure of a Contractor to maintain project record documents, maintain current and properly prepared daily reports or to submit the project schedule update per SC-16 will be just cause for withholding of the monthly or final payment.

1.13 LYNX PHOTO MANAGEMENT SOFTWARE

The Lynx PM software shall be utilized by the City and the Contractor for the duration of the project. The daily construction photographs will be the permanent visual record of the pre-construction conditions, daily construction site activities, and the completion of construction work. The Contractor must submit to the City no less than four record photos for each activity ID listed in the project schedule per the last schedule update. Applicable photos must accompany each Pay Application.

+++ END OF SECTION 01350 +++

SECTION 01400
QUALITY ASSURANCE/QUALITY CONTROL

PART 1 - GENERAL

1.01 SCOPE

A. This section includes requirements for the implementation of the Contractor's quality assurance and quality control program.

B. Related sections:

1. Section 01410 Testing Laboratory Services.
2. Section 01600, General Equipment and Material Requirements.
3. Section 01664, Training.

1.02 REFERENCES (NOT USED)

1.03 SITE INVESTIGATION AND CONTROL

A. The Contractor shall check and verify all dimensions and conditions in the field continuously during construction. The Contractor shall be solely responsible for any inaccuracies built into the Work due to the Contractor's failure to comply with this requirement.

B. The Contractor shall inspect related and appurtenant Work and report in writing to the Engineer any conditions that will prevent proper completion of the Work. Failure to report such conditions shall constitute acceptance of all Site conditions, and any required removal, repair, or replacement caused by unsuitable conditions shall be performed by the Contractor solely and entirely at the Contractor's expense.

1.04 INSPECTION OF THE WORK

A. All Work performed by the Contractor shall be inspected by the Contractor and non-conforming Work and any safety hazards in the work area shall be noted and corrective action shall be taken immediately. The Contractor is responsible for performing the Work safely and in conformance with the Agreement Documents.

B. The Work shall be conducted under the general observation of the Engineer and is subject to inspection by representatives of the Owner acting on behalf of the Owner to ensure strict compliance with the requirements of the Agreement Documents. Such inspection may include mill, plant, shop, or field inspection, as required. The Engineer shall be permitted access to all parts of the Work, including plants where materials or equipment are manufactured or fabricated.

C. The presence of the Engineer, however, shall not relieve the Contractor of the responsibility for the proper execution of the Work in accordance with all requirements of

the Agreement Documents. Compliance is the responsibility of the Contractor. No act or omission on the part of the Engineer, shall be construed as relieving the Contractor of this responsibility. Inspection of Work later determined to be non-conforming shall not be cause or excuse for acceptance of the non-conforming Work.

D. All materials and articles furnished by the Contractor shall be subject to rigid documented inspection, by qualified personnel, and no materials or articles shall be used in the Work until they have been inspected and accepted by the Contractor's Quality Control representative and the Engineer or other designated representative. No Work shall be backfilled, buried, cast in concrete, covered, or otherwise hidden until it has been inspected and approved by the Engineer. Any Work covered in the absence of inspection shall be subject to uncovering. Where uninspected Work cannot be easily uncovered, such as in concrete cast over reinforcing steel, all such Work shall be subject to demolition, removal, and reconstruction under proper inspection at the Contractor's expense.

E. All materials, equipment, and/or articles furnished to the Contractor by the Owner shall be subject to thorough inspection by the Contractor's Quality Control representative before being used or placed by the Contractor. The Contractor shall inform the Engineer, in writing, of the results of said inspections within one working day after completion of inspection. In the event the Contractor believes that any material or articles provided by the Owner to be of insufficient quality for use in the Work, Contractor shall immediately notify the Engineer.

1.05 TIME OF INSPECTION AND TESTS

A. Samples required under these Specifications shall be furnished and prepared for testing in ample time for the completion of the necessary tests and analyses before said articles or materials are to be used. The Contractor shall furnish and prepare all required test specimens at the Contractor's own expense.

B. When the Contractor is ready to backfill, bury, cast in concrete, or otherwise cover any Work under this Contract, the Engineer shall be notified not less than three (3) Work Days in advance to request inspection before beginning any such Work of covering. Failure of the Contractor to notify the Engineer at least three (3) Work Days in advance of any such inspections shall be reasonable cause for the Engineer to order a sufficient delay in the Contractor's schedule to allow time for such inspection. The costs of any remedial or corrective work required, and all costs of such delays, including its impact on other portions of the Work, shall be borne by the Contractor.

1.06 SAMPLING AND TESTING

A. The Contractor shall retain and pay for an independent materials testing agency approved by the Engineer and the Owner per Article 1.07. The independent testing agency will develop and submit a testing plan for quality assurance on each type of work activity. The testing agency will document the processes and procedures utilized to verify and maintain quality work. When not otherwise specified, all sampling and testing shall be in accordance with the methods prescribed in the most current standards, as applicable to the class and nature of the article or materials considered. However, the

Engineer reserves the right to use any generally accepted system of inspection which, in the opinion of the Engineer, will assure the Engineer that the quality of the workmanship is in full accord with the Agreement Documents. Copies of all test results are to be submitted to the Owner in a timely manner.

B. The Owner reserves the right to abbreviate, modify the frequency of, or waive tests or quality assurance measures. Waiver of any specific testing or other quality assurance measure shall not be construed as a waiver of any technical or qualitative requirements of the Agreement Documents. Whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, the waiver shall not be construed as a waiver of any technical or qualitative requirements of the Agreement Documents. Whether or not such guarantee is accompanied by a performance bond to ensure execution of any necessary corrective or remedial work, the waiver shall not be construed as a waiver of any technical or qualitative requirements of the Agreement Documents.

C. Not withstanding the existence of such waiver, the Owner shall reserve the right to make independent investigations and tests as specified in the following paragraph. Failure of any portion of the Work to meet any of the qualitative requirements of the Agreement Documents shall be reasonable cause for the Owner to require the removal or correction and reconstruction of any such Work.

D. In addition to any other inspection or quality assurance provisions that may be specified, the Owner shall have the right to independently select, or request a second test, and analyze, at the expense of the Owner, additional test specimens of any or all of the materials to be used. Results of such tests and analyses shall be considered, along with the tests or analyses made by the Contractor, to determine compliance with the applicable specifications for the materials so tested or analyzed. Wherever any portion of the Work is discovered, as a result of such independent testing or investigation by the Engineer, which fails to meet the requirements of the Agreement Documents, all costs of such independent inspection and investigation and all costs of removal, correction, reconstruction, or repair of any such Work shall be borne by the Contractor.

1.07 CONTRACTOR'S QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

A. The Contractor shall establish and execute a Quality Assurance/Quality Control (QA/QC) program for the services that are being procured from the Contractor. The program shall provide the Contractor with adequate measures for verification and conformance to defined requirements by his personnel and lower-tier subcontractors (including fabricators, suppliers, and sub-subcontractors). This program shall be described in a QA/QC Plan responsive to this Section. It shall utilize the services of an independent testing agency/company that is industry certified to provide QA/QC and compliance with the standards specified.

B. The Contractor shall furnish the Engineer a project specific QA/QC Plan. The Plan shall contain a comprehensive account of the Contractor's QA/QC procedures as applicable to this job. The Contractor shall furnish for review by the Engineer, no later than fourteen (14) days after receipt of the Notice to Proceed, the QA/QC Plan proposed to be

implemented. The QA/QC Plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. Construction will be permitted to begin only after acceptance of the QA/QC Plan. The detailed requirements for this QA/QC Plan are delineated in the following paragraphs. No payments will be made to the Contractor until the QA/QC Plan is approved by the Engineer.

C. The QA/QC Plan shall describe and define the personnel requirements described herein. The Contractor shall employ a full time on-site Field QA/QC Manager to manage, address, and resolve all QA/QC issues. The QA/QC Manager shall be as identified by the Contractor and agreed to by the Owner. A resume for the potential QA/QC Manager shall be submitted to the Owner for review and approval. The QA/QC Manager shall have a minimum of ten (10) years of experience in the construction of water/wastewater treatment plant and/or conveyance system. The QA/QC Manager shall be onsite at all times while work is being performed by the contractor, to ensure that work is being performed properly and to routinely observe all Work in progress. This individual shall be responsible only for QA/QC activities and shall have no supervisor managerial responsibility other than the QA/QC. No change in the QA/QC Manager may occur without written consent of the Owner, and the prior approval of a replacement.

1. The Contractor shall provide additional personnel who are assigned to assist the QA/QC Manager fulfill the requirements of the QA/QC Plan.
2. The Contractor shall provide a letter (to the QA/QC Manager) signed by an authorized official of the firm empowering the QA/QC Manager to address quality issues, and if necessary, to stop work which is not in compliance with the contract.
3. The QA/QC Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Owner.

D. The Contractor's QA/QC program shall ensure and substantiate quality throughout all areas of the contract. A customized QA/QC Plan shall be developed that discusses each type of work for which the Contractor is responsible within the Project. The QA/QC Plan shall describe the program, include procedures, work instructions, records, and a description of the quality control organization.

1. The description of the quality control organization shall include a chart showing lines of authority, staffing plan, and acknowledgment that the QA/QC staff shall implement the system for all aspects of the work specified. The staffing plan shall identify the name, qualifications (in résumé format), duties, responsibilities, and authorities of each person assigned a QA/QC function including the QA/QC Manager. In addition, the Plan shall describe methods relating to areas that require special testing and procedures as noted in the specifications.
2. This plan shall require a preparatory installation training, follow-up monitoring and ongoing observation of the work.
   a. The preparatory installation training class attendance will be required by the Contractor's and/or sub-contractor's crews before the start of each new construction activity. The Owner will attend and monitor the training. This training will consist of a hands-on demonstration of the work activities by the

crews. The contractor crews shall demonstrate proper construction techniques in the performance of the work. No crews may begin work prior to successfully completing the preparatory installation training. This training will be monitored by the contractor's QA/QC Manager, Safety Manager and supervisory personnel. The QA/QC Manager shall submit a certification to the Engineer after each training session that the work crew have attended and successfully completed the training.

b. The follow-up monitoring will take place no later than 10 days after the preparatory installation training. The follow-up monitoring will require the work crews to continue to demonstrate the proper means and methods of construction as performed in the preparatory installation training class. If in the sole judgment of the Engineer that the Work is not being performed as per the QA/QC Plan and/or the Agreement Documents, the crews shall discontinue the Work and will be required to attend the preparatory training class, again. The QA/QC Manager shall submit a certification to the Engineer after each follow-up training session that the work crews have continued to perform the Work per the QA/QC Plan and/or Agreement Documents. Any retraining will be at no cost to the Owner.

c. Ongoing inspections will take place throughout the duration of the Project. The on-going monitoring will require the work crews to demonstrate the proper means and methods of construction as performed in the preparatory class. If in the judgment of the Engineer that the Work is not being performed as per the QA/QC Plan and/or the Agreement Documents the crews shall be required to attend the preparatory training class, again. Any retraining will be at no cost to the Owner.

E. Identification and Control of Items and Materials: Procedures to ensure that items or materials that have been accepted at the site are properly used and installed shall be described in the QA/QC Plan. The procedures shall provide for proper identification and storage, and prevent the use of incorrect or defective materials.

F. Inspection and Tests: The Contractor shall have written procedures defining a program for control of inspections performed and these procedures shall be described in the QA/QC Plan.

1. Inspections and tests shall be performed and documented by qualified individuals. At a minimum, "qualified" shall mean having performed similar QA/QC functions on similar type projects for a minimum of five (5) years and possession of industry standards certification and license. Records of personnel experience, training, and qualifications shall be submitted to the Engineer for review and approval.

2. The Contractor shall maintain and provide to the Engineer, within two working days of completion of each inspection and test, adequate records of all such inspections and tests. Inspection and test results shall be documented and evaluated to ensure that requirements have been satisfied.

3. Procedures shall include:
   a. Specific instructions defining procedures for observing all Work and comparing the Work with the Contract requirements (organized by specification section).

b. Maintaining and providing Daily QA/QC Inspection Reports. Such reports shall, at a minimum, include the following:
   i) Dated list of Item(s) inspected.
   ii) Location of the test sample(s).
   iii) Logs, detailed location drawings and confirmation reports.
   iv) Quality characteristics in compliance.
   v) Quality characteristics not in compliance.
   vi) Corrective/remedial actions taken.
   vii) Statement of certification.
   viii) QC Manager's signature.
c. Specific instructions for recording all observations and requirements for demonstrating through the reports that the Work observed was in compliance or a deficiency was noted and action to be taken.
d. Procedures to preclude the covering of deficient or rejected Work.
e. Procedures for halting or rejecting Work.
f. Procedures for resolution of differences between the QA/QC representative(s) and the production representative(s).
g. Method of documenting QA/QC process and results including:
   i) Automatic exception reporting.
   ii) Resolution tracking.
   iii) Quality Confirmation Test reports.
   iv) Sample retention index and storage.

4. The QA/QC Plan shall identify all contractual hold/inspection points as well as any Contractor imposed hold/inspections points.

5. The QA/QC Plan shall include procedures to provide verification and control of all testing provided by Contractor including:
   a. Individual test records will contain the following information:
      i) Item tested – item number and description.
      ii) Test results.
      iii) Test designation.
      iv) Test work sheet including location sample was obtained.
      v) Acceptance or rejection.
      vi) Date sample was obtained.
      vii) Retest information, if applicable.
      viii) Control requirements.
      ix) Tester signature.
      x) Testing QC staff initials.
   b. Maintaining and providing to the Engineer Daily Testing Records. Such records shall, at a minimum, contain the following:
      i) Dated list of Item(s) inspected.

ii) Location of the test sample(s) Logs, detailed location drawings and confirmation reports.

iii) Quality characteristics in compliance.

iv) Quality characteristics not in compliance.

v) Corrective/remedial actions taken.

vi) Statement of certification.

6. QA/QC Manager's signature providing for location maps/drawings (i.e. lift drawings, instrument loop sheets, laying schedules, etc.) for all tests performed or location of Work covered by the tests.

7. Maintaining copies of all test results.

8. Ensuring Engineer receives a copy of all tests directly from lab(s).

9. Ensuring testing lab(s) are functioning independently of Contractor in accordance with the specifications.

10. Ensuring re-tests are properly taken and documented.

11. Special Inspection and Documentation: In addition to the above inspection requirements, certain Special Inspection and Documentation requirements may be contained in the specification Sections. Perform Special Inspection and Documentation and submit a record showing results on an "as occurred" basis unless otherwise indicated.

12. The Contractor will employ separate qualified persons to provide Special Inspections required by reference 1.02 A., above, and as detailed in the Statement Special Inspections. The Contractor may employ an Independent Testing Laboratory (ITL), other inspection entities, or combinations of the above to perform Special Inspections.

G. Control of Measuring and Test Equipment: Measuring and/or testing instruments shall be adequately maintained, calibrated, certified and adjusted to maintain accuracy within prescribed limits. Calibration shall be performed at specified periods against valid standards traceable to nationally recognized standards and documented. Copies of measuring and / or testing instrument certifications shall be on file with the QA/QC Manager.

H. Supplier Quality Assurance: The QA/QC Plan shall include procedures to ensure that procured products and services conform to the requirements of the Specifications. Requirements of these procedures shall be applied, as appropriate, to lower-tier suppliers and/or subcontractors. QA/QC inspections and certifications may not be deferred to the Contractor's subs or suppliers.

I. Deficient, Defective, and Non-conforming Work; Corrective Action:

1. The QA/QC Plan shall include procedures for handling deficiencies and non-conformances. Deficiencies and non-conformances are defined as documentation, drawings, material, and equipment or Work not conforming to the specified requirements or procedures. The procedure shall prevent non-conformances by

identification, documentation, evaluation, separation, disposition, and corrective action to prevent recurrence. Conditions having adverse effects on quality shall be promptly identified and reported to the senior level management. The cause of conditions adverse to quality shall be determined and documented and measures implemented to prevent recurrence. In addition, at a minimum, this procedure shall address:

a. Personnel responsible for identifying deficient and non-complying items within the work.
b. How and by whom deficient and non-compliant items are documented “in the field”.
c. The personnel and process utilized for logging deficient and non-compliant work at the end of each day onto a Deficiency Log.
d. Tracking processes and tracking documentation for Deficient and Non-Compliant items.
e. Personnel responsible for achieving resolution of outstanding deficiencies.
f. Once resolved, how are the resolutions documented and by whom.

J. Special Processes And Personnel Qualifications:

1. The QA/QC Plan shall include detailed procedures for the performance and control of special process (e.g. welding, soldering, heat treating, cleaning, plating, nondestructive examination, etc.).
2. Personnel performing special process tasks shall have the experience, training and certifications commensurate with the scope, complexity, or nature of the activity. They shall be approved by the Engineer before the start of Work on the Project.

K. Audits: The Contractor’s QA/QC program shall provide for documented audits to verify that QA/QC procedures are being fully implemented by the Contractor as well as its subcontractors and suppliers. Audit records shall be made available to the Engineer upon request., Quarterly reports will be provided to the Owner indicating any outstanding and unresolved exceptions to the QA/QC program or Agreement Documents. This will include documentation on any standards modifications, corrections, failed tests, and a review of field procedures and checks and balances effectiveness.

L. Documented Control/Quality Records

1. The Contractor shall establish methods for control of Agreement Documents that describe how Drawings and Specifications are received and distributed to assure the correct issue of the document being used. The methods shall also describe how as-built data are documented and furnished to the Engineer.
2. The Contractor shall maintain evidence of activities affecting quality, including operating logs, records of inspections and tests, audit reports, material analyses, personnel qualification and certification records, procedures, and document review records.
3. Quality records shall be maintained in a manner that provides for timely retrieval, and traceability. Quality records shall be protected from deterioration, damage, and

destruction. The Contractor shall maintain an automated exceptions list of any non-conforming or defective or substandard work.

4. The Contractor shall provide a list with specific records as specified in the Agreement Documents to the Engineer at the completion of activities and in conjunction with logs and locational drawings.

M. Acceptance of QA/QC Plan: Engineer's review and acceptance of the Contractor's QA/QC Plan shall not relieve the Contractor from any of its obligations for the performance of the Work. The Contractor's QA/QC staffing is subject to the Engineer's review and continued acceptance. The Owner, at its sole option, without cause, may direct the Contractor to remove and replace the QA/QC representative. No Work covered by the QA/QC Plan shall start until Engineer's acceptance of Contractor's QA/QC plan has been obtained.

N. Engineer may perform independent quality assurance audits to verify that actions specified in Contractor's QA/QC Plan have been implemented. No Engineer audit finding or report shall in any way relieve Contractor from any requirements of this Contract.

1.08 TESTING SERVICES

A. All tests which require the services of a laboratory to determine compliance with the Agreement Documents shall be performed by an independent commercial testing firm approved by the Engineer as specified in Section 01410-Testing Laboratory Services. The testing firm's laboratory shall be staffed with experienced technicians, properly equipped, and fully qualified to perform the tests in accordance with the specified standards. All standard quality assurance testing and installation verification testing will be at the expense of the Contractor.

B. Testing, when required, will be in accordance with all pertinent codes and regulations and with procedures and requirements of the American Society for Testing and Materials (ASTM).

C. The Engineer shall have the right to inspect work performed by the independent testing laboratory both at the project and at the laboratory. This shall include inspection of the independent testing laboratory's internal quality assurance records (quality assurance manual, equipment calibrations, proficiency sample performance, etc.).

D. The Contractor shall obtain the Engineer's approval of the testing firm before having services performed, and shall pay all costs for these testing services.

E. Testing services provided by the Owner, if any, are for the sole benefit of the Owner, however, test results shall be made available to Contractor. Testing necessary to satisfy the Contractor's internal quality control procedures shall be the sole responsibility of the Contractor.

F. Testing Services Furnished By The Contractor: Unless otherwise specified, and in conjunction with, all other specified testing requirements, the Contractor shall provide the following testing services, and write up a detailed testing plan for each along with proposed forms for the Engineer's review:

1. Continuity and insulation megger testing.
2. Individual component calibration and testing.
   a. Instrument loop testing.
3. Equipment tests.
   a. Factory tests.
   b. Field functional, operational, and performance tests.
4. System acceptance testing.
5. Concrete tests.
6. Moisture-density and relative density tests on fill, and backfill materials.
7. In-place field density test on fill, and backfill.
8. Other materials and equipment as specified herein.
9. Fill and backfill materials, density, optimum moistures and compaction.
10. All other tests and engineering data required for Engineer’s review of materials and equipment proposed to be used in the Work.
11. Testing, including sampling, shall be performed by the Contractor’s testing firm's laboratory personnel, in general manner and frequency indicated in the Specifications. The Engineer and/or the Owner’s representative shall have the right to stipulate the location of the confirmation tests. The Contractor shall provide preliminary representative samples of materials to be tested to laboratory, in required quantities.
12. The testing firm's laboratory shall perform all laboratory tests within a reasonable time consistent with the specified standards and will furnish a written report of each test.
13. The Contractor shall furnish all sample materials and cooperate in the testing activities, including sampling. The Contractor shall interrupt the Work when necessary to allow testing, including sampling to be performed. The Contractor shall have no claim for an increase in Contract Price or Contract Times due to such interruption. The Contractor shall be responsible for transporting all samples, except those taken by testing laboratory personnel, to the testing laboratory.
14. When testing activities, including sampling are performed in the field by the testing firm’s laboratory personnel, the Contractor shall furnish required labor and facilities.
    a. To provide access to Work to be tested.
    b. To obtain and handle samples at the site of the Work.
    c. To facilitate inspections and tests.
    d. Build or furnish a holding box for concrete cylinders or other samples as required by the laboratory.
15. Where such inspection and testing are to be conducted by an independent laboratory agency, the sample or samples shall be selected by such laboratory or agency or the Engineer and shipped to the laboratory by the Contractor at Contractor's expense.

16. The Contractor shall notify the testing laboratory sufficiently in advance of operation to allow for the assignment of personnel and schedules of tests.
17. The Contractor shall be responsible for furnishing all materials necessary for testing.

G. Transmittal of Test Reports: Written reports of tests and engineering data furnished by the Contractor for the Engineer's review of materials and equipment proposed to be used in the Work shall be submitted as specified for Shop Drawings. Final transmittal of all Project testing records shall be required as a final close-out submittal for the release of retainage.

1. The Contractor shall promptly process and distribute all required copies of test reports and related instructions to ensure all necessary retesting or replacement of materials with the least possible delay in progress of the Work.

H. The Contractor shall provide copies of all correspondence between the Contractor and testing agencies to the Engineer.

I. Inspections and tests required by codes or ordinances or by a plan approval authority, and made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Agreement Documents.

J. Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

K. Schedules For Testing

Establishing Schedule

a. The Contractor shall, by advance discussion with the testing laboratory determine the time required for the laboratory to perform its tests and to issue each of its findings, and make all arrangements for the testing laboratory to be on site to provide the required testing.
b. The Contractor shall provide for all required time within the construction schedule.
c. When changes of construction schedule are necessary during construction, the Contractor shall coordinate all such changes of schedule with the testing laboratory as required.

END OF SECTION 01400

SECTION 01410
TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 SCOPE

A. From time to time during progress of the Work, the Engineer may require that testing be performed to determine that materials provided for the Work meet the specified requirements, in accordance with the requirements of the Specifications. Such testing includes, but is not necessarily limited to:

1. Cement
2. Aggregate
3. Concrete
4. Soil compaction
5. Bituminous pavement

B. Requirements for testing may be described in various sections of these Specifications; where no testing requirements are described but the Engineer decides that testing is required to demonstrate compliance with specified material or performance standards, the Engineer may require testing to be performed under current pertinent standards for testing.

C. Employment of a testing laboratory shall in no way relieve the Contractor of Contractor's obligation to perform work meeting the requirements of the Contract.

D. The independent testing laboratory shall be selected and paid by the Contractor and approved in writing by the Engineer before any testing services are performed.

E. The Contractor shall pay directly for the services of the independent testing laboratory, approved by the Engineer, for all testing required under this Contract.

1.02 LABORATORY DUTIES

A. Cooperate with Engineer and Contractor.

B. Provide qualified personnel promptly on notice.

C. Perform specified inspections, sampling and testing of materials and methods of construction.

1. Comply with specified standards, ASTM, other recognized authorities and as specified.

2. Ascertain compliance with requirements of Contract Documents.

D. Promptly notify Engineer and Contractor of irregularity or deficiency of work which are observed during performance of services.

E. Promptly submit three (3) copies (two (2) copies to Engineer and one (1) copy to Contractor) of report of inspections and tests in addition to those additional copies required by the Contractor including:

1. Date issued
2. Project title and 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 of Project
10. Type of inspection or test
11. Results of test
12. Observations regarding compliance with Contract Documents

F. Perform additional services as required.

G. Laboratory is not authorized to:

1. Release, revoke, alter or enlarge on requirements of Contract Documents.
2. Approve or accept any portion of Work.

1.03 CONTRACTOR RESPONSIBILITIES

A. Cooperate with laboratory personnel, provide access to Work and/or manufacturer's requirements.

B. Provide to laboratory, preliminary representative samples, in required quantities, of materials to be tested.

C. Furnish copies of mill test reports.

D. Furnish required labor and facilities.

1. To provide access to Work to be tested

2. To obtain and handle samples at the site

3. To facilitate inspections and tests

4. Build or furnish a holding box for concrete cylinders or other samples as required by the laboratory.

E. Notify laboratory sufficiently in advance of operation to allow for the assignment of personnel and schedules of tests.

F. Laboratory Tests: Where such inspection and testing are to be conducted by an independent laboratory agency, the sample or samples shall be selected by such

laboratory or agency or the Engineer and shipped to the laboratory by the Contractor at Contractor's expense.

G. Copies of all correspondence between the Contractor and testing agencies shall be provided to the Engineer.

1.04 QUALITY ASSURANCE

Testing, when required, will be in accordance with all pertinent codes and regulations and with procedures and requirements of the American Society for Testing and Materials (ASTM).

1.05 PRODUCT HANDLING

Promptly process and distribute all required copies of test reports and related instructions to insure all necessary retesting or replacement of materials with the least possible delay in progress of the Work.

1.06 FURNISHING MATERIALS

The Contractor shall be responsible for furnishing all materials necessary for testing.

1.07 CODE COMPLIANCE TESTING

Inspections and tests required by codes or ordinances or by a plan approval authority, and made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

1.08 CONTRACTOR'S CONVENIENCE TESTING

Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

1.09 SCHEDULES FOR TESTING

A. Establishing Schedule

1. The Contractor shall, by advance discussion with the testing laboratory determine the time required for the laboratory to perform its tests and to issue each of its findings, and make all arrangements for the testing laboratory to be on site to provide the required testing.

2. Provide all required time within the construction schedule.

B. When changes of construction schedule are necessary during construction, coordinate all such changes of schedule with the testing laboratory as required.

1.10 TEST AND CERTIFICATIONS

A. General: As a minimum, the following tests shall be performed and the following

certifications provided:

1. Cement: Certified test results by cement manufacturer or by independent laboratory shall be furnished as required by the Engineer.

2. Aggregate and Mortar Sand: Certified test results by aggregate producer or by independent laboratory shall be furnished as required by the Engineer.

3. Concrete

   a. At least five (5) standard 6-inch cylinders shall be taken each day for each 100 cubic yard or fraction thereof for each class of concrete used.
   b. The number of cylinders, the point of sampling, and the method of securing the samples shall be determined by the Engineer.
   c. The five (5) samples shall be taken to the testing laboratory for laboratory curing.
   d. Two (2) of the laboratory cured samples shall be tested at 7 days, two (2) samples tested at 28 days; one (1) sample in reserve.
   e. Test all concrete in accordance with ASTM C31-69, C39-71 and C-172.
   f. Slump Tests
      (1) Perform slump tests on the job in accordance with ASTM standards.
      (2) One (1) slump test shall be performed for each 25 cubic yards of concrete.
      (3) More slump tests shall be performed if deemed necessary by the Engineer.
   g. Perform air entrainment tests in accordance with the following standards:
      (1) Field tests - ASTM C 173
      (2) Laboratory tests - ASTM C 231

B. Compaction of Earthwork

1. The compaction shall be tested by the Engineer or by an independent laboratory.

2. The testing shall be performed in a manner in accordance with these Specifications.

C. Bituminous Concrete: The material testing for the bituminous concrete shall be performed by an independent laboratory as deemed necessary by the Engineer.

1.11 TAKING SPECIMENS

Unless otherwise provided in the Contract Documents, all specimens and samples for tests will be taken by the testing laboratory or the Engineer.

1.12 TRANSPORTING SAMPLES

The Contractor shall be responsible for transporting all samples, except those taken by testing laboratory personnel, to the testing laboratory.

END OF SECTION 01410

SECTION 01500
TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 SCOPE

A. The work covered under this Section includes furnishing all labor, equipment, and materials required to furnish and install temporary facilities and accessories, as shown on the Drawings and specified herein. The Contractor shall provide all temporary facilities necessary for the proper completion of the Work, as necessary and as specified.

B. The Contractor shall maintain temporary facilities in proper and safe condition through the progress of the Work. In the event of loss or damage, the Contractor shall immediately make all repairs and replacements necessary subject to approval of the Engineer and at no additional cost to the Owner. At completion of the Work, remove all such temporary facilities or as directed by the Engineer.

C. All of the office furnishings and equipment provided by the Contractor for the Engineer's facilities under this Section shall remain as property of the Owner.

D. All expenditures for furnishing, installation, maintenance, and recurring costs of temporary facilities, office furnishings, office electrical equipment, various hardware and software, lines, line extensions, and installation of utility service shall be paid by the Contractor and included in Item No. 1 of the Base Bid.

1.02 REQUIREMENTS

A. General

1. The materials, equipment, and furnishings provided under this Section shall be new, and shall meet all the applicable codes and regulations.
2. The Contractor shall make all provisions, and pay all costs of furnishing, installation, maintenance, professional services, permit fees, and site work for the temporary facilities.

B. Construction:

1. Temporary buildings shall be structurally sound, weather tight, with floors raised above ground. All mobile/modular buildings shall comply with the GA-DCA/SBCC/ADA requirements, and shall be Williams-Scottsman or equal.
2. Temporary buildings shall have temperature transmission resistance compatible with occupancy and storage requirements.

1.03 SUBMITTALS

Submittals shall be made in accordance with the requirements of the General Conditions of the Contract Documents. In addition, the following specific information shall be provided:

1. Construction Facilities Plan for each work site for approval by the Engineer.
2. Shop drawings of all signs prior to their manufacture and erection.

1.04 CONTRACTOR'S FACILITIES

A. Facility Manager shall provide a location that shall be the main staging area for the Contractor’s operations. Any additional staging that the Contractor may require shall be identified in the Facilities Plan and provided by the Contractor at no additional cost to the Owner. The Facilities Plan shall include narrative of the mobilization, site preparation, and the schedule for each site of the Work.

B. Contractor's Facilities: The Contractor shall submit a plan of the plant layout to the Engineer for approval within fifteen (15) days of the Notice to Proceed. The Contractor's Facilities, for purposes of this Section, is defined to include but not limited to its field offices, first aid station, and storage facilities. Sufficient construction plant shall be provided and maintained at all points where work is in progress to meet adequately the demands of the Work and with ample margin for emergencies or overload.

C. The Facilities shall be of sufficient capacity and reliability to permit a rate of progress, which will insure completion of the Work within the time stipulated in the Contract. Insufficient, inadequate, improper Facilities, or equipment shall be brought to acceptable condition or shall be removed from the site of the Work.

D. The location of stationary and mobile equipment shall be subject to the Engineer's approval.

E. First Aid Stations: The Contractor shall provide a suitable first aid station at each work site. Each station shall be equipped with all facilities and medical supplies necessary to administer emergency first aid treatment. The Contractor shall have standing arrangements for the removal and hospital treatment of any injured person. The information reflecting this arrangement shall be clearly posted for easy visibility. All first aid facilities and emergency ambulance services shall be made available by the Contractor to the Owner's and Engineer's personnel.

F. The Contractor shall be wholly responsible for the security of the site office and storage compound and for all its plant, materials, equipment, and tools at all times.

G. The Contractor shall make all arrangements for all utilities and shall be responsible for maintaining all utilities, at no additional cost to the Owner. In areas where connections to local sewer systems are not practical, the Contractor shall install and maintain sewage holding tank systems. These sewer systems must be equipped with a means of monitoring and preventing overflows. The Contractor shall remove the systems at the

end of construction at no additional cost to the Owner.

1.05 ENGINEER'S FACILITIES

1. Provide four (4) Canon Power Shot SD1000 Digital Elph Camera or equivalent current model with 4 GB SD Memory Card, soft carry case, and spare battery.
2. Provide one (1) plain paper copier machine, Konika Minolta, Model DI 5510 or equivalent current model (Owners choice) with automatic document feeder, multisheet and single sheet feeder, 5-1/2 by 8-1/2 to 11 by 17; zoom reduction/enlargement from 64 percent to 156 percent in 1 percent increments; 3 paper supply trays with 250 sheets each (8-1/2 by 11, 8-1/2 by 14, 11 by 17); and with a office finisher with multi-position stapling and optional hole punching. The Contractor shall provide a three-year maintenance service contract and copy paper, toner/ink cartridges, etc., for this machine during the Contract period plus 6 months. Furnish two spare toner/ink cartridges for each machine at all times. Setup copier in Engineer’s existing trailer.

1.06 TELEPHONE SERVICES

General

1. A Contractor telephone system to be installed and maintained for the duration of the project.
2. Make all necessary arrangements for outside telephone service to Contractor's office and the First Aid Stations. All portions of the communication system shall be maintained in good working condition.
3. All expenditures for installation costs of hardware, lines, line extensions, service changes, and recurring service charges for telephone service shall be paid by the Contractor.

1.07 PARKING FACILITIES (NOT USED)

1.08 SECURITY AND MAINTENANCE (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01500

SECTION 01600
GENERAL MATERIAL AND EQUIPMENT REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. All installed materials and equipment are to be the latest version of the manufacturers product line and not be outdated by newer versions at the time of purchasing. Materials and equipment, which show any signs of extended storage such as corrosion, scratches and dents will not be accepted for installation in this project.

B. All equipment used for performing the Work shall conform to the latest version of all applicable safety standards including but not limited to OSHA requirements. Contractor shall not exceed or ignore any requirements or recommendations of the equipment manufacturer. Equipment not meeting requirements of this Section will be barred from use on the project.

C. All installed material and equipment shall meet or exceed the latest applicable code requirements including but not limited to, Underwriters Laboratory, Standard Building Code and OSHA, as well as requirements of these Specifications. Where there is conflict with requirements of the Contract Documents and code requirements, comply with the more stringent requirements with no additional compensation to the Contractor.

PART 2 - MATERIALS AND EQUIPMENT

2.01 ANCHOR BOLTS

A. All anchor bolts to be ANSI type 316 stainless steel unless otherwise specified or indicated, and must conform to requirements of this Section and the material articles in the appropriate Sections they are used.

B. All anchor bolts are to be supplied by the manufacturer or fabricator of the specific material or equipment to be installed.

C. Design criteria for anchor bolts

1. When the size, length or load carrying capacity of an anchor bolt, expansion anchor, or concrete insert is not shown on the Drawings, provide the size, length and capacity required to carry the design load times a minimum safety factor of four.

2. Determine design loads as follows:

   a. For equipment anchors, use the design load recommended by the manufacturer and approved by the Engineer.

b. For pipe hangers and supports, use one half the total weight of pipe, fittings, valves, accessories and water contained in pipe, between the hanger or support in question and adjacent hangers and supports on both sides.

c. Allowances for vibration are included in the safety factor specified above.

d. Anchors shall develop ultimate shear and pull-out loads of not less than the following values in concrete:

Bolt Diameter (Inches)	Min. Shear (Pounds)	Min. Pull-Out Load (Pounds)
½	4,500	6,300
⅝	6,900	7,700
¾	10,500	9,900

3. Embedment depth to be 6 inches for epoxy anchors and 4 inches for steel expansion anchors, unless noted otherwise on the drawings.

D. Anchor Type and Manufacturer

1. Where epoxy anchors are noted on the drawings, provide ANSI type 316 stainless steel threaded rod with Speed Bond #1 epoxy injection as manufactured by Prime Resins, Inc. or equal.

2. For all other applications, provide ANSI type 316 steel expansion anchors from one of the following manufacturers.

3. Hilti, Incorporated.

4. Ramset, Incorporated.

5. or equal.

6. Install anchors per manufacturer's recommendations and this Section. Drilled anchorage holes are to be blown out with compressed air before installing anchor.

2.02 CONNECTION BOLTS

A. Materials shall be as specified in other Sections of the Specifications, or as shown on the Drawings. Where materials are not specified or shown on the Drawings, they shall be of ANSI Type 316 stainless steel, with ANSI Type 316 stainless steel nuts and washers.

B. Unless otherwise specified, stud, tap and machine bolts and nuts shall be ANSI Type 316 stainless steel and shall conform to the requirements of ASTM Standard Specification for Carbon Steel Externally and Internally Threaded Standard Fasteners, Designation A307-80. Hexagonal nuts of the same quality of metal as the bolts shall be used. All threads shall be clean cut and shall conform to AN Standard B1.1-1974 for Unified Inch Screw Threads (UN and UNR Thread Form).

2.03 CONCRETE INSERTS

Concrete inserts for hangers shall be designed to support safely, in the concrete that is used, the maximum load that can be imposed by the hangers used in the inserts. Inserts for hangers shall be of a type, which will permit adjustment of the hangers both horizontally (in one plane) and vertically and locking of the hanger head or nut. All inserts shall be galvanized, then epoxy phenolic primed and top coated with PVC, using thermal bond process.

2.04 SLEEVES

A. Unless otherwise indicated on the Drawings or specified, openings for the passage of pipes through floors and walls shall be formed of sleeves of standard-weight, stainless-steel pipe. The sleeves shall be of ample diameter to pass the pipe and its insulation, if any, and to permit such expansion as may occur. Sleeves shall be of sufficient length to be flush at the walls and the bottom of slabs and to project 4-in. above the finished floor surface. Threaded nipples shall not be used as sleeves.

B. Sleeves in exterior walls below grade or in walls to have liquids on one or both sides shall be as detailed on the Drawings and specified in other sections.

C. All sleeves shall be set accurately before the concrete is placed or shall be built in accurately as the masonry is being built.

2.05 ELECTRICAL EQUIPMENT ENCLOSURES

All items of electrical equipment that are furnished with process equipment shall conform to the requirements specified under the appropriate electrical sections of the specifications. Enclosures for electrical equipment such as switches, starters, etc., shall conform to the requirements specified under the appropriate electrical sections of the specifications.

2.06 EQUIPMENT DRIVE GUARDS

A. All equipment driven by open shafts, belts, chains, or gears shall be provided with acceptable all-metal guards enclosing the drive mechanism.

B. Guards shall be constructed of epoxy paint coated, galvanized sheet steel or galvanized woven wire or expanded metal set in a frame of galvanized steel members. Guards

shall be secured in position by steel braces or straps, which will permit easy removal for servicing the equipment. The guards shall conform in all respects to all applicable safety codes and regulations.

2.07 NAMEPLATES

A. With the exception of the items mentioned below, each piece of equipment shall be provided with a substantial nameplate of non-corrodible metal, securely fastened in place and clearly and permanently inscribed with the manufacturer's name, model or type designation, serial number, principal rated capacities, electrical or other power characteristics, and similar information as appropriate.

B. This requirement shall not apply to standard, manually operated gate, lobe, check and plug valves.

C. Each process valve shall be provided with a substantial tag of noncorrodible metal securely fastened in place and inscribed with an identification number in conformance with the tag numbers indicated on the Process and Instrumentation Drawings.

2.08 LUBRICANTS

During testing and prior to acceptance, the Contractor shall furnish all lubricants necessary for the proper lubrication of all equipment furnished under this contract.

2.09 PROTECTION AGAINST ELECTROLYSIS

Where dissimilar metals are used in conjunction with each other, suitable insulation shall be provided between adjoining surfaces so as to eliminate direct contact and any resultant electrolysis. The insulation shall be bituminous impregnated felt, heavy bituminous coatings, nonmetallic separators or washers, or other acceptable materials.

2.10 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

A. Packing and Shipping:

1. Product and materials shall be shipped and handled in ways which will prevent damage.

2. Equipment shall be protected against damage from moisture, dust, handling, or other cause during transport from manufacturer's premises to the project site. Bearing housing, vents and other types of openings shall be wrapped or otherwise sealed to prevent contamination by grit and dirt.

3. Ship equipment, material, and spare parts in assembled units except where partial disassembly is required by transportation regulations or for protection of components.

4. Pipe and appurtenances shall be handled, stored, and installed as recommended by the manufacturer. Pipes shipped with interior bracing shall have the bracing removed only when recommended by the pipe manufacturer.

5. Stiffeners shall be used where necessary to maintain shapes and to give rigidity.

6. Each item or package shall be marked with the number unique to the specification reference covering the item. Spare parts shall be packed in containers bearing labels clearly designating contents and pieces of equipment for which intended.

B. Acceptance at Site:

1. Damaged items will not be permitted as part of the work except in cases of minor damage that have been satisfactorily repaired and are acceptable to the Engineer.

2. Damage shall be corrected to conform to the requirements of the Contract before the assembly is incorporated into the Work.

3. The Contractor shall bear the costs arising out of dismantling, inspection, repair, and reassembly.

C. Storage and Protection:

1. During the interval between the delivery to the site and installation, equipment and materials shall be stored in an enclosed space affording protection from weather, dust, and mechanical damage and providing favorable temperature, humidity, and ventilation conditions to ensure against equipment deterioration. Manufacturer's recommendations shall be adhered to in addition to these requirements.

2. Equipment and materials to be located outdoors may be stored outdoors if protected against moisture condensation. Equipment shall be stored at least 6 inches above ground. Temporary power shall be provided to energize space heaters or other heat sources for control of moisture condensation. Space heaters or other heat sources shall be energized without disturbing the sealed enclosure.

2.11 UNIT RESPONSIBILITY

A. Equipment systems made up of two or more components shall be provided as a unit by the responsible manufacturer. Unless otherwise specified, the Contractor shall obtain each system from the supplier of the driven equipment, which supplier shall provide all components of the system to enhance compatibility, ease of construction, and efficient maintenance. The Contractor shall be responsible to the City for performance of all system in accordance with the provisions of the General Conditions of the Contract Documents.

B. Where the detailed specifications require the Contractor to furnish a certificate of unit responsibility, such certificate executed by the manufacturer. No other submittal material shall be processed until the Certificate of Unit Responsibility has been received and has been found to be satisfactory. A typical Manufacturer's Certificate of Unit Responsibility form is included in this specification.

2.12 SERVICES OF MANUFACTURER'S REPRESENTATIVE

A. Where manufacturers' services are specified, Contractor shall furnish a qualified representative of the manufacturer to provide these services. Where time is necessary in excess of that stated in the Specifications for the manufacturers' service representative to complete the specified services, the additional time required to perform the services shall be considered incidental work for which the Contractor will receive no additional compensation.

B. After installation of the listed equipment has been completed and the equipment is presumably ready for operation, but before it is operated by others, the representative shall inspect, operate, test and adjust the equipment. The inspection shall include, but shall not be limited to, the following points as applicable:

1. Soundness (without cracked or otherwise damaged parts).
2. Completeness in all details, as specified.
3. Correctness of setting, alignment, and relative arrangement of various parts.
4. Adequacy and correctness of packing, sealing and lubricants.

C. The operation, testing and adjustment shall be as required to prove that the equipment is left in proper condition for satisfactory operation under the conditions specified.

D. On completion of its work, the manufacturer's or supplier's representative shall submit in triplicate to the Engineer Certificate Submittals in accordance with sub-paragraph N of this paragraph and a complete signed report of the result of his inspection, operation, adjustments, and tests. The report shall include detailed descriptions of the points inspected, tests and adjustments made, quantitative results obtained if such are specified, and suggestions for precautions to be taken to ensure proper maintenance. The report also shall include a certificate that the equipment conforms to the requirements of the Contract and is ready for permanent operation and that nothing in the installation will render the manufacturer's warranty null and void.

E. After the Engineer has reviewed the reports from the manufacturers' representative, the Contractor shall make arrangements to have the manufacturers' representatives present when the field acceptance tests are made.

F. Requirements of this paragraph will be in addition to those of appropriate equipment and material Sections.

G. Definitions

For purposes of furnishing manufacturers' services, refer to spec. section 01664, and the following definitions shall apply:

a. Manufacturer's Representative: Employee of manufacturer who is factory trained and knowledgeable in technical aspects of their products and systems.
b. Construction Period: The time period from the Contractor's purchase order date to the date of certification by the manufacturer that the material or equipment is properly installed and that functional and performance tests, as applicable to the equipment specified, have been successfully demonstrated.
c. Man-Day: One man for 8 hours straight time, exclusive of Saturdays, Sundays, or holidays.

H. Fulfillment of Specified Minimum Services

1. Only those manufacturers' services, including trips to the jobsite or training classroom, receiving prior written acceptance or authorization by the Engineer shall act to fulfill the specified services.

2. If manufacturer's representative is found deficient in training or experience by the Engineer, furnish other acceptable representatives after acceptance of resumes and other documentation of proposed representatives.

I. Proper Installation of Products and Systems

1. Furnish manufacturers' representatives of products and systems.

2. Representatives shall resolve assembly or installation problems attributable to, or associated with, their products and systems, whether or not specifically required in the Specifications.

J. Functional Testing

1. Where functional (or run) testing is required in the Specifications, furnish manufacturer's representative to assist with the test. This shall include checking for proper rotation, alignment, speed, excessive vibration, and quiet operation. Perform initial equipment and system adjustment and calibrations in the presence and with the assistance of the manufacturer's representative.

2. Obtain manufacturer's review and acceptance of Contractor's certification of functional testing, where such certification is specified.

K. Performance Testing

1. Where performance testing is specified, furnish manufacturer's representative to assist the test as specified for the particular equipment, and to correct malfunction of

equipment. Follow specified test procedures.

2. These services shall continue until:

   a. Equipment or systems have been successfully tested for performance.
   b. Performance test report has been reviewed and accepted.
   c. Equipment or systems have been accepted by Engineer for startup.

3. Unless otherwise specified, performance testing shall use plant fluid or material that the equipment or system is designed to handle during normal service conditions.

L. Training of City's Personnel

1. Contractor's Personnel: Designate and provide Contractor's personnel to be responsible for coordinating and expediting training duties. The person(s) shall be present during training coordination meetings with the Engineer and shall be familiar with the Operation and Maintenance (O & M) Manual information specified in the General Conditions of the Contract Documents.

2. Manufacturer's Representative: Where training of City's personnel is required in the Specifications, furnish manufacturer's representative to provide detailed instructions to City's personnel for operation and maintenance of the specified equipment.

   a. Training services include pre-startup classroom instruction, post-startup classroom instruction, and onsite equipment instruction, as stated in the Specifications.
   b. Manufacturer's representative shall be familiar with plant O & M requirements as well as with the specified equipment.

3. Pre-startup Training: Coordinate pre-startup training periods with Owner's operating personnel and manufacturers' representatives, and with submittal of O & M Manuals.

   a. Pre-startup training shall be completed at least 14 days prior to actual startup.
   b. O & M Manuals shall be reviewed, accepted, and resubmitted, in accordance with Section SUBMITTALS, before startup.

4. Post-Startup Training: Where post-startup training is required in the Specifications, furnish and coordinate the specified manufacturers' services and Contractor's personnel for post-startup training of Owner's operating personnel.

M. Certificate Submittals

1. The forms included with this Section are to be used by the Contractor and by manufacturers of systems and products to certify proper installation, completion of functional testing, and performance testing results.

MANUFACTURER'S CERTIFICATE
OF
PROPER INSTALLATION

Contractor: _____

Equipment Name: _____

Equipment Tag Number(s): _____

Specification Section: _____

Manufacturer/Phone No.: _____

Service Rep./Phone No.: _____

Date: _____ Hours on Site: _____

Purpose: To verify installation recommendations and warranty is valid.

At a minimum, the following items (if applicable) must be checked:

	Yes	No	NA
Equipment serviced with proper lubricants.			
All safety equipment properly installed.			
Proper electrical connections.			
Proper mechanical connections.			
Equipment meets all warranty requirements.			

List additional items checked: (See Detailed Specification Section)

_____
_____
_____
_____

Comments: _____
_____
_____

(List and attach additional pages, if necessary.)
Signatures (Do not initial.)

Contractor: _____ Date: _____
Manufacturer: _____ Date: _____
Engineer: _____ Date: _____

MANUFACTURER'S CERTIFICATE
OF
FUNCTIONAL TEST ACCEPTANCE INSTALLATION

Contractor: _____

Equipment Name: _____

Equipment Tag Number(s): _____

Specification Section: _____

Manufacturer/Phone No.: _____

Service Rep./Phone No.: _____

Date: _____ Hours on Site: _____

Purpose: To verify installation, that proper adjustments have been made, that the equipment or system is ready for plant startup and operation and warranty is valid.

At a minimum, the following items (if applicable) must be checked:

	Yes	No	NA
Rotation			
Alignment			
Speed			
Noise level			
Initial adjustments			
Initial calibration			

List additional items checked: (See Detailed Specification Section)

_____
_____
_____
_____

Comments: _____
_____

_____

(List and attach additional pages, if necessary.)
Signatures (Do not initial.)

Contractor: _____ Date: _____
Manufacturer: _____ Date: _____
Engineer: _____ Date: _____

MANUFACTURER'S CERTIFICATE
OF
PERFORMANCE TEST ACCEPTANCE

Contractor: _____

Equipment Name: _____

Equipment Tag Number(s): _____

Specification Section: _____

Manufacturer/Phone No.: _____

Service Rep./Phone No.: _____

Date: _____ Hours on Site: _____

Purpose: To certify that the equipment or system identified above has been successfully tested for performance and is ready to be accepted by the City for full-time operation.

This certifies that the above equipment or system operated under actual performance conditions, and that the equipment or system meets the specified performance criteria.

Comments: _____
_____
_____
_____

(List and attach additional pages, if necessary.)
Signatures (Do not initial.)

Contractor: _____ Date: _____
Manufacturer: _____ Date: _____

Engineer: _____ Date: _____

CONTRACTOR'S CERTIFICATE
OF
EQUIPMENT START-UP READINESS

Contractor: _____

Equipment Name(s): _____

_____

_____

Equipment Tag Number(s): _____

_____

_____

Specification Section: _____

_____

"I, the undersigned, do hereby certify that all of the necessary hydraulic structures, piping systems, and valves have been successfully tested; that all necessary equipment systems and subsystems have been checked for proper installation, started. and successfully tested to indicate that they are all operational; that the systems and subsystems are capable of performing their intended functions; and that the facilities noted above are ready for startup and intended operation."

_____ _____ _____
Signature Title Date

MANUFACTURER'S CERTIFICATE
OF
UNIT RESPONSIBILITY

Manufacturer: _____

Equipment Name: _____

Specification Section(s):_____

Manufacturer/Phone No.: _____

Service Rep./Phone No.: _____

Purpose: To certify that the equipment or system manufacturer identified above accepts unit responsibility for equipment or systems furnished.

This certifies that the above equipment or system manufacturer accepts unit responsibility for equipment or systems furnished under the indicated specification section(s) and that the components furnished are compatible and comprise a functional unit suitable for the specified performance and design requirements.

Signatures (Do not initial.)

Contractor: _____ Date: _____
Manufacturer: _____ Date: _____

END OF SECTION 01600

SECTION 01664
TRAINING

PART 1 – GENERAL

1.01 DESCRIPTION

This section contains requirements for training the City's personnel, by persons retained by the CONTRACTOR specifically for the purpose, in the proper operation and maintenance of the equipment and systems installed under this Contract. Refer to Div 17 for additional training requirements.

1.02 QUALITY ASSURANCE

A. Where required by the detailed specifications, the CONTRACTOR shall provide on-the-job training of the City's personnel.

B. The training sessions shall be conducted by qualified, experienced, factory-trained representatives of the various equipment manufacturers.

C. Training shall include instruction in both operation and maintenance of the subject equipment.

1.03 SUBMITTALS

A. The following information shall be submitted to the City's Engineer in accordance with paragraph GC-31 of the GENERAL CONDITIONS.

B. The material shall be reviewed and accepted by the City's Engineer as a condition precedent to receiving progress payments in excess of 75 percent of the Contract amount and not less than 3 weeks prior to the commencement of training.

1. Lesson plans for each training session to be conducted by the manufacturer's representatives. In addition, training manuals, handouts, visual aids, and other reference materials shall be included.

2. Subject of each training session, identity and qualifications of individuals to be conducting the training, and tentative date and time of each training session.

PART 2 - PRODUCTS

2.01 GENERAL

A. Where specified, the CONTRACTOR shall conduct training sessions for the City's personnel to instruct the staff on the proper operation, care, and maintenance of the equipment and systems installed under this contract.

B. Training shall take place at the site of the work after the equipment has been installed and tested and under the conditions specified in the following paragraphs. Approved operation and maintenance manuals shall be available at least 30 days prior to the date scheduled for the individual training session.

2.02 LOCATION

Training sessions shall take place at the site of the work.

2.03 LESSON PLANS

A. Formal written lesson plans shall be prepared for each training session. Lesson plans shall contain an outline of the material to be presented along with a description of visual aids to be utilized during the session. Each plan shall contain a time allocation for each subject.

B. One complete set of originals of the lesson plans, training manuals, handouts, visual aids, and reference material shall be the property of the City and shall be suitably bound for proper organization and easy reproduction. The CONTRACTOR shall furnish ten copies of necessary training manuals, handouts, visual aids and reference materials at least 1 week prior to each training session.

2.04 FORMAT AND CONTENT

A. Each training session shall be comprised of time spent both in the classroom and at the specific location of the subject equipment or system.

B. As a minimum, training session shall cover the following subjects for each item of equipment or system:

1. Familiarization:

    a. Review catalog, parts lists, drawings, etc., which have been previously provided for the plant files and operation and maintenance manuals.

    b. Check out the installation of the specific equipment items.

    c. Demonstrate the installed unit and indicate how all parts of the specifications are met.

    d. Answer questions.

2. Safety:

   a. Using material previously provided and installed equipment, review safety references.

   b. Discuss proper precautions around equipment.

3. Operation:

   a. Using material previously provided and installed equipment, review reference literature.

   b. Explain all modes of operation (including emergency).

   c. Check out City's personnel on proper use of the equipment.

4. Preventive Maintenance:

   a. Using material previously provided and installed equipment, review preventive maintenance (PM) lists including:

      1. Reference material.
      2. Daily, weekly, monthly, quarterly, semi-annual, and annual jobs.

   b. Show how to perform PM jobs.

   c. Show City's personnel what to look for as indicators of equipment problems.

5. Corrective Maintenance:

   a. List possible problems.

   b. Discuss repairs; point out special problems.

   c. Open up installed equipment and demonstrate procedures, where practical.

6. Parts:

   a. Show how to use previously provided parts list and order parts.

   b. Check over spare parts on hand. Make recommendations regarding additional parts that should be available.

7. Local Representatives:

   a. Where to Order Parts: Name, address, and telephone.

b. Service Problems:

1. Who to call.
2. How to get emergency help.

8. Operation and Maintenance Manuals:

a. Review any other material submitted.

b. Update material, as required.

2.05 VIDEO RECORDING

A. The City will retain the services of a commercial video taping service to record each training session.
B. After taping, the material may be edited and supplemented by the City with professionally produced graphics to provide a permanent record.
C. The CONTRACTOR shall advise all manufacturers providing training sessions that the material will be video taped and shall make available to the City's video taping
D. CONTRACTOR such utility services and accommodation as may be required to facilitate the production of the video tape record.

PART 3 – EXECUTION

3.01 GENERAL

A. Training shall be conducted in conjunction with the operational testing and commissioning periods. Classes shall be scheduled such that classroom sessions are interspersed with field instruction in logical sequence. The CONTRACTOR shall arrange to have the training conducted on consecutive days, with no more than 6 hours of classes scheduled for any one day. Concurrent classes shall not be allowed. Contractor/Manufacturer is to plan for up to three classes in any 24 hour period to ensure all shifts are properly trained

B. Acceptable operation and maintenance manuals for the specific equipment shall be provided to the City prior to the start of any training. Video taping shall take place concurrently with all training sessions.

C. The following services shall be provided for each item of equipment or system as required in individual specification sections. Additional services shall be provided, where specifically required in individual specification sections.

1. As a minimum classroom equipment training for operations personnel will include:

a. Using slides and drawings, discuss the equipment's specific location in the plant and an operational overview.

b. Purpose and plant function of the equipment.

c. A working knowledge of the operating theory of the equipment.

d. Startup, shutdown, normal operation, and emergency operating procedures, including a discussion on system integration and electrical interlocks, if any.

e. Identify and discuss safety items and procedures.

f. Routine preventative maintenance, including specific details on lubrication and maintenance of corrosion protection of the equipment and ancillary components.

g. Operator detection, without test instruments, of specific equipment trouble symptoms.

h. Required equipment exercise procedures and intervals.

i. Routine disassembly and assembly of equipment if applicable (as judged by the City on a case-by-case basis) for purposes such as operator inspection of equipment.

2. As a minimum, hands-on equipment training for operations personnel will include:

a. Identify location of equipment and review the purpose.

b. Identifying piping and flow options.

c. Identifying valves and their purpose.

d. Identifying instrumentation:

a. Location of primary element.
b. Location of instrument readout.
c. Discuss purpose, basic operation, and information interpretation.

e. Discuss, demonstrate, and perform standard operating procedures and routine checks.

f. Discuss and perform the preventative maintenance activities.

g. Discuss and perform startup and shutdown procedures.

h. Perform the required equipment exercise procedures.

i. Perform routine disassembly and assembly of equipment if applicable.

j. Identify and review safety items and perform safety procedures, if feasible.

3. Classroom equipment training for the maintenance and repair personnel will include:

a. Theory of operation.

b. Description and function of equipment.

c. Startup and shutdown procedures.

d. Normal and major repair procedures.

e. Equipment inspection and troubleshooting procedures including the use of applicable test instruments and the "pass" and "no pass" test instrument readings.

f. Routine and long-term calibration procedures.

g. Safety procedures.

h. Preventative maintenance such as routine lubrication; normal maintenance such as belt, seal, and bearing replacement; and up to major repairs such as replacement of major equipment part(s) with the use of special tools, bridge cranes, welding jigs, etc.

4. Hands-on equipment training for maintenance and repair personnel shall include:

a. Locate and identify equipment components.

b. Review the equipment function and theory of operation.

c. Review normal repair procedures.

d. Perform startup and shutdown procedures.

e. Review and perform the safety procedures.

f. Perform City approved practice maintenance and repair job(s), including mechanical and electrical adjustments and calibration and troubleshooting equipment problems.

END OF SECTION 01664

SECTION 01730
OPERATING AND MAINTENANCE INFORMATION

PART 1 - GENERAL

1.0 SCOPE

A. Operation and maintenance (O&M) instructions shall be provided in accordance with this section and as required in the technical sections of this project manual. O&M information shall be provided for each maintainable piece of equipment, equipment assembly or subassembly, and material provided or modified under this contract.

B. O&M instructions must be submitted and accepted before on-site training may start.

2.0 TYPES OF INFORMATION REQUIRED

A. General: O&M information shall contain the names, addresses, and telephone numbers of the manufacturer, the nearest representative of the manufacturer, and the nearest supplier of the manufacturer's equipment and parts. In addition, one or more of the following items of information shall be provided as applicable.

B. Operating Instructions: Specific instructions, procedures, and illustrations shall be provided for the following phases of operations:

1. Safety Precautions: List personnel hazards for equipment and list safety precautions for all operating conditions.

2. Operator Prestart: Provide requirements to set up and prepare each system for use.

3. Start-Up, Shutdown, and Post shutdown Procedures: Provide a control sequence for each of these operations.

4. Normal Operations: Provide control diagrams with data to explain operation and control of systems and specific equipment.

5. Emergency Operations: Provide emergency procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Include emergency shutdown instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance on emergency operations of all utility systems including valve locations and portions of systems controlled.

6. Operator Service Requirements: Provide instructions for services to be performed by the operator such as lubrication, adjustments, and inspection.

7. Environmental Conditions: Provide a list of environmental conditions (temperature, humidity, and other relevant data) which are best suited for each product or piece of

equipment and describe conditions under which equipment should not be allowed to run.

C. Preventive Maintenance: The following information shall be provided for preventive and scheduled maintenance to minimize corrective maintenance and repair:

1. Lubrication Data: Provide lubrication data, other than instructions for lubrication in accordance with paragraph 2.0-B6.

   a. A table showing recommended lubricants for specific temperature ranges and applications;

   b. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities; and

   c. A lubrication schedule showing service interval frequency.

2. Preventive Maintenance Plan and Schedule: Provide manufacturer's schedule for routine preventive maintenance, inspections, tests, and adjustments required to ensure proper and economical operation and to minimize corrective maintenance and repair. Provide manufacturer's projection of preventive maintenance man-hours on a daily, weekly, monthly, and annual basis including craft requirements by type of craft.

D. Corrective Maintenance: Manufacturer's recommendations shall be provided on procedures and instructions for correcting problems and making repairs.

1. Troubleshooting Guides and Diagnostic Techniques: Provide step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.

2. Wiring Diagrams and Control Diagrams: Wiring diagrams and control diagrams shall be point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job-specific wiring and control work. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type identically to actual installation numbering.

3. Maintenance and Repair Procedures: Provide instructions and list tools required to restore product or equipment to proper condition or operating standards.

4. Removal and Replacement Instructions: Provide step-by-step procedures and list required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings, and adjustments required. Instructions shall include a combination of test and illustrations.

5. Spare Parts and Supply Lists: Provide lists of spare parts and supplies required for maintenance and repair to ensure continued service or operation without

unreasonably delays. Special consideration is required for facilities at remote locations. List spare parts and supplies that have a long lead time to obtain.

6. Corrective Maintenance Manhours: Provide manufacturer's projection of corrective maintenance man-hours including craft requirements by type of craft. Corrective maintenance that requires participation of the equipment manufacturer shall be identified and tabulated separately.

E. Appendices: The following information shall be provided; include information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment.

1. Parts Identification: Provide identification and coverage for all parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing shall show the index, reference, or key number which will cross-reference the illustrated part to the listed part. Parts shown in the listings shall be grouped by components, assemblies, and subassemblies.

2. Warranty Information: List and explain the various warranties and include the servicing and technical precautions prescribed by the manufacturers or contract documents to keep warranties in force.

3. Personnel Training Requirements: Provide information available from the manufacturers to use in training designated personnel to operate and maintain the equipment and systems properly.

4. Testing Equipment and Special Tool Information: Provide information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components.

3.0 TRANSMITTAL PROCEDURE

A. Unless otherwise specified, O&M manuals, information, and data shall be transmitted in accordance with the General Conditions accompanied by Transmittal Form 01730-A and Equipment Record Forms 01730-B and/or 01730-C, as appropriate, all as specified in Section 01600. The transmittal form shall be used as a checklist to ensure the manual is complete. Only complete sets of O&M instructions will be reviewed for acceptance.

B. Three copies of the specified O&M information shall be provided. For ease of identification, each manufacturer's brochure and manual shall be appropriately labeled with the equipment name and equipment number as it appears in the project manual. The information shall be organized in the binders in numerical order by the equipment numbers assigned in the project manual. The binders shall be provided with a table of contents and tab sheets to permit easy location of desired information. Binders shall be

heavy-duty, 3-ring type. O&M information shall also be submitted in a PDF format along with drawings on three sets of Compact Discs (CDs).

C. If manufacturers' standard brochures and manuals are used to describe O&M procedures, such brochures and manuals shall be modified to reflect only the model or series of equipment used on this project. Extraneous material shall be crossed out neatly or otherwise annotated or eliminated.

4.0 PAYMENT

Acceptable O&M information for the project must be delivered to the Construction Manager prior to the project being 65 percent complete. Progress payments for work in excess of 65 percent completion will not be made until the specified acceptable O&M information has been delivered to the Construction Manager.

5.0 FIELD CHANGES

. Following the acceptable installation and operation of an equipment item, the item's instructions and procedures shall be modified and supplemented by the Contractor to reflect any field changes or information requiring field data.

END OF SECTION 01730

SECTION 01780

ASSET MANAGEMENT RECORDS

PART 1 - GENERAL

1.01 SCOPE:

The work under this Section includes gathering and electronically recording financial and technical information needed to support the Owner's Fixed Asset Registry and Computerized Maintenance Management System (CMMS).

1.02 FIXED ASSETS:

A. The Contractor shall generate the financial information necessary to support the Owner's Fixed Asset Registry, CMMS and submit the information periodically, as directed by the Engineer.

B. Financial information (Purchase/Salvage/Disposal Price) shall be provided for the following categories of assets:

1. Equipment - All equipment with a purchase value of $5,000 or more and all equipment that has been assigned an "equipment" or "tag" number in contract documents. The term "equipment" includes but is not limited to: all process equipment, HVAC equipment, instrumentation, valves and gates (including actuators), tanks, electrical panels (including switchgear, MCCs, VFDs, panel boards, automatic transfer switches, heat trace panels, and the like), factory and field control panels, patch panels, control system panels (including PLC and DCS cabinets, marshalling (I/O) cabinets, etc.), roll-up doors, cranes and hoists, copiers, maintenance equipment, shelving, cabinets, laboratory equipment, furniture and A/V equipment. The asset value of the equipment shall be the Contractor's actual purchase price including installation, taxes, overheads, or mark-ups. The Contractor shall obtain a breakdown of equipment values from its vendors and suppliers, where possible, and use its best efforts to provide or estimate the actual purchase price. In addition, the Contractor shall provide an estimate of the cost of installation of each equipment item (e.g., setting, aligning, grouting, etc.)

2. Structure – The cost of structures (typically those structures that require individual building permits) including all labor associated with the structure and all materials (including piping, raceway, wiring, supports, and appurtenances) incorporated into the structure. The structure cost shall include all improvements to the structure and, as applicable, the cost of demolition or other changes to the structure, as directed by the Engineer.

3. Site Improvements – The cost of site improvements shall include all earthwork, manholes / handholes, culverts and drainage structures, piping, ductbank and wiring not incorporated in a structure, roads, curbs, sidewalks, grassing and landscaping, demolition, and any other improvements to the site. The site improvements cost shall include all improvements to the site and, as applicable, the cost of demolition or other changes to the site, as directed by the Engineer.
4. Special Items – Certain portions of the construction may have a different useful life (from an accounting standpoint). An example of this is roofing on a structure. These special items, as directed by the Engineer, shall be listed separately. The Contractor shall also provide an estimate of the installation cost of the special item.
5. General Costs - The Contractor shall provide, as a separate line item when directed by the Engineer, the contractor's general costs (general conditions, field engineering, management, supervision, overhead, profit, mobilization, demobilization, permits, bonds, insurance, etc.), associated with the Project.
6. Salvage Items - The Contractor shall provide, as a separate line item when directed by the Engineer, description of items removed from service and returned to the City as Salvage associated with the Project.
7. Disposed Items - The Contractor shall provide, as a separate line item when directed by the Engineer, description of items removed from service and disposed associated with the Project.

C. The Contractor shall provide the required financial information in a format acceptable to the Engineer, with the cost information displayed individually, distributed, or rolled up as directed by the Engineer. See Part 1.05 for examples.

D. Information to be included as part of fixed asset reporting shall include, as applicable:
1. Tag Number (equipment number, structure number, other unique identification number, as applicable, and as directed by the Engineer)
2. Structure Name (for site improvements use "Site Improvements")
3. Description (equipment description or description of asset)
4. Manufacturer
5. Vendor (or supplier)
6. Model Number
7. Serial Number
8. Purchase Price (cost as defined above, if applicable)
9. Installed Date (usually the date of Substantial Completion) or Date removed from service
10. Extended Warranty Information (if applicable)

1.03 COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM:

A. In addition to the Fixed Asset information described above, the Contractor shall collect information needed to support data input for the Owner's Computerized Maintenance Management System (CMMS) and submit the information periodically, as directed by the Engineer. Both the Fixed Asset and CMMS data information will be submitted monthly as a requirement of the payment application process.

B. The Contractor will collect equipment information on all installed equipment that has an associated preventative maintenance in the vendor's O&M manuals.

C. The Contractor shall take digital photos of all equipment nameplates and electronically file the information by Structure Name and Tag Number. Data (such as serial numbers) must be collected or verified from equipment after it is in its installed location.

D. A substantial part of the data needed for the CMMS is provided on the equipment nameplates, however, the Contractor may need to refer to submittals, operations and maintenance manuals, and/or other manufacturer information to obtain dimensions, weights, etc., that are not included on nameplates.

E. Part 1.05 below provides examples of information needed for various types of equipment. Multiple forms may be needed for a single piece of equipment. Actual information required will be as directed by the Engineer.

1.04 INFORMATION SUBMITTALS:

A. The Contractor shall record in a Microsoft Excel spreadsheet file, the data collected for the Asset Registry and CMMS to the Owner through the Engineer.

B. The format of a typical Asset – CMMS Spreadsheet is as shown in the first two exhibits under Part 1.06 with each asset on a separate row and the various data fields in columns (only the first nine columns of a 100+ column spreadsheet are shown). Due to the nature of instrumentation, a separate detailed Instrumentation Spreadsheet (which allows multiple model / serial numbers and other unique information to be associated with a single instrument) is also shown in the third exhibit under Part 1.06. The total cost for instrumentation from the Instrumentation Spreadsheet, in the example, is entered as a line item in the Asset – CMMS Spreadsheet.

C. A separate Asset – CMMS Spreadsheet shall be prepared for each structure or portion of the Project, including site improvements, as directed by the Engineer.

D. A database with a single table and forms similar to those shown in Part 1.05 is a suggested means for data entry, with such database table exported to an MS Excel spreadsheet to produce the required spreadsheet for each

structure or portion of the Project. The creation of the database is not required.

E. To the extent available, the Contractor should obtain a list(s) of equipment as described in Part 1.02 Paragraph B.1 above from the Engineer for importation into the database or spreadsheet(s).

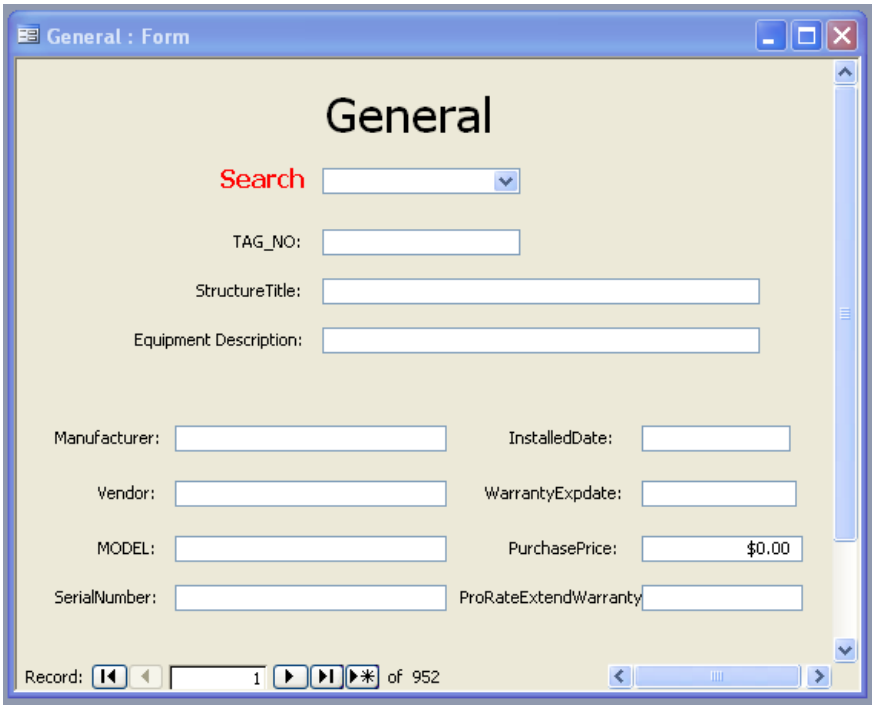
F. The Contractor shall submit to the Engineer, a draft of the Asset – CMMS Spreadsheet for each structure or portion of the Project, by the 50% construction complete stage of the structure or portion of the Project, for review as to form and completeness of the asset list. If requested by the Engineer, the Contractor shall submit copies of the spreadsheet periodically (but no more than once a month), as a work in progress for the Engineer's review. Failure to submit the spreadsheets, as requested by the Engineer, may result in delayed processing of the most current pay request (until the spreadsheet is submitted and accepted).

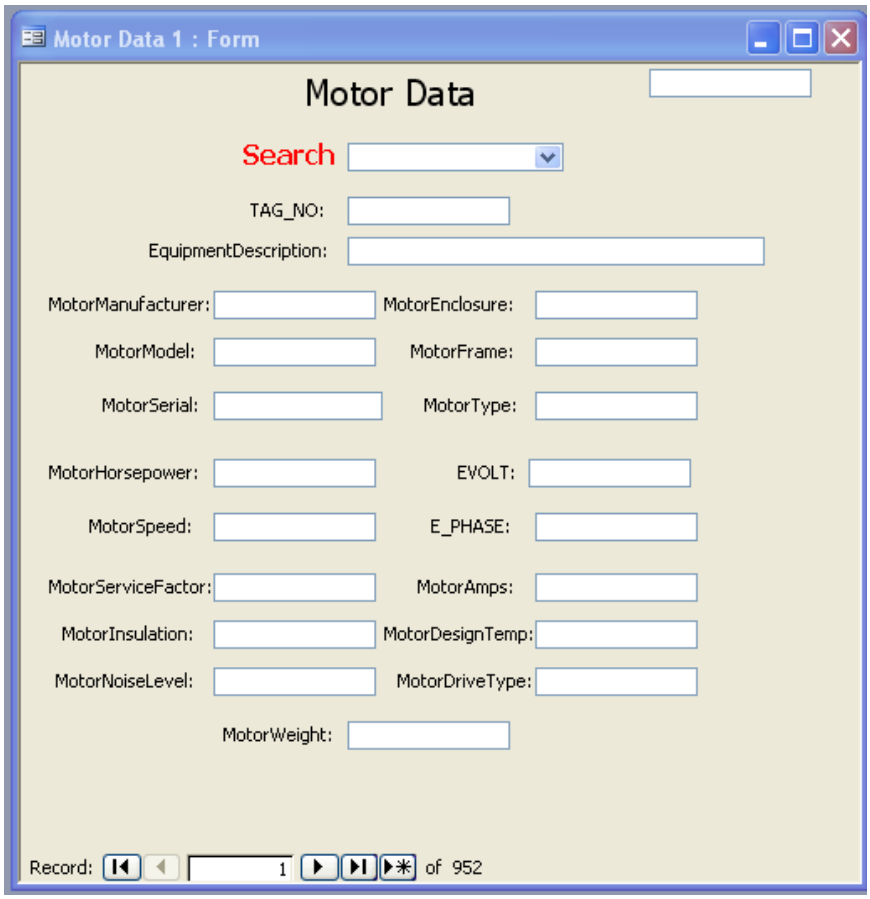
G. After an O&M has been accepted with no exceptions taken, the preventative maintenance detailed in the O&M manual shall be entered in an Excel spreadsheet for importation into the City's CMMS. The Contractor will submit copies of the spreadsheet as part of the CMMS Spreadsheet submittal as a work in progress for the Engineer's review. Failure to submit the spreadsheets, as requested by the Engineer, may result in delayed processing of the most current pay request (until the spreadsheet is submitted and accepted).

H. The Contractor shall submit, to the Engineer, a preliminary copy of the Asset - CMMS Spreadsheet for any structure or portion of the Project a minimum of sixty (60) days prior to the anticipated Substantial Completion date for that structure or portion of the Project, with all information complete, except for the date of Substantial Completion. The final Asset - CMMS Spreadsheet for each structure or portion of the Project shall be submitted as part of the requirement for Substantial Completion. Failure to submit the spreadsheet as described above may result in delay in achieving Substantial Completion.

I. At the end of the Project, all Asset -CMMS Spreadsheets pertaining to the work must be complete, submitted to and accepted by the Engineer in order to achieve Final Completion of the Project. The total of all spreadsheets for the Project must equal the total Contract Price.

1.05 EXAMPLES OF TYPICAL DATA AND SUGGESTED DATABASE TABLES:




Motor Data 1 : Form
Motor Data
Search
TAG_NO:
EquipmentDescription:
MotorManufacturer:
MotorEnclosure:
MotorModel:
MotorFrame:
MotorSerial:
MotorType:
MotorHorsepower:
EVOLT:
MotorSpeed:
E_PHASE:
MotorServiceFactor:
MotorAmps:
MotorInsulation:
MotorDesignTemp:
MotorNoiseLevel:
MotorDriveType:
MotorWeight:
Record:
1
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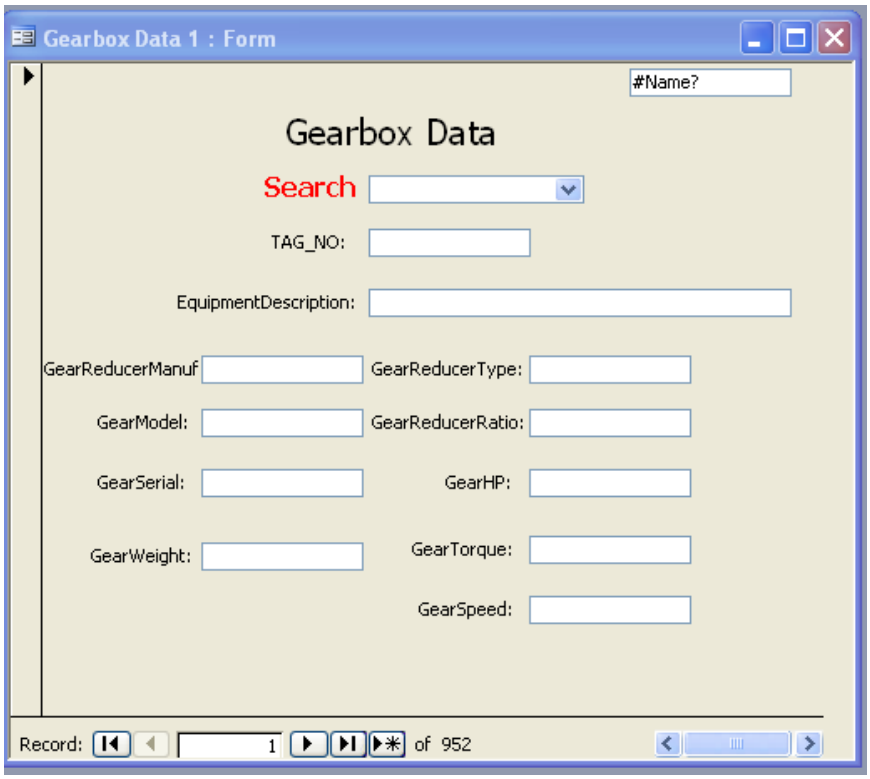
Gearbox Data 1 : Form
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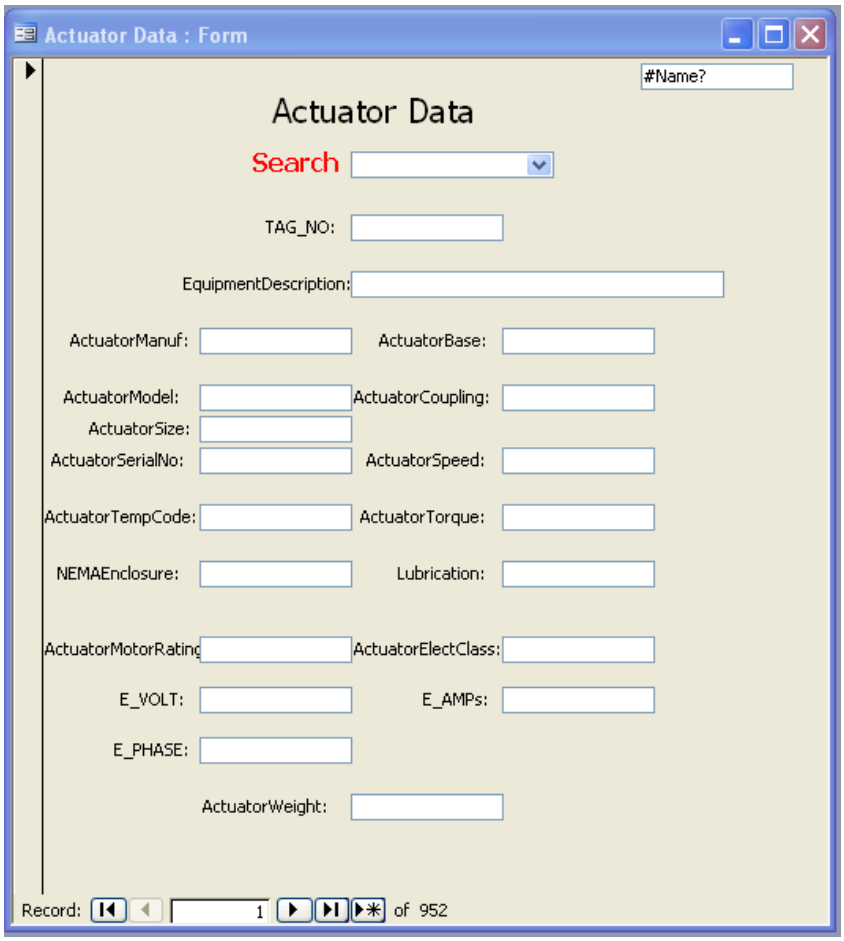
Gearbox Data
Search
TAG_NO:
EquipmentDescription:
GearReducerManuf
GearReducerType:
GearModel:
GearReducerRatio:
GearSerial:
GearHP:
GearWeight:
GearTorque:
GearSpeed:
Record:
1
of 952


Actuator Data : Form
#Name?
Actuator Data
Search
TAG_NO:
EquipmentDescription:
ActuatorManuf:
ActuatorBase:
ActuatorModel:
ActuatorCoupling:
ActuatorSize:
ActuatorSerialNo:
ActuatorSpeed:
ActuatorTempCode:
ActuatorTorque:
NEMAEnclosure:
Lubrication:
ActuatorMotorRating
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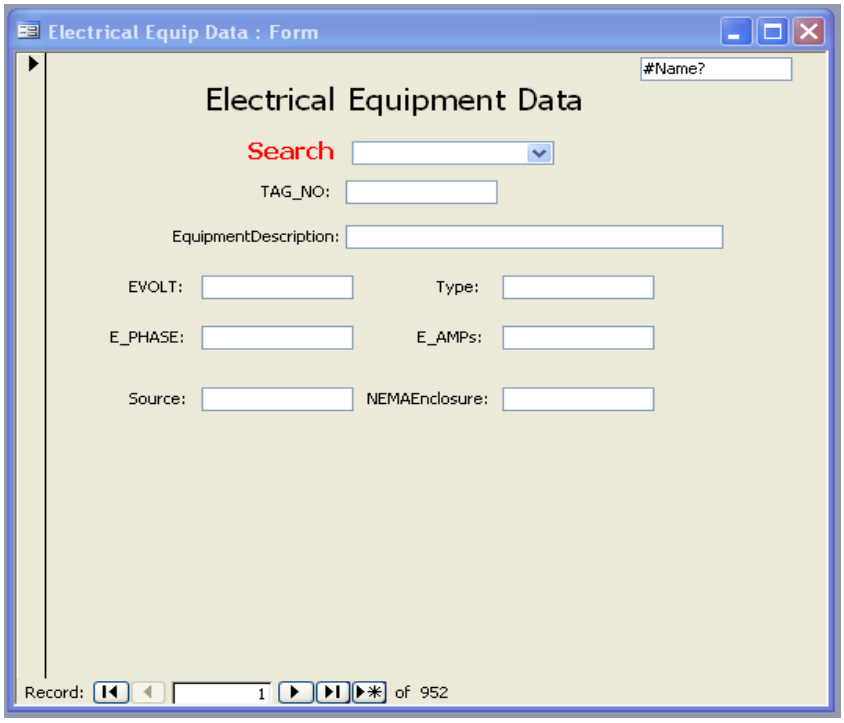
E_PHASE:
ActuatorWeight:
Record: 1 of 952


Electrical Equip Data : Form
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Electrical Equipment Data
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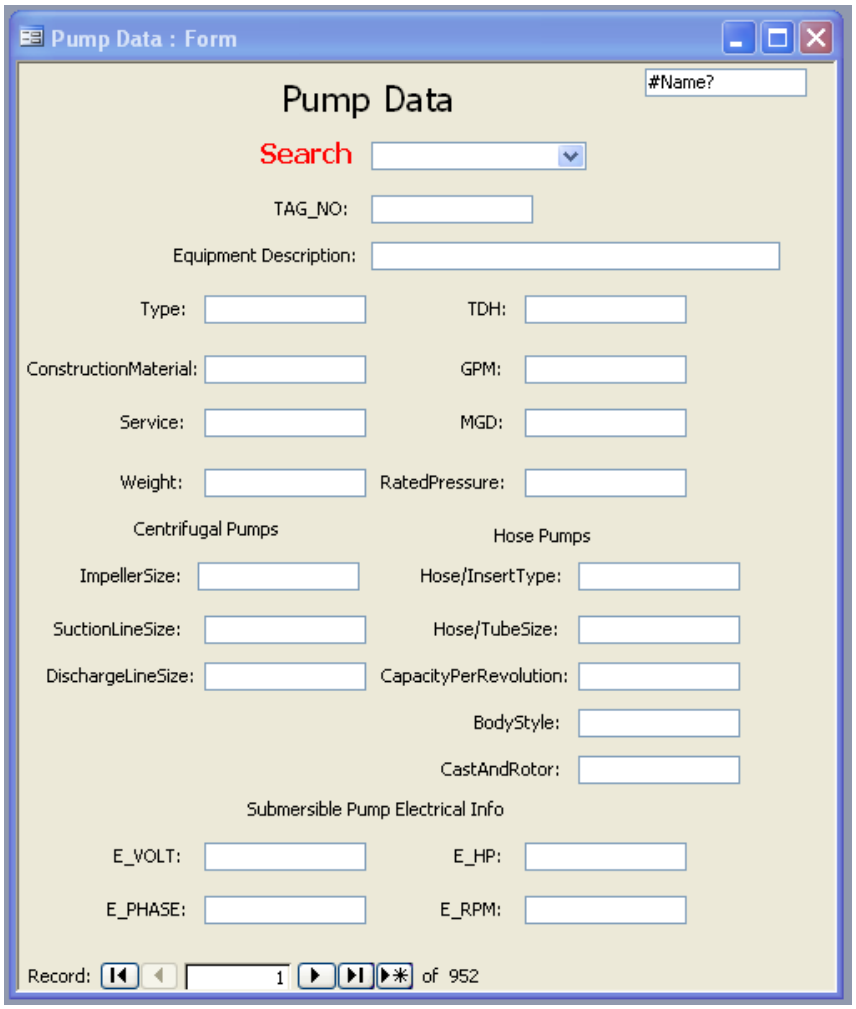
TAG_NO:
EquipmentDescription:
EVOLT:
Type:
E_PHASE:
E_AMPs:
Source:
NEMAEnclosure:
Record: 1 of 952


Pump Data : Form
#Name?
Pump Data
Search
TAG_NO:
Equipment Description:
Type:
TDH:
ConstructionMaterial:
GPM:
Service:
MGD:
Weight:
RatedPressure:
Centrifugal Pumps
Hose Pumps
ImpellerSize:
Hose/InsertType:
SuctionLineSize:
Hose/TubeSize:
DischargeLineSize:
CapacityPerRevolution:
BodyStyle:
CastAndRotor:
Submersible Pump Electrical Info
E_VOLT:
E_HP:
E_PHASE:
E_RPM:
Record:
1
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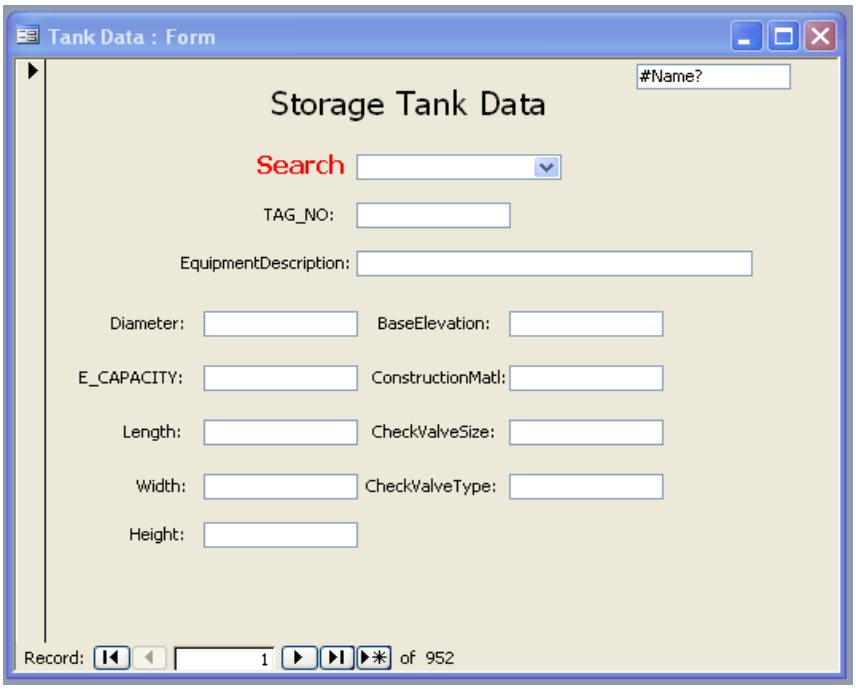
Tank Data : Form
#Name?
Storage Tank Data
Search
TAG_NO:
EquipmentDescription:
Diameter:
BaseElevation:
E_CAPACITY:
ConstructionMatl:
Length:
CheckValveSize:
Width:
CheckValveType:
Height:
Record:
1
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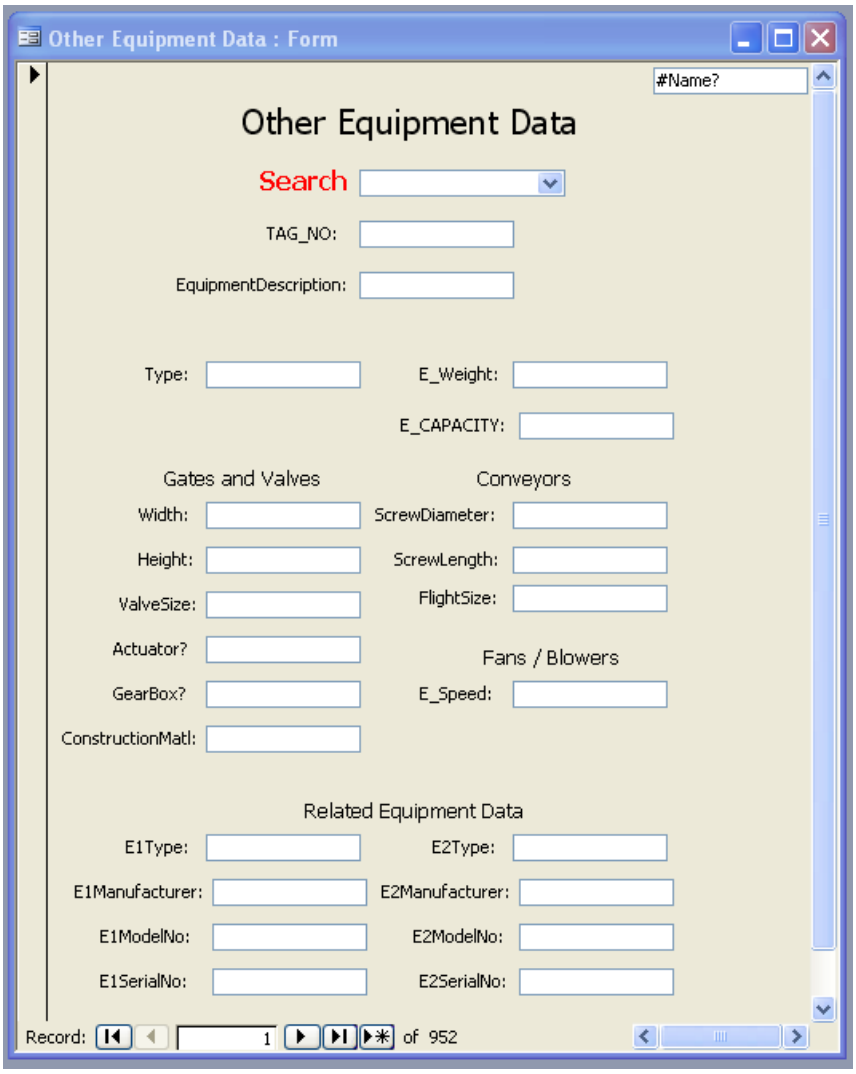
Other Equipment Data : Form
#Name?
Other Equipment Data
Search
TAG_NO:
EquipmentDescription:
Type:
E_Weight:
E_CAPACITY:
Gates and Valves
Conveyors
Width:
ScrewDiameter:
Height:
ScrewLength:
ValveSize:
FlightSize:
Actuator?
Fans / Blowers
GearBox?
E_Speed:
ConstructionMatl:
Related Equipment Data
E1Type:
E2Type:
E1Manufacturer:
E2Manufacturer:
E1ModelNo:
E2ModelNo:
E1SerialNo:
E2SerialNo:
Record:
1
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1.06 ASSET REGISTRY CMMS SPREADSHEET EXAMPLES:

Microsoft Excel - Databasexls100706-FSL

	A	B	C	D	E	F	G	H	I
1	TAG_NO	StructureTitle	EquipmentDescription	Manufacturer	Vendor	MODEL	SerialNumber	PurchasePrice	InstalledDate
2	06	06 - FINE SCREENING - LIME	FSL Structure	Pizzagalli	Pizzagalli	N/A	N/A	$6,300,000	5/25/2010
3	06inst	06 - FINE SCREENING - LIME	Instrumentation (see Invensys details)	Various	Invensys	N/A	N/A	$62,200	5/25/2010
4	06roof1	06 - FINE SCREENING - LIME	Standing Seam Roof	Berrage	Pierre	N/A	N/A	$85,000	5/25/2010
5	06roof2	06 - FINE SCREENING - LIME	Built-up Roof	Johns - Mansville	Dakota	N/A	N/A	$40,000	5/25/2010
6	ACC-0601	06 - FINE SCREENING - LIME	Air Cooled Condenser	Liebert	Shumate	PFH067AH	N/A	$50,000	5/25/2010
7	AHU-0601	06 - FINE SCREENING - LIME	DX Air Handling Unit	Liebert	Shumate	BU060E	N/A	$75,000	5/25/2010
8	ATS-0601	06 - FINE SCREENING - LIME	Automatic Transfer Switch	Eaton	Mayer	ATV3KDA30300XJU	LAT04380-002	$2,405	5/25/2010
9	Door-06-101B	06 - FINE SCREENING - LIME	Fine Screen Roll-up Door	APD	APD	Pro GHX	193718	$10,000	5/25/2010
10	Door-06-102B	06 - FINE SCREENING - LIME	Lime Roll-up Door	APD	APD	Pro GH4X	193715	$10,000	5/25/2010
11	EUH-0601	06 - FINE SCREENING - LIME	Electric Unit Heater	TPI Corporation	Shumate	P3P5505T 43WD5T01	N/A	$2,000	5/25/2010
12	EUH-0602	06 - FINE SCREENING - LIME	Electric Unit Heater	TPI Corporation	Shumate	P3P5505T 43WD5T01	N/A	$2,000	5/25/2010
13	F-0601	06 - FINE SCREENING - LIME	FRP axial supply fan	Hartzell	Shumate	A35-366-E-FGFXM3	0921759	$10,000	5/25/2010
14	F-0602	06 - FINE SCREENING - LIME	Propeller Wall exhaust Fan	Loren Cook	Shumate	240AW-24AB	050SC58531-00/0000701	$5,000	5/25/2010
15	F-0603	06 - FINE SCREENING - LIME	Propeller Wall exhaust Fan	Loren Cook	Shumate	AWB-24A6B	050SC58531-00/0002101	$5,000	5/25/2010
16	F-0604	06 - FINE SCREENING - LIME	Propeller wall exhaust fan	Loren Cook	Shumate	160AW-16A17D	050SL58531-00/0003501	$5,000	5/25/2010
17	F-0605	06 - FINE SCREENING - LIME	Propeller wall exhaust fan	Loren Cook	Shumate	AWD-20A11DA	050SL58531-00/0004801	$5,000	5/25/2010
18	FCP-06C11	06 - FINE SCREENING - LIME	Silo No. 1 Truck Fill Panel	RDP Technologies	TDH Company	0803	N/A	$10,000	5/25/2010
19	FCP-06C12	06 - FINE SCREENING - LIME	Lime System No. 1 FCP	RDP Technologies	TDH Company	N/A	UL# 979572	$10,000	5/25/2010
20	FCP-06D11	06 - FINE SCREENING - LIME	Silo No. 2 Truck Fill Panel	RDP Technologies	TDH Company	0803	N/A	$10,000	5/25/2010
21	FCP-06D12	06 - FINE SCREENING - LIME	Lime System No. 2 FCP	RDP Technologies	TDH Company	N/A	UL# 979571	$10,000	5/25/2010
22	FCP-06E31	06 - FINE SCREENING - LIME	Compressed air FCP	Quincy	Pizzagalli	N/A	5623	$5,000	5/25/2010
23	FCP-06E51	06 - FINE SCREENING - LIME	Lime Unloading Blower FCP	Benshaw Controls	Aerzen	N/A	E20814175-3	$5,000	5/25/2010
24	FV-06C24	06 - FINE SCREENING - LIME	Pebble Lime Flow Valve #1	Bray	RDP	30-119	03663468	$2,000	5/25/2010
25	FV-06C29	06 - FINE SCREENING - LIME	Slaked Lime Flow Valve #1	Bray	RDP	30-119	03730145	$2,000	5/25/2010
26	FV-06D24	06 - FINE SCREENING - LIME	Pebble Lime Flow Valve #2	Bray	RDP	30-119	03663469	$2,000	5/25/2010
27	FV-06D29	06 - FINE SCREENING - LIME	Slaked Lime Flow Valve #2	Bray	RDP	30-119	03730140	$2,000	5/25/2010
28	G-06A01	06 - FINE SCREENING - LIME	Fine Screen No. 1 Inlet Gate	Fontaine	Fontaine	2537272KCW/FE	2535070966221-1	$20,000	5/25/2010
29	G-06A02	06 - FINE SCREENING - LIME	Fine Screen No. 2 Inlet Gate	Fontaine	Fontaine	2537272KCW/FE	2535070966221-2	$20,000	5/25/2010
30	G-06A31	06 - FINE SCREENING - LIME	Fine Screen No. 1 Outlet Gate	Fontaine	Fontaine	2537299KCW/FE	2535070966231-1	$20,000	5/25/2010
31	G-06A32	06 - FINE SCREENING - LIME	Fine Screen No. 2 Outlet Gate	Fontaine	Fontaine	2537299KCW/FE	2535070966231-2	$20,000	5/25/2010
32	G-06A43	06 - FINE SCREENING - LIME	Fine Screen Inlet Box Gate	Fontaine	Fontaine	2035454KCW	2035070966211-1	$20,000	5/25/2010
33	H-0601	06 - FINE SCREENING - LIME	480V Panelboard	Eaton	Mayer	PRL3A	LAT04380-022	$787	5/25/2010
34	H-0602	06 - FINE SCREENING - LIME	480V Panelboard	Eaton	Mayer	PRL2A	LAT04380-019	$578	5/25/2010
35	H-0603	06 - FINE SCREENING - LIME	480V Panelboard	Eaton	Mayer	PRL3A	LAT04380-020	$578	5/25/2010
36	HTMP-0601	06 - FINE SCREENING - LIME	Heat Trace Monitoring Panel	Cleveland Electric Compar	Cleveland Electric Compar	N/A	N/A	$1,000	5/25/2010
37	L-0601	06 - FINE SCREENING - LIME	208/120V Panelboard	Eaton	Mayer	PRL1A	LAT04380-016	$253	5/25/2010
38	L-0602	06 - FINE SCREENING - LIME	208/120V Panelboard	Eaton	Mayer	PRL1A	LAT04380-017	$311	5/25/2010
39	LCP-06	06 - FINE SCREENING - LIME	DCS Cabinet / System	Invensys	Invensys	N/A	N/A	$120,000	5/25/2010
40	LCT-0601	06 - FINE SCREENING - LIME	Lighting Contactor	Cleveland Electric Compar	Cleveland Electric Compar	N/A	N/A	$2,500	5/25/2010
41	M-06A11	06 - FINE SCREENING - LIME	Drum Screen No. 1	Eimco-Brackett Green	Eshelman Company	N/A	N/A	$600,000	5/25/2010
42	M-06A21	06 - FINE SCREENING - LIME	Drum Screen No. 2	Eimco-Brackett Green	Eshelman Company	N/A	N/A	$600,000	5/25/2010
43	M-06A51	06 - FINE SCREENING - LIME	Sampler	Teledyne ISCO	Pizzagalli	4700	209G01282	$3,000	5/25/2010
44	M-06C11	06 - FINE SCREENING - LIME	Silo No. 1 Vent Filter	Donaldson Torit	RDP Technologies	TBV200	2761598-1-Unit1	$10,000	5/25/2010
45	M-06C12	06 - FINE SCREENING - LIME	Lime Feeder No. 1	RDP Technologies	TDH Company	0900	N/A	$20,000	5/25/2010
46	M-06C13	06 - FINE SCREENING - LIME	Bin Activator No. 1	Metalfab Inc.	RDP Technologies	CD18-2000	908012	$20,000	5/25/2010
47	M-06C22	06 - FINE SCREENING - LIME	Lime Slaker No. 1 Mixer	RDP Technologies	TDH Company	N/A	N/A	$30,000	5/25/2010
48	M-06C31	06 - FINE SCREENING - LIME	Grit Separator No. 1	Kason	RDP Technologies	K40-1-SS	M8035	$20,000	5/25/2010
49	M-06C42	06 - FINE SCREENING - LIME	Lime Slurry Tank No. 1 Mixer	Sharpe Mixers	RDP Technologies	2E5-25	50763-2	$30,000	5/25/2010
50	M-06D11	06 - FINE SCREENING - LIME	Silo No. 2 Vent Filter	Donaldson Torit	RDP Technologies	TBV200	2761598-1-Unit2	$10,000	5/25/2010
51	M-06D12	06 - FINE SCREENING - LIME	Lime Feeder No. 2	RDP Technologies	TDH Company	0900	N/A	$20,000	5/25/2010
52	M-06D13	06 - FINE SCREENING - LIME	Bin Activator No. 2	Metalfab Inc.	RDP Technologies	CD18-2000	908012	$20,000	5/25/2010
53	M-06D22	06 - FINE SCREENING - LIME	Lime Slaker No 2 Mixer	RDP Technologies	TDH Company	N/A	N/A	$30,000	5/25/2010

Microsoft Excel - Databasexls100706-FSL

File Edit View Insert Format Tools Data Window Help

A105

	A	B	C	D	E	F	G	H	I
1	TAG_NO	StructureTitle	EquipmentDescription	Manufacturer	Vendor	MODEL	SerialNumber	PurchasePrice	InstalledDate
54	M-06D31	06 - FINE SCREENING - LIME	Grit Separator No. 2	Kason	RDP Technologies	K40-1-SS	M8036	$20,000	5/25/2010
55	M-06D42	06 - FINE SCREENING - LIME	Lime Slurry Tank No. 2 Mixer	Sharpe Mixers	RDP Technologies	2E5-25	50763-1	$30,000	5/25/2010
56	M-06E21	06 - FINE SCREENING - LIME	Air Compressor	Gardner Denver	Pizzagalli	CBSPLA, PL Series-3 - 30HPS	D066770	$10,000	5/25/2010
57	M-06E31	06 - FINE SCREENING - LIME	Compressed air dryer	Quincy	Pizzagalli	RNC25A1	RG0J225B01A2NC09023	$5,000	5/25/2010
58	M-06E51	06 - FINE SCREENING - LIME	Lime Unloading Blower	Aerzen	Pizzagalli	AMUSA GM035S-00	907444	$10,000	5/25/2010
59	M-06F71	06 - FINE SCREENING - LIME	Fine Screen Monorail / Hoist	Acco	Pizzagalli	CZW03	532/20/13354	$30,000	5/25/2010
60	MAU-0601	06 - FINE SCREENING - LIME	Direct-fired makeup air unit	Reznor	Shumate	RDF2-80-3	BID827AN01696MV7	$50,000	5/25/2010
61	MCC-0601	06 - FINE SCREENING - LIME	Motor Control Center	Eaton	Mayer	Freedom Series 2100	LAT04380 IT.013	$53,045	5/25/2010
62	P-06B11	06 - FINE SCREENING - LIME	Screenings Transfer Pump No. 1	Haigh Engineering	Eimco-Brackett Green	Macipump 350	35454-H26215	$10,000	5/25/2010
63	P-06B12	06 - FINE SCREENING - LIME	Screenings Transfer Pump No. 2	Haigh Engineering	Eimco-Brackett Green	Macipump 350	35454-H26214	$10,000	5/25/2010
64	P-06B21	06 - FINE SCREENING - LIME	Screenings Transfer Pump No. 3	Haigh Engineering	Eimco-Brackett Green	Macipump 350	35454-H26213	$10,000	5/25/2010
65	P-06B22	06 - FINE SCREENING - LIME	Screenings Transfer Pump No. 4	Haigh Engineering	Eimco-Brackett Green	Macipump 350	35454-H26216	$10,000	5/25/2010
66	P-06E01	06 - FINE SCREENING - LIME	Lime Slurry Feed Pump No. 1	Watson Marlow	Watson Marlow	SPX 40	26779	$25,000	5/25/2010
67	P-06E02	06 - FINE SCREENING - LIME	Lime Slurry Feed Pump No. 2	Watson Marlow	Watson Marlow	SPX 40	26780	$25,000	5/25/2010
68	P-06E03	06 - FINE SCREENING - LIME	Lime Slurry Feed Pump No. 3	Watson Marlow	Watson Marlow	SPX 40	26789	$25,000	5/25/2010
69	P-06E41	06 - FINE SCREENING - LIME	Lime Slur Additive Meter Pump No. 1	Watson Marlow	Watson Marlow	520UN/R2	110358	$5,000	5/25/2010
70	P-06E42	06 - FINE SCREENING - LIME	Lime Slur Additive Meter Pump No. 2	Watson Marlow	Watson Marlow	520UN/R2	110359	$5,000	5/25/2010
71	T-0601	06 - FINE SCREENING - LIME	Dry Type Transformer	Eaton	Mayer	H48M28T30EE	J08D00184	$910	5/25/2010
72	T-0602	06 - FINE SCREENING - LIME	Dry Type Transformer	Eaton	Mayer	H48m47T30EE	J08L00574	$830	5/25/2010
73	T-0603	06 - FINE SCREENING - LIME	Dry Type Transformer	Eaton	Mayer	H48M28F15EE	J08D00112	$830	5/25/2010
74	T-06B10	06 - FINE SCREENING - LIME	Screenings Conditioning Tank No. 1	Haigh Engineering	Eimco-Brackett Green	1000 ACE Package	N/A	$5,000	5/25/2010
75	T-06B20	06 - FINE SCREENING - LIME	Screenings Conditioning Tank No. 2	Haigh Engineering	Eimco-Brackett Green	1000 ACE Package	N/A	$5,000	5/25/2010
76	T-06C11	06 - FINE SCREENING - LIME	Lime Silo No. 1	Imperial Industries	RDP Technologies	606512-0X34-11	I50392-1	$200,000	5/25/2010
77	T-06C21	06 - FINE SCREENING - LIME	Lime Slaker No. 1	Tekkem	RDP Technologies	PRS-200B	N/A	$50,000	5/25/2010
78	T-06C41	06 - FINE SCREENING - LIME	Lime Slurry Tank No. 1	RDP Technologies	TDH Company	N/A	N/A	$35,000	5/25/2010
79	T-06D11	06 - FINE SCREENING - LIME	Lime Silo No. 2	Imperial Industries	RDP Technologies	606512-0X34-11	I50392-2	$200,000	5/25/2010
80	T-06D21	06 - FINE SCREENING - LIME	Lime Slaker No. 2	Tekkem	RDP Technologies	PRS-200B	N/A	$50,000	5/25/2010
81	T-06D41	06 - FINE SCREENING - LIME	Lime Slurry Tank No. 2	RDP Technologies	TDH Company	N/A	N/A	$35,000	5/25/2010
82	T-06D51	06 - FINE SCREENING - LIME	Sulfamic Acid Feed Tank	Snyder Industries	Pizzagalli		N/A	$15,000	5/25/2010
83	V-06A13	06 - FINE SCREENING - LIME	Screen No. 1 Spray Water Valve	Hayward	SIP	True Union	N/A	$2,000	5/25/2010
84	V-06A23	06 - FINE SCREENING - LIME	Screen No. 2 Spray Water Valve	Hayward	SIP	True Union	N/A	$2,000	5/25/2010
85	V-06A41	06 - FINE SCREENING - LIME	EQE / Fine Screen 30" Isolation Valve	DeZurik	Ecotech	9492401R001	854451-2	$30,000	5/25/2010
86	V-06A42	06 - FINE SCREENING - LIME	Primary Sed. / Fine Screen 42" Flow Control	DeZurik	Ecotech	9492400R001	854451-1	$50,000	5/25/2010
87	V-06A61	06 - FINE SCREENING - LIME	EQE / Fine Screen 18" Flow Control Valve	DeZurik	Ecotech		Tag# 1380279	$50,000	5/25/2010
88	V-06A62	06 - FINE SCREENING - LIME	EQE / Fine Screen 12" Flow Control Valve	DeZurik	Ecotech		Tag# 1380278	$20,000	5/25/2010
89	V-06B31	06 - FINE SCREENING - LIME	FSCR from Tank No. 1 to Inlet Box	Hayward	SIP	True Union	N/A	$5,000	5/25/2010
90	V-06B32	06 - FINE SCREENING - LIME	FSCR to Liquid Seperators No. 1 and 3	Hayward	SIP	True Union	N/A	$5,000	5/25/2010
91	V-06B33	06 - FINE SCREENING - LIME	FSCR from Tank No. 2 to Inlet Box	Hayward	SIP	True Union	N/A	$5,000	5/25/2010
92	V-06B34	06 - FINE SCREENING - LIME	FSCR to Liquid Seperators No. 2 and 4	Hayward	SIP	True Union	N/A	$5,000	5/25/2010
93	VFD-06E01	06 - FINE SCREENING - LIME	Lime Slurry Feed Pump No. 1 VFD	Benshaw Controls	Watson Marlow	N/A	E200814273A-1	$3,000	5/25/2010
94	VFD-06E02	06 - FINE SCREENING - LIME	Lime Slurry Feed Pump No. 2 VFD	Benshaw Controls	Watson Marlow	N/A	E200814273A-2	$3,000	5/25/2010
95	VFD-06E03	06 - FINE SCREENING - LIME	Lime Slurry Feed Pump No. 3 VFD	Benshaw Controls	Watson Marlow	N/A	E200814273A-3	$3,000	5/25/2010
96	WCP-0601	06 - FINE SCREENING - LIME	DCS Workstation	Invensys	Invensys	N/A	N/A	$5,000	5/25/2010
97	WL-0601	06 - FINE SCREENING - LIME	Fixed Wall Louver	Ruskin	Shumate	ELF6375X	N/A	$2,250	5/25/2010
98	WL-0602	06 - FINE SCREENING - LIME	Combination wall louver	Ruskin	Shumate	ELC6375DAX	N/A	$2,250	5/25/2010
99	WL-0603	06 - FINE SCREENING - LIME	Combination wall louver	Ruskin	Shumate	ELC6375DAX	N/A	$2,250	5/25/2010
100	WL-0604	06 - FINE SCREENING - LIME	Fixed Wall Louver	Ruskin	Shumate	ELF6375X	N/A	$2,250	5/25/2010
101	WL-0605	06 - FINE SCREENING - LIME	Combination wall louver	Ruskin	Shumate	ELC6375DAX	N/A	$2,250	5/25/2010
102	WL-0606	06 - FINE SCREENING - LIME	Combination wall louver	Ruskin	Shumate	ELC6375DAX	N/A	$2,250	5/25/2010
103	WL-0607	06 - FINE SCREENING - LIME	Combination wall louver	Ruskin	Shumate	ELC6375DAX	N/A	$2,250	5/25/2010
104	WL-0608	06 - FINE SCREENING - LIME	Combination wall louver	Ruskin	Shumate	ELC6375DAX	N/A	$2,250	5/25/2010
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	A	B	C	D	E	F	G	H	I	J	K	L	M
1	TAG	InstrumentType	Building	Manufacturer	Model	SerialNo	Description	Total Price	Accuracy	Range	MinValue	MaxValue	EngUnits
2	**AE/AIT-06F10**	Gas Detector	06 - Fine Screen / Lime	Draeger	6810098 - Methane	ARZK-0284	Draeger Polytron IR 334 - Methane		< 2% LEL	0-100% LE	0% LEL	100% LEL	% LEL
3	AE/AIT-06F10	Accessory	06 - Fine Screen / Lime	Draeger	6809750	N/A	Draeger Splash Guard		N/A	N/A	N/A	N/A	N/A
4	AE/AIT-06F10	N/A	06 - Fine Screen / Lime	Draeger	SC04085	N/A	Stainless Steel Tags 1" x 2.5"		N/A	N/A	N/A	N/A	N/A
5	AE/AIT-06F10	Splash Guard	06 - Fine Screen / Lime	Draeger	6809780	N/A	Calibration Adapter for Splash Guard		N/A	N/A	N/A	N/A	N/A
6	AE/AIT-06F10	Digital Display	06 - Fine Screen / Lime	Prescison Digital	PD677-N-EX	0902-97861-1-19	4-20mA Digital Display		N/A	0-100%	0%	100%	%
7	AE/AIT-06F10	N/A	06 - Fine Screen / Lime	Prescison Digital	PDA-SSTAG	N/A	Stainless Steel TAG		N/A	N/A	N/A	N/A	N/A
8	AE/AIT-06F10	Accessory	06 - Fine Screen / Lime	Draeger	6809450	N/A	Field Verification Cell		N/A	N/A	N/A	N/A	N/A
9	AE/AIT-06F10	N/A	06 - Fine Screen / Lime	Prescison Digital	PDN-CALDATA		Calibration Services	$ 3,000	N/A	N/A	N/A	N/A	N/A
10	**AE/AIT-06F15**	Gas Detector	06 - Fine Screen / Lime	Draeger	6810098 - Methane	ARZK-0177	Draeger Polytron IR 334 - Methane		< 2% LEL	0-100% LE	0% LEL	100% LEL	% LEL
11	AE/AIT-06F15	Accessory	06 - Fine Screen / Lime	Draeger	6809750	N/A	Draeger Splash Guard		N/A	N/A	N/A	N/A	N/A
12	AE/AIT-06F15	N/A	06 - Fine Screen / Lime	Draeger	SC04085	N/A	Stainless Steel Tags 1" x 2.5"		N/A	N/A	N/A	N/A	N/A
13	AE/AIT-06F15	Splash Guard	06 - Fine Screen / Lime	Draeger	6809780	N/A	Calibration Adapter for Splash Guard		N/A	N/A	N/A	N/A	N/A
14	AE/AIT-06F15	Accessory	06 - Fine Screen / Lime	Draeger	6809450	N/A	Field Verification Cell		N/A	N/A	N/A	N/A	N/A
15	AE/AIT-06F15	Digital Display	06 - Fine Screen / Lime	Prescison Digital	PD677-N-EX	0902-97861-1-2	4-20mA Digital Display		N/A	0-100%	0%	100%	%
16	AE/AIT-06F15	N/A	06 - Fine Screen / Lime	Prescison Digital	PDA-SSTAG	N/A	Stainless Steel TAG		N/A	N/A	N/A	N/A	N/A
17	AE/AIT-06F15	N/A	06 - Fine Screen / Lime	Prescison Digital	PDN-CALDATA		Calibration Services	$ 3,000	N/A	N/A	N/A	N/A	N/A
18	**AE/AIT-06F20**	H2S Gas Detector	06 - Fine Screen / Lime	Draeger	4543070	ERAC-0174	Polytron 2XP TOX w/o Sensor and Relays		1.0 PPM	0-50 PPM	1.0 PPM	50.0 PPM	PPM
19	AE/AIT-06F20	H2S Gas Detector	06 - Fine Screen - Lime	Draeger	6809610	ARAA-0217	H2S Electrochemical Sensor		1.0%	0-50 PPM	0%	100%	PPM
20	AE/AIT-06F20	Accessory	06 - Fine Screen - Lime	Draeger	4509315	N/A	Splash Guard		N/A	N/A	N/A	N/A	N/A
21	AE/AIT-06F20	Mounting Kit	06 - Fine Screen - Lime	Draeger	4520315	N/A	Wall Mounting Kit w/ 15ft. Cable		N/A	N/A	N/A	N/A	N/A
22	AE/AIT-06F20	N/A	06 - Fine Screen - Lime	Draeger	SC04085	N/A	Stainless Steel Tags 1" x 2.5"		N/A	N/A	N/A	N/A	N/A
23	AE/AIT-06F20	N/A	06 - Fine Screen - Lime	Draeger	SC04004	N/A	Warranty for Polytron 2XP TOX for 48 months	$ 3,000	N/A	N/A	N/A	N/A	N/A
24	**AE/AIT-06F25**	H2S Gas Detector	06 - Fine Screen - Lime	Draeger	4543070	ERAC-0408	Polytron 2XP TOX w/o Sensor and Relays		1.0 PPM	0-50 PPM	1.0 PPM	50.0 PPM	PPM
25	AE/AIT-06F25	H2S Gas Detector	06 - Fine Screen - Lime	Draeger	6809610	ARAA-0162	H2S Electrochemical Sensor		1.0%	0-50 PPM	0%	100%	PPM
26	AE/AIT-06F25	Accessory	06 - Fine Screen - Lime	Draeger	4509315	N/A	Splash Guard		N/A	N/A	N/A	N/A	N/A
27	AE/AIT-06F25	Mounting Kit	06 - Fine Screen - Lime	Draeger	4520315	N/A	Wall Mounting Kit w/ 15ft. Cable		N/A	N/A	N/A	N/A	N/A
28	AE/AIT-06F25	N/A	06 - Fine Screen - Lime	Draeger	SC04085	N/A	Stainless Steel Tags 1" x 2.5"		N/A	N/A	N/A	N/A	N/A
29	AE/AIT-06F25	N/A	06 - Fine Screen - Lime	Draeger	SC04004	N/A	Warranty for Polytron 2XP TOX for 48 months	$ 3,000	N/A	N/A	N/A	N/A	N/A
30	**FE/FIT-06A02**	Mass Flow Transducer/Disp	06 - Fine Screen - Lime	KROHNE Inc	VN304HA54300010100010	A0962701	IFC300F - Electromagnetic Flow Transducer		N/A	N/A	N/A	N/A	GPM
31	FE/FIT-06A02	N/A	06 - Fine Screen - Lime	KROHNE Inc	42" - 48 months	N/A	Additional warranty		N/A	N/A	N/A	N/A	N/A
32	FE/FIT-06A02	Mass Flow Sensor	06 - Fine Screen - Lime	KROHNE Inc	VN164XW5AD03112011000	A0962701	Optifulx 2000 - 42" Mag Flow Meter	$ 28,000		0-300 GPI	0 GPM	300 GPM	GPM
33	**FE/FIT-06A60**	Mass Flow Transducer/Disp	06 - Fine Screen - Lime	KROHNE Inc	VN304HA54300010100010	TBA	IFC300F - Electromagnetic Flow Transducer		N/A	N/A	N/A	N/A	GPM
34	FE/FIT-06A60	N/A	06 - Fine Screen - Lime	KROHNE Inc	24" - 48 months	N/A	Additional warranty		N/A	N/A	N/A	N/A	N/A
35	FE/FIT-06A60	Mass Flow Meter	06 - Fine Screen - Lime	KROHNE Inc	VN154NA5AD03112011000	TBA	Optifulx 2000 - 24" Mag Flow Meter	$ 11,000			0 GPM		GPM
36	**FSL-06F30**	Thermal Flow Switch	06 - Fine Screen - Lime	Fluid Components Int. Inc	FLT93S-1B1A4FWC1B03000	304169	Thermal Flow Switch - 25"		+/- 5%	0-20 GPM	0 GPM	20 GPM	SFPS
37	FSL-06F30	N/A	06 - Fine Screen - Lime	Fluid Components Int. Inc	NIST-CAL		N.I.S.T. Cert Calibration	$ 2,600	N/A	N/A	N/A	N/A	N/A
38	**FSL-06F35**	Thermal Flow Switch	06 - Fine Screen - Lime	Fluid Components Int. Inc	FLT93S-1B1A4FWC1B03000	304170	Thermal Flow Switch - 25"		+/- 5%	0-20 GPM	0 GPM	20 GPM	SFPS
39	FSL-06F35	N/A	06 - Fine Screen - Lime	Fluid Components Int. Inc	NIST-CAL		N.I.S.T. Cert Calibration	$ 2,600	N/A	N/A	N/A	N/A	N/A
40	**LE/LIT-06A12A**	Ultrasonic Level Transduce	06 - Fine Screen - Lime	Siemens Corporation	7ML5033-1AA003B Z Y15	PBD/X3230217	MultiRanger 100 (Single Point Unit)		0.25%	0-50 ft	1 ft	50 ft	ft
41	LE/LIT-06A12A	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1930-1BJ	N/A	Stainless Steel TAG		N/A	N/A	N/A	N/A	N/A
42	LE/LIT-06A12A	Ultrasonic Level Sensor	06 - Fine Screen - Lime	Siemens Corporation	7ML1100-0BA20	911175	ST-H Level Transducer (2" NPT - PTFE Face - 10m Cable)			0-20 ft	1 ft	26 ft	ft
43	LE/LIT-06A12A	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1BH	N/A	Submergence Shield Kit		N/A	N/A	N/A	N/A	N/A
44	LE/LIT-06A12A	Mounting Plate	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1BT	N/A	FMS-210 Channel Bracket, Wall Mount	$ 1,500	N/A	N/A	N/A	N/A	N/A
45	**LE/LIT-06A12B**	Ultrasonic Level Transduce	06 - Fine Screen - Lime	Siemens Corporation	7ML5033-1AA003B Z Y15	PBD/X3230209	MultiRanger 100 (Single Point Unit)		0.25%	0-50 ft	1 ft	50 ft	ft
46	LE/LIT-06A12B	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1930-1BJ	N/A	Stainless Steel TAG		N/A	N/A	N/A	N/A	N/A
47	LE/LIT-06A12B	Ultrasonic Level Sensor	06 - Fine Screen - Lime	Siemens Corporation	7ML1100-0BA20	911174	ST-H Level Transducer (2" NPT - PTFE Face - 10m Cable)			0-20 ft	1 ft	26 ft	ft
48	LE/LIT-06A12B	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1BH	N/A	Submergence Shield Kit		N/A	N/A	N/A	N/A	N/A
49	LE/LIT-06A12B	Mounting Plate	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1BT	N/A	FMS-210 Channel Bracket, Wall Mount	$ 1,500	N/A	N/A	N/A	N/A	N/A
50	**LE/LIT-06A22A**	Ultrasonic Level Transduce	06 - Fine Screen - Lime	Siemens Corporation	7ML5033-1AA003B Z Y15	PBD/X3230 ???	MultiRanger 100 (Single Point Unit)		0.25%	0-50 ft	1 ft	50 ft	ft
51	LE/LIT-06A22A	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1930-1BJ	N/A	Stainless Steel TAG		N/A	N/A	N/A	N/A	N/A
52	LE/LIT-06A22A	Ultrasonic Level Sensor	06 - Fine Screen - Lime	Siemens Corporation	7ML1100-0BA20	911176	ST-H Level Transducer (2" NPT - PTFE Face - 10m Cable)			0-20 ft	1 ft	26 ft	ft
53	LE/LIT-06A22A	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1BH	N/A	Submergence Shield Kit		N/A	N/A	N/A	N/A	N/A
54	LE/LIT-06A22A	Mounting Plate	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1BT	N/A	FMS-210 Channel Bracket, Wall Mount	$ 1,500	N/A	N/A	N/A	N/A	N/A
55	**LE/LIT-06A22B**	Ultrasonic Level Transduce	06 - Fine Screen - Lime	Siemens Corporation	7ML5033-1AA003B Z Y15	PBD/X3230214	MultiRanger 100 (Single Point Unit)		0.25%	0-50 ft	1 ft	50 ft	ft
56	LE/LIT-06A22B	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1930-1BJ	N/A	Stainless Steel TAG		N/A	N/A	N/A	N/A	N/A
57	LE/LIT-06A22B	Ultrasonic Level Sensor	06 - Fine Screen - Lime	Siemens Corporation	7ML1100-0BA20	911117	ST-H Level Transducer (2" NPT - PTFE Face - 10m Cable)			0-20 ft	1 ft	26 ft	ft
58	LE/LIT-06A22B	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1BH	N/A	Submergence Shield Kit		N/A	N/A	N/A	N/A	N/A
59	LE/LIT-06A22B	Mounting Plate	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1BT	N/A	FMS-210 Channel Bracket, Wall Mount	$ 1,500	N/A	N/A	N/A	N/A	N/A
60								**$62,200**					

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END OF SECTION

SECTION 02000
SITE WORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. These general site work requirements apply to all site work operations. Refer to specification sections for specific product and execution requirements.

B. The Contractor shall coordinate all site work with other ongoing projects at RM Clayton.

C. Coordinate all existing underground services, piping, ductbanks and utilities.

D. Refer to civil drawings regarding trees on the RM Clayton WRC site; no trees impacted and area disturbed (only if less than 5000 sf).

1.02 QUALITY ASSURANCE

A. Comply with all applicable local, state, and federal requirements regarding materials, methods of work, and disposal of excess and waste materials.

B. Obtain and pay for all required inspections, permits, and fees. Provide notices required by governmental authorities.

1.03 PROJECT CONDITIONS

A. Locate and identify existing underground and overhead services and utilities within contract limit work areas. Provide adequate means of protection of utilities and services designated to remain. Repair utilities damaged during site work operations at Contractor's expense.

B. Arrange for disconnection and seal or cap all utilities and services designated to be removed before start of site work operations. Perform all work in accordance with the requirements of the applicable utility company or agency involved.

C. When uncharted or incorrectly charted underground piping or other utilities and services are encountered during site work operations, notify the Engineer and the applicable utility company immediately to obtain procedure directions. Cooperate with the applicable utility company in maintaining active services in operation.

D. Locate, protect, and maintain bench marks, monuments, control points and project engineering reference points. Reestablish disturbed or destroyed items at Contractor's expense.

E. Perform site work operations and the removal of debris and waste materials to assure minimum interference with streets, walks, and other adjacent facilities.

F. Obtain governing authorities' written permission when required to close or obstruct street, walks and adjacent facilities. Provide alternate routes around closed or obstructed traffic ways when required by governing authorities.

G. Control dust caused by work. Dampen surfaces as required. Comply with pollution control regulations of governing authorities.

H. Protect existing buildings, paving, and other services or facilities on site and adjacent to the site from damage caused by site work operations. Cost of repair and restoration of damaged items at Contractor's expense.

I. Protect and maintain street lights, utility poles and services, traffic signal control boxes, curb boxes, valves and other services, except items designated for removal. Remove or coordinate the removal of traffic signs, parking meters and postal mail boxes with the applicable governmental agency. Provide for temporary relocation when required to maintain facilities and services in operation during construction work.

J. Preserve from injury or defacement all vegetation and objects designated to remain.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

Materials and equipment: As selected by Contractor, except as indicated in contract documents.

PART 3 - EXECUTION

3.01 PREPARATION

A. Examine the areas and conditions under which site work is performed. Do not proceed with the work until unsatisfactory conditions are corrected.

B. Consult the records and drawings of adjacent work and of existing services and utilities which may affect site work operations.

END OF SECTION 02000

SECTION 02050
DEMOLITION

PART 1 - GENERAL

1.01 SCOPE:

A. The work covered under this Section includes furnishing all labor, equipment and material required to remove, handle, crush and dispose of all equipment, materials and piping as shown on the Drawings, directed by the Engineer or required for the completion of the Work, including all necessary excavation and backfilling.

B. Where structural tile and brick is removed from existing structures, the work shall include all patching and reconditioning to restore the remaining tile or brick to its existing state and to provide a proper joint for joining the existing to new construction.

C. Where concrete is cut from existing structures under this Section to permit setting or inserting pipes, flumes, equipment or appurtenances, the work shall include all reconcreting, dressing and finishing of openings to the required lines and dimensions or as necessary for the placing and fixing of inserts.

D. The Contractor shall remove from existing structures and salvage, store or dispose of as specified hereinafter, all valves and piping, mechanical equipment, plumbing, heating, electrical, and ventilating fixtures, pipes, ducts, wires, and equipment, doors and windows, floor grating and cover plates, steel stairs, pipe railing and the like which are not to remain in service in the finished work, whether or not shown on the Drawings and/or specified herein.

E. The work specified herein and shown on the Drawings is intended to give a general idea of the scope of this work but must not be construed as covering it entirely. The Contractor shall visit the site and judge the amount of work required and the problems anticipated in the performance of the work.

F. Requirements for removal of pavement and abandonment of site utilities are specified in Section 02210 Trenching and Backfilling.

G. Many obstructions are not shown on the Drawings. Bidders are advised to carefully inspect the existing facilities before preparing the Bid Proposal. This Contract shall include removal and replacement of obstructions such as electrical conduits and wire; air, water and waste piping; and similar items which may interfere with or hinder installation of equipment or materials; construction; or demolition required under the scope of the project. The Contractor shall coordinate all such demolition with Section 01100, Special Project Procedures.

H. The Contractor shall coordinate the demolition work with scope indicated on drawings and with owner, the following buildings existing systems modification;

1. Administration Building;
2. Blower Building;
3. TWAS Building;
4. Filter Building;
5. UV Building;
6. Mixed Liquor Building;
7. Secondary Clarifiers #1;
8. Secondary Clarifiers #2;
9. Dewatering;
10. Headworks;
11. Nancy Creek;
12. CSO Building;
13. Digester Building;

1.02 SUBMITTALS

Submittals shall be made in accordance with the requirements of the General Conditions of the Contract Documents. In addition, the following specific information shall be provided:

1. The Contractor shall submit to the Engineer, prior to beginning work, a schedule of demolition and detail methods to be used on each facility to be demolished.

2. The Contractor shall develop and submit a demolition plan which includes a demolition schedule comparable to a room finish schedule that covers:

   a. Each building surface affected by demolition.
   b. Proposed method and materials for demolition and patching.
   c. Catalog cuts and samples of the materials to be used.

PART 2 - PRODUCTS

2.01 MATERIALS

A. The Contractor shall provide all materials and equipment in suitable and adequate quantity as required to accomplish the work shown, specified herein, and as required to complete the project.

B. All concrete, mortar, grout, and backfill used in patching, plugging or repairing shall comply in all respects with the applicable material requirements of these Specifications.

C. Tile and brick used for the patching of existing masonry shall be of the same size, color and texture as the tile and brick which they abut. Salvageable tile and brick units which are removed in performing the required alterations may be reused if the exposed faces and edges of the units are in good condition. If satisfactory units

are unobtainable through salvage operations, the Contractor shall furnish the required units of new material of similar quality, color and texture.

PART 3 - EXECUTION

3.01 GENERAL

A. Shutdown of Existing Operations and Utilities

1. The existing Water Reclamation Center is required to remain in service during construction of the new and modification of the existing facilities.

2. Total shutdown of the existing facilities to perform any new construction, to make the required structural or piping modifications, and, and/or to make or install the required electrical service or system modifications, will not be permitted and partial shutdown of the various existing facilities will be permitted as defined in Section 01100, Special Project Procedures.

3. Prior to making any piping or structural connections or modifications to existing facilities, obtain specified timing and schedule approval.

B. Protection

1. Take care to prevent the spread of dust and flying particles. Sprinkle rubbish and debris with water to keep dust to a minimum.

2. Maintain adequate fire protection, including extinguisher and operative water-hose lines during demolition.

C. Personel: Perform work by personnel experienced in this type work and in such a manner as to eliminate hazards to persons and property without interference with new work and with use of adjacent areas, public rights-of-way, utilities and structures.

3.02 CONCRETE DEMOLITION

A. Remove concrete using hand-held equipment unless otherwise approved by the Engineer. All necessary precautions shall be taken during removal of concrete to prevent debris from falling and damaging adjacent piping, equipment, and facilities.

B . Where concrete surfaces must be repaired, such as where removal of existing equipment pads or other demolition activity leaves a rough surface, they shall be repaired using a two component latex modified concrete bonded overlay. The materials, surface preparation and application shall be as recommended by Sika Corporation, Lyndhurst, N.J.; or Master Builders, Cleveland, Ohio; and as acceptable to the Engineer. In addition, the following requirements shall apply:

1. All edges of the repair area shall be cut vertical or slightly undercut to a ½-inch

minimum depth and to wedge in the patch. No feather edges will be allowed. All edges shall be neat and straight.

2. Remove concrete as necessary to create a minimum thickness patch of ½-inch, but not less than the minimum thickness recommended by the manufacturer.

3. Concrete around exposed reinforcing bars shall be removed to a minimum of ¾-inch below the steel.

4. The concrete surface to receive the overlay shall be roughened to a 3/16-inch profile, sandblasted to open the pores of the concrete, and cleaned of all loose material and laitance. Acid etch as necessary to remove any contaminants.

5. A bonding grout, as recommended by the manufacturer, shall be uniformly brushed onto the surface, thoroughly coating all existing concrete and steel surfaces. Place the bonding grout only a few feet in front of the overlay concrete placement.

6. The overlay shall be moist cured.

7. Finish the overlay surface to be continuous with and to match the surrounding concrete surface.

F. Preserving Existing Reinforcing: Where holes or openings are to be cut in existing concrete, preserve intact existing steel reinforcing. Where existing reinforcing must be removed, and where directed by the Engineer, new bars of sufficient size shall be spliced in and around the objects to be inserted in the opening. Such shall be welded to the ends of existing bars. Welds shall be of such size and length as to develop the full strength of the existing bars.

3.03 MASONRY DEMOLITION

A. Existing masonry to be removed shall be broken by air hammer and chisel in such manner as to leave adjoining portions of the structure in an undisturbed condition. In removing existing masonry, special care shall be taken to cut it as closely as possible to the required shape and with no projection into the neat outside line of the new work. The surfaces of all concrete and masonry shall be sufficiently rough to bond well with the new work.

B. Contractor shall remove masonry within the limits of the opening or penetration to the nearest complete undamaged brick. Completed demolition of a masonry opening or penetration shall have no sawcut, chipped or otherwise damaged brick on its perimeter.

C. Existing reinforcement shall lap the reinforcement in the new masonry as shown on the Drawings or as directed by the Engineer.

3.04 REMOVAL OF EXISTING EQUIPMENT AND PIPING

A. Equipment specified to be removed shall be removed completely, including all related accessories and concrete bases. Any embedded items such as anchor bolts, steel reinforcement, conduit and piping shall be cut off 1-inch below adjacent finished surfaces. The surface shall then be repaired to match adjacent surfaces in finish and appearance.

B. Prior to removing any electrical equipment, all power to the equipment shall be shut off and properly locked out. All power and control wiring for the equipment shall then be disconnected at the starter or circuit breaker, as applicable, and removed from the conduit. Unused conduits shall be plugged.

C. Blemishes or unsightly areas on walls and floors left after removal of equipment shall be cleaned and refinished as necessary to match adjacent surfaces.

D. All holes and openings left after removal of equipment shall be filled or plugged to provide a neat and workmanlike appearance.

E. Where piping designated for removal passes through concrete walls, the openings shall be suitably plugged or capped. Wall pipes and wall sleeves shall be sealed with blind flanges or mechanical joint plugs. Steel pipe sleeves shall be filled with non-shrink grout.

F. Where equipment or piping designated for removal serves to support other equipment or piping designated to remain in service, the Contractor shall provide permanent supports in place of the removed equipment and piping. Where it is necessary to temporarily remove other equipment, piping or electrical work in order to gain access to an item of equipment or piping designated for removal, the Contractor shall restore all such equipment, piping or electrical work to its original condition.

3.05 PROTECTION OF WORK AND EXISTING FACILITY

A. Perform the work in a manner that will not damage parts of the structure, facility, or system not intended to be removed. If in the opinion of the Engineer, the method of demolition or cutting may endanger or damage parts of the structure(s) or affect the operation of the facilities, promptly change the method when so notified by the Engineer. Perform all cutting required regardless whether such cutting is specifically indicated. Examine the existing structures, evaluate conditions to be encountered in accomplishing the work, and accommodate such requirements accordingly in the Bid Proposal. No blasting will be permitted.

B. The Contractor shall exercise full care and shall use such methods and equipment during removal as will maintain the usefulness of the various materials and equipment removed.

C. Any damage done to structures or equipment during removal and any patching,

plugging of holes or repairs necessitated because of removal of equipment and piping shall be repaired to the satisfaction of the Engineer and the cost thereof shall be included in the Contract Price.

3.06 DISPOSAL

A. Disposal: All rubble and waste material shall be removed from each work area in order to provide a clean area for plant operations. Such removal and cleanup is to be completed upon conclusion of daily work, outage period, or a specific work period. Removal of waste material from the work areas constitutes physical removal of the debris, rubble, or waste from the building proper or work site to a proper storage container or stockpile. If material is stockpiled for later disposal, the stockpile location shall be as approved by the Engineer. Should stockpiling not be approved an appropriate container may be used, or the Contractor may dispose of the material directly. If stockpiling is approved, disposal of stockpiled materials shall be accomplished at a frequency no less other than weekly. Waste containers shall be located as approved by the Engineer. Waste material is considered to be any item or material that is removed from an existing condition and is not intended for reinstallation or salvage to the City. The Contractor shall be fully responsible for proper disposal of waste materials in accordance with all federal, state and local laws at no additional cost to the City.

B. Contractor shall not dispose of any trash, material, equipment or litter into water reclamation center facilities or tanks. Contractor shall be responsible for any damage to any facilities, tanks or equipment which is damaged by any such foreign material.

3.07 DISPOSITION OF SALVAGEABLE MATERIALS

A. The following material or equipment is to be salvaged and delivered to the City at a location to be designated at the project site. Loading and unloading shall be the responsibility of the Contractor.

B. The equipment and material to be salvaged from the Water Reclamation Center, as the work proceeds shall be removed with care so as not to damage it for possible future use. Equipment shall be protected from dirt and the elements. Damage caused by the Contractor to equipment or material specified herein or indicated on the Drawings to be salvaged shall be replaced or repaired by the Contractor, at no additional cost to the City. Reuse by the Contractor of salvaged material will not be permitted, except as specifically shown, specified herein, or as approved by the engineer.

3.08 REHABILITATION

Certain areas of existing structures, piping, conduits and the like may be affected by work necessary to complete the modifications. The Contractor is responsible to rehabilitate those areas affected by the construction activities. Where existing equipment, equipment pads and bases, piping, piping supports, electrical panels

and devices, conduits, and associated appurtenances are removed, the Contractor shall rehabilitate the affected areas such that little or no evidence of the previous installation remains. Remaining openings in concrete floors, walls, and ceilings from piping, conduit, and fasteners shall be filled with non-shrink grout and finished to match the adjacent area.

END OF SECTION 02050

SECTION 02125
TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.01 SCOPE

A. Work under this section includes furnishing all labor, materials, equipment and incidentals required to install and maintain temporary and permanent erosion and sedimentation controls as shown on the Drawings and as specified herein. Work under this Section also includes the subsequent removal of temporary erosion and sedimentation controls at completion of the project.

B. Temporary and permanent erosion and sedimentation controls include mulching and grassing of disturbed areas and structural barriers at those locations which will ensure that erosion during construction will be maintained within acceptable limits. Acceptable limits are as established by the Georgia Environmental Protection Division (EPD) and applicable codes, ordinances, rules, regulations and laws of local and municipal authorities having jurisdiction.

C. The temporary and permanent erosion and sedimentation control measures shown on the Drawings are minimum requirements. The Contractor shall notify the Engineer of any changes and/or additions to the erosion and sedimentation control measures necessary to accommodate the Contractor's means and methods of operation. Any additional erosion and sedimentation control measures required by the Contractor's means and methods of operation will be installed by the Contractor at no additional cost to the City.

D. The Contractor shall be solely responsible for the control of erosion and sediment production within the Project area. The Contractor shall install controls that will ensure that storm water and drainage from the disturbed area of the Project site will be filtered or otherwise managed to minimize impacts on receiving waters and/or existing storm drains. Discharged waters shall be free of soil particles and shall meet all applicable permit turbidity requirements.

1.02 SUBMITTALS

Submittals shall be made in accordance with the requirements of the General Conditions of the Contract Documents.

1.03 QUALITY ASSURANCE

A. The Contractor shall designate a worksite erosion control supervisor. The supervisor shall have the responsibility and authority to coordinate all equipment, personnel and materials needed to maintain project site erosion and sediment control in accordance with the management practices and standards established in the Manual for Erosion and Sediment Control in Georgia, the Drawings and Specifications

B. Within 15 days after receipt of the Notice to Proceed, the Contractor shall submit the name and contact data for the designated erosion control supervisor.

C. The supervisor shall be an individual with an active minimum Level 1 certification as issued by the Georgia Soil and Water Conservation Commission.

PART 2 PRODUCTS

2.01 MATERIALS

A. Silt fence: Silt fence shall be as detailed on the Drawings and shall meet the requirements of Section 171 – Silt Fence of the GDOT Department of Transportation Standard Specifications.

1. Silt fence fabric shall conform to GDOT Standard Specification Section 881.2.07.

2. Silt fencing shall conform to GDOT Standard Specification Section 894.

3. Silt fence posts and bracing shall conform to GDOT Standard Specification Section 862.

B. Hay bales shall be clean, seed-free cereal hay type, rectangular in shape.

C. Woven wire fence backing shall be ½-inch, galvanized steel, chicken-wire mesh.

D. Filter stone shall be crushed rock conforming to Georgia Department of Transportation Table 800.01, Size Number 57.

E. Concrete block shall be hollow, non load bearing type.

F. Concrete shall be 3000 psi in accordance with Section 03300, Cast-in-Place Concrete.

G. Plywood shall be ¾-inch thick exterior type.

2.02 RIP RAP

A. Use only one method throughout the Project.

B. Stone Rip Rap shall consist of sound, tough, durable stones resistant to the action of air and water. Slabby or shaley pieces will not be acceptable. Specific gravity shall be 2.0 or greater. Rip rap shall have less than 66 percent wear when tested in accordance with AASHT0 T-96. Unless shown on the Drawings or specified otherwise, stone rip-rap shall be type 3.

1. Type 1 Rip Rap: The largest pieces shall have a maximum approximate volume of two cubic feet. At least 35 percent of the mass shall be comprised of pieces which weigh 125 pounds or more. The remainder shall be well graded down to the finest sizes. Rock fines shall comprise a maximum of 10 percent of the total mass. Rock fines are defined as material passing a No. 4 sieve. Rip rap size shall conform to Georgia Department of Transportation Standard Specification Section 805 - Stone Dumped Rip Rap, Type 1.

2. Type 3 Rip Rap: The largest pieces shall have a maximum approximate volume of one cubic foot. At least 35 percent of the mass shall be comprised of pieces which weigh 15 pounds or more. The remainder shall be well graded down to the finest sizes. Rock fines shall comprise a maximum of 10 percent of the total mass. Rock fines are defined as material passing a No. 4 sieve. Rip rap size shall conform to Georgia Department of Transportation Standard Specification Section 805 - Stone Dumped Rip Rap, Type 3.

2.03 FILTER FABRIC

Filter fabric for use under rip-rap shall meet the requirements of GDOT Standard Specification Section 881.2.05 for plastic filter fabric.

2.04 CONSTRUCTION EXIT STONE

Stone shall be sound, tough, durable stone resistant to the action of air and water. Slabby or shaley pieces will not be acceptable. Aggregate size shall be in accordance with the National Stone Association Size R-2 (1.5 to 3.5-inch stone) or Type 3 Riprap as specified in paragraph 2.02 of this Section.

2.05 GRASS

A. Permanent grass shall be of the same type that existed prior to construction.

B. Water: Water shall be free of excess and harmful chemicals, organisms and substances which may be harmful to plant growth or obnoxious to traffic. Salt or brackish water shall not be used. Water shall be furnished by the Contractor.

2.06 EROSION CONTROL FABRIC

Erosion control fabric shall be equal to Futerra Erosion Control Blanket manufactured by Profile Products LLC. Fabric shall be a non-woven erosion control/vegetation blanket comprised of wood fiber and crimped, interlocking synthetic fibers laminated by accelerated photodegradable polypropylene netting. Fabric shall be 100% bio-degradable and photo-degradable within 10 months of installation.

PART 3 EXECUTION

3.01 GENERAL

A. Basic Principles:

1. Conduct the earthwork and excavation activities in such a manner to fit the topography, soil type and condition.
2. Minimize the disturbed area and the duration of exposure to erosion elements.
3. Stabilize disturbed areas immediately.
4. Safely convey run-off from the site to a stable outlet.
5. Retain sediment on site that is generated on site.
6. Minimize encroachment upon watercourses.

B. Temporary Erosion and Sedimentation Control: Temporary erosion and sedimentation control procedures shall be directed toward:

1. Preventing soil erosion at the source.
2. Preventing silt and sediment from entering any waterway if soil erosion cannot be prevented.
3. Preventing silt and sediment from migrating downstream in the event it cannot be prevented from entering the waterway.

C. Permanent Erosion Control: Permanent erosion control measures shall be implemented to prevent sedimentation of waterways and to prevent erosion of the Project site.

3.02 SEDIMENTATION AND EROSION CONTROL MEASURES

A. Temporary and permanent erosion and sedimentation control measures shall prevent erosion and prevent sediment from exiting the site. If, in the opinion of the Engineer, the Contractor's temporary erosion and sedimentation control measures are inadequate, the Contractor shall provide additional maintenance for existing measures or additional devices to control erosion and sedimentation on the site at no additional cost to the Owner.

B. All erosion and sedimentation control devices and structures shall be inspected by the Contractor at least once a week and immediately prior to and after each rainfall occurrence. Any device or structure found to be damaged shall be repaired or replaced by the end of the day. Sediment ponds shall be cleaned out prior to the silt reaching the height or elevation shown on the Drawings.

C. All erosion and sedimentation control measures and devices shall be constructed and installed as shown on the Drawings or specified herein and maintained until

adequate permanent disturbed area stabilization has been provided or permanent pavement has been installed and accepted by the Engineer. After adequate permanent stabilization has been provided or permanent pavement has been installed and accepted by the Engineer, all temporary erosion and sedimentation control structures and devices shall be removed.

3.03 SEDIMENT CONTROL

A. Construction Exit:

1. Construction exit(s) shall be placed as shown on the Drawings and as directed by the Engineer. A construction exit shall be located at any point traffic will be leaving a disturbed area to a public right-of-way, street, alley, sidewalk or parking area.

2. Placement of Construction Exit Material: The ground surface upon which the construction exit material is to be placed shall be prepared to a smooth condition free from obstructions, depressions or debris. The plastic filter fabric shall be placed to provide a minimum number of overlaps and a minimum width of one foot of overlap at each joint. The stone shall be placed with its top elevation conforming to the surrounding roadway elevations. The stone shall be dropped no more than three feet during construction.

3. Construction Exit Maintenance: The Contractor shall regularly maintain the exit with the top dressing of stone to prevent tracking or flow of soil onto public right-of-way and paved surfaces as directed by the Engineer.

4. Construction Exit Removal: Construction exit(s) shall be removed and properly disposed of when the disturbed area has been properly stabilized, the tracking or flow of soil onto public right-of-way or paved surfaces has ceased and as directed by the Engineer.

A. Sediment Barriers:

1. Sediment barriers shall include, but are not necessarily limited to, silt fences, hay bales, rock check dams and inlet sediment traps and any device which prevents sediment from exiting the disturbed area.

2. Silt fences, hay bales and rock check dams shall not be used in any flowing stream, creek or river.

3. Sediment barriers shall be installed as shown on the Drawings and as directed by the Engineer.

4. Sediment barriers shall be maintained to ensure the depth of impounded sediment is no more than one half of the original height of the barrier or as directed by the Engineer. Torn, damaged, destroyed or washed out barriers

shall be repaired, reinforced or replaced with new material and installed as shown on the Drawings and as directed by the Engineer.

5. Sediment Barrier Removal:
   a. Sediment barrier shall be removed once the disturbed area has been stabilized with a permanent vegetative cover or permanent pavement has been installed and the sediment barrier is no longer required as directed by the Engineer.
   b. Accumulated sediment shall be removed from the barrier and removed from the site.
   c. All non biodegradable parts of the barrier shall be disposed of properly. The hay bales may be spread evenly across disturbed areas as a mulching material.
   d. The disturbed area created by barrier removal shall be permanently stabilized.

3.04 EROSION CONTROL

A. Grassing

1. Grassing shall be as specified in paragraph 3.05 of this Section

2. Temporary Stabilization: Temporary stabilization shall be provided as shown on the Drawings and conforming to these Specifications to control erosion on the site. Temporary stabilization shall be provided to any area which will not receive permanent stabilization within the next 14 calendar days. Partial payment requests may be withheld for those portions of the Project not complying with this requirement.

3. Permanent Stabilization:
   a. Permanent stabilization shall be provided as shown on the Drawings and conforming to these Specifications to control erosion on the site. Permanent stabilization shall be provided to all areas of land disturbance within seven calendar days of the completion of land disturbance for any area greater than 0.25 acre. Partial payment requests may be withheld for those portions of the Project not complying with this requirement.
   b. Grass or sod removed or damaged in residential areas shall be replanted with the same variety within seven calendar days of the completion of work in any area.
   c. Where permanent stabilization cannot be immediately established because of an inappropriate season, the Contractor shall provide temporary stabilization. The Contractor shall return to the site at the appropriate season to provide permanent stabilization in areas that received only temporary stabilization.

B. Erosion Control Blanket:

1. Erosion control blankets shall be applied to sloped areas as indicated on the Drawings and where in excess of 2 to 1 slope. Blankets shall be laid on finished grades that have been seeded, insuring good contact with the soil. Soil surface shall be smooth and free of rocks, roots, debris and other obstructions.
2. Secure blankets with biodegradable staples or stakes at the top of slopes in a 6-inch deep x 6-inch wide anchoring trench. Secure blankets with staples or stakes per the manufacturer's recommendations, increasing the spacing at overlapping edges. Blankets shall be overlapped by a minimum of 8-inches. Provide a 6-inch deep x 6-inch wide anchoring trench at the toe of the slope or shoreline.

3.05 GRASSING

A. General:

1. Refer to Section 02933, Seeding and Sodding for detailed specifications on permanent seeding.

2. When final grade has been established, all bare soil, unless otherwise required by the Contract Documents, shall be seeded, fertilized and mulched in an effort to restore to a protected condition.

3. Specified permanent grassing shall be performed at the first appropriate season following establishment of final grading in each section of the site.

4. All references to grassing, unless noted otherwise, shall relate to establishing permanent vegetative cover as specified herein for seeding, fertilizing, mulching, etc.

5. Permanent grassing shall be of a perennial species.

B. Grassing activities shall comply with Section 02933, Seeding and the Manual for Erosion and Sediment Control in Georgia, specifically for the selection of species, planting dates and application rates for seeding, fertilizer and mulching. Where permanent vegetative cover (grassing) cannot be immediately established (due to season or other circumstances) the Contractor shall provide temporary vegetative or mulch cover.

3.06 RIP-RAP

A. Unless shown otherwise on the Drawings, rip-rap shall be placed at all points where banks of streams or drainage ditches are disturbed by excavation, or at all points where their natural vegetation is removed. Carefully compact backfill and place rip rap to prevent subsequent settlement and erosion. This requirement applies equally to construction alongside a stream or drainage ditch as well as crossing a stream or

drainage ditch.

B. When trenching across a creek, place rip-rap a distance of 10 feet upstream and 10 feet downstream from the top of the trench excavation. Place rip rap across creek bottom, across creek banks and extend rip-rap placement five feet beyond the top of each creek bank.

C. Preparation of Foundations

1. The ground surface upon which the rip rap is to be placed shall be brought in close conformity to the correct lines and grades before placement is commenced. Where filling of depressions is required, the new material shall be compacted with hand or mechanical tampers.

2. Unless at creek banks or otherwise shown or specified, rip-rap shall begin in a toe ditch constructed in original ground around the toe of the fill or the cut slope. The toe ditch shall be two feet deep in original ground, and the side next to the fill or cut shall have that same slope. After the rip-rap is placed, the toe ditch shall be backfilled.

D. Placement of Filter Fabric

1. The surface to receive fabric shall be prepared to a relatively smooth condition free from obstructions, depressions and debris. The fabric shall be placed with the long dimension running up the slope and shall be placed to provide a minimum number of overlaps. The strips shall be placed to provide a minimum width of one foot of overlap for each joint. The filter fabric shall be anchored in place with securing pins of the type recommended by the fabric manufacturer. Pins shall be placed on or within 3-inches of the centerline of the overlap. The fabric shall be placed so that the upstream strip overlaps the downstream strip. The fabric shall be placed loosely so as to give and therefore avoid stretching and tearing during placement of the stones.

2. The fabric shall be protected at all times during construction from clogging due to clay, silts, chemicals or other contaminants. Any contaminated fabric or any fabric damaged during its installation or during placement of rip-rap shall be removed and replaced with uncontaminated and undamaged fabric at no expense to the City.

E. Placement of Rip-Rap

1. The rip-rap shall be placed on a 6-inch layer of soil, crushed stone or sand overlaying the filter fabric. This 6-inch layer shall be placed to maximize the contact between the soil beneath the filter fabric and the filter fabric. Rip-rap shall be placed with its top elevation conforming to the finished grades or the natural slope of the stream bank and stream bottom.

2. The stones shall be dropped no more than 3 feet during construction.

3. Stone rip-rap shall be dumped into place to form a uniform surface and to the thickness specified on the Drawings. The thickness tolerance for the course shall be -6-inches and +12-inches. If the Drawings do not specify a thickness, the course shall be placed to a thickness of not less than 18-inches.

3.07 CLEAN-UP

Remove and dispose of all excess erosion and sedimentation control devices and materials when no longer needed or at the completion of construction as directed by the Engineer.

END OF SECTION 02125

SECTION 02200
EARTHWORK

PART 1 – GENERAL

1.01 SCOPE

A. The work under this Section includes earthwork and related operations, including, but not limited to; excavating all classes of material encountered; trenching; handling; storage; transportation; and disposal of all excavated and unsuitable material; construction of fills and embankments; backfilling around structures; backfilling all pits; compacting; all sheeting; shoring and bracing; preparation of subgrades; surfacing and grading; and any other similar, incidental, or appurtenant earthwork operation for construction of ductbanks..

B. The Contractor shall provide all services, labor, materials, and equipment required for all earthwork and related operations necessary or convenient to the Contractor for furnishing complete Work as shown on the Drawings or specified in these Contract Documents.

C. Related Work specified elsewhere:

1. Section 16131 – Conduits

1.02 GENERAL

A. Safety: Comply with local regulations and with provisions of the “Manual of Accident Prevention in Construction” of the Associated General Contractors of America, Inc. Occupational Safety and Health Act (OSHA) and all other applicable safety regulations.

B. Earthwork operations shall be performed in a safe and proper manner with appropriate precautions being taken against all hazards.

C. All excavated and filled areas for structures, trenches, fills, topsoil areas, embankments and channels shall be maintained by the Contractor in good condition at all times until final acceptance by the City. All damage caused by erosion or other construction operations shall be repaired by the Contractor using material of the same type as the damaged material at no cost to the City.

D. The Contractor shall control grading in a manner to prevent water running into excavations. Obstruction of surface drainage shall be avoided and means shall be provided whereby storm water can flow uninterrupted in existing open ditches or channels; other surface drains; or temporary drains.

E. No classification of excavated materials will be made, except for rock excavation. Excavation work shall include the removal and subsequent handling of all materials

excavated or otherwise removed in performance of the Work, regardless of the type, character, composition or condition thereof.

F. The soil testing will be performed by the Contractor's testing laboratory. As a minimum at least one density test shall be performed for every 5,000 square feet of fill area and every two feet of fill lift.

G. All earthwork operations shall comply with the requirements of OSHA Construction Standards, Part 1926, Subpart P, Excavations, Trenching, and Shoring, and Subpart O, Motor Vehicles, Mechanized Equipment, and Marine Operations, and shall be conducted in a manner acceptable to the Engineer.

H. Stockpile Areas: Provided there is space available, stockpiling material may be on site.

1.03 SUBMITTALS

Submittals shall be made in accordance with the requirements of the General Conditions of the Contract Documents. In addition, the following specific information shall be provided:

A. Test results, certification of compliance, source and samples for all imported materials.

B. Test reports for compaction.

1.04 QUALITY ASSURANCE

Reference Standards. Comply with all Federal, State and local laws or ordinances, as well as all applicable codes, standards, regulations and/or regulatory agency requirements.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Earthwork Materials

1. Controlled Fill:

a. Proposed fill soils shall be laboratory tested prior to construction use to determine their suitability. All fill material shall be subject to the approval of the Engineer. All fill shall be free of organic matter or debris, have a low to moderate plasticity, (PI$\leq$15) uniform composition, and be free of rock fragments greater than three inches in dimension. Soils selected for use as fill material shall also have a standard Proctor (ASTM D 698) maximum dry density of at least 90 pounds per cubic foot.

b. All on-site fill material shall be soil exclusive of organic matter, frozen lumps or other deleterious substances.

c. It shall contain no rocks or earth clumps over 3-inches maximum in dimension.

2. Top Soil: Dark organic weed free loam.

B. Sheeting, Bracing and Timbering: The Contractor shall furnish, place and maintain all sheeting, bracing and timbering required to properly support trenches and other excavations in open cut and to prevent all movement of the soil, pavement, structures, or utilities outside of the trench or pit.

1. Timber:

a. Timber may be substituted for steel sheet piling when approved by the Engineer. Timber for shoring, sheeting or bracing shall be sound and free of large or loose knots and in good condition. Size and spacing shall be in accordance with OSHA regulations.

b. Remove bracing and sheeting in units when backfill reaches the point necessary to protect the work and adjacent property. Leave sheeting in place when it cannot be safely removed. Cut off sheeting left in place below the finished ground surface by three feet.

2. Steel Sheet Piling:

Steel sheet piling shall be the continuous interlock type. The weight, depth and section modulus of the sheet piling shall be sufficient to restrain the loads of earth pressure and surcharge from existing foundations. Procedure for installation and bracing shall be so scheduled and coordinated with the removal of the earth that the ground under existing structures shall be protected against lateral or vertical movement at all times. In addition to the drawings and computations, the Contractor shall provide closure and sealing details between sheet piling and existing facilities, as well as method of excavation within sheet piling to the Engineer for review before commencing with construction operations. Contractor shall be responsible for all damage to existing utilities and structures resulting from installation of sheet piling. Damage to existing utilities and/or structures resulting from installation of sheet piling shall be repaired at the Contractor's expense.

C. Other Materials: All other materials not specifically described but required for proper completion of the work of this Section, shall be as selected by the Contractor subject to the prior approval of the Engineer.

D. Stockpile area: The stockpile area shown on the drawings, or as directed by the Engineer, shall be used to stockpile soil material for backfilling around structures and to stockpile needed topsoil.

PART 3 – EXECUTION

3.01 GENERAL

A. Benching of Slopes: When the embankment is to be placed and compacted on hillsides, or when new embankment is to be compacted against existing embankments, or when the embankment is to be built ½ width at a time, the slopes that are steeper than 4:1 as measured at right angles to the embankment shall be continuously benched over those areas as the work is brought up in layers. Benching shall be of sufficient width to permit the operation of placing and compacting equipment. Each successive cut shall begin at the intersection of the original ground and the vertical side of the previous cut. Material thus cut shall be recompacted along with the new embankment material. Proof roll subgrade prior to placement of fill material.

B. Topsoil:

1. Remove all topsoil to a depth at which subsoil is encountered, from all areas, which are to be cut to lower grades or filled.

2. Topsoil to be used for finish grading may be stored on the site. It shall be piled properly, sloped to drain and covered.

C. Bracing and Sheeting:

1. Furnish, install, and maintain all sheeting, bracing, and shoring as may be required to properly support the sides of all excavations and to prevent all movement of earth, which could in any way injure the work, adjacent property, or workmen.

2. Properly support all trenches for duct bank installation so as to conform to all pertinent rules and regulations and these Specifications. All trenches deeper than 5 feet shall be shored unless cut to the angle of repose of the excavated soils.

3. Exercise care in the removal of sheeting, shoring, bracing and timbering to prevent collapse or caving of the excavation faces being supported and damage to the work and adjacent property.

4. Do not leave any sheeting or bracing in the trench or excavation after completion of the work, unless approved or instructed by the Engineer. The cost of removing sheeting or bracing shall be at the Contractor's expense.

5. All sheeting and shoring in contact with concrete or masonry shall remain in place. The sheeting and shoring above the structure may remain or be cut off. No sheeting or shoring left in place shall be within three feet below the ground surface.

D. Obstructions:

1. Remove and dispose of all trees, stumps, roots, boulders, pavement, pipes and the like, as required for the performance of the work.

2. Exercise care in excavating around catch basins, inlets, manholes, piping, duct banks, underground vaults, etc.

3. Avoid removing or loosening castings or pushing dirt into structures.

4. Damaged or displaced castings shall be repaired and replaced, and dirt entering the structures during the performance of the work shall be removed at no additional cost to the City.

E. Extra Earth Excavation:

In case soft material, which, in the opinion of the Engineer is not suitable, is encountered in the bottom of a trench or underneath a structure, the soft material shall be removed and replaced with structural fill or coarse aggregate.

F. Cutting Paved Surfaces and Similar Improvements:

1. Remove existing pavement as necessary for installing ductbank as otherwise shown on the Drawings.

2. Before removing any pavement, mark the pavement neatly, paralleling pipe lines and existing street lines. Space the marks to match the width of the trench.

3. Sawcut the asphalt pavement along the marks before breaking away from the part of pavement that should remain.

4. Do not pull pavement with machines until completely broken and separated from pavement to remain.

5. Do not disturb or damage the adjacent pavement. If the adjacent pavement is disturbed or damaged, remove and replace the damaged pavement. Refer to Section 02700 for replacement of damaged or removed pavement.

   NOTE: No additional payment will be made for removing and replacing damaged adjacent pavement.

6. Remove and replace sidewalks disturbed by construction for their full width and to the nearest undisturbed joint.

7. The Contractor may tunnel under curbs that are encountered. Remove and replace any curb disturbed by construction to the nearest undisturbed joint.

G. Dewatering:

1. The proposed dewatering plan shall be submitted by the Contractor to the Engineer for approval at least ten (10) working days prior to the beginning of any excavation.

2. Furnish, install, maintain and operate necessary pumping and other equipment for dewatering the various parts of the Work and for maintaining the foundation and other parts free from water as required for constructing each part of the Work.

3. By the use of well points, pumps, tile drains or other approved methods, the Contractor shall prevent the accumulation of water in excavated areas. Should water accumulate, it shall be promptly removed.

4. Excavations shall be continuously dewatered to maintain a ground water level no higher than 3 feet below the lowest point in the excavation.

5. Piezometric observation wells shall be required, to monitor the ground water level, to insure proper dewatering prior to excavation below the static water table. The number of wells required will vary depending on the size and depth of structures and shall be included in the plan.

6. The cost for all dewatering and discharge shall be at the Contractor's expense and shall be considered incidental.

3.02 EXCAVATION

A. Method:

1. All excavation shall be by open cut from the surface except as indicated on the Drawings.

2. All excavations for appurtenances and structures shall be made in such manner and to such depth and width as will give ample room for building the structures and for bracing, sheeting, and supporting the sides of the excavation, for pumping and draining groundwater and wastewater which may be encountered, and for the removal from the trench of all materials excavated.

3. Water shall not be allowed to accumulate in excavations. Contractor shall provide sufficient temporary pumping to assure that surface and ground waters do not saturate foundation soils.

4. Take special care so that soil below the bottom of the structure to be built is left undisturbed.

B. Grades:

1. Excavate to lines and grades indicated on the Drawings.

2. Where excavation grades are not indicated on the Drawings, excavate as required to accommodate installation.

C. Disposal of Excavated Material:

1. Remove and legally dispose of all excavated material not needed to complete filling, backfilling, and grading.

2. Dispose of excess excavated material at locations secured by the Contractor and in accordance with all requirements of federal, state, county and municipal regulations. No debris of any kind shall be deposited in any stream or body of water, or on any street or alley. No debris shall be deposited on any private property except by written consent of the property owner. In no case shall any material be left on the Project site, or be buried in embankments or trenches on the Project site. With recommendation of the Testing Laboratory and approval by the Engineer, demolished, crushed concrete may be acceptable for use in fill areas.

3. Excavated materials shall be placed adjacent to the work to be used for backfilling as required.

4. Excavated materials shall be placed sufficiently back from the edge of the excavation to prevent caving of the trench wall, to permit safe access along the trench and to not cause any drainage problem. Excavated material shall be placed so as to not damage existing landscape or man-made improvements. Surcharging of any bank is not allowed.

D. Rock Excavation:

1. Rock excavation shall mean rock requiring drilling and blasting that occupies an original volume of at least one (1) cubic yard. Rock shall be considered as material which cannot be removed with a crawler tractor equal to a D-8 Caterpillar, equipped with a single-tooth ripper or by an excavator trackhoe equal to a Caterpillar 225 rated with a ¾ cubic yard capacity with a bucket curling pullout capacity of 25,000 pounds.

2. Where rock is encountered within excavation for structures, it shall be excavated to the lines and grades indicated on the Drawings or as otherwise directed by the Engineer. The Contractor shall be responsible for obtaining any blasting permits required.

3. If excess excavation is made or the material becomes disturbed so as to require removal below final subgrade elevations or beyond the prescribed limits, the resulting space shall be refilled with Class B concrete in accordance with Section 03300, Cast-in-Place Concrete.

3.03 BACKFILL AND FILL PLACEMENT

A. Compaction of fill shall be accomplished by placing the fill material in horizontal lifts of eight-inches (8") maximum loose thickness and mechanically compacting each lift to at least the specified dry density.

B. All fill placement shall be witnessed by an experienced soils technician of the Testing Laboratory and fill density and moisture tests for each lift shall be performed to verify that the specified degree of compaction is being achieved.

C. Prior to placement of any material in embankments, the area within embankment limits shall be stripped of topsoil and all unsuitable materials removed as described under Excavation. Area to receive fill shall then be scarified to a depth of at least 6-inches.

D. The fill shall be brought to the proposed elevation by placing and compacting only approved fill materials upon a subgrade approved by the Engineer.

E. Fill materials shall be placed in continuous approximately horizontal layers extending the full width of the embankment cross-section and the full dimension of the excavation where practicable.

F. The fill shall be placed at a moisture content that corresponds to a +/- 3% of the optimum moisture content, as determined by the standard Proctor moisture-density relationship test.

G. Compaction:

1. The fill shall be uniformly compacted to a dry density that corresponds to at least 95% of the standard Proctor maximum dry density (ASTM D 698) of the fill soil.

2. The upper twelve-inches (12") of fill beneath the structures and pavement areas shall be compacted to 98% of the standard Proctor maximum dry density.

3. Scarification and recompacting of the upper fill soils immediately prior to the slab-on-grade and/or pavement construction shall be required.

4. If tests indicate that density of backfill fill is less than that specified, the area shall be either be recompacted or undercut, filled, and compacted until specified density is achieved.

H. Final Grading: Upon completion of construction operations, the area shall be graded to finish contour elevations and grades shown on the Drawings. Graded areas shall be made to blend with remaining ground surfaces. All surfaces shall be left smooth and free to drain.

I. Moisture:

1. If fill material is too wet, provide and operate approved means to assist the drying of the fill until suitable for compaction.

2. If fill material is too dry, provide and operate approved means to add moisture to the fill layers.

J. Proofrolling:

1. All areas where pavement or structures are to be built on compacted fill and other areas where indicated on the Drawing, shall be proofrolled to detect soft spots prior to the placement of fill material or construction of foundations.

2. Proofrolling shall consist of the moving a 20-30 ton loaded dump truck or pneumatic tire roller over the subgrade after the subgrade is shaped. Proofrolling shall be witnessed by the Engineer.

K. During wet or rainy periods, aeration (drying) shall be required to reduce the fill materials to the required moisture condition. During dry periods, water shall be added to achieve the proper moisture content for compaction. Silty soils, which are wet, shall require aeration prior to compaction even during dry periods.

3.04 BACKFILLING AROUND STRUCTURES

General:

1. Remove debris from excavations before backfilling.

2. Do not backfill against foundation walls until so instructed by the Engineer

3. Wherever possible, backfilling shall be simultaneous on both sides of walls to equalize lateral pressures.

4. Do not backfill on only one (1) side of vertically spanning walls unless walls are adequately shored or permanent construction is in place to furnish lateral support on both top and bottom of wall.

3.05 EXCESS WATER CONTROL

A. Unfavorable Weather:

1. Do not place, spread or roll any fill material during unfavorable weather conditions.

2. Do not resume operations until moisture content and fill density are satisfactory to the Engineer.

3. Any inundated area that freezes shall be removed and refilled at the Contractor's expense.

B. Provide berms or channels to prevent flooding of subgrade. Promptly remove all water collected in depressions.

C. Pumping, Drainage and Dewatering:

1. Provide, maintain and use at all times during construction adequate means and devices to promptly remove and dispose of all water from every source entering the excavations or other parts of the Work.

2. Dewater by means, which will insure dry excavations, preserve final lines and grades, and do not disturb or displace adjacent soil.

3. All pumping and drainage shall be done with no damage to property or structures and without interference with the rights of the public, owners of private property, pedestrians, vehicular traffic or the work of other contractors, and in accordance with all pertinent laws, ordinances, and regulations.

4. Do not overload or obstruct existing drainage facilities.

3.06 SETTLEMENT

A. The Contractor shall be responsible for all settlement of backfill, fills, and embankments, which may occur within one (1) year after final acceptance of the Work by the City.

B. The Contractor shall make, or cause to be made, all repairs or replacements made necessary by settlement within thirty (30) days after receipt of written notice from the Engineer.

3.07 CLEANING

Upon completion of the work of this Section, remove all rubbish, trash and debris resulting from construction operations. Remove surplus equipment and tools. Leave the site in a neat and orderly condition acceptable to the Engineer, and in conformance with the General Conditions of the Contract Documents.

END OF SECTION 02200

SECTION 02210

TRENCHING AND BACKFILLING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections 01400 and 01600 apply to work of this section.

1.02 DESCRIPTION

A. This section and related drawings describe requirements pertaining to earthwork.

B. Trenching and Backfilling includes:

- Dewatering excavation
- Excavating all materials
- Handling and disposal of unsuitable material
- Backfilling and compacting

C. Trenching and Backfilling does not include:

- Shoring and bracing excavation

D. Perform trenching and backfilling within rights of way of state, municipal, public utility or other governmental agencies in accordance with requirements of those respective agencies. Such requirements shall take precedence and supersede provisions of these specifications.

1.03 SITE INFORMATION

A. Any data on indicated subsurface conditions are not intended as representations or warranties of the continuity of such conditions. It is expressly understood that the OWNER will not be responsible for interpretations or conclusions drawn there from by the CONTRACTOR.

B. Soil investigations may be made by the CONTRACTOR at no cost to the OWNER, provided such operations are acceptable and approved in writing by the ENGINEER.

1.04 SOIL QUALITY CONTROL TESTING DURING CONSTRUCTION

The OWNER will retain the services of a soils consultant to test for compliance

with these specifications. When fill or backfill is required to be compacted to any specified density, the ENGINEER may order such fill or backfill to be laboratory tested in order to ascertain compliance with specification requirements. Tests will be executed immediately prior to covering of such compacted areas.

1.05 REMOVAL OF EXISTING UNDERGROUND UTILITIES

Demolish and completely remove from the site all existing underground utilities indicated to be removed. Coordinate with RM Clayton WRC Plant Manager for verification or shut-off of services if lines are active.

1.06 UNCLASSIFIED EXCAVATION

Excavate all materials without regard to type of soil or rock encountered. No extra payment will be made considering the type or quality of excavated materials.

1.07 SAFETY STANDARDS

A. Conduct excavation operations to meet requirements of OSHA Construction Standards, Part. 1926, Subpart P, "Excavation, Trenching and Shoring", and Subpart O. "Motor Vehicles, Mechanized Equipment, and Marine Operations". Where local excavation safety standards are more stringent than OSHA Standards, the local standards shall take precedence.

B. Place safety and traffic barriers at all construction areas to warn vehicles traffic and pedestrians of such excavation. Provide lighted barricades, flagmen, and other public safety procedures as required by authorities having jurisdiction.

PART2 PRODUCTS

2.01 SATISFACTORY SOIL MATERIALS

Satisfactory soil materials are defined as those complying with the American Association of State Highway Officials (AASHTO) Designation M145, soil classification Groups A-1, A-2-4, A-2-5, and A-3. At time of compaction of 3%+ of the optimum moisture content as determined by AASHTO T-180.

2.02 UNSATISFACTORY SOIL MATERIALS

Unsatisfactory soil materials are defined as those described in AASH) M145, soil classification Groups A-2-6, 2-7, A-4, A-5 and A-6, and A-7; also, peat and other highly organic soils; and soil materials of any classification that have a moisture content other than specified for satisfactory materials.

2.03 COHESIONLESS SOIL MATERIALS

Cohesionless soil materials include gravels, sand-gravel mixtures, and sands

gravelly-sands.

2.04 COHESIVE SOIL MATERIALS

Cohesive soil materials include clayey and silty gravels, sand-clay mixtures, gravel-silt, mixtures, clayey and silty sands, sand-silt mixtures, clays, silts, and very fine sands.

2.05 ROCK

Rock excavation consists of the removal and disposal of materials encountered that cannot be excavated without continuous and systematic drilling and blasting or continuous use of a single tooth ripper having a draw-bar pull no less than 56,000 lbs. a front end loader having a minimum bucket break-out force of 25,600 lbs. or a backhoe having a bucket curling force rated at not less than 33,000 lbs. or other special equipment, except such materials that are classified as earth excavation. Typical of the materials classified as rock are boulders 1.0 cu. yd. or more in volume, solid rock, rock in ledges, and rock-hard cementitious aggregate deposits.

2.06 FILL MATERIALS

A. Excavated material that is suitable, as defined, may be used for fills and backfills. Provide any additional fill materials from off the site as may be required to produce designated lines and grades indicated by the project Drawings.

B. Fill materials shall be approved and conform to the following requirements, except as specifically indicated otherwise:

1. Fill shall be earth, free of debris, cinders, combustibles, frost, ice, roots, sod, wood, cellulose, organic materials, fill may contain rock-like-materials not more than 0.50 cubic foot in volume nor more than 12 inches in length, if evenly distributed in the total fill.
2. Top 18 inches of fills under topsoil of lawn and planted areas shall be earth, free of debris, cinders, frost ice, sod, wood and roots over 1/4 inch in diameter. Up to 10% of fill material may be rock-like materials not more than 0.15 cubic foot in volume nor more than 4 inches in length. Also, up to 20 percent of fill material may be topsoil, but no sod.
3. Fill, within two feet of pipe and other structures, shall be soil free of debris, cinders, combustibles, frost, ice, roots, sod wood, cellulose, and organic materials. Up to 40% of fill material may be rock-like materials not more than 3 inches in length.

PART 3 EXECUTION

3.01 EXISTING UTILITIES

A. Locate existing underground utilities by careful hand excavation before starting earthwork operations. If utilities are to remain in place, provide protection from damage during construction operation.

B. Should other utilities not shown be encountered during excavation, consult the ENGINEER immediately for directions as to procedure. Cooperate with the OWNER, and public and private utility companies in keeping services and facilities in operation. Repair damaged utilities to the satisfaction of the utility OWNER.

3.02 USE OF EXPLOSIVES

A. Do not bring explosives onto the site or use in the work without the prior written permission of the ENGINEER. The CONTRACTOR is solely responsible for the handling, storage, and use of explosive materials when their use is permitted.

B. Perform blasting operations using skilled personnel, in compliance with governing regulations. Comply with ANSI A10.2 "Safety Code for Building Construction" for the minimum requirements for blasting.

C. Store explosives, if permitted on OWNER'S property, only in proper storage structures. Keep storage facilities securely locked at all times except for inspection and for delivery and storage of explosives. Provide fulltime watchman and other controls as required by governing regulations.

D. Conduct blasting operations using explosives of such quantity and power, and fired in such sequence and locations, as not to injure personnel or damage property, or damage adjacent work. Assume full responsibility for damages resulting from or attributable to blasting operations.

3.03 SURFACE PREPARATION

A. Within designated construction areas, remove those improvements as necessary for trenching.

B. Where trenching is to pass through streets, curbs, and other paved areas, saw-cut neat lines in the paving or curbing prior to excavation.

C. Remove existing trees on site which are indicated to be removed. Before removal of any full grown trees that are not specifically designated to be removed, consult with Engineer and obtain permission and full instructions for removal or trimming.

D. Stumps and their roots, that would if not removed, remain within an area of five feet beyond the confines of exterior structure walls, shall be removed in their entirety.

3.04 TRENCH EXCAVATION

A. Excavate all materials necessary for construction including structures and appurtenances at the elevations, grades and alignments as shown on the Drawings.

B. Cut trench banks that are vertical and parallel equidistant from the proposed pipe centerline to a distance 12 inches above the pipe crown and at widths not greater than shown on the Drawings. Where sheeting is used, install so that distance between sheeting surfaces will not exceed maximum allowable trench widths.

C. Cut trench bottom carefully allowing for installation of valves, thrust blocking, pipe bells and other appurtenances. Excavate for pipe, manholes and appurtenances no more than ten joints ahead of installation operations. Fine grade trench bottom so that no part of any pipe joint, coupling or other fitting is in contact with the trench bottom when pipes are joined.

D. Do not excavate more than 400 feet ahead of pipe installation operations.

E. Where trenches are excavated below elevations shown on the Drawings, fill over-excavated area with suitable fill, compacted to 95% Modified Proctor Density at the optimum moisture content, crushed stone or sand in order to obtain required pipe elevations and grades.

F. Place excavated materials along open trenches in a manner so that no damage occurs outside the construction right-of-way.

G. Control rainfall runoff by placing sediment barriers as shown on the Drawings, or as directed by the OWNER'S representatives, and in a manner meeting the requirements of governmental agencies having jurisdiction.

H. Where rock is encountered over-excavate for the full bottom trench width to the following depths:

Backfill over-excavated areas as described in E, above.

Pipe Diam., Inches	Over excavation Depth, Inches
8 to 18	8
18 to 30	10
32 and greater	12

3.05 DEWATERING

A. Do not permit water to accumulate in trench bottoms. Use pumps, well points and other appropriate means to keep trench bottoms, and foundations for pipeline appurtenances free of water. Do not permit trench bottoms to be used

as a channel to convey water.

B. Do not permit pipe installation in trenches containing standing or running water, or on trench bottoms that have been soaked by water.

C. Where trench bottoms have been, in the opinion of the OWNER'S representative, weakened by water, over excavate and backfill as described in 3.04 - E, above.

3.06 SHORING AND BRACING

A. Install shoring and bracing as necessary to provide safe working conditions and meet the requirements of OSHA as well as other authorities having jurisdiction.

B. Design and install shoring and bracing having sufficient strength and rigidity to withstand all soil and other loadings caused by surcharging and adjacent traffic.

C. Shore and brace excavation next to structures and through pavements to prevent settlement. Repair at no expense to the OWNER, any damage claimed due to faulty shoring and bracing.

D. Unless otherwise authorized, remove all shoring and bracing prior to backfilling. Shoring and bracing may be left in place if authorized, and in a manner recommended by the ENGINEER.

3.07 BACKFILLING

A. Begin backfilling immediately following installation of the pipeline and inspection. Use a satisfactory soil material or a cohesionless soil material. Place backfill in the trench in 6 inch depth layers for the full trench width and uniformly compact to specified density. Backfill from above the class of bedding indicated on the Drawings and compact to provide a minimum 12 inch cover over the pipe. Install backfill to prevent lateral displacement of the pipe. Use special care when backfilling flexible pipes to prevent deformation of the pipe.

B. Within street, alleys and driveways subject to vehicle loads continue compaction in 6 inch layers for full trench depth to within 6 inches of final backfill elevation. Use a crushed stone for the final 6 inches of fill.

C. Within areas not affected by vehicular traffic, place fill for full trench depth in 12 inch layers, each compacted to specified requirements. At finished grade elevation, leave backfill neatly rounded over trench at a sufficient height to allow for trench settlement.

D. Backfill around pipeline structures in 6 inch depth layers and compact to achieve required degree of compaction. Do not place backfill against concrete construction until 28 day compressive strength has been reached and completion of structure is sufficient to accommodate lateral earth loads.

E. Unless otherwise recommended by Soils Reports prepared by qualified geotechnical engineers, place fill in 8 inch layers, loose measure, and compact to the following Modified Proctor densities, ASTM D-1556, at optimal moisture content per AASHTO T-180:

Below building foundations and floor slabs:	95%
Below sidewalks :	95%
Below streets, parking and driveways, top 2.0 foot:	100%
Below grassed and landscaped areas:	90%
Below natural terrain:	85%

3.08 FINAL GRADING

A. Restore and grade excavated areas to finished contours as shown on the Drawings or to original lines and grades. Finish grade to remove loose materials and debris within the construction right-of-way and to allow for restoration of ground cover.

B. Construct slopes and ditches to convey rainfall runoff in the manner and direction occurring prior to construction.

C. Where finished grades and elevations are shown on the Drawings, fine grade to within 0.1 foot.

D. For a period of one year following acceptance of the project, repair all areas subject to settlement within 30 days of receipt of written notice from the OWNER. Repairs include establishment of specified ground cover.

3.09 DISPOSAL OF WASTE MATERIALS

A. To the maximum extent use suitable excavated trench materials for backfilling or other purposes on the construction site. Dispose of unsuitable materials in a legal manner, acceptable to the OWNER'S representative.

B. Dispose of unsuitable materials consisting of wood, construction debris and unsuitable soils in a legally acceptable manner.

C. Do not dump waste materials on private property without first receiving the property OWNER'S written permission.

3.10 TESTING

A. Provide written documentation to the OWNER prepared by a Georgia licensed Engineer to assure compaction densities meet or exceed requirements of this

specification.

B. Conduct compaction/density testing as follows:

1. Trenching under buildings: One test per 50 linear feet of trench length per foot of backfill depth; two test minimum per foot of backfill depth.
2. Trenching under roads, streets and parking areas: One test per 100 linear feet of trench length per 2 feet of backfill depth; two tests minimum per 2 feet of backfill depth.
3. Trenching under open/landscaped areas: One test per 200 linear feet of trench length per three feet of backfill depth.

END OF SECTION 02210

SECTION 02700

NEW AND REPLACEMENT ASPHALT, CONCRETE PAVING AND CURBING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections 01400 and 01600 apply to work of this section.

1.02 DESCRIPTION

The work to be performed under this section consists of replacing existing pavement and curbing in paved where such sidewalks, pavement and curbing have been removed for constructing manholes, ductbanks and other appurtenances and structures.

2.00 PRODUCTS

2.01 MATERIALS

A. Cement: Conform to the requirements of Section 03330

B. Graded Crushed Aggregate: Conform to the requirements of Section 815 - Graded Aggregate Georgia Department of Transportation Standard Specifications.

2.02 ASPHALT CONCRETE PAVING

Asphalt concrete paving shall conform to III-C2-AR-4000 as listed in Section 400-4 of the Public Works Specifications “GREENBOOK.”

2.02 ASPHALT

Asphalt shall be viscosity grade AR 4000 or AR 8000. Asphalt content in the pavement shall be 5.5% to 6.0%.

2.03 AGGREGATE FOR ASPHALT CONCRETE

Aggregate shall be in accordance with Sections 400-1.1 and 400-1.2 of the Public Works Specifications “GREENBOOK.” Aggregate shall be asbestos-free.

2.04 AGGREGATE BASE COURSE

Aggregate base shall be crushed aggregate base as specified in Section 400-2 of the Public Works Specifications “GREENBOOK.” Aggregate shall be asbestos-free.

3.00 EXECUTION

3.01 TYPES OF PAVEMENTS

A. Replace existing pavement in streets or driveways which is removed, destroyed, or damaged by construction with the same type of pavements as that which existed before construction work was started. Provide materials, equipment and construction methods used for paving work conforming to the Georgia Department of Transportation specifications applicable to the particular type required for replacement, repair, or new pavements.

B. Surface finish replaced concrete pavement to conform to existing pavement. Leave the surface of the replaced concrete base course rough. Replace expansion joints removed for construction.

C. Where water lines and appurtenances are constructed in or across unpaved, chert, or crushed stone surfaced streets, roadways or driveways, replace the surface removed or damaged with a minimum of 8 inches of graded aggregate base.

3.02 REPLACING PAVEMENT

Where water lines and appurtenances are constructed in existing paved streets, replace the pavements removed or damaged in accordance with the following procedure:

1. Remove the existing street pavement or surface along the line of the work for the allowable width specified for the trench or structure. After the installation and after the backfill has settled suitably, remove the additional width of pavement shown on the Drawings immediately prior to replacing the pavement. Replace or repair any additional pavement or street surface removed or damaged beyond the limits shown on the Drawings.
2. Compact trench backfill the full depth of the trench as specified in the section of these Specifications, 02210, entitled "Trenching and Backfilling".
3. Prime the graded aggregate base with a suitable bituminous material and surfaced with the indicated type of bituminous surface treatment.
4. Wherever water lines are constructed across state highways, comply with all requirements and provisions of the Standard Methods of the Georgia Department of Transportation for opening trenches through highways and replacing pavements as shown on the Drawings and specified herein. Such work is subject to inspection and approval by the Georgia Department of Transportation. Final approval authority will be ENGINEER.
5. Remove all surplus excavation materials and debris from the street surfaces and rights-of-way and restore street, roadway, or sidewalk surfacing to its original condition.

3.03 SURFACING FOR DRIVEWAYS AND PARKING AREAS

A. Surface driveways, parking areas, and roadways wherever called for on the Drawings with crushed stone placed sufficiently thick to produce a road surface of uniform thickness after compaction and shaped to required line and grade. Base shall be compacted to a density of not less than 100% modified proctor density as determined by ASTM D-1556, at optimum moisture content as determined by AASHTO T-180.

B. Maintain completed crushed stone road base in a smooth, first-class condition to required line, grade, and cross section until the entire surface area has become stabilized and compacted.

C. Do not place roadway materials upon wet foundations nor on frozen sub-grade.

3.04 MAINTENANCE

Maintain replaced surfaces of roadways and pavements until acceptance of the project. Drag, reshape, wet, and re-roll as necessary to prevent raveling of the road material, and the preservation of reasonably smooth surfaces. Repair damaged or unsatisfactory surfaces; sprinkle as necessary to abate dust from the gravel surface.

3.05 CURB REPLACEMENT

A. Construction
1. Replace concrete curbs with 28 day, 3,000 psi strength concrete.
2. Install 1/2" thick preformed joints conforming to the latest edition of AASHTO Standard Specifications, M59, for preformed bituminous fiber joints at 50 foot intervals along new curbing.
3. Construct forms of wood or metal, straight and free form warp, and of sufficient strength when in place to hold the concrete true to line and grade without springing or distortion. Extruded curbing using automated string-line controlled machinery is acceptable.

B. When a section of curbing is removed, cut to a neat line perpendicular to both the centerline and the surface of the concrete. Cut existing concrete along the nearest existing contraction joints unless such joints do not exist in which case the cut at minimum distances shown on the Drawings.

C. Replace existing concrete curbing that has been cut and removed for construction purposes with sidewalks and curbing of the same configuration, width and surface as the portion removed. Join new work to the old concrete so that the surface of the new work shall form an even unbroken plane with the old.

D. Protect concrete from freezing and excessive heat, cover with burlap or other suitable material and keep wet until cured.

END OF SECTION 02700

SECTION 02933
SEEDING AND SODDING

PART 1 GENERAL

1.01 SCOPE

A. The work covered by this Section consists of furnishing all labor, equipment and material required to place topsoil, seed, commercial fertilizer, agricultural limestone and mulch material, including seedbed preparation, harrowing, compacting and other placement operations on graded earthen areas as described herein and/or shown on the Drawings.

B. Seeding operations shall be conducted on all newly graded earthen areas not covered by structures, pavement or sidewalks; all cleared or grubbed areas which are to remain as finish grade surfaces; and on all existing turf areas which are disturbed by construction operations and which are to remain as finish grade surfaces. Areas disturbed by borrow activities shall also be seeded according to these Specifications.

C. The Work shall also include temporary seeding operations to stabilize earthen surfaces during construction or inclement weather and to minimize stream siltation and erosion. Temporary seeding shall be performed at the times and locations as directed by the Engineer.

1.02 SUBMITTALS

A. Submittals shall be made in accordance with the requirements of the General Conditions of the Contract Documents.
B. In addition, the following information shall be submitted:

.1 Prior to seeding operations, labels or certified laboratory reports from an accredited commercial seed laboratory or a state seed laboratory showing the analysis and germination of the seed to be furnished. Acceptance of the seed test reports shall not relieve the Contractor of any responsibility or liability for furnishing seed meeting the requirements of this Section.

2. Prior to topsoil operations, the Contractor shall obtain representative samples and furnish soil test certificates including textural, pH, and organic ignition analysis from the State University Agricultural Extension Services or other certified testing laboratory.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

Wood cellulose fiber mulch shall be manufactured by Weyerhauser Company or Conway Corporation.

2.02 MATERIALS AND CONSTRUCTION

A. Topsoil

1. Utilizing designated stockpiles or borrow areas on site, the Contractor shall place a minimum of 6-inches of topsoil over all graded earthen areas and over any other areas to be seeded. Sources of topsoil shall be approved by the Engineer prior to disturbance.

2. Topsoil shall be a friable loam containing a large amount of humus and shall be original surface soil of good, rich, uniform quality, free from any material such as hard clods, stiff clay, hardpan, partially disintegrated stone, pebbles larger than 1/2-inch in diameter, lime, cement, bricks, ashes, cinders, slag, concrete, bitumen or its residue, boards, sticks, chips or other undesirable material harmful or unnecessary to plant growth. Topsoil shall be reasonably free from perennial weeds and shall not contain objectionable plant material, toxic amounts of either acid or alkaline elements or vegetable debris undesirable or harmful to plant life.

3. Topsoil shall be natural topsoil without admixture of subsoil material, and shall be classifiable as loam, silt loam, clay loam, sandy loam or a combination thereof. The pH shall range from 5.5 to 7.0. Topsoil shall contain not less than 5 percent nor more than 20 percent, by weight, or organic matter as determined by loss on ignition of oven dried samples to 65 Degrees C.

B. Seed

1. Seed shall be hulled common Bermuda (Cynodon Dactylon) guaranteed by the dealer to be 98% minimum purity and 90% minimum germination and certified free of giant strain Bermuda.

2. Seed shall be delivered in new bags or bags that are sound and labeled in accordance with the U.S. Department of Agriculture Federal Seed Act.

3. All seed shall be from the last crop available at time of purchase and shall not be moldy, wet or otherwise damaged in transit or storage.

4. Seed shall bear the growers analysis testing to 98 percent for purity and 90 percent for germination. At the discretion of the Engineer, samples of seed may be taken for check against the grower's analysis.

5. Species, rate of seeding, fertilization and other requirements are shown in Table 02933-1 at the end of this Section.

C. Fertilizer and Liming Materials

1. Fertilizer and liming materials shall comply with applicable state, local and federal laws concerned with their production and use.

2. Commercial fertilizer shall be a ready mixed material and shall be equivalent to the grade or grades specified in Table 02933-1. Container bags shall have the name and address of the manufacturer, the brand name, net weight and chemical composition.

3. Agricultural limestone shall be a pulverized limestone having a calcium carbonate content of not less than 85 percent by weight.

4. Fertilizer shall be a complete fertilizer, the content of which shall meet the following minimum requirements: 10% nitrogen, 10% phosphoric acid, 10% potash, available materials. Fertilizer shall be uniform in composition, dry and free flowing, and shall be delivered to the site in original unopened containers bearing the manufacturer's statement of guarantee.

5. Ammonium Nitrate shall be a standard brand and shall be delivered to the site in original unopened containers. It shall contain not less than 33-1/3% Nitrogen.

D. Mulch Material

1. All mulch materials shall be air dried and reasonably free of noxious weeds and weed seeds or other materials detrimental to plant growth.

2. Mulch shall be composed of wood cellulose fiber, straw or stalks, as specified herein. Mulch shall be suitable for spreading with standard mulch blowing equipment.

3. Straw mulch shall be partially decomposed stalks of wheat, rye, oats or other approved grain crops.

4. Stalks shall be the partially decomposed, shredded residue of corn, cane, sorghum or other approved standing field crops.

E. Mulch Binder

1. Mulch on slopes exceeding 3 to 1 ratio shall be held in place by the use of an approved mulch binder. The mulch binder shall be non-toxic to plant life and shall be acceptable to the Engineer.

2. Emulsified asphalt binder shall be Grade SS-1, ASTM D977. Cutback asphalt binder shall be Grade RC 70 or RC 250.

F. Inoculants for Legumes: All leguminous seed shall be inoculated prior to seeding with a standard culture of nitrogen fixing bacteria that is adapted to the particular seed involved.

G. Water: Water shall be clean, clear water free from any objectionable or harmful

chemical qualities or organisms and shall be furnished by the Contractor.

H. Sod

1. Sod shall be living, growing sod of Bermuda hybrids "Tifway 419" or Tifgreen 328". This includes sod which is dormant during the cold or dry season and capable of renewing growth after the dormant period. All sod shall be obtained from approved sources. The presence of weeds or other noxious growth or any other foreign material which may be detrimental to the proposed planting will be cause of rejection. At least 85% of the plants in the sod shall be composed of the designated variety of Bermuda grass.

2. The Engineer shall be notified of sources before it is harvested. Approval of such sources shall not be construed as an acceptance of the material. The sod will be subject to inspection while it is being planted and any material which has been permitted to dry out excessively or exposed to extreme heat, or which is not viable, will be rejected.

3. In the harvesting of the sod, grass more than 3-inches tall shall be mowed to a height of 3-inches, raked and removed before sod cutting begins. The sod shall be cut into square or rectangular sections which may vary in length, but which shall be of uniform width and thickness, and shall have at least ½-inch of soil adhering firmly to the roots. Care shall be exercised at all times to retain the soil on the roots of the sod during the process of cutting, transporting and planting. Sod shall be transplanted within 24 hours from the time it is harvested. All sod stored shall be kept moist, shall be protected from exposure to the air and sun and from freezing, and shall not be stored for more than 10 days. Sod shall be cut and moved only when the soil moisture conditions are such that favorable results can be expected.

PART 3 EXECUTION

3.01 SECURING AND PLACING TOPSOIL

A. Topsoil shall be secured from areas from which topsoil has not been previously removed, either by erosion or mechanical methods. Topsoil shall not be removed to a depth in excess of the depth approved by the Engineer.

B. The area or areas from which topsoil is secured shall possess such uniformity of soil depth, color, texture, drainage and other characteristics as to offer assurance that, when removed the product will be homogeneous in nature and will conform to the requirements of these Specifications.

C. All areas from which topsoil is to be secured, shall be cleaned of all sticks, boards, stones, lime, cement, ashes, cinders, slag, concrete, bitumen or its residue and any other refuse which will hinder or prevent growth.

D. In securing topsoil from a designated pit, or elsewhere, should strata or seams of material occur which do not come under the requirements for topsoil, such material shall be removed from the topsoil or if required by the Engineer, the pit shall be abandoned.

E. Before placing or depositing topsoil upon any areas, all improvement within the area shall be completed, unless otherwise approved by the Engineer.

F. The areas in which topsoil is to be placed or incorporated shall be prepared before securing topsoil for use.

3.02 SEEDBED PREPARATION

A. Before liming, fertilizing and seeding, the topsoil surfaces shall be trimmed and worked to true line from unsightly variation, bumps, ridges and depressions and all detrimental material, roots and stones larger than 3-inches in any dimension shall be removed from the soil.

B. Not earlier than 24 hours before the seed is to be sown, the soil surface to be seeded shall be thoroughly cultivated to a depth of not less than 2-inches with a weighted disc, tiller, pulvimixer or other equipment, until the surface is smooth and in a condition acceptable to the Engineer.

C. If the prepared surface becomes eroded as a result of rain or for any other reason, or becomes crusted before the seed is sown, the surface shall again be cultivated for seeding.

D. Ground preparation operations shall be performed only when the ground is in a tillable and workable condition, as determined by the Engineer.

3.03 FERTILIZATION AND LIMING

A. Following seedbed preparation, fertilizer shall be applied to all areas to be seeded so as to achieve the application rates shown in Table 02933-1 at the end of this Section.

B. Fertilizer shall be spread evenly over the seedbed and shall be lightly harrowed, raked, or otherwise incorporated into the soil for a depth of 1/2-inch.

C. Fertilizer need not be incorporated in the soil as specified above when mixed with seed in water and applied with power sprayer equipment. The seed shall not remain in water containing fertilizer for more than 30 minutes when a hydraulic seeder is used.

D. Agricultural limestone shall be thoroughly mixed into the soil according to the rates in Table 02933-1. The specified rate of application of limestone may be reduced by the Engineer if pH tests indicate this to be desirable. It is the responsibility of the Contractor to obtain such tests and submit the results to the Engineer for adjustment

in rates.

E. It is the responsibility of the Contractor to make one application of a maintenance fertilizer according to the recommendations listed in Table 02933-1.

F. On the approved grade, spread 20 lbs. per 1,000 sq. ft. of 10-10-10 fertilizer into top 3-inches, hand rake and smooth. The surface shall be brought to finish grade requirements, allowance being made for settlement. Finish grades shall be smooth and free from hollows or other inequalities.

G. Three weeks after construction of lawns add ammonium nitrate at the rate of 5 lbs. per 1000 sq. ft. of lawn area, and thoroughly water in.

3.04 SEEDING

A. Seed of the specified group shall be sown as soon as preparation of the seedbed has been completed. No seed shall be sown during high winds, nor until the surface is suitable for working and is in a proper condition. Seeding shall be performed during the dates shown in Table 02933-1 unless otherwise approved by the Engineer. Seed mixtures may be sown together provided they are kept in a thoroughly mixed condition during the seeding operation.

B. Seed shall be uniformly sown by any approved mechanical method suitable for the slope and size of the areas to be seeded, preferably with a broadcast type seeder, windmill hand seeder or approved mechanical power drawn seed drills. Hydro-seeding and hydro-mulching may be used on steep embankments, provided full coverage is obtained. Care shall be taken to adjust the seeder for seedings at the proper rate before seeding operations are started and to maintain their adjustment during seeding. Seed in hoppers shall be agitated to prevent segregation of the various seeds in a seeding mixture.

C. Immediately after sowing, the seeds shall be covered and compacted to a depth of 1/8 to 3/8-inch by a cultipacker or suitable roller.

D. Leguminous seeds shall be inoculated prior to seeding with an approved and compatible nitrogen-fixing inoculant in accordance with the manufacturer's mixing instructions.

E. Italian rye grass (Lolium Multiflorum) shall be evenly seeded with a mechanical spreader at the rate of 5 lbs. per 1000 sq. ft. of area, lightly rake, suitably compact and thoroughly water. Before planting the permanent lawn, the rye shall be thoroughly scarified in a manner to incorporate it into the top three inches of the ground.

F. The planting of bermuda grass shall be done only within the season extending from April 15 to August 1.

3.05 MULCHING

A. All seeded areas shall be uniformly mulched in a continuous blanket immediately after seeding. The mulch shall be applied so as to permit some sunlight to penetrate and the air to circulate and at the same time shade the ground, reduce erosion and conserve soil moisture. Approximately 25 percent of the ground shall be visible through the mulch blanket.

B. One of the following mulches shall be spread evenly over the seeded areas at the following application rates:

Wood Cellulose Fiber	1,400 pounds/acre
Straw	4,000 pounds/acre
Stalks	4,000 pounds/acre

C. These rates may be adjusted at the discretion of the Engineer at no additional cost to the Owner, depending on the texture and condition of the mulch material and the characteristics of the seeded area.

D. The Contractor shall cover structures, poles, fence and appurtenances if the mulch binder is applied in such a way that it would come in contact with or discolor the structures.

E. Mulch and binder shall be applied by suitable blowing equipment at closely controlled application rates in a manner acceptable to the Engineer.

3.06 WATERING

A. The Contractor shall be responsible for maintaining the proper moisture content of the soil to insure adequate plant growth until a satisfactory stand is obtained. If necessary, watering shall be performed to maintain adequate water content in the soil.

B. Watering shall be accomplished by hoses, tank truck or sprinklers in such a way to prevent erosion, excessive runoff and overwatered spots.

3.07 MAINTENANCE

A. Upon completion of seeding operations, the Contractor shall clear the area of all equipment, debris and excess material and the premises shall be left in a neat and orderly condition.

B. The Contractor shall maintain all seeded areas without additional payment until final acceptance of the work by the Owner, and any regrading, refertilizing, reliming, reseeding or remulching shall be done at the Contractor's own expense. Seeding work shall be repeated on defective areas until a satisfactory uniform stand is

accomplished. Damage resulting from erosion, gulleys, washouts or other causes shall be repaired by filling with topsoil, compacting and repeating the seeding work at the Contractor's expense.

C. Contractor's guarantee of one (1) year shall also cover a fully rooted stand of grass.

TABLE 02933-1

SEEDING REQUIREMENTS

Area	Sowing Season	Species	Seed	Rates per 1,000 Square Feet		
				Fertilizer	Limestone	Maintenance**
Flat to rolling terrain with slopes less than 3:1	3/1 to 4/15	Rebel II Turf-Type Tall Fescue	6-8 lbs.	30 lbs. 6-12-12	200 lbs.	10 lbs. 10-10-10
	9/1 to 11/15	Rebel II Turf-Type Tall Fescue	6-8 lbs.	30 lbs. 6-12-12	200 lbs.	15 lbs. 10-10-10
Embankments with slopes greater than 3:1	3/1 to 6/1	Crownvetch* Kentucky 31 Fescue Weeping Lovegrass	1 lb. 2 lbs. 1/4 lb.	30 lbs. 6-12-12	200 lbs.	10 lbs. 0-20-20
	8/1 to 11/1	Crownvetch* Kentucky 31 Fescue Annual Ryegrass	1 lb. 2 lb. 2 lb.	30 lbs. 6-12-12	200 lbs.	10 lbs. 0-20-20

* Requires inoculation
** Maintenance fertilizer shall be applied in early spring following initial establishment of cover

END OF SECTION 02933

SECTION 03300
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SCOPE

A. Furnish and install the cast-in-place concrete as shown and indicated on the Drawings and as specified in this Section, complete.

B. Coordination:

1. Review installation procedures under other Sections and coordinate the installation of items that must be installed in the concrete.

2. Notify other trades in advance of the placing of concrete to provide the other trades with sufficient time for furnishing of items included in their work that must be installed in the concrete.

3. Required City formal pour card with all required signatures.

1.02 SUBMITTALS

Submittals shall be made in accordance with the requirements of the General Conditions of the Contract Documents. In addition, the following specific information shall be provided:

1. List of concrete materials and concrete mix designs proposed for use. Include the results of all tests performed to qualify the materials and to establish the mix designs.

2. Copies of manufacturer's specifications with application and installation instructions for proprietary materials and items, including admixtures and bonding agents.

3. Laboratory Test Reports: Submit copies of laboratory test reports for concrete cylinders, materials and mix design tests. Production of concrete to comply with specified requirements is the responsibility of the Contractor. Submit the testing lab's average strength curve from the design mix proportions of the approved materials.

4. Notarized certification of conformance to referenced standards to the Engineer and a copy of the batch plant's most recent scale calibration.

5. Delivery Tickets: Furnish to Engineer copies of all delivery tickets for each load of concrete delivered to the site. Provide items of information as specified in ASTM C 94, Section 14.

1.03 QUALITY ASSURANCE

A. Reference Standards: Comply with the applicable provisions and recommendations of the latest edition following, except as otherwise shown or specified:

1. ACI 301, Specification for Structural Concrete for Buildings, (includes ASTM Standards referred to herein).
2. ACI 304, Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
3. ACI 305, Recommended Practice for Hot Weather Concreting.
4. ACI 306, Recommended Practice for Cold Weather Concreting.
5. ACI 308, Standard Practice for Curing Concrete.
6. ACI 309, Recommended Practice for Consolidation of Concrete.
7. ACI 318, Building Code Requirements for Reinforced Concrete.
8. ACI 347, Recommended Practice for Concrete Formwork.
9. ASTM C31, Standard Method of Making and Curing Concrete Test Specimens in the Filed.
10. ASTM C33, Standard Specification for Concrete Aggregates.
11. ASTM C39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
12. ASTM C40, Standard Test Method for Organic Impurities in Fine Aggregates for Concrete.
13. ASTM C42, Standard Methods of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
14. ASTM C94, Standard Specification for Ready-Mixed Concrete.
15. ASTM C138, Standard Test Method for Unit Weight, Yield and Air Content (Gravimetric) of Concrete.
16. ASTM C143, Standard Test Method for Slump of Portland Cement Concrete.
17. ASTM C150, Standard for Portland Cement.
18. ASTM C157, Standard Test Method for Length Change of Hardened Cement Mortar and Concrete
19. ASTM C171, (1986) Standard Specification for Sheet Materials for Curing Compounds.
20. ASTM C172, Standard Method of Sampling Freshly Mixed Concrete.
21. ASTM C173, Standard Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
22. ASTM C192, Standard Method of Making and Curing Concrete Test Specimens in the Laboratory.
23. ASTM C231, Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
24. ASTM C260, Standard Specification for Air-Entraining Admixtures for Concrete.
25. ASTM C494, Standard Specification for Chemical Admixtures for Concrete.
26. ASTM C827, Standard Test Method for Early Volume Change of Cementitious Mixtures.
27. Federal Specification CCC-C-467C: Cloth, Burlap Jute or Kenaf.

B. Concrete Testing Service:

1. By Contractor's Testing Laboratory:

a. Contractor shall employ, at its own expense, a testing laboratory, approved by the Engineer and experienced in design and testing of concrete materials and mixes to perform material evaluation tests and to design concrete mixes.

1. Testing agency shall meet the requirements of ASTM E 329.
2. Submit a written description of the proposed concrete testing laboratory giving qualifications of personnel, laboratory facilities and equipment, and other information, which may be requested by the Engineer.
3. Submit certification that the testing laboratory meets the requirements of ASTM E329.

b. Materials and installed Work may require testing and retesting, as directed by the Engineer, at any time during the progress of the Work. Allow free access to material stockpiles and facilities at all times. Tests not specifically indicated to be done at the City's expense, including the retesting of rejected materials and installed Work, shall be done at the Contractor's expense.

2. By Independent Testing laboratory

a. Testing for concrete field quality control as specified under Paragraph 3.14 of this Specification, shall be performed by an independent testing laboratory approved by the Engineer. The cost of all concrete testing for field quality control shall be paid for by the Contractor and shall be included in the Contractor's base bid. The Contractor shall be responsible for notifying the independent testing laboratory to schedule the testing as specified.

C. Test for Concrete Materials:

Submit written reports to the Engineer, for each material selected and tested, prior to the start of Work. Provide the Project identification name and number, date of report, name of Contractor, name of concrete testing service, source of concrete aggregates, material manufacturer and brand name for manufactured materials, values specified in the referenced specification for each materials, and test results. Indicate acceptability of materials for intended use.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

All materials used for concrete must be kept clean and free from all foreign matter during transportation and handling and kept separate until measured and placed in the mixer. Bins or platforms having hard clean surfaces shall be provided for storage. Suitable means shall be taken during hauling, piling and handling to insure that segregation of the coarse and fine aggregate particles does not occur and the grading is not affected.

PART 2 - PRODUCTS

2.01 CONCRETE MATERIALS

A. Cement:

1. Portland cement, ASTM C 150, Type II.

2. Do not use cement which has deteriorated because of improper storage, handling or for any other reason.

B. Aggregates: ASTM C 33 and as herein specified.

1. Do not use aggregates containing soluble salts or other substances such as iron sulfides, pyrite, marcasite, ochre, or other materials that can cause stains on exposed concrete surfaces. Slag materials are not allowed.

2. Fine Aggregate: Clean, sharp, natural sand free from loam, clay, lumps or other deleterious substances.

   Dune sand, bank run sand and manufactured sand are not acceptable.

3. Coarse Aggregate: Clean granitic, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter.

C. Water: Clean, free from injurious amounts of oils, acids, alkalis, potable, organic materials or other substances that may be deleterious to concrete or steel.

2.02 CONCRETE ADMIXTURES

A. Provide admixtures produced by established reputable manufacturers, and use in compliance with the manufacturer's printed instruction. Do not use admixtures, which have not been incorporated and tested in the accepted mixes, unless otherwise authorized in writing by the Engineer.

B. Water-Reducing Admixture: ASTM C 494, Type A.

C. Air entraining admixture shall conform to ASTM C 260.

D. Fly ash shall conform to ASTM C 618, Type F.

E. High range water reducer (HRWR) shall conform to ASTM C 494, Type G.

F. Calcium Chloride: Do not use calcium chloride in concrete.

G. Silica fume shall conform to ASTM C 1240.

2.03 PROPORTIONING AND DESIGN OF MIXES

A. The following classes of concrete are required.

Class of Concrete	Compressive Strength @ 28 Days	Slump Range Before HRWR	Slump Range After HR/WR	Maximum W/C Ratio	Coarse Aggregate Size
A	4,000	1” – 2”	6” – 9”	0.45	57
B	5000	1” – 2”	6” – 9”	0.40	57
C	6000	1” – 2”	7” – 10”	0.40	67
D	4,500	1” – 2”	6” – 9”	0.42	67
E	1,500	3” – 5”	-	Not specified	67
F	4,000	1” – 2”	6” - 9”	0.45	7
G	3,000	1” – 4”	N/A	0.55	57

1. Fly ash is required in Class A, B, C, D & F concretes. The fly ash shall not exceed more than 20% of combined weight of fly ash and cement. The fly ash shall not be less than 15% of the combined weight of fly ash and cement. The combined weight of cement and fly ash shall be used as the weight of cement in the determining of the water-cement (w/c) ratio.

2. Fly ash and Silica Fume are required in Class C concrete. The combined weight of the cement, fly ash and silica fume shall contain no less than 15 percent fly ash and no less than 10 percent silica fume. The combined weight of cement, fly ash and silica fume shall be used as the weight of cement in determining the water cement (w/c ratio).

3. Slump tests shall be made prior to adding the HRWR. The HRWR shall be added to the concrete at the batch plant. The slump range required after the addition of the HRWR is indicated in the table above. HRWR shall be capable of maintaining the required slump in excess of 60 minutes of continuous mixing at 4 to 6 rpm in a truck mixer and workability up to 90 minutes. Upon 72 hours notice, the HRWR manufacturer shall supply jobsite technical service to the Contractor. The manufacturer shall be consulted for mix proportions and dosage rates. The initial set shall not be in excess of six hours at temperatures above 50 degrees F. HRWR shall be used with due consideration given to the air temperature at the time of batching and casting.

4. If field experience method is used to select concrete mixes, the proposed mix designs shall be accompanied by complete standard deviation analysis and at least 20 consecutive strength test that represent the proposed mix.

5. The proposed mix design and supporting data shall be submitted, in triplicate, to the Engineer at least 30 days prior to the expected start of concreting operations.

6. Compression test specimens made to verify the mixes shall be made in accordance

with ASTM C 192. All compression test specimens shall be tested in accordance with ASTM C 39.

7. Adjustment to Concrete Mixes During Construction: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to the owner and as accepted by Engineer. Laboratory test data for revised mix designs and strength results must be submitted to the Engineer for acceptance before using the revised mixes.

8. Mix design shall be proportioned in accordance with ACI 211.1 making maximum use of the coarse aggregate. The proportioning shall be based on the requirements of a well-graded high density plastic workable mix within the slump range and strengths required. The mix shall be based on conventional conveying and shall not be altered for use in pumping. Pumping equipment, if used, shall be of sufficient size and design to pump the mix designed for conventional conveyance.

9. Submit samples, in adequate quantities for each mix design and verification, of all concrete materials to be used on the project to the contractors testing laboratory. Do not use any concrete in this work without acceptance and verification of design mix by the contractors testing laboratory and the approval of the Engineer.

10. If Laboratory trial batches are used to select concrete mixes, the contractors testing laboratory shall make strength tests from trial batches in the laboratory using materials and mix designs proposed for use by the Contractor. The contractors testing laboratory shall prepare trial batches in accordance with ACI 211.1.

11. Class D concrete shall have an air content of 6% ± 1½%.

12. Class A concrete shall have 5 ± 1% air content.

13. Class B concrete shall have 5 ± 1% air content.

B. Refer to 1.02 Submittals, 1.03 Quality Assurance and 1.04 Product Delivery, Storage and Handling.

2.04 CHEMICAL HARDENER

Unless otherwise specified, all interior concrete floors of the Electrical Building shall be treated with a liquid hardener composed of magnesium and zinc fluorosilicates combined with an anionic surfactant for improved wetting penetration. Liquid hardener shall be colorless, nontoxic, nonflammable, and compatible with and providing good adhesion for subsequent toppings and/or coatings. Liquid hardener shall be suitable for use on new or old concrete floors and shall comply with Corps of Engineer Specification 204.

2.05 CONCRETE CURING MATERIALS

A. Absorptive Cover: Burlap cloth made from jute of kenaf, weighing approximately 10 ounces per square yard and complying with AASHTO M 182, Class 3.

B. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.

1. Waterproof paper.

2. 4 mil polyethylene.

C. Curing and Sealing Compound: ASTM C-309.

PART 3 - EXECUTION

3.01 CONCRETE MIXING

General:

1. Mixing plants shall comply with ASTM C 94 and shall have sufficient capacity to produce concrete of the qualities specified, in quantities required to meet construction schedule. All plant facilities are subject to inspection by the Independent Testing Laboratory and acceptance of the Engineer.

2. Mixing:

a. Mix concrete with an approved rotating type batch machine.
b. Remove hardened accumulations of cement and concrete frequently from drum and blades to assure acceptable mixing action.
c. Replace mixer blades when they have lost 10 percent of their original height.
d. Plant equipment and facilities: Conform to National Ready Mix Concrete Association "Plant and Delivery Equipment Specification".
e. Mix concrete in revolving type truck mixers, which are in good condition and which produce thoroughly mixed concrete of the specified consistency and strength.
f. Do not exceed the proper capacity of the mixer.
g. Mix concrete for a minimum of two minutes after arrival at the job site, or as recommended by the mixer manufacturer.
h. Do not allow the drum to sit while in transit.
i. Mix at proper speed until concrete is discharged.
j. Maintain equipment in proper operating condition, with drums cleaned before charging each batch. Schedule rates of delivery in order to prevent delay of placing the concrete after mixing, or holding dry-mixed materials too long in the mixer before the addition of water and admixtures.
k. The Contractor shall ensure that the silica fume is uniformly dispersed throughout the concrete in accordance with mixing procedures recommended by the silica fume supplier.

3.02 TRANSPORTING CONCRETE

A. Transport and place concrete not more than 90 minutes after water has been added to the dry ingredients..

B. Take care to avoid spilling and separation of the mixture during transportation.

C. Do not place concrete in which the ingredients have been separated.

D. Do not retemper partially set concrete, and do not add any water at the jobsite.

E. Use suitable and approved equipment for transporting concrete from mixer to forms.

3.03 CONCRETE PLACEMENT

A. Inspection of Work Before Placing Concrete:

1. Inspect the area to receive concrete for any deficiencies, which would prevent proper placing of concrete. Do not proceed with placing concrete until such deficiencies are corrected.

2. Do not place in the concrete any item that is not required to be in the concrete by the Drawings and Specifications. Insert all the items shown on the Drawings or specified properly positioned and secured. Openings other than those, which are facilitated by sleeves shall be properly formed and positioned only after approval of the Engineer.

3. Remove hardened, or partially hardened, concrete on forms or reinforcement before placing concrete.

4. Do not place concrete on earth until the fill or excavation has been prepared as set forth under applicable sections of the Specifications for that work.

B. Place concrete continuously so that no concrete will be placed on concrete, which has hardened sufficiently to cause the formation of seams or planes of weakness within the section. Deposit concrete as nearly as practical in its final location to avoid segregation due to rehandling or flowing. Do not subject concrete to any procedure, which will cause segregation.

1. Screed concrete, which is to receive other construction to the proper level to avoid excessive skimming or grouting.

2. Do not use concrete which becomes non-plastic and unworkable, or does not meet the required quality control limits, or which has been contaminated by foreign materials. Do not use retempered concrete. Remove rejected concrete from the job site and dispose of it in an acceptable location.

3. Do not place concrete until all forms, bracing, reinforcement, and embedded items are in final and position and secure.

4. Unless otherwise approved, place concrete only when Engineer is present.

C. Concrete Conveying:

1. Handle concrete from the point of delivery and transfer to the concrete conveying equipment and to the locations of final deposit as rapidly as practical by methods, which will prevent segregation and loss of concrete mix materials.

2. Provide mechanical equipment for conveying concrete to ensure a continuous flow of concrete at the delivery end. Provide runways for wheeled concrete conveying equipment from the concrete delivery point to the locations of final deposit. Keep interior surfaces of conveying equipment, including chutes, free of hardened concrete, debris, water, snow, ice and other deleterious materials.

3. Do not use chutes for distributing concrete unless approved in writing by the Engineer.

4. Pumping of concrete is permitted however, do not use aluminum piping to convey the concrete.

D. Placing Concrete into Forms:

1. Deposit concrete in forms in horizontal layers not deeper than 18 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place concrete at such a rate that concrete, which is being integrated with fresh concrete is still plastic with adequate vibration.

2. Do not permit concrete to free fall within the form from a distance exceeding 4 feet. Use "elephant trunks" and tremies to prevent free fall and excessive splashing on forms and reinforcement.

3. Remove temporary spreaders in forms when concrete placing has reached the elevation of such spreaders.

4. Consolidate concrete placed in forms by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with the applicable recommended practices of ACI 309. Vibration of forms and reinforcing will not be permitted, unless otherwise accepted by the Engineer.

5. Do not use vibrators to transport concrete inside of forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate the layer of concrete and at least 6 inches into the preceding layer. At each insertion, limit the

duration of vibration to the time necessary to consolidate the concrete and complete embedment of reinforcement and other embedded items without causing segregation of the mix.

6. Force concrete under pipes, sleeves, openings and inserts from one side until visible from the other side to prevent voids.

E. Placing Concrete Slabs and Sidewalks:

1. Deposit and consolidate concrete slabs in a continuous operation, within the limits of expansion joints, until the placing of a panel or section is completed.

2. Consolidate concrete during placing operations using mechanical vibrating equipment, so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.

3. Bring slab surfaces to the correct level. Smooth the surface, leaving it free of humps or hollows. Do not sprinkle water on the plastic surface. Do not disturb the slab surfaces prior to beginning finishing operations. Coordinate applying contraction joint, per Section 03250, with finishing operations.

F. Cold Weather Placing:

1. Protect all concrete Work from physical damage or reduced strength, which could be caused by frost, freezing actions, or low temperatures, in compliance with the requirements of ACI 306 and as herein specified.

2. When the air temperature has fallen to or may be expected to fall below 40 F, provide adequate means to maintain the temperature, in the area where concrete is being placed, at between 50^0 F and 70^0 F for at least seven days after placing. Provide temporary housings or coverings including tarpaulins or plastic film. Maintain the heat and protection, if necessary, to insure that the ambient temperature does not fall below 30^0 F in the 24 hours following the seven-day period. Avoid rapid dry-out of concrete due to overheating, and avoid thermal shock due to sudden cooling or heating.

3. When air temperature has fallen to or is expected to fall below 40 F uniformly heat all water and aggregates before mixing as required to obtain a concrete mixture temperature of not less than 55^0 F and not more than 90^0 F at point of placement.

4. Do not use frozen materials containing ice or snow. Ascertain that forms, reinforcing- steel, and adjacent concrete surfaces are entirely free of frost, snow and ice before placing concrete.

5. Do not use salt and other materials containing anti freeze agents or chemical accelerators, or set-control admixtures, unless approved by the Engineer, in mix designs.

G. Hot Weather Placing:

1. When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

2. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90^0 F when the temperature is rising and below 85^0 F when the temperature is falling. Mixing water may be chilled, or chopped ice may be used to control the concrete temperature provided the water equivalent of the ice is calculated by the Engineer in the total amount of mixing water.

3. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that the steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.

4. Wet forms thoroughly before placing concrete.

5. Do not place concrete at a temperature so as to cause difficulty from loss of slump, flash set, or cold joints.

6. Do not use set-control admixtures unless approved by the Engineer in mix designs.

7. Obtain ENGINEER'S approval of other methods and materials proposed for use.

3.05 CONSTRUCTION JOINTS

A. For tunnel and shaft permanent linings, refer to Section 02425.

B. Formed Construction Joints in Containment Structures and Where Otherwise Shown: Prior to placing concrete next to the joint, the joint surface shall be thoroughly cleaned and dampened with water. Remove all free water so that the surface of the joint shows signs of drying before placing the adjacent concrete.

C. Construction Joints in Beams, Girders and Slabs: These joints shall be located at points of minimum shear and their locations shall be approved by the Engineer before they are bulkheaded. These joints shall be roughened and thoroughly cleaned of all foreign matter and laitance and dampened with water. Remove all free water and slush with a coat of neat cements grout before placing the adjacent concrete. Place the adjancent concrete before the neat cements grout takes its initial set.

3.06 WATERSTOPS

Waterstops shall be provide where specified and as indicated and noted on the Drawings and shall be made continuous throughout their length.

3.07 BROOM FINISH

A. Broom finish shall be applied to:

1. All exterior side walks, walkways and platforms.

2. All steps and landings, both interior or exterior.

B. The surface shall be given a floated finish as specified above, then finished with a flexible bristle broom or burlap belt drawn across the surface. Surface must be hardened sufficiently to retain the scoring or ridges. Scores or ridges shall be transverse to traffic or at right angles to the slope of the slab.

3.08 PROTECTION

Protect freshly placed concrete from damage or injury due to water, falling objects, persons or anything that may mar or injure finish surface on concrete. Only light use of slabs will be permitted for the first 14 days after placing of the concrete.

3.09 CURING

A. For tunnel and shaft permanent linings, refer to Section 02425.

B. Curing shall conform to ACI 308 except as modified herein.

C. All Slabs on Grade: After placement and finishing, concrete shall be maintained in a moist condition for at least seven successive days during which the temperature of the concrete is 50 degrees F or above. For temperatures of 50 degrees F and below, curing period shall be 14 successive days. Concrete shall be kept moist by any one, or combination, of the following methods:

1. Ponding or Immersion: Continually immerse the concrete in water throughout the curing period. Water shall not be more than 20 degrees F less than the temperature of the concrete.

2. Fog Spraying or Spinkling: Provide uniform and continuous application of water throughout the curing period.

3. Pervious Sheeting: Completely cover surface and edges of the concrete with two thicknesses of wet sheeting. Overlap sheeting 6-inches over adjacent sheeting. Sheeting shall be at least as long as the width of the surface to be cured. During application, do not drag the sheeting over the finished concrete nor over sheeting already placed. Wet sheeting thoroughly and keep continuously wet throughout the curing period.

4. Impervious Sheeting: Wet the entire exposed surface of the concrete thoroughly with a fine spray of water and cover with impervious sheeting throughout the curing

period. Lay sheeting directly on the concrete surface and overlap edges 12-inches minimum. Provide sheeting lot less than 18-inches wider than the concrete surface to be cured. Secure edges and transverse laps to form closed joints. Repair torn or damaged sheeting or provide new sheeting. Inspect surface of concrete daily for wetness. The surface shall be kept continuously wet during the curing period.

D. All Other Concrete:

1. After placement, concrete shall be maintained in a moist condition for the same periods as specified above for slabs on grade.

2. For concrete in formed surfaces, keep forms wet with water during the curing period. If forms are removed before the end of the curing period, continue the moist curing in accordance with Paragraph C of this article of these Specifications.

3.10 PATCHING

A. As determined by the Engineer, any concrete, which is out of alignment or level has a defective surface or has defects, which reduce its structural adequacy, shall be considered as not conforming with the Drawings and Specifications and shall be rejected.

B. Do not take any remedial action on concrete with any defect without the permission of the Engineer.

C. Unless the Engineer grants permission to patch the rejected concrete, remove the rejected concrete and replace it with concrete that conforms to the Drawings and Specifications. The location of cut lines and the extent of removal will be determined by the Engineer.

D. If the Engineer grants permission to path the rejected concrete, it shall be done in accordance with the following:

1. Permission to patch rejected concrete will not be a waiver of the Engineer’s right to require complete removal of the rejected concrete if the patching does not, in the Engineer’s judgement, restore the concrete to the requirements of the Specifications and Drawings.

2. Patching shall be accomplished after the curing is completed.

3. Defective areas shall be chipped away to a depth of not less than 1-inch, in all cases to sound concrete, with edges perpendicular to the surface. Feather edges will not be permitted. Remove all loose material and thoroughly clean the chipped surfaces with a high pressure air hose delivering air at 100 psi. The area to be patched and an area at least 6-inches wide surrounding it shall be dampened. A bonding grout shall be prepared using a mix of approximately one part cement to one part fine sand passing a No. 30 mesh sieve, mixed to the consistency of thick

cream, and then well brushed into the surfaces as noted in paragraph 5.

4. The patching mixture shall be made of the same materials and of approximately the same portions as used for the original concrete, except that the coarse aggregate shall be omitted and the mortar shall consist of not more than one part cement to two and one-half parts sand by damp, loose volume. While Portland cement shall be substituted for a part of the gray Portland cement to produce a color matching the color of the surrounding concrete, as determined by a trial patch. The quantity of mixing water shall be no more than necessary for handling and placing. The patching mortar shall be mixed in advance and allowed to stand with frequent manipulation with a trowel, without addition of water, until it has reached the stiffest consistency that will permit placing.

5. After surface water has evaporated from the area to be patched, the bond coat shall be well brushed into the surface. When the bond coat begins to lose the water sheen, the premixed patching mortar shall be applied. The mortar shall be thoroughly consolidated into place and struck off so as to leave the patch slightly higher than the surrounding surface. To permit initial shrinkage, it shall be left undisturbed for at least one hour before being finally finished. The patched area shall be kept damp for seven days. Finishing tools that produce a finish matching the surrounding shall be used.

E. Tie holes left by withdrawal of rods or the holes lefty by removal of ends of wall ties shall be filled solid with mortar after first being wetted. For holes passing through the wall, a plunger-type grout gun shall be used to force the mortar through the wall starting at the back face. A piece of burlap or canvas shall be held over the hole on the outside and when the hole is filled, the excess mortar shall be struck off with the cloth flush with the surface. Holes not passing through the walls shall be filled with a small tool that will permit packing the hole solid with mortar. Any excess mortar at the surface of the wall shall be struck off flush with a cloth. Mortar shall consist of one part cement, two and one-half parts sand and no more water than necessary for handling and packing.

3.11 QUALITY CONTOL TESTING

A. The Independent testing laboratory shall have access to all places where concrete materials and concretes are manufactured, stored, proportioned, mixed, placed and tested. Duties shall include, but not necessarily be limited to the following:

1. Make, store, transport, cure and test compression specimens made during the placing of concrete. Compression test specimens shall be tested in accordance with ASTM C 39. Test reports shall show all pertinent data, such as class of concrete, exact location of pour, air temperature, date of pour, time of pour, truck number for ready-mixed concrete, date on which specimen was broken, age of specimen, compressive strength of specimen, concrete slump test results and air content of concrete from which the specimen was made. One copy each of all tests shall be sent to the Contractor and two copies each to the Engineer.

2. Each strength test requires four standard test cylinders.

3. Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, nor less than once for each 50 cubic yards of concrete, nor less than once for each 5,000 square feet of surface area for slabs or walls.

4. Each class of concrete shall be tested with at least five strength tests.

5. Each set of four cylinders, two shall be tested at 28 days and shall comprise a strength test under the definition of these Specifications. One cylinder shall be broken at seven days and will be used as an aid in determining the early strength of the concrete and the 28 day strength, and one cylinder retained in reserve for later testing if required.

6. Test for unit weight of concrete when the first load of each class of concrete is delivered and thereafter at the discretion of the testing laboratory.

B. Periodically inspect the batching plant and file a report with the Engineer stating whether the supplier's equipment and methods meet the requirements of these Specifications.

C. Temperature and Placing Record: Temperature record shall be made each day during the concreting operations. Records shall also include location, quantity and starting and finishing time of placement for all concrete work. Copy distribution shall be as specified above for test reports.

D. All work and reports shall comply with Applicable Industry Standards.

3.15 EVALUATION OF COMPRESSION TESTS

A. Evaluation of compression test results shall be as follows: For each class of concrete, compression-strength tests for laboratory-cured cylinders shall be considered satisfactory if the averages of the results of all sets of three consecutive compression-strength tests equal or exceed the 28 day design compression-strength specified; and, no individual cylinder strength test falls below the required compression strength by more than 500 psi. Strength tests of specimens cured under field conditions may be required by the Engineer to check the adequacy of curing and protecting of the concrete placed. Specimens shall be molded by the field testing laboratory at the same time and from the same samples as the laboratory-cured specimens.

B. Faulty Concrete: Failure to comply with any of the specified conditions shall constitute faulty concrete. Unless otherwise directed by the Engineer, faulty concrete shall be removed and replaced with concrete as specified, at no expense to the Owner.

C. Additional Test: If permitted by the Engineer, additional tests shall be subject to the approval of the Engineer at no expense to the Owner. Load tests, if permitted by the Engineer, shall be conducted in accordance with the loading criteria as required by the

design of the structure, as determined by the Engineer.

D. Neither the results of laboratory verification tests nor any provision in the Contract Documents shall relieve the Contractor of the obligation to furnish concrete of the class and strength specified.

3.12 TESTING FOR WATERTIGHTNESS OF CONCRETE STRUCTURES

A. Leakage testing shall be carried out in accordance with ACI 350.1 - Tightness Testing of Environmental Engineering Concrete Structures. The test criterion shall be HST-NML (no measurable loss) as defined by ACI".

B. All concrete structures designed to contain or convey fluid shall be tested for watertightness by the Contractor prior to earth backfilling by filling with water to levels approximately what will be attained during operation and measuring the drop in level due to leakage, if any. These tests shall be made under the direction of the Engineer, and if necessary the tests shall be repeated until watertightness is insured. Perform tests prior to backfilling below grade structures and prior to installations of any coating.

C. Rate of filling shall be limited to minimize shock-effect to new concrete construction. Water shall be held under each condition long enough to satisfy the Engineer that the structures are watertight. Structures shall be free of internal or external water leakage.

D. Leakage shall be located and stopped and the structure again tested until this requirement is met. If the structure does not meet the test, the Contractor shall repair or replace at his own expense, such part of the work as may be necessary to secure the desired results, as approved by the Engineer.

E. Regardless of the rate of leakage there shall be no visible leakage from any concrete structure.

END OF SECTION 03300

SECTION 16000
ELECTRICAL POWER AND SYSTEMS

PART 1 - GENERAL

1.01 SCOPE

A. Work described in this Section includes furnishing all labor, materials, equipment, tools and incidentals required for a complete installation of all electrical power and systems. All equipment shall be installed, adjusted, tested and placed in operation in accordance with these Specifications, the manufacturer's recommendations and as shown on the Drawings.

B. Contract drawings show only functional features and some of the required external connections. They do not show all components required for a complete installation nor exact dimensions particular to any manufacturer's equipment. Contractor shall supply all parts, devices and equipment necessary to meet the requirements of the Contract Documents and shall make all dimensional adjustments particular to the equipment being furnished. All costs associated with such changes and adjustments shall be considered as being included in the price bid for the Work shown and specified.

1.02 DEFINITIONS

A. Provide: Furnish, install, and connect
B. Product Data: Catalog cuts and descriptive literature
C. Shop Drawings: Factory prepared specific to the installation
D. Indicated: Shown on the Contract Drawings
E. Noted: Indicated or specified elsewhere
F. Control Diagram: A control diagram shows by mens of graphic symbols, the electric connections and functions of a specific circuit arrangement.The control diagram facilitates tracing the circuit and its functions without regard to the actual physical size,shape, or location of the component devices or parts.
G. One-Line Diagram: A one-line diagram shows by means of single lines and graphic symbols the course of an electric circuit or system of circuits and the components, devices, or parts used therein. Physical relationships are usually disregarded.
H. Block Diagram: A block diagram is a diagram of a system, instrument, computer, or program which selected portions are represented by annotated boxes and interconnecting lines.
I. Wiring Diagram: A wiring or connection diagram includes all the devices in a system and shows their physical relationship to each other including terminals and interconnecting wiring in an assembly. This diagram shall be a) in a form showing interconnecting wiring only by terminal designation (wireless diagram), or b) a panel layout drawing showing the physical location of devices plus the control diagram.
J. Interconnection Diagram: Interconnection diagrams shall show all external connections between terminals of equipment and outside points, such as motors and auxiliary devices. References shall be shown to all connection diagrams which interface to the interconnection diagram. Interconnection diagrams shall be of the continuous line type. Bundled wires shall be shown as a single line with the direction of entry/exit of the individual wires clearly shown. Wireless diagrams and wire lists are not acceptable. Each wire identification as actually installed shall be shown. The wire identification for each end of the same wire shall be identical. All devices and equipment shall be identified. Terminal blocks shall be shown as actually installed and identified. All jumpers, shielding and

grounding terminations not shown elsewhere shall be shown here. Signal and DC circuit polarities shall be shown. Spare wires shall be shown.

K. Arrangement, Layout, or Outline Drawings: An arrangement, layout, or outline drawing is one which shows the physical space and mounting requirements of a piece of equipment. It may also indicate ventilation requirements or the location to which connections are to be made.

1.03 SUBMITTALS

Submittals shall be made in accordance with the requirements of the General Conditions of the Contract Documents. In addition, the following specific information shall be provided:

1. Information required "for reference" such as product samples, similar unit test reports, and time current curves is for the purpose of determining the suitability of a product, selecting breaker settings, etc. This information is to be submitted at the same time as approval data; however, this information will not be returned and stamped approval is not required prior to installation.

2. Except as noted, installation instructions are not required to be submitted. However, it is the Contractor's responsibility to obtain installation information from the manufacturer for all equipment prior to installing the equipment.

3. Interconnecting diagrams depicting all cable requirements together with actual terminations as specified under paragraph 1600-1.02J.

1.04 QUALITY ASSURANCE

A. Provide complete electrical installation in accordance with the National Electrical Code (NFPA 70), Life Safety Code (NFPA 101), and in accordance with applicable local codes. Obtain all necessary permits and have all work inspected by appropriate authorities.

B. All products shall be designed, manufactured, and tested in accordance with industry standards. Where applicable, products shall be labeled or listed by third party certification agencies.

C. Industry Standards: Standards organizations and their abbreviations, as used herein, are as follows. Applicable date for industry standards is that in effect on the date of advertisement of the project.

1. American National Standards Institute (ANSI).
2. American Society for Testing and Materials (ASTM).
3. Federal Specifications (FS).
4. Institute of Electrical and Electronics Engineers (IEEE).
5. Insulated Cable Engineers Association (ICEA).
6. National Electrical Manufacturers Association (NEMA).
7. National Fire Protection Association (NFPA).
8. Underwriters Laboratories, Inc. (UL).
9. National Electrical Testing Association (NETA).

1.05 WORK INCLUDED IN DIVISION 16, ELECTRICAL

A. Electrical power and systems.

B. Basic materials and methods.
C. Conduit.
D. Conductors.
E. Boxes.
F. Wiring devices.
G. Electric motors.
H. Cabinets and enclosure.
I. Surge arrestors
J. Protective relays.
K. Disconnect switches.
L. Grounding.
M. Low voltage control center.
N. Medium voltage control centers.

1.06 MATERIALS AND EQUIPMENT FURNISHED AND INSTALLED UNDER OTHER DIVISIONS WITH RACEWAY AND ELECTRICAL CONDUCTORS FURNISHED, INSTALLED, AND CONNECTED UNDER DIVISION 16, ELECTRICAL

Equipment, Instrumentation and control system components indicated on the Drawings by filled circumscribed diamond symbol.

1.07 INTENT OF DRAWINGS

Electrical plan drawings show only general locations of equipment, devices, and raceway, unless specifically dimensioned. The Contractor shall be responsible for proper routing of raceway, subject to the approval of Engineer.

1**.08 PROTECTIVE COORDINATION STUDY –Not Used.**

1.9 ELECTRICAL NUMBERING SYSTEM

A. Raceway Numbers:
1. Raceways shall be tagged at all terminations. where raceway numbers have not been assigned, Contractor shall assign raceway numbers in accordance with the following system:

Raceway Prefix	Type of Function
C	Control and/or 120V or less power
N	Pneumatic tubing
P	Power 208V to 600V
S	Low level signal (less than 90 volt communication or less than 30 volt instrumentation)
X	Spare

2. Prefixes shall be followed by a 5-digit equipment number. Where there is more than one raceway to a particular equipment, a letter suffix is added to distinguish the raceways.

3. Example:

Raceway number	=	P31109A
31109	=	unique 5-digit equipment number
A	=	Letter to distinguish from other raceways to same equipment

B. Conductor Numbers:

1. Conductors shall be identified with numbers at both ends. Conductor tag numbers shall consist of the 5-digit equipment number followed by a dash followed by the conductor number specified on the control diagram.

2. Example:

Tag number	=	19000-L1
Where:		
19000	=	Cable number
L1	=	Conductor number

3. Conductors which are in parallel or in series between equipment shall have the same conductor number. Neutral conductors shall have the same conductor number. wherever possible, the conductor shall be the same as the terminal to which it connects.

4. When factory-wired equipment has terminal numbers different than the conductor number shown on the control diagram, both shall be shown on the interconnection diagram, and a copy of the interconnection diagram shall be fastened to the inside of the equipment cabinet.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Ship products to the job site in their original packaging. Receive and store products in a suitable manner to prevent damage or deterioration. Keep equipment upright at all times.

B. Investigate the spaces through which equipment must pass to reach its final destination. Coordinate with the manufacturer to arrange delivery at the proper stage of construction and to provide shipping splits where necessary.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Provide only new products of the manufacturer's latest design.

B. Equipment shall be applied only within its rating. Equipment ratings shown are minimums. Voltage and current ratings shall be as required to adequately power the connected equipment. Fault current ratings shall be as shown for the particular item or for the next upstream device that has a fault current rating shown.

C. The following areas are classified hazardous:

1. Head works.
2. All sump pits.

D. The following areas are classified as corrosive:

1. Primary sludge pumping stations.
2. Mixed liquor channel.
3. Mixed liquor pumping station.
4. Aerated tanks.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Maintain continuity of electric service to all portions of the process or buildings at all times. Temporary outages will be permitted during cutover work at such times and places as can be prearranged with Engineer and the electric utility company providing service to the facility. Such outages shall be kept to a minimum number and minimum length of time. Make no outages without prior written authorization of the Engineer. Include all costs for temporary wiring and overtime work required in the Contract price. Remove all temporary wiring at the completion of the work.

B. Wherever the requirements of the Specifications or Drawings exceed those of the above items, the requirements of the Specifications or Drawings govern. Code compliance is mandatory. Construe nothing in the Contract Documents as permitting work not in compliance with these codes.

C. Unless otherwise indicated, all material required to be removed and salvaged shall become the property of the City.

D. Carefully modify existing electrical equipment, as necessary to carry out proposed changes. Rehabilitate and relocate items of equipment as required and as indicated or specified.

3.02 CERTIFICATION AND TESTS

A. Prior to request for final review, test all systems and repair or replace all defective work. Submit, with request for final review, written certification that all electrical systems are complete and operational.

B. At the time of final review of electrical work, demonstrate the operation of electrical systems. Furnish labor, apparatus and equipment for systems' demonstration.

C. After final review and acceptance, turn over to the Engineer all keys for electrical equipment locks. Present to the City's designated representatives, demonstrations and oral instructions for proper operation and maintenance of the electrical equipment and systems.

END OF SECTION 16000

SECTION 16010
BASIC ELECTRICAL REQUIREMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Furnish all labor, supervision, materials, equipment and incidentals required to make ready for use complete functional electrical systems as shown on the Drawings and specified herein.

B. The work shall include furnishing, installing, interconnecting and testing the equipment and materials specified in all other sections of Division 16 and as shown on the Drawings.

C. The work shall include furnishing, coordinating, and installing the following:

1. Electrical service from Electrical Utility Company or designated tie-in point, per the Drawings and/or as required by Electrical Utility. Contractor shall include the cost charged by the Electrical Utility to furnish and install the electrical service supply and service transformer as required.

2. Major electrical equipment, including transformers, low voltage switchgear, low voltage motor control centers, adjustable frequency controlled speed drive systems, and other equipment and materials specified in Div 16.

3. Conduit, wire, field connections and installation for all motors, motor controllers, control devices, control panels, and “packaged” equipment furnished under other Divisions of these Specifications.

4. All conduit, wire, fiber optic cable and interconnections between process instrumentation primary elements, transmitters, local indicators, control panels and DCS cabinets as specified in other sections.

5. Installation, mounting and field wiring for all field-mounted process instruments, DCS cabinets and wall mounted fiber optic patch panels, etc. furnished under other Divisions of these Specifications. Installation of all cables and equipment furnished by process instrumentation suppliers and process control system suppliers.

6. A complete raceway system for all cables furnished by process instrumentation suppliers and process control system suppliers. Review the raceway layout with Supplier and the cable manufacturer, prior to installation, to insure raceway compatibility with the systems and materials being furnished.

7. Installation of all control panels, controllers, etc. furnished under other Divisions of these Specifications.

8. Power wiring for all heating, ventilating, and air conditioning (HVAC) equipment furnished under other Divisions of these Specifications, including power wiring for 120 Volts unit heater motors and thermostats, fan motors and other HVAC inline unit wiring shown on the Drawings. Excluded is conduit and wiring for “HVAC Controls” and “Sequence of Operations”. See these sections of Division 15 for reference.

9. Complete, functional, fully installed, interconnected and tested systems for power, control, lighting, grounding, telephone, data, fire alarm, communications, signaling, security, lightning protection, etc. as indicated in other sections of Division 16 and as shown on the Drawings.

10. Unless otherwise specified, contractor shall review the shop drawings of all electrically operated equipment and equipment with electrical connections furnished under all divisions of these specifications. Contractor shall wire and interconnect all materials, devices, components, systems and packages requiring “field wiring”. Where applicable, Contractor shall make electrical interconnections per manufacturer s requirements. This includes, but is not limited to, devices that are parts of “packages” but which are shipped separately and require field connection. Also, Contractor shall identify terminals and prepare drawings or wiring tables if necessary for interconnections.

11. Demolition, where required.

D. It is the intent of these Specifications that the electrical system shall be suitable in every way for the service required. All material and all work which may be reasonably implied as being incidental to the work of this Section or other applicable sections shall be furnished at no extra cost.

E. The Contractor or his authorized representatives shall, before preparing his proposal, visit all areas of the existing site, buildings and structures in which work under this section is to be performed and inspect carefully the present installation. The submission of the proposal by this contractor shall be considered evidence that he or his representative has visited the buildings and noted the locations and conditions under which the work will be performed and that he takes full responsibility for a complete knowledge of all factors governing his work.

F. All power interruptions to existing equipment shall be at the Owner’s convenience with 72 hours (minimum) notice. Each interruption shall have prior approval.

G. The Contractor shall maintain the existing facility in operation at all times.

H. Temporary power connections as required shall be provided by the Contractor at no additional expense to the Owner. All temporary wiring shall be in accordance with the NEC. Any temporary equipment feeders shall be installed in conduit. The Contractor shall provide to the Engineer details, methods, materials, etc. prior to making temporary connections. Furnish and install all equipment and materials including control equipment, motor starters, branch and feeder circuit breakers, panel boards, transformers, etc., for temporary power. Remove temporary installations prior to / at job completion.

I. The work shall include complete testing of all equipment and wiring at the completion of work and making any minor correction changes or adjustments necessary for the proper functioning of the system and equipment. All workmanship shall be of the highest quality; substandard work will be rejected.

J. Where applicable, field identify and verify all existing underground structure and utilities, including electrical, water and mechanical piping, prior to installing new work.

K. The Contractor shall have the Manufacturer of the major electrical components (per Paragraph 2.01) provide a coordination and short circuit study as specified herein. Contractor shall set all protective devices and relays as specified in Paragraph 1.19.

L. Excavation and backfilling, including gravel or sand bedding for underground electrical work is included in Division 16.

M. Concrete work, including concrete electrical duct encasement, in included in Division 16.

N. Contractor shall provide all work for duct banks, including but no limited to excavation, concrete, conduit, reinforcement, backfilling, grading and seeding. All work shall be in accordance with Divisions 2 and 3 of these specifications.

O. Complete coordination with other contractors, including but not limited to concrete pads for transformers and major electrical equipment. Contractor shall coordinate with other contractors equipment submittals and obtain all relevant submittals.

P. Complete coordination with the Electrical Utility Company. Contractor shall complete applicable Utility forms and comply with and respond to Utility requests for information. Such are as related to, but not limited to, sizes and types of new electrical loads, existing loads to remain, existing loads to be deleted, anticipated load diversity/ demand, generators, and size, rating and characteristics of Owner's new and existing electrical equipment, etc., to the extent required by the Utility Company. Intent is that Utility Company will, from such coordination with Contractor, be able to finalize Utility's incoming electrical service ratings and details, service transformer(s) ratings and details, and proper interconnection with Owner's equipment.

Q. Seismic Requirements:

1. Conform to the requirements indicated on the structural or other Contract Documents, where applicable.

2. It shall be the responsibility of the equipment manufacturers and suppliers along with the Contractor to conform to the seismic design requirements based on the project's seismic zone and/or the Contract Documents.

3. All electrical raceways and equipment shall utilize earthquake resistant supporting systems as required by the project's seismic zone and/or the Contract Documents.

R. Dust Protection:

Provide black plastic protective covering for all equipment during construction phase, including but not limited to Motor Control Centers, Low Voltage Switchgear, DCS cabinets, termination cabinets, etc.

1.02 RELATED WORK

A. Drawings, specifications and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this and the other sections of Division 16.

B. “Drawings” or “Contract Drawings”, as used herein, refer to the project contract drawings.

C. “Specifications” or “Contract Specifications”, as used herein, refer to the project contract specifications.

D. “Documents” or “Contract Documents”, as used herein, refer to the project contract drawings, specifications, and general conditions and requirements.

E. “Division 16”, as used herein, refers to all project Electrical Section Specifications (16XXX).

F. “Contractor”, as used herein, refers to the General Contractor (including his sub-contractors and his electrical/etc. equipment manufacturers and suppliers who provide his equipment), who has responsibility to furnish and install the “Scope of Work”, as described herein and per the Contract Documents.

G. The requirements of this Section apply to the entire Scope of Work including that shown on the Drawings, in the Division 16, in Sections 11515 and in the General and Supplementary Conditions, and Division 1 Specifications.

1.03 REFERENCES

A. All electric equipment, materials, and installation shall be in accordance with the National Electrical Code (NEC) and with the latest edition of all codes and standards of the following organizations:

1. National Fire Protection Association (NFPA), including (but not limited to):
   a. National Electrical Code (NEC), NFPA 70
   b. National Fire Alarm Code, NFPA 72
   c. Life Safety Code, NFPA 101
   d. Emergency and Standby Power Systems, NFPA 110

2. American National Standards Institute (ANSI), including (but not limited to):
   a. National Electrical Safety Code, ANSI C2
3. Occupational Safety and Health Act (OSHA)
4. Federal Communication Commission (FCC)
5. National Electrical Manufacturers Association (NEMA)
6. Insulated Cable Engineers Association (ICEA)
7. Institute of Electrical and Electronics Engineers (IEEE)
8. National Electrical Testing Association (NETA)
9. American Society of Testing and Materials (ASTM)
10. Illumination Engineering Society (IES)
11. Anti-Friction Bearing Manufacturers Association (AFBMA)
12. Building Officials and Code Administrators International, Inc. (BOCA)
13. Southern Building Code Congress International (SBCCI):
    Standard Building Code (SBC)
14. International Conference of Building Officials (ICBO)
15. All applicable state and local codes, amendments, regulations and practices.
16. Appropriate Authorities Having Jurisdiction.

B. Where codes and/or standards conflict, the most conservative document shall be followed.

1.04 SUBMITTALS

A. Submit to the Engineer, in accordance with the General Conditions, and the Special Conditions, copies of all materials required to establish compliance with this Section.

B. Shop drawings shall be submitted for the following equipment (where applicable):

1. UPS
2. Low Voltage Motor Control Centers
3. Manholes, Pullboxes and Handholes, Frames and Covers

4. Grounding and Connections

5. Raceways, Boxes, Fittings and Hangers

6. Wires and Cable

7. Switches, Receptacles and Covers

8. Record Documents

C. The Manufacturer's name and product designation and catalog numbers shall be submitted for the following material utilized:

1. Testing Equipment.

2. Ground System Resistance Test Equipment.

D. Prior to submittal, all shop drawings shall be checked for accuracy and Contract requirements. Shop drawings shall bear the date checked. In addition each shop drawing submitted shall include a copy of the applicable specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated and, therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. The submittal shall be accompanied by a detailed, written justification for each deviation. Failure to include a copy of the marked-up specification sections, along with justifications for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

E. The Engineer's check shall be only for conformance with the design concept of the project and compliance with the Specification and Drawings. The responsibility of, or the necessity of, furnishing materials and workmanship required by the Specifications and Drawings, which may not be indicated on the shop drawings, is included under the work of this Section.

F. The responsibility for all dimensions to be confirmed and correlated at the job site and for coordination of this work with the work of all other trades is also included under the work of this Section.

G. No material shall be ordered or shop work started until the Engineer's approval of shop drawings has been given.

H. In addition to Manufacturer's equipment shop drawings, the Contractor shall submit for approval electrical coordination/installation working drawings.

I. Submit Record Documents. See Paragraph 1.10.

J. Submit Operation and Maintenance Manuals. See Paragraph 1.11.

1.05 QUALITY ASSURANCE

A. Per OSHA, all electrical equipment and materials shall be listed by Underwriter's Laboratories, Inc. (UL), or other Nationally Recognized Testing Laboratory (NRTL), and shall bear the appropriate UL or NRTL listing mark or classification marking. Equipment, materials, etc. utilized not bearing a UL or NRTL certification shall be field certified by UL or NRTL prior to equipment acceptance and use.

B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.06 DELIVERY STORAGE AND HANDLING

A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

B. Inspect products for completeness and conditions; if it is to be stored, reseal for protection; unpack and handle equipment in accordance with manufacturer's recommendations.

C. Store products in dry spaces, free from corrosives. Heat storage areas to prevent condensation, and dust free. Keep equipment clean by covering or by other measures as necessary. Store shipping section on level surfaces.

D. Store equipment and material under cover, and off the ground or floors exposed to rain.

E. For outdoor storage, protection covers of 10 mil thick black sheet plastic shall be fitted. Covers shall be reinforced to withstand wind and precipitation. Set materials on skid or platforms of height to avoid damage or deterioration from spattering and ground waste.

1.07 INTERPRETATION OF DRAWINGS

A. Electrical loads (KVA, KW, Horsepower, Amperes, etc.) indicated on the electrical Drawings are estimates representative of standard mechanical and building equipment. Electrical equipment ratings, bus ratings, circuit wire sizes, conduit sizes and overcurrent protection device ratings indicated on the Drawings are based on such equipment. Contractor is advised that prior to installation he must compare indicated electrical equipment ratings, wire sizes, conduit sizes and overcurrent protective device ratings versus approved shop drawings of actual equipment being furnished. Contractor shall provide electrical materials reflecting increased ratings, wire sizes, conduit sizes and overcurrent protective device ratings where required to match shop drawings. Overcurrent protective device may be decreased if required to match actual equipment requirements and/or manufacturer's recommendation. Other electrical ratings, wire sizes and conduit sizes shall not be decreased to less than that indicated on the electrical Drawings.

B. Equipment short circuit interrupting and/or withstand ratings as shown on the Drawings and/or as specified equal or exceed design Engineer's calculated values based on standard data available at the time of design. Contractor shall furnish equipment meeting these ratings or shall furnish higher rated equipment if and when required based on the results of the Short Circuit Study (see Section 1.19). In no case, shall equipment with ratings lower than those shown on the Drawings and/or specified (based on design Engineer's calculated values) be permitted.

C. The Drawings are not intended to show exact locations of equipment or conduit runs.

D. Unless otherwise approved by the Engineer, conduit shown or specified exposed shall be installed exposed; conduit shown or specified concealed shall be installed concealed.

E. Where circuits are shown as "home-runs", all necessary fittings and boxes shall be provided for a complete raceway installation.

F. Verify with the Engineer the exact locations and mounting heights of lighting fixtures, switches and receptacles prior to installation. This in no way shall reduce the Contractor's responsibility required by the Specifications and Drawings.

G. Any work installed contrary to or without approval by the Engineer shall be subject to change as directed by the Engineer, and no extra compensation will be allowed for making these changes.

H. The locations of equipment, fixtures, outlets, and similar devices shown on the Drawings are approximate only. Exact locations shall be as approved by the Engineer during construction. Obtain in the field all information relevant to the placing of electrical work, and in case of any interference with other work, proceed as directed by the Engineer and furnish all labor and materials necessary to complete the work in an approved manner.

I. Surface mounted panel boxes, junction boxes, conduit, etc., shall be supported by spacers (minimum 1/2 inch) to provide a clearance between wall and equipment.

J. Circuit layouts are not intended to show the number of fittings, or other installation details. Furnish all labor and materials necessary to install and place in satisfactory operation all power, lighting, and other electrical systems shown. Additional circuits shall be installed wherever needed to conform to the specific requirements of equipment.

K. All connections to equipment shall be made as required, and in accordance with the approved shop and setting drawings.

L. Redesign of electrical or mechanical work, which is required due to the Contractor's use of an alternate item, arrangement of equipment, and/or layout other than specified herein, shall be done by the Contractor at his own expense. Redesign and detailed plans shall be submitted to the Engineer for approval. No additional compensation will be provided for changes in the work, either his own or others, caused by such redesign.

M. The Contractor shall coordinate his work with the work of the different trades so that interferences between conduits, piping, equipment, architectural and structural work will

be avoided. All necessary offsets shall be furnished so as to take up a minimum space and all such offsets, fittings, etc., required to accomplish this shall be furnished and installed by the Contractor without additional expense to the Owner. In case interference develops, the Engineer is to decide which equipment, piping, etc., must be relocated, regardless of which was installed first.

N. All conduits from the field terminating at Motor Control Centers, Control Panels, Wall Mounted Instruments, etc. shall be sealed appropriately so as not to allow condensation entry due to humidity or water infiltration into the conduits and/or sealed per NEC Chapter 5.

1.08 PRIORITY OF THE CONTRACT DOCUMENTS

A. If during the performance of the work, the Contractor finds a conflict, error or discrepancy between or among one or more of the Sections or between or among one or more Sections and Drawings, furnish the higher performance requirements. The higher performance requirements shall be considered the equipment, material, device or installation method that represents the most stringent option, the highest quality, or the largest quantity.

B. In all cases, figured dimensions shall govern over scaled dimensions, but work not dimensioned shall be as directed by the Engineer and work not particularly shown, identified, sized, or located shall be the same as similar work that is shown or specified.

C. Detailed drawings shall govern over general drawings, larger scale drawings take precedence over smaller scale drawings and change order drawings shall govern over Contract Drawings. Contract Drawings shall govern over shop drawings until shop drawings have been approved by the Engineer.

D. If the issue of priority is due to a conflict or discrepancy between the provisions of the Contract Documents and any referenced standard, or code of any technical society, organization or association, the provision of the Contract Documents will take precedence if they are more stringent or cause a higher level of performance. If there is any conflict or discrepancy between standard specifications, or codes of any technical society, organization or association, or between laws and regulations, the higher performance requirements shall be binding on the Contractor, unless otherwise directed by the Engineer.

E. In accordance with the intent of the Contract Documents, the Contractor accepts the fact that compliance with the priority order specified shall not justify an increase in Contract Price or an extension in Contract Time nor limit in any way, the Contractor's responsibility to comply with all Laws and Regulations at all times.

1.09 COORDINATION DRAWINGS

A. Prepare electrical coordination/installation working drawings to scale of 1/4" = 1'-0" or larger, detailing major elements, components, and systems of electrical equipment and materials in relationship with other systems, installations, and building components. Indicate locations where space is limited for installation and access, and where

sequencing and coordination of installations are of importance to the efficient flow of the Work, including (but not necessarily limited to) the following:

1. Indicate the proposed locations of all raceway systems, equipment, and materials. Include the following:
   a. Size of equipment and clearances for servicing equipment, including space for equipment disassembly required for periodic maintenance.
   b. Exterior wall and foundation penetrations.
   c. Fire-rated wall and floor penetrations.
   d. Equipment connections and support details.
   e. Sizes and location of required concrete pads and bases.
   f. Sizes and locations of man-holes, hand-holes, pull boxes, etc.
2. Indicate scheduling, sequencing, movement, and positioning of large equipment into the building during construction.
3. Prepare floor plans, elevations, and details to indicate penetrations in floors, walls, and ceilings, and their relationship to other penetrations and installations.
4. Particular attention shall be directed toward concealed and buried conduit layouts. The drawings shall be prepared based on approved equipment shop drawings and shall accurately locate and dimension all conduit stub-ups. Contractor shall assure that no concrete floors or walls are poured until such layouts are approved.
5. Prepare reflected ceiling plans to coordinate and integrate installations, air outlets and inlets, light fixtures, communications systems components, and other ceiling-mounted devices.

B. These coordination drawings shall be submitted to and approved by Engineer prior to installation by Contractor.

1.10 RECORD DOCUMENTS

Prepare record documents indicating installed conditions for:

1. Major raceway systems, size and location, for both exterior and interior; locations of control devices; distribution and branch electrical circuitry; and fuse and circuit breaker size and arrangements.
2. Equipment locations (exposed and concealed) dimensioned from prominent building lines.
3. Approved substitutions, contract modifications, and actual equipment and materials installed.

4. Record power one line diagrams, panel schedules, control diagram and fire alarm riser diagrams

1.11 OPERATION AND MAINTENANCE MANUALS

A. Operation and maintenance manuals shall be provided in electronic forms in addition to hard copies. Provide electronic copies of any and all software configured instrument and electronic data. Manuals shall include the following information for equipment items:

1. Furnish in accordance with the General Conditions of the Contract Documents.

2. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.

3. Manufacturer's printed operating procedures to include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; and summer and winter operating instructions.

4. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.

5. Servicing instructions and lubrication charts and schedules.

B. Operation and Maintenance Data

Submit complete operations and maintenance data for all equipment furnished under this Division. The manuals shall be prepared specifically for the installation and shall include all required cuts, drawings, equipment lists, descriptions, complete parts list, etc, that are required to instruct operating and maintenance personnel unfamiliar with such equipment.

1.12 MATERIALS

A. The materials used in all systems shall be new, unused and as hereinafter specified. All materials where not specified shall be of the very best of their respective kinds. Sample of materials or Manufacturers shall be submitted for approval as required by the Engineer.

B. All current carrying cables, wires, buses, terminals, windings, parts, etc. shall be copper.

C. Equipment shall be suitable in all ways for the intended application. Ratings shall match or exceed the requirements of the indicated Reference Standards, Drawings and Specifications. Electrical short circuit interrupting ratings shall meet the requirements of NEC Article 110. Additionally, electrical equipment shall have fully rated interrupting ratings. Equipment employing "series" rated interrupting capabilities shall not be acceptable.

D. Electrical equipment shall at all times during construction be adequately protected against mechanical damage, water damage, corrosion, dirt, dust and foreign material. Equipment equipped with internal electrical heaters shall have them energized to keep the equipment dry. Doors to cabinets, panelboards, motor control centers, switchgear, control panels and other similar equipment shall be kept closed at all times when work on them is not being done. Switchgear, motor control center, panelboards and similar Electrical equipment shall not be stored out-of-doors. Such Electrical equipment shall be stored in dry permanent shelters. If any apparatus has been subject to possible injury by water, it shall be replaced at no additional cost to the Owner, the damaged units or systems shall remain on site and returned to the manufacturer after the replacement units or systems have been delivered to the site. Under no circumstances will electrical equipment damaged by water be rehabilitated or repaired, new equipment shall be supplied, and all costs associated with replacement shall be borne by the Contractor.

E. Any damage to factory applied paint finish shall be repaired using touch-up paint furnished by the equipment manufacturer. The entire damaged panel or section shall be repainted per the field painting specification, at no additional cost to the Owner.

1.13 CODES, INSPECTIONS AND FEES

A. All equipment, materials, and installation shall be in accordance with the requirements of the local authority having jurisdiction.

B. Contractor shall obtain all necessary permits, inspections, certificates of acceptance, certificates of occupancy, etc. Contractor shall pay all fees related to these items. Contractor shall submit to the Authority Having Jurisdiction the necessary Drawings in the size and quantity as required by the Authority Having Jurisdiction. These permits, inspections, and certificates shall cover all aspects of the electrical systems, including the fire alarm system. The permits, inspections and certificates shall be obtained by Contractor from the appropriate authority having jurisdiction including, but not limited to, building departments, inspection authorities, plan review examiners, fire marshals, insurers, etc.

C. If not provided initially, obtain necessary UL and any other required inspection stickers indicating installation suitability from the local authority having jurisdiction. Install as directed by authority having jurisdiction.

1.14 TESTS AND SETTINGS

A. Test all systems furnished under Division 16 and repair or replace all defective work. Make all necessary adjustments to the systems and instruct the Owner’s personnel in the proper operation of the systems.

B. Make the following minimum tests and checks prior to energizing electrical equipment:

1. Mechanical inspection, testing and setting of all circuit breakers, disconnect switches, motor starters, control equipment, etc. for proper operation.

2. Test grounding system..

3. Test low voltage..

4. Test wires and cables..

5. Check all wire and cable terminations for acceptable wire labels and numbering system. Verify to the Engineer connections meet the equipment's torque requirements.

6. Carefully check all failure interlocks, control and instrument wiring for each system, and/or part of a system to ascertain that the system will function properly and as indicated by schematic and wiring diagrams where applicable. Check all failure interlocks to the DCS by simulation at the interlock contact itself.

7. Provide all instruments, personnel and equipment required for the tests specified herein.

C. All testing shall be scheduled and coordinated by the Contractor. Notify the Owner at least two (2) weeks in advance of conducting tests. The Contractor shall have qualified personnel present during all testing.

D. The following additional tests and checks shall be made prior to the energizing of electrical equipment. Contractor shall engage the services of an independent testing firm. Tests shall be conducted by the independent testing firm, and a certified test report shall be submitted stating that the equipment meets and operates in accordance with the manufacturers and job specifications, and that equipment and installation conforms to all applicable standards and specifications:

1. Testing of protective relays for calibration and proper operation.

2. Over potential, high potential, insulation resistance, and shield continuity tests for cables.

3. Mechanical inspection of switches and circuit breakers to assure proper operation.

4. Infrared hot spot inspection shall be made of all switchgear, switches, power and control panels. This shall be done under representative load conditions before the equipment is used by the Owner and again three (3) months before expiration of the one (1) year warranty period.

5. Three (3) copies of certified test reports shall be furnished to the Engineer for all tests.

1.15 MANUFACTURER'S SERVICES

A. Provide Manufacturer's services for testing and start-up of the following equipment, as applicable:

1. UPS Minimum one (1) day, one (1) trip.

2. Low Voltage Motor Control Centers — Minimum two (2) days, two (2) trips.

B. The Manufacturers of the above listed equipment shall provide an experienced Field Service Engineer to accomplish the following tasks:

1. The equipment shall be visually inspected upon completion of installation and prior to energization to assure that wiring is correct, interconnection complete and the installation is in compliance with the Manufacturer's criteria. Documentation shall be reviewed to assure that all Drawings, operation and maintenance manuals, parts list and other data required to check out and sustain equipment operation is available on-site. Documentation shall be red-lined to reflect any changes or modifications made during the installation to assure correct type and quantity.

2. The Field Service Engineer shall provide engineering support during the energization and check-out of each major assembly. They shall perform any calibration or adjustment required for the equipment to meet the Manufacturer's performance specifications.

3. Upon satisfactory completion of equipment test, they shall provide engineering support of system tests to be performed in accordance with Manufacturer's test specifications.

4. Three (3) four (4) hour training sessions (one for each system) on operation, and three (3) four (4) hour training sessions (one for each system) on maintenance and trouble-shooting procedures shall be provided for the Owner's maintenance personnel. All training shall be conducted at a facility provided by the Owner. The maintenance and trouble-shooting sessions shall be conducted with record "as-built" electrical drawings sufficient for a class of eight (8) personnel. Video taping of at least one type of each training session shall be provided to the Owner for future use and reference.

5. A final report shall be written and submitted to the Contractor and Engineer within fourteen (14) days from completion of final system testing. The report shall document the inspection and test activities, define any open problems and recommend remedial action.

6. A certificate of proper installation shall be issued by the manufacturer of the following equipment, as applicable:

   a. UPS

   b. Any other equipment as required by the Engineer.

1.16 SIZE OF EQUIPMENT

A. Investigate each space in the structure through which equipment must pass to reach its final location. If necessary, the manufacturer shall ship his material in sections sized to permit passing through such restricted areas in the structure.

B. The equipment shall be kept upright at all times. When equipment has to be tilted for ease of passing through such restricted areas during transportation, the manufacturer shall be required to brace the equipment suitably, to insure that the tilting does not impair the functional integrity of the equipment.

1.17 ENCLOSURE TYPES

Unless otherwise specified herein or shown on the Drawings, electrical enclosures shall have the following ratings.

1. NEMA 1 for dry, non-process indoor locations.

2. NEMA 12 for “DUST” locations.

3. NEMA 4X for outdoor locations, rooms below grade (including basements and buried vaults), “DAMP” and “WET” locations. Enclosure material shall be stainless steel.

4. NEMA 4X for “CORROSIVE” locations. Enclosure material shall be stainless steel.

5. NEMA 7 (and listed for use in the area classifications shown) for “Class I, Division 1” and “Class I, Division 2” Hazardous Locations. Enclosure material shall be cast malleable iron.

1.18 HAZARDOUS AREAS AND CORROSIVE AREAS

A. All equipment, materials, and installation techniques used in areas designated as hazardous in the Specification Sections, or on the Contract Drawings shall be in strict accordance with National Electrical Code Articles.

B. All equipment and materials used in hazardous areas shall be UL listed for the appropriate hazardous area classification.

C. All equipment and materials used in corrosive areas shall be corrosion resistant. Acceptable materials are 316 stainless steel, FRP PVC jacketed metallic steel.

1.19 COORDINATION AND SHORT CIRCUIT STUDY

General: Refer to Section 16000 for detail requirement.

1.20 WARRANTY

A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

B. Provide a warranty for all electrical equipment in accordance with the general requirements of specification. Unless specified more stringently elsewhere in the general requirements, the components of the electrical system shall be warranted for a

period of one (1) year from the date of final acceptance, against defective materials, design and workmanship.

PART 2 – PRODUCTS

2.01 GENERAL

A. Materials of the same type shall be the product of one (1) manufacturer. In addition, major electrical items shall be the product of one (1) manufacturer.

B. Refer to Sections 16000 for additional requirements.

PART 3 – EXECUTION

3.01 GENERAL

Refer to all Sections in Division 16.

END OF SECTION 16010

SECTION 16070

HANGERS AND SUPPORTS

PART 1 GENERAL

1.01 SECTION INCLUDES

Support and attachment components for equipment, conduit, cable, boxes, and other electrical work.

1.02 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association.

B. NFPA 70 - National Electrical Code; National Fire Protection Association.

C. UL 5B - Strut-Type Channel Raceways and Fittings.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.
   2. Coordinate the work with other trades to provide additional framing and materials required for installation.
   3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
   4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
   5. Notify Architect of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

B. Sequencing: Do not install products on or provide attachment to concrete surfaces until concrete has fully cured.

1.04 SUBMITTALS

A. Product Data: Provide manufacturer's standard catalog pages and data sheets for metal channel (strut) framing systems.

B. Contractor shall include a copy of the specification section with check marks acknowledging compliance with each paragraph or an explanation of non-compliance.

1.05 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. Comply with applicable building code.

1.06 DELIVERY, STORAGE, AND HANDLING

Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

A. General Requirements:
   1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of communications work shall be 316 stainless steel.
   2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
   3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable.
   4. Do not use products for applications other than as permitted by NFPA 70 and product listing.

B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.

C. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.
   1. Comply with MFMA-4.
   2. Channel (Strut) Used as Raceway (only where specifically indicated): Listed and labeled as complying with UL 5B.

D. Hanger Rods: Threaded 316 stainless steel unless otherwise indicated.

E. Anchors and Fasteners:
   Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install support and attachment components in a neat and workmanlike manner in accordance with NECA 1.

C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.

D. Unless specifically indicated or approved by Architect, do not provide support from suspended ceiling support system or ceiling grid.

E. Unless specifically indicated or approved by Architect, do not provide support from roof deck.

F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.

G. Equipment Support and Attachment:
   1. Use metal fabricated supports or supports assembled from metal channel

(strut) to support equipment as required.

2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

H. Secure fasteners according to manufacturer's recommended torque settings.

I. Remove temporary supports.

3.02 FIELD QUALITY CONTROL

A. Inspect support and attachment components for damage and defects.

B. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.

C. Correct deficiencies and replace damaged or defective support and attachment components.

END OF SECTION 16070

SECTION 16075
ELECTRICAL IDENTIFICATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical identification requirements.

B. Identification nameplates and labels.

C. Wire and cable markers.

D. Underground warning tape.

E. Warning signs and labels.

1.02 REFERENCE STANDARDS

A. ANSI Z535.2 - American National Standard for Environmental and Facility Safety Signs.

B. ANSI Z535.4 - American National Standard for Product Safety Signs and Labels.

C. NFPA 70 - National Electrical Code; National Fire Protection Association.

D. UL 969 - Marking and Labeling Systems.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
Verify final designations for equipment, systems, and components to be identified prior to fabrication of identification products.

B. Sequencing:
1. Do not conceal items to be identified, in locations such as above suspended ceilings, until identification products have been installed.
2. Do not install identification products until final surface finishes and painting are complete.

1.04 SUBMITTALS

Contractor shall include a copy of the specification section with check marks acknowledging compliance with each paragraph or an explanation of non-compliance.

1.05 QUALITY ASSURANCE

Conform to requirements of NFPA 70.

1.06 FIELD CONDITIONS

Do not install adhesive products when ambient temperature is lower than recommended by manufacturer.

PART 2 PRODUCTS

2.01 IDENTIFICATION REQUIREMENTS

A. Identification for Equipment:
Use identification nameplate to identify each piece of electrical distribution and

control equipment and associated sections, compartments, and components.

B. Identification for Conductors and Cables:
   1. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.
   2. Use wire and cable markers to identify circuit number or other designation indicated for power, control, and instrumentation conductors and cables at the following locations:
      a. At each source and load connection.
      b. Within boxes.
      c. Within equipment enclosures.
   3. Use underground warning tape to identify direct buried cables.

2.02 IDENTIFICATION NAMEPLATES AND LABELS

A. Identification Nameplates:
   1. Materials:
      a. Indoor Clean, Dry Locations: Use plastic nameplates.
      b. Outdoor Locations: Use plastic, stainless steel, or aluminum nameplates suitable for exterior use.
   2. Plastic Nameplates:
      a. Two-layer or three-layer laminated electrically non-conductive phenolic with beveled edges; minimum thickness of 1/16 inch; engraved text.
      b. Exception: Provide minimum thickness of 1/8 inch when any dimension is greater than 4 inches.
   3. Stainless Steel Nameplates: Minimum thickness of 1/32 inch; engraved or laser-etched text.
   4. Mounting Holes for Mechanical Fasteners: Two, centered on sides for sizes up to 1 inch high; Four, located at corners for larger sizes. Use 316 stainless steel self tapping screws.
   5. Nameplates shall be white with black lettering.

B. Identification Labels:
   1. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
   2. Text: Use machine-printed text. Do not use handwritten text unless otherwise indicated.

C. Format for Equipment Identification:
   1. Minimum Size: 1 inch by 2.5 inches.
   2. Text: All capitalized unless otherwise indicated.
   3. Minimum Text Height: Equipment Designation: 1/2 inch.
   4. Color: Black text on white background.

2.03 WIRE AND CABLE MARKERS

A. Markers for Conductors and Cables: Use wrap-around self-adhesive vinyl cloth, wrap-around self-adhesive vinyl self-laminating, heat-shrink sleeve, plastic sleeve, plastic clip-on, or vinyl split sleeve type markers suitable for the conductor or cable to be identified.

B. Markers for Conductor and Cable Bundles: Use plastic marker tags secured by

nylon cable ties.

C. Legend: Power source and circuit number or other designation indicated.

D. Text: Use factory pre-printed or machine-printed text, all capitalized unless otherwise indicated.

E. Minimum Text Height: 1/8 inch.

F. Color: Black text on white background unless otherwise indicated.

2.04 UNDERGROUND WARNING TAPE

A. Manufacturers:
   1. Brady Corporation: www.bradyid.com.
   2. Brimar Industries, Inc: www.brimar.com.
   3. Seton Identification Products: www.seton.com.

B. Materials: Use foil-backed detectable type polyethylene tape suitable for direct burial, unless otherwise indicated.

C. Foil-backed Detectable Type Tape: 3 inches wide, with minimum thickness of 5 mil, unless otherwise required for proper detection.

D. Legend: Type of service, continuously repeated over full length of tape.

E. Color: Tape for Buried Communication, Alarm, and Signal Lines: Black text on orange background.

2.05 WARNING SIGNS AND LABELS

A. Comply with ANSI Z535.2 or ANSI Z535.4 as applicable.

B. Warning Signs:
   1. Materials:
   2. Minimum Size: 7 by 10 inches unless otherwise indicated.

C. Warning Labels:
   1. Materials: Use factory pre-printed or machine-printed self-adhesive polyester or self-adhesive vinyl labels; UV, chemical, water, heat, and abrasion resistant; produced using materials recognized to UL 969.
   2. Machine-Printed Labels: Use thermal transfer process printing machines and accessories recommended by label manufacturer.
   3. Minimum Size: 2 by 4 inches unless otherwise indicated.

PART 3 EXECUTION

3.01 PREPARATION

Clean surfaces to receive adhesive products according to manufacturer's instructions.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:
   1. Surface-Mounted Equipment: Enclosure front.

2. Flush-Mounted Equipment: Inside of equipment door.
3. Free-Standing Equipment: Enclosure front; also enclosure rear for equipment with rear access.
4. Elevated Equipment: Legible from the floor or working platform.
5. Interior Components: Legible from the point of access.
6. Conductors and Cables: Legible from the point of access.

C. Install identification products centered, level, and parallel with lines of item being identified.

D. Secure nameplates to exterior surfaces of enclosures using stainless steel screws and to interior surfaces using self-adhesive backing or epoxy cement.

E. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.

F. Install underground warning tape above buried lines with one tape per trench at 3 inches below finished grade.

G. Secure rigid signs using stainless steel screws.

END OF SECTION 16075

SECTION 16131
CONDUIT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Galvanized steel rigid metal conduit (RMC).

B. PVC-coated galvanized steel rigid metal conduit (RMC).

C. Rigid polyvinyl chloride (PVC) conduit.

D. Conduit fitting

E. Accessories.

1.02 REFERENCE STANDARDS

A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC).

B. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association.

C. NEMA RN 1 - Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and
Intermediate Metal Conduit; National Electrical Manufacturers Association.

D. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit; National Electrical Manufacturers Association.

E. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing; National Electrical Manufacturers Association.

F. NFPA 70 - National Electrical Code; National Fire Protection Association.

G. UL 6 - Electrical Rigid Metal Conduit-Steel.

H. UL 514B - Conduit, Tubing, and Cable Fittings.

I. UL 651 - Schedule 40 and 80 Rigid PVC Conduit and Fittings.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate minimum sizes of conduits with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
2. Coordinate the arrangement of conduits with structural members, ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
3. Verify exact conduit termination locations required for boxes, enclosures, and equipment installed under other sections or by others.
4. Coordinate the work with other trades to provide roof penetrations that preserve the integrity of the roofing system and do not void the roof warranty.
5. Notify Architect of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

B. Sequencing: Do not begin installation of conductors and cables until installation of conduit is complete between outlet, junction and splicing points.

1.04 SUBMITTALS

A. Product Data: Provide manufacturer's standard catalog pages and data sheets for

conduits and fittings.

B. Contractor shall include a copy of the specification section with check marks acknowledging compliance with each paragraph or an explanation of non-compliance.

C. Project Record Documents: Record actual routing for conduits installed underground, conduits embedded within concrete slabs, and conduits 2 inch (53 mm) trade size and larger.

1.05 QUALITY ASSURANCE

Conform to requirements of NFPA 70.

1.06 DELIVERY, STORAGE, AND HANDLING

Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70 and product listing.

B. Unless otherwise indicated and where not otherwise restricted, use the conduit types indicated for the specified applications. Where more than one listed application applies, comply with the most restrictive requirements. Where conduit type for a particular application is not specified, use galvanized steel rigid metal conduit.

C. Underground:
   1. Exterior, Embedded Within Concrete: Use PVC-coated galvanized steel rigid metal conduit or rigid PVC conduit.
   2. Where rigid polyvinyl (PVC) conduit is provided, transition to PVC-coated galvanized steel rigid metal conduit where emerging from underground.
   3. Where rigid polyvinyl (PVC) conduit larger than 2 inch (53 mm) trade size is provided, use galvanized steel rigid metal conduit elbows for bends.
   4. Where steel conduit is installed in direct contact with earth where soil has a resistivity of less than 2000 ohm-centimeters or is characterized as severely corrosive based on soils report or local experience, use corrosion protection tape to provide supplementary corrosion protection or use PVC-coated galvanized steel rigid metal conduit.
   5. Where steel conduit emerges from concrete into soil, use PVC-coated galvanized steel rigid metal conduit.

D. Embedded Within Concrete:
   Where rigid polyvinyl (PVC) conduit is provided, transition to PVC-coated galvanized steel rigid metal conduit prior to emerging from the concrete. The use of galvanized steel rigid metal conduit shall not be used when emerging out of concrete.

E. Interior, Damp or Wet Locations: Use PVC-coated galvanized steel rigid metal conduit.

F. Exposed, Exterior: Use galvanized steel rigid metal conduit or PVC-coated galvanized steel rigid metal conduit.

G. Corrosive Locations Above Ground: Use PVC-coated galvanized steel rigid metal conduit. Corrosive locations include, but are not limited to: Piping Tunnels.

H. Hazardous (Classified) Locations: Use PVC-coated galvanized steel rigid metal conduit.

2.02 CONDUIT REQUIREMENTS

A. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.

B. Fittings
   1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
   2. Material: Use steel or malleable iron.
   3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

2.04 PVC-COATED GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit with external polyvinyl chloride (PVC) coating complying with NEMA RN 1 and listed and labeled as complying with UL 6.

B. Exterior Coating: Polyvinyl chloride (PVC), nominal thickness of 40 mil.

C. PVC-Coated Fittings:
   1. Manufacturer: Same as manufacturer of PVC-coated conduit to be installed.
   2. Non-Hazardous Locations: Use fittings listed and labeled as complying with UL 514B.
   3. Hazardous (Classified) Locations: Use fittings listed and labeled as complying with UL1203 for the classification of the installed location.
   4. Material: Use steel or malleable iron.
   5. Exterior Coating: Polyvinyl chloride (PVC), minimum thickness of 40 mil.

D. PVC-Coated Supports: Furnish with exterior coating of polyvinyl chloride (PVC), minimum thickness of 15 mil.

2.05 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT

A. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees Celsius.

B. Fittings:
   1. Manufacturer: Same as manufacturer of conduit to be connected.
   2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.

2.06 ACCESSORIES

A. Corrosion Protection Tape: PVC-based, minimum thickness of 20 mil.

B. Conduit Joint Compound: Corrosion-resistant, electrically conductive; suitable for use with the conduit to be installed.

C. Solvent Cement for PVC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.

D. Pull Strings: Use nylon cord with average breaking strength of not less than 200 pound-force.

E. Modular Seals for Conduit Penetrations: Rated for minimum of 40 psig; Suitable for the conduits to be installed.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as shown on drawings.

B. Verify that mounting surfaces are ready to receive conduits.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install conduit in a neat and workmanlike manner in accordance with NECA 1.

C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.

D. Install PVC-coated galvanized steel rigid metal conduit (RMC) using only tools approved by the manufacturer.

E. Install rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.

F. Conduit Routing:
   1. Unless dimensioned, conduit routing indicated is diagrammatic.
   2. When conduit destination is indicated and routing is not shown, determine exact routing required.
   3. Conduits installed underground or embedded in concrete may be routed in the shortest possible manner unless otherwise indicated. Route all other conduits parallel or perpendicular to building structure and surfaces, following surface contours where practical.
   4. Arrange conduit to maintain adequate headroom, clearances, and access.
   5. Arrange conduit to provide no more than the equivalent of three 90 degree bends between pull points.
   6. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.

G. Conduit Support:
   1. Secure and support conduits in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction.
   2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
   3. Use metal channel (strut) with accessory conduit clamps to support multiple

parallel surface-mounted conduits.
4. Use conduit clamp to support single conduit from beam clamp or threaded rod.

H. Connections and Terminations:
1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
3. Use suitable adapters where required to transition from one type of conduit to another.
4. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
5. Provide insulating bushings or insulated throats at all conduit terminations to protect conductors.
6. Secure joints and connections to provide maximum mechanical strength and electrical continuity.

I. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
2. Make penetrations perpendicular to surfaces unless otherwise indicated.
3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
4. Conceal bends for conduit risers emerging above ground.
5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
6. Provide suitable modular seal where conduits penetrate exterior wall below grade.
7. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
8. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty. Include proposed locations of penetrations and methods for sealing with submittals.
9. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07840.

J. Underground Installation:
1. Provide trenching and backfilling as required.
2. Minimum Cover, Unless Otherwise Indicated or Required: Underground, Exterior: 24 inches.
3. Provide underground warning tape along entire conduit length.

K. Concrete Encasement: Where conduits not otherwise embedded within concrete are indicated to be concrete-encased, provide concrete with minimum concrete cover of 3 inches on all sides unless otherwise indicated.

L. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
1. Where conduits cross structural joints intended for expansion, contraction, or

deflection.

2. Where conduits are subject to earth movement by settlement or frost.

M. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:

1. Where conduits pass from outdoors into conditioned interior spaces.
2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.

N. Provide pull string in all empty conduits and in conduits where conductors and cables are to be installed by others. Leave minimum slack of 12 inches at each end.

O. Provide grounding and bonding.

3.03 FIELD QUALITY CONTROL

A. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.

B. Where coating of PVC-coated galvanized steel rigid metal conduit (RMC) contains cuts or abrasions, repair in accordance with manufacturer's instructions.

C. Correct deficiencies and replace damaged or defective conduits.

3.04 CLEANING

Clean interior of conduits to remove moisture and foreign matter.

3.05 PROTECTION

Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

END OF SECTION 16131

SECTION 16263

STATIC UNINTERRUPTIBLE POWER SUPPLY (UPS)

PART 1 - GENERAL

1.01 SCOPE

A. The contractor shall furnish, test , install and place in satisfactory operation all static uninterruptible power supply systems, with all spare parts, accessories, and appurtantenances as herein specified and shown on the electrical drawings

B. One UPS shall be provided for each programmable logic controller and its appurtenant equipment provided under this contract. However, courtesy receptacles in programmable logic controller and RTU cabinets shall not be powered by the UPS.

C. UPS's shall be mounted in enclosures containing digital hardware, unless otherwise specified or shown on electrical drawings.

1.02 SECTION INCLUDES

A. Charger/rectifier unit.

B. Inverter unit.

C. Batteries.

1.03 SUBMITTALS

A. Shop Drawings: Indicate electrical characteristics and connection requirements. Provide battery rack dimensions; battery type, size, dimensions, and weight; detailed equipment outlines, weight, and dimensions; location of conduit entry and exit; single-line diagram indicating metering, control, and external wiring requirements; heat rejection and air flow requirements.

B. Product Data: Provide catalog sheets and technical data sheets to indicate physical data and electrical performance, electrical characteristics, and connection requirements.

C. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of product. Include equipment installation outline, connection diagram for external cabling, internal wiring diagram, and written instruction for installation.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Operation Data: Description of operating procedures.

F. Maintenance Data: Description of servicing procedures; list of major components; recommended remedial and preventive maintenance procedures; spare parts list.

G. Contractor shall include a copy of the specification section with check marks acknowledging compliance with each paragraph or an explanation of non-compliance.

1.04 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience with service facilities within 100 miles of Project.

C. Supplier Qualifications: Authorized distributor of specified manufacturer with minimum three years documented experience.

D. Products: Furnish products listed and classified by Underwriters Laboratories as suitable for purpose specified and indicated.

1.05 RELATED SECTIONS

A. Section 16070 – Hangers and Supports

B. Section 16075 – Electrical Identifications

C. Section 16131– Conduit

D. Section 17000 – Instrumentation Control and Monitoring System General Requirements

E. Section 17400 – Instrumentation Control and Monitoring System

F. Section 17500 – Distributed Control System (DCS)

G. Section 17940 – Communication Links

1.06 REFERENCES

A. IEEE 519 - IEEE Recommended Practices and Requirements for Harmonic Control in Electric Power Systems; Institute of Electrical and Electronic Engineers; 1992 (R 2004).

B. NEMA PE 1 - Uninterruptible Power Systems (UPS) - Specification and Performance Verification; National Electrical Manufacturers Association; 2003.

C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); National Electrical Manufacturers Association; 2003.

D. NFPA 70 - National Electrical Code; National Fire Protection Association; 2014..

E. UL 1778 - UPS Standard.

F. IEEE 446 - Recommended Practice for Standby Power Systems.

G. IEEE C62.41 - Recommended Practice for Surge Withstandability.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect equipment from extreme temperature and humidity by storing in a conditioned space.

B. Protect equipment from dust and debris by wrapping unit in dust tight cover and storing away from construction activity.

C. Deliver batteries no sooner than 7 days before charging.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Do not store or install unless temperature is maintained between 32 degrees F (0

degrees C) and 104 degrees F (40 degrees C), at a relative humidity less than 95 percent (non-condensing).

B. Maintain conditions during and after installation of products.

1.09 MAINTENANCE SERVICE

A. Furnish service and maintenance of uninterruptible power supply for one year from Date of Final Completion.

B. Include coverage of travel, labor, parts, and service.

1.10 TOOLS, SUPPLIES & SPARE PARTS

Tools, supplies & spare parts shall be provided as specified: One (1) of each type of UPS furnished under this contract

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. APC.
B. Eaton.
C. Cyberpower.

2.02 UNINTERRUPTIBLE POWER SUPPLY

A. System Configuration: UPS wiring shall be an integral part of the system to provide zero downtime.

B. Components:
1. Battery: Shall be of the sealed, lead acid or lead calcium gelled electrolyte type, of VRLA absorbed glass matt (AGM) type.
2. Rectifier/charger to maintain battery charge and to provide input to inverter when utility power is available.
3. Inverter to provide power to load during normal operation.
4. Static switch to transfer load automatically and without disturbance between inverter and utility power.
5. Manual switch to bypass static switch for maintenance.
6. Input and output isolation transformers and filters to provide appropriate isolation and disturbance attenuation.
7. Monitors, sensors, and control circuits.

C. Design Standards: IEEE 519 and NEMA PE 1.

2.03 SYSTEM RATINGS AND OPERATING CHARACTERISTICS

A. System Continuous Rating: As indicated on Drawings, over entire battery voltage range at specified power factor. Maintain output voltage within specified limits at any load from full load to no-load.

B. Battery Capacity: Capable of operating at full load for 1/2 hour(s).
C. Voltage Rating: 120/208 volts, 1 phase.
D. Input Voltage Operating Range: Plus or minus 10 percent.
E. Input Frequency Operating Range: 60 Hz. Plus or minus 3 Hz.
F. Input Current Limit: Adjustable to maximum of 125 percent of that required to operate at full load with battery bank on float charge.

G. Current Walk-in: 25 to 100 percent in fifteen seconds.
H. UPS Power Factor Over Full Range of Loads and Input Voltages: 74 to 100 percent, lagging.
I. Harmonic Distortion of Input Current Wave Form: 5 percent maximum at full load.
J. Output Voltage regulation:
   1. Plus or minus 5 percent for balanced load, full range of DC input and no load to full load variations.
   2. Plus or minus 5 percent for 50 percent unbalanced load, full range of DC input and no load to full load variations.
   3. Plus or minus 5 percent during maximum overload of the system.

K. Output Voltage Adjustment: Plus or minus 5 percent.

L. Output Free Running Frequency: 60 Hz Plus or minus 0.5 percent.

M. Frequency Adjustment: Plus or minus 60 Hz.

N. Output Harmonic Distortion: Maximum 5 percent rms total harmonic distortion (THD) and maximum 3 percent any single harmonic, at rated frequency and voltage, from 10 percent load to full load and over battery voltage range, measured into a linear load.

O. Voltage Transient Response for Application of 0 to 50 Percent, 50 to 100 Percent, 100 to 50 Percent, and 50 to 0 Percent Step Loads, and Transfer To and From Bypass Line:
   1. Plus 8, minus 10 percent for maximum of 8.3 milliseconds.
   2. Plus or minus 5 percent for maximum of 25 milliseconds.
   3. Plus or minus 3 percent for maximum of 50 milliseconds.
   4. Recovery to steady state within 100 milliseconds after any out-of-tolerance variation.

P. Phase Displacement:
   1. 120 plus or minus 1 degree for balanced loads.
   2. 120 plus or minus 4 degrees for 50 percent unbalanced loads.

Q. Output Current Limit: 150 percent of rated output current.

R. Voltage Unbalance: 3 percent maximum line-line with 100 percent load unbalance.

S. Efficiency: Refer to UPS notes on electrical drawings for: percent at full load, percent at percent load, minimum. Measure efficiency of unit including battery and isolation transformer losses.

T. Provide full time filtering: 0.32 IEEE surge let-through: zero clamping response time to meet UL 1449.

2.04 DESIGN

A. Inverter Type: Pulse-width modulated.

B. Rectifier/Charger Capacity: Sufficient to supply full load to inverter while recharging fully-discharged battery to 95 percent of full capacity in four hours or less; and within the input current limits specified.

C. Provide means for on-line testing of UPS, including test points to allow adjusting and servicing. Provide means for testing static switch while load is bypassed to utility.

D. Mean Time Between Failures: 60,000 hours, minimum.

E. Cooling: Natural convection.

F. Forced Air Cooled Unit: Provide with redundant cooling so that failure of any one cabinet cooling fan or fan circuit will not affect continued operation at full load and ambient temperature of 77 degrees F (25 degrees C) or lower.

G. Operate battery floating isolated from the UPS AC input and AC output. The battery may be resistance grounded through 5,000 to 10,000 ohms for the purpose of ground fault sensing.

H. Do not use continuous moving parts or electron tubes. Accomplish power switching using semiconductor devices.

I. Construct equipment so each power component can be replaced without a soldering iron or special tools.

J. Use front-panel removable plug-in control modules.

K. Alarm Interface: Each systems interface with alarm system at local and central position.

2.05 BATTERY

A. Storage Battery: Lead calcium heavy-duty industrial battery, designed for auxiliary power service. Provide battery with impact resistant plastic case. Provide cells with explosion proof vents, clear containers, and ample space for plate growth without stressing container and cover.

B. Electrolyte Specific Gravity: No greater than 1.250 when full charged and measured at 77 degrees F (25 degrees C).

C. Ampere-Hour Rating: Sufficient to supply direct current to inverter for outage period specified, with inverter operating at full rated output, to a discharge limit of not less than 1.65 volts per cell.

D. Battery Racks: Maximum of three-tier, all steel construction, with plastic insulating rails at all points of contact with the battery case. Paint racks with acid resistant paint.

2.06 CONTROLS AND INDICATORS

A. Controls:
1. AC input circuit breaker.
2. Inverter operate switch to initiate inverter operation.
3. Inverter standby switch to cause inverter to cease operation
4. Static switch transfer switch to permit manual actuation of static transfer switch.
5. Static switch lockout switch to inhibit automatic retransfer of load to inverter.
6. Battery charge timer.
7. Indicator test switch.
8. Static switch preferred input circuit breaker
9. Static switch output circuit breaker.
10. Static switch bypass circuit breaker.
11. Controls for maintenance bypass switch.

B. Indicators:
1. Inverter synchronized to utility.
2. Load connected to utility.
3. Static transfer switch inhibited.

4. High/low DC voltages.
5. Over temperature.
6. Inverter output overload.
7. Discrete dry contacts module relay to indicate these alarm on the DCS. Contractor to wire into the DCS I/O module and perform the DCS configuration.

C. Meters: Use 1 percent accuracy meters to indicate the following:
1. Rectifier/charger DC voltage and current.
2. Utility, inverter output, and load AC voltage.
3. Load AC current.
4. Inverter output and utility frequency.
5. UPS output watts.

D. Dry Contact Module
Module shall have 6 dry contact output relays to provide alarm functions to DCS.

3.01 INSTALLATION

Install in accordance with manufacturer's instructions.

3.02 FIELD QUALITY CONTROL

Perform field inspection in accordance with Section 01400.
1. Verify specification performance criteria.
2. Measure battery discharge and recharge times.
3. Simulate fault in each system component and utility power.
4. Other tests as recommended by UPS manufacturer.

3.03 MANUFACTURER'S FIELD SERVICES

Include services of technician to supervise adjustments, final connections, and system testing.

3.04 DEMONSTRATION

A. Demonstrate operation uninterruptible power supply by simulating an outage.

B. Provide 1.5 hours of instruction each for two persons. Instruction to be conducted at project site with manufacturer's representative.

END OF SECTION 16263

SECTION 16289

TRANSIENT VOLTAGE SURGE SUPPRESSION (TVSS)

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Provide 3-phase, 4-wire transient voltage surge suppression (TVSS) or surge protection devices (SPD) as indicated on the panel board schedules and on the riser diagram.

B. As a minimum provide TVSS for all service entrance panels and switchboards as well as all distribution panels 600Amps and above.

1.02 RELATED DOCUMENTS

General: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections apply to this section.

1.03 DESCRIPTION

General: Transient voltage surge suppression (TVSS) or surge protection device (SPD) is the description and equipment required for the protection of all AC electrical circuits and electronic equipment from the effects of lightning induced voltages, external switching transients and internally generated switching transients.

1.04 REFERENCE STANDARDS AND PUBLICATIONS

General: The latest edition of the following standards and publications shall comply to the work of this section:

A. ANSI/IEEE C84.1-1989, American National Standard for Electric Power Systems and Equipment - Voltage Ratings (60 Hertz)

B. ANSI/IEEE C62.41-1991, Recommended Practice on Surge Voltages in Low- Voltage AC Power Circuits.

C ANSI/IEEE C62.45-1992, IEEE Guide on Surge Testing for Equipment

D. Manufacturer shall be ISO 9001 certified: Quality Systems – Model for Quality Assurance in Design, Development, Production, Installation, and Servicing.

E. The Manufacturer must be regularly engaged in the manufacture of surge suppression products for the specified categories for no less than ten (10) years.

F. All surge protective devices for service entrance, distribution, and branch circuit protection within a facility shall be provided by a single manufacturer.

G. Underwriters Laboratories UL 1449 Second Edition, Standard for Safety - Transient Voltage Surge Suppressors

H. Underwriters Laboratories, UL 1283, Standard for Safety – Electromagnetic Interference Filters

I. National Fire Protection Association, NFPA 780 - National Electrical Code

J. IEEE Standard 142-1991, IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems (IEEE Green Book)

K. ANSI/IEEE Standard 141-1999, IEEE Recommended Practice for Electric Power Distribution for Industrial Plants (IEEE Red Book)

L. IEEE Standard 1100-1999, IEEE Recommended Practice for Powering and Grounding Sensitive Electronic Equipment (IEEE Emerald Book)

M. FIPS Pub 94, Federal Information Processing Standards Publication - Guideline on Electrical Power for ADP Installations

N. National Electrical Manufacturer's Association LS-1, 1992 (NEMA MIL Standard 220A Method of Insertion-loss Measurement

1.05 MANUFACTURER QUALIFICATIONS

A. In order to establish a level of quality for these Construction Documents, Eaton's Innovative Technology shall be the basis of design.

B. All products submitted shall comply with the specifications of the Eaton's Innovative Technology model type specified herein. Manufacturers requesting product approval must meet or exceed the written specification contained herein.

C The registered service mark (brand) must be owned by the Manufacturer. No private label accepted.

D. Manufacturer shall be ISO 9001 certified: Quality Systems – Model for Quality Assurance in Design, development, Production, Installation, and Servicing.

E. The Manufacturer must be regularly engaged in the manufacture of surge suppression products for the specified categories for no less than ten (10) years.

F. All surge protective devices for service entrance, distribution, and branch circuit protection within a facility shall be provided by a single manufacturer.

1.06 WARRANTY

A. The TVSS and supporting components shall be guaranteed by the manufacturer to be free of defects in material and workmanship for a period of twenty (20) years from the date of final completion of service and activation of the system to which the suppressor is attached.

B. Any TVSS that shows evidence of failure or incorrect operation during the warranty period shall be replaced free of charge. Since “Acts of Nature” or similar statements typically include the threat of lightning to which the SPDs shall be exposed, any such clause limiting warranty responsibility in the general conditions of this specification shall not apply to this section.

C. Exclusions and prorating will not be allowed. Warranties extended in excess of the manufacturer’s standard warranty are not acceptable for the purpose of the specification.

1.07 COMPLIANCE REQUIREMENTS

A. A TVSS shall be listed in accordance with UL 1449 Second Edition, Standards for Safety, Transient Voltage Surge Suppressors and UL 1283, Standard for Safety, Electromagnetic Interference Filters.

B. ANSI/IEEE C62.41-1991Measured Limiting Voltage (Let-Thru) shall be reported with measurements taken from zero reference per NEMA LS-1.

C. SPD’s listed for 120/208V or 120/240V sub panels shall be UL 1283 listed, and must be a true sine wave tracking unit with EMI/RFI filtering. ANSI/IEEE C62.41-1991 Measured Limiting Voltage for sine wave tracking shall not exceed for A1 Ring Wave: L-N 60V; L-G 100V; L-L 70V & N-G 70V (Measurements taken from zero reference per NEMA LS-1; 180 degree phase Angle).

D. TVSS shall have a response time of equal or less than 1 nanosecond, and be of non-deteriorating design. Repetitive surge withstanding capabilities for ANSI/IEEE Category 3 shall be no less than 18,000 pulse life for main switchgear 300ka and higher, and no less than 18,000 for distribution and sub panels.

1.08 SUBMITTALS

A. Submit product data and shop drawings with complete description of material components.

B. Manufacturer’s certified test data indicating the ability of the product to meet or exceed requirements of this specification.

C. Drawings, with dimensions, indicating TVSS mounting arrangement and lead length configuration, and mounting arrangement of any optional remote diagnostic equipment and assemblies.

D. All submittals for approved equals must be made ten (10) days prior to bid date.

E. Contractor shall include a copy of the specification section with check marks acknowledging compliance with each paragraph or an explanation of non-compliance.

PART 2 - PRODUCTS

2.01 MATERIALS

A. The TVSS shall protect all modes and there shall be seven discrete suppression circuits; 3 modes connected Line to Ground, 3 modes connected Line to Neutral, and 1 mode connected Neutral to Ground for 3-phase, 4-wire, plus ground voltage system. Line to Neutral ground is not an acceptable substitute for Line to Ground. Line to Neutral to Line and Line to Ground to Line (in combination) will be acceptable for Line to Line protection.

B. Each TVSS must be in a Powered Steel NEMA Type 4 enclosure (IP66), and be of a no-power consuming design, except for indicator light.

C. TVSS unit must not be affected by humidity, altitude, external EMI or RFI and must not generate EMI or RFI.

D. The TVSS shall be equal to EDCO SLAC Series SS64/SS65 (field mounted 2-wire analog transmitters) Voltage & Amperage, and Repetitive Surge Withstanding Capabilities as well as let-through voltage; and, 20 year warranty.

E. The TVSS shall be equal to EDCO Series DRS (din fail panel mounted analog signal protector).

F. The TVSS shall be equal to EDCO Series HSP121BT-R (internal mount 120VAC protector).

Area to be Protected	Sine Wave Tracking	Protector Model #	Warranty
A. Main Power			
(277/480) ≤1600A		PTX160-3Y201	20 Years
(120/208) ≤1600A		PTX160-3Y101	20 Years
(277/480) ≤3000A		PTX300-3Y201	20 Years
(120/208) ≤3000A		PTX300-3Y101	20 Years
(277/480) ≤4000A		PTX400-3Y201	20 Years
(120/208) ≤4000A		PTX400-3Y101	20 Years
B. Distribution Panels			
120/208V ≤800A		PTX080-3Y101	20 Years
277/480V ≤800A		PTX080-3Y201	20 Years
C. Critical Sub-Panels (Computers, Process Controllers, PLC's, etc.)			
120/240V ≤400A	YES	PTE048-1S101	20 Years
120/208V ≤400A	YES	PTE048-3Y101	20 Years
277/480V ≤400A	YES	PTE048-3Y201	20 Years

PART 3 - EXECUTION

3.01 INSTALLATION

A. The installing contractor shall install the parallel TVSS with short and straight conductors as practically possible.

B. The contractor shall follow the TVSS manufacturer's recommended installation practice as found in the equipment installation instructions (to be included in package with each unit).

C. The installation shall apply to all applicable codes.

D. All conductors associated with TVSS devices shall be installed in conduit. Minimum conductor size shall be #8 AWG copper.

END OF SECTION 16289

SECTION 16543
UNDERGROUND ELECTRICAL DUCTS AND MANHOLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal conduit.

B. Nonmetallic duct.

C. Manholes.

1.02 REFERENCE STANDARDS

A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC).

B. ASTM A48/A48M - Standard Specification for Gray Iron Castings.

C. ASTM C858 - Standard Specification for Underground Precast Concrete Utility Structures.

D. ASTM C891 - Standard Practice for Installation of Underground Precast Concrete Utility Structures.

E. ASTM C1037 - Standard Practice for Inspection of Underground Precast Concrete Utility Structures.

F. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; National Electrical Manufacturers Association; 2012 (ANSI/NEMA FB 1).

G. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit; National Electrical Manufacturers Association.

H. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing; National Electrical Manufacturers Association.

I. NEMA TC 6&8 - Polyvinyl Chloride (PVC) Plastic Utilities for Underground Installations; National Electrical Manufacturers Association.

J. NFPA 70 - National Electrical Code; National Fire Protection Association.

K. UL 651A - Type EB and A Rigid PVC Conduit and HDPE Conduit; Underwriters Laboratories Inc.

1.03 SUBMITTALS

A. Product Data: Provide for metallic conduit, nonmetallic conduit, and manhole accessories.

B. Shop Drawings: Indicate dimensions, reinforcement, size and locations of openings, and accessory locations for precast manholes.

C. Project Record Documents: Record actual routing and elevations of underground conduit and duct, and locations and sizes of manholes.

D. Contractor shall include a copy of the specification section with check marks acknowledging compliance with each paragraph or an explanation of non-compliance.

1.04 QUALITY ASSURANCE

Conform to requirements of NFPA 70.

PART 2 PRODUCTS

2.01 CONDUIT AND DUCT

A. Rigid Steel Conduit: ANSI C80.1.

B. Fittings: NEMA FB 1, steel.

C. Rigid Plastic Conduit: NEMA TC 2, Schedule 40 PVC, with fittings and conduit bodies to NEMA TC 3.

D. Rigid Plastic Underground Conduit: UL 651A, Type A PVC.

E. Plastic Utilities Duct: NEMA TC 6&8; PVC Type EB.

F. Plastic Communications Duct and Fittings: NEMA TC 6&8, Type EB.

2.02 PRECAST CONCRETE MANHOLES

A. Description: Precast manhole designed in accordance with ASTM C858, comprising modular, interlocking sections complete with accessories.

B. Shape: Square.

C. Base Section: Include 3 inch deep x 14 inch round sump with cast sleeve, and two 1 inch ground rod openings.

D. Top Section: Include 39 inch diameter grooved opening for frame and cover.

E. Riser Casting: with manhole step cast into frame.

F. Frames and Covers: ASTM A48; Class 30B gray cast iron, machine finished with flat bearing surfaces. Provide cover marked COMNUNICATIONS to indicate utility.

G. Duct Entry Provisions: Single duct knockouts.

H. Cable Pulling Irons: Use galvanized rod and hardware. Locate opposite each duct entry. Provide watertight seal.

I. Cable Racks: Steel channel, 1-1/2 x 3/4 x 14 inches, with fastener to match mounting channel.

J. Sump Covers: ASTM A48; Class 30B gray cast iron.

K. Source Quality Control: Inspect manholes in accordance with ASTM C1037.

2.03 ACCESSORIES

Underground Warning Tape: 4 inch wide plastic tape, detectable type colored Orange with suitable warning legend describing buried communication lines.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify routing and termination locations of duct bank prior to excavation for

rough-in.

C. Verify locations of manholes prior to excavating for installation.

D. Duct bank routing is shown in approximate locations unless dimensions are indicated. Route as required to complete duct system.

E. Manhole locations are shown in approximate locations unless dimensions are indicated. Locate as required to complete ductbank system.

3.02 DUCT BANK INSTALLATION

A. Install duct to locate top of ductbank at depths as indicated on drawings.

B. Install duct with minimum slope of 4 inches per 100 feet (0.33 percent). Slope duct away from building entrances.

C. Cut duct square using saw or pipe cutter; de-burr cut ends.

D. Insert duct to shoulder of fittings; fasten securely.

E. Install no more than equivalent of three 90-degree bends between pull points.

F. Provide suitable fittings to accommodate expansion and deflection where required.

G. Stagger duct joints vertically in concrete encasement 6 inches minimum.

H. Use suitable separators and chairs installed not greater than 4 feet on centers.

I. Band ducts together before placing concrete.

J. Securely anchor duct to prevent movement during concrete placement.

K. Use mineral pigment to color concrete red.

L. Provide minimum 3 inch concrete cover at bottom, top, and sides of ductbank. Concrete shall be minimum 3000 psi.

M. Provide two No. 4 steel reinforcing bars in top of bank under paved areas.

N. Connect to manhole wall using dowels.

O. Provide suitable pull string in each empty duct except sleeves and nipples.

P. Swab duct. Use suitable caps to protect installed duct against entrance of dirt and moisture.

Q. Interface installation of underground warning tape with backfilling. Install tape 6 inches below finished surface.

3.03 PRE-CAST MANHOLE INSTALLATION

A. Install and seal precast sections in accordance with ASTM C891.

B. Install manholes plumb.

C. Use precast neck and shaft sections to bring manhole cover to finished elevation.

D. Install drains in manholes and connect to 4 inch pipe terminating in 1/3 cu yd crushed gravel bed.

END OF SECTION 16543

SECTION 17000
INSTRUMENTATION, CONTROL AND MONITORING SYSTEM GENERAL REQUIREMENTS

PART 1 - GENERAL REQUIREMENTS

1.01 SCOPE

A. The Instrumentation, Control, and Monitoring System (ICM) consists of new panel work, modification of existing panels, field components, system communication links, PLC upgrades and Distributed Control System (DCS). The modification to the DCS systems and PLC's will be provided and programmed by qualified system integrators for the respective systems. The scope of work and services to be provided by the Contractor and the system integrators is set forth in Section 17500, Instrumentation, Control and Monitoring System Distributed Control System and remaining contract documents. General Contractor is responsible coordinating all work between integrators, equipment manufacturers, communication links etc. for a completely functional end result as indicated in these specifications and contract document drawings.

B. This Section covers the general requirements for furnishing and installing all instrumentation, control and monitoring (ICM) systems complete in every detail for the purposes specified and shall form a part of all other Sections of Division 17 unless otherwise specified. Other Sections of this Division shall supplement this Section as necessary.
   1. Work Included:
      a. Furnish all tools, equipment, materials, and supplies and perform all labor required to complete the furnishing and installation of, validation, start up and operational testing of a complete and operable Instrumentation, Control and Monitoring System as indicated on the Drawings and as specified herein.
      b. Provide all the necessary equipment components, interconnections and the services of the manufacturers' engineering representatives for the engineering, implementation, startup, operation, and instruction, to insure that the City receives a completely integrated and operational ICM as herein specified.
   2. Work Not Included:
      Process piping, installation of in line instrumentation, i.e., final control elements in process pipelines, air compressors, main air supply headers, and miscellaneous mechanical work as specified in other Divisions.

C. System Responsibility:
   1. Each Section in this Division shall be provided by a competent, qualified company. System installation, including calibration, validation, start-up, operational testing, and training shall be performed by qualified personnel, possessing all the necessary equipment and who have two years minimum experience successfully performing similar installations. The System shall be integrated using the latest, most modern proven design.
   2. The Contractor may subcontract the work under this Division to qualified Suppliers, but this shall not relieve the Contractor from any responsibility under the Contract.

3. The Contractor shall be responsible for the correct installation of all hardware and systems specified in this Division and shall assure system uniformity, subsystem compatibility and coordination of all system interfaces, submittals, documentation, testing and training.
4. The Contractor shall determine that all components of each section are completely compatible with other required equipment, including the DCS, and shall function as outlined, and the Contractor shall furnish and install such additional equipment, accessories, etc. as are necessary to meet these objectives at no additional cost to the City.
5. Contractor shall consult, coordinate and make necessary modifications in the Work with original equipment manufacturer for all work which interfaces, interrupts or depends on the respective equipment's control system.
6. Contractor is responsible for providing fully functional and operational systems after completion of DCS and PLC upgrades.

D. Contract Drawings:

Information on the Drawings: The following information relative to the work of this Division is indicated on the Contract Drawings.

a. Location of all primary elements, cabinets, and control elements associated with Foxboro DCS System Upgrade.
b. General Routing of Fiber Optic Backbone cabling, raceways, trenching/ductbanks and location of patch panels and cabinets.
c. Identification of various PLC upgrades and associated integration with DCS system.
d. Associated power and UPS's for Foxboro cabinets.
e. Network components and cabling for a second Ethernet network.

E. References:

1. This section contains references to the following documents. They are part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids).
3. If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.
4. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
IEEE 100	Standard Dictionary of Electrical and Electronics Terms
ISA S5.4	Instrument Loop Diagrams
ISA S20	Specification Forms For Process Measurement and Control Instrumentation, Primary Elements, and Control Valves
ISA S51.1	Process Instrumentation Terminology
ISA TR20.00.01	Specification Forms for Process Measurement and Control Instruments Part 1: General Considerations
NEMA ICS 1	General Standards for Industrial Control and Systems

1.02 QUALITY ASSURANCE

A. The Instrumentation and Controls Subcontractor shall perform all work necessary to complete his portion of the "Scope of Work" specified in this Division. The Instrumentation and Controls Subcontractor does not have to be the same supplier as the Control System Subcontractor nor Telemetry System Subcontractor as specified in separate sections of this contract. For this project, the providing of the Remote Communication and Monitoring Gateway at the existing RM Clayton WRC will be provided by DCS Configuration Subcontractor as defined under Specification 17500.

B. The Instrumentation and Controls Subcontractor shall maintain a fully equipped office/production facility with full-time employees capable of fabricating, configuring, installing, calibrating, troubleshooting, and testing the instrumentation and control system specified herein. Qualified repair personnel shall be available and capable of reaching the facility within a 24 hour period. Actual installation of the equipment and materials specified by this Division need not be performed by employees of the Instrumentation and Controls Subcontractor; however, the Instrumentation and Controls Subcontractor shall be responsible for the on-site technical supervision of the installation.

C. The Instrumentation and Controls Subcontractor shall furnish equipment and materials, which shall be the product of one manufacturer to the maximum practical extent. Where this is not practical, all equipment of a given type shall be the product of one manufacturer.

D. The General Contractor must name his/her proposed Instrumentation and Controls Subcontractor and Control System Subcontractor(s) and Telemetry System Subcontractors in the bid documents.

E. These subcontractors shall be experienced and fully qualified to perform their individual scopes of work as specified in the Contract. Resumes, including description of previous related project experience, of all proposed qualified individuals with each Subcontractor that are actually available to perform work associated with their scopes of work shall be included with the submittals. Substitution of subcontractor personnel during the Contract period without written approval of the Engineer is not permitted. Failure to document sufficient personnel with appropriate experience and qualifications to perform the work proposed is sufficient grounds to disqualify the Contractor and/or Subcontractors from performing or completing the "Scope of Work" associated with this Division.

F. Systems Integrator Responsibility:
   1. General

a. The specified control system and instrumentation integration including panel building, instrument calibration, testing, start-up, operational testing, and training shall be performed by a Systems Integrator staffed with qualified personnel, possessing necessary equipment and experience in performing similar installations.
b. The control system components shall, as far as practical, be of one manufacturer.
c. The components, modules, devices, and control system equipment shall be recognized industrial quality products. Recognized commercial or office grade products are prohibited.
d. The overall system performance shall be demonstrated to and accepted by Owner.
e. The application software packages shall be latest versions available, or compatible with existing software currently in use.

2. Systems Integrator Qualifications:
   a. The following Systems Integrators are pre-qualified to perform the work specified in Division 17:
      1) Control Instruments Incorporated (C2I), Atlanta, GA
      2) Transdyn, Duluth, GA
      3) MR Systems, Norcross, GA
      4) Revere Controls, Birmingham, AL
      5) Polytron
      6) Or equal
   b. Contractor-proposed Systems Integrator shall be evaluated based on submittal of the following Evidence of Experience:
      1) Submit evidence of experience in performing three similar successful projects in the last five years with one project currently in progress or competed within the last two years.
      2) Submit project descriptions with contact names, addresses, and telephone numbers from the project Owner, General Contractor, and Principal Design Firm.
      3) Submit organization chart and resumes for proposed project personnel.
      4) Submit Training and Certification information. Completion of the following training courses or appropriate portions thereof or possession of the following certifications included with the Systems Integrator's personnel experience requirements described above:
         (a) Project manager: Control System Engineer (CSE) registration, Professional Engineer (PE) registration.
         (b) Systems engineer: Control System Engineer (CSE) registration, Professional Engineer (PE) registration, or completion of the relevant core courses in the Engineering Skills Training program.
         (c) Programmer: Control System Engineer (CSE) registration, Professional Engineer (PE) registration.
         (d) Field instrument technician: Certified Control Systems Technician (CCST) registration or completion of the relevant core courses in the Technical Skills Training program.
         (e) Certified training programs, as offered by ISA.

5) Submit financial data for Systems Integrator division when subsidiary to a parent corporation. Include two years of financial data.
   (a) Financial Statement.
   (b) Balance Sheet.
   (c) Dun & Bradstreet Report.
7) Approval of a completed Evidence of Experience by the Engineer is dependent on his determination that the proposed system integrator has sufficient company experience, company expertise, and experienced qualified personnel in new and remodeling work on municipal instrumentation and control systems, has the ability to understand and perform the Work specified, has sufficient financial resources and has not had a detrimental impact to the scope, schedule and budget of work they performed or work performed by others on prior construction projects.

3. Pre-Submittal Conference:
   a. Schedule a pre-submittal conference with the Owner and Construction Manager within 30-calendar days after Contract award to discuss the work, equipment, submittal format, and establish the framework for project coordination and communication.
   b. Provide materials 10-days prior to the conference:
      1) Instrument Index that lists the devices and instruments specified in Division 17 identify each by tag number, description, function, manufacturer, and model number.
      2) Product descriptive literature with a statement that the item is as specified.
      3) Proposed equal products with comparative listing of the published specifications for the specified item and the proposed item.
      4) Project schedule with deliverables and milestones.
      5) Project Control System Block Diagram, when specified.
      6) Sample portion of documented PLC and Operator Interface program, when specified.
      7) Sample control panel schematic diagram proposed for this project, when specified. Sample can be a copy from a previous project provided that it represents the format being proposed for this project.
      8) Sample analog and discrete loop diagrams proposed for this project, when specified. Sample can be a copy from a previous project provided that it represents the format being proposed for this project.
      9) A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. A check mark shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each requested deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested

deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications.

c. The pre-submittal conference will not replace the Product and Shop Drawing Submittal review process.

G. Process Equipment Coordination:

1. Division 17 specified equipment shall be coordinated for proper operation with equipment related process equipment specified in other Divisions.
2. Equipment shall be integrated, furnished, and installed in conformance with the drawings, specifications, and the recommendations of the equipment manufacturer and the related processes equipment manufacturers.
3. Systems Integrator shall obtain manufacturer's technical information for items of equipment not provided with, but directly connected to, the control system. Provide the necessary coordination and components for correct signal interfaces between specified equipment and the control system.
4. Systems Integrator shall coordinate with project subcontractors and equipment suppliers.
5. Systems Integrator shall provide installation supervision for the duration of the project, a minimum of 24 man-weeks on-site.
6. Conflicts between the plans, specifications, manufacturer/vendor drawings and installation instructions, etc., shall be presented to the Construction Manager for resolution before proceeding.

1.03 SUBMITTALS

A. Submittals shall be made in accordance with the requirements of the General Conditions of the Contract Documents. In addition, the following specific information shall be provided:

B. General:

1. Presubmittal Conference: Arrange a conference between the Supplier of each Section,Contractor, and the Engineer within thirty (30) days after award of the Contract for the purpose of informally discussing in detail and verifying the correctness of the Contractor's system engineering methods and equipment and to generally provide a framework for communication and coordination. This conference shall be attended by the Supplier's Engineer, and duly authorized representatives of the Contractor and the Engineer.
2. Draft Submittal: Prepare a draft of the submittal for review. The draft shall include the following, as a minimum:
   a. Listing of major items proposed for this Division. Identify items by tag number, description, function, manufacturer, model number, descriptive literature and statement as to whether item is "as specified" or "equivalent." Items identified as "equivalent" shall be accompanied by a comparative listing of the published specifications for the item specified and for the item proposed. Equivalent items shall only be accepted by the City if the specified item is no longer manufactured.
   b. Shop Drawings. Before proceeding with any manufacturing, submit Shop Drawings for approval in complete bound sets indexed by specification number. Describe the items being submitted. Manufacturer's specification or data sheets shall be clearly marked to delineate the options or styles to be furnished. Submit only complete systems, not pieces of equipment from

various systems. Show dimensions, physical configurations, methods of connecting components together, mounting details, and wiring schematics. Schematics shall be complete with tag and terminal numbers. Submit fabrication drawings, nameplate legends, and control panel internal wiring schematic drawings clearly showing all equipment and tag numbers on all panels. Include material specifications lists where applicable.

C. Design Related Submittals: Provide five (5) copies of the following submittals:
   1. Catalog Cuts: Catalog information, descriptive literature, wiring diagrams, and shop drawings shall be provided for all devices, whether electrical or mechanical, furnished under this section. This includes, but is not limited to, primary elements, controllers, power supplies, etc.
   2. Component Data Sheets:
      a. Data sheets, specification sheets, and an instrument list shall be provided for all components provided under this section. The purpose of this material is to supplement the generalized catalog information by providing the specifics of each component (e.g., complete part numbers, scales, ranges, service, materials of construction, component location, options, and the individual tag number as noted in the Drawings and Specifications.
      b. Include such other necessary data as would provide a complete and adequate specification for reordering an exact duplicate of the original item from the manufacturer at some future date. More than one tag numbered item may be included on a sheet.
   3. Panel Construction Drawings:
      Shop Drawings and Catalog Cuts:
      1) Provide detailed shop drawings and catalog cuts for all panels, instrument racks, and enclosures. Drawings shall show the location of all front panel and internal sub-panel mounted devices to scale and shall include a panel legend and bill of materials. Layout drawings shall show all major dimensions as well as
      2) The panel legend shall list and identify all front of panel devices by their assigned tag numbers, all nameplate inscriptions, service legends, and annunciator inscriptions.
      3) The bill of materials shall include all devices including those mounted within the panel that are not listed in the panel legend, and shall include the device tag number, description, manufacturer, and complete model number.
   4. Panel Wiring Diagrams:
      a. Wiring diagrams shall be similar to those diagrams shown in the Contract Drawings, but with the addition of all auxiliary devices such as additional relays, alarms, fuses, lights, etc.
      b. Provide complete terminal identification of all external primary elements, panels, and junction boxes that interface directly to the panel wiring being shown. Polarity of analog signals shall be shown at each terminal.
      c. All external wiring that the electrical contractor must provide and wire shall be shown as a dotted line. Special cables that are provided with the instrument shall be clearly identified.
      d. Panel wiring diagrams shall identify wire numbers and types, terminal numbers, and tag numbers. Wiring diagrams shall show all circuits individually; no common diagrams shall be allowed.

e. Provide panel power wiring diagrams for all panels. The diagrams shall include all grounding requirements.

5. Interconnecting Wiring Diagrams: Diagrams shall show all component and Termination Cabinet identification numbers and external wire, fiber, and cable numbers. This diagram shall be coordinated with the Electrical Supplier and shall bear his mark showing that this has been done. All connections, conduits, wires/cables shall be identified from end-to-end.

D. Test Related Submittals: Provide five (5) copies of the following:

1. Operational Field Acceptance Test Documentation:
2. Functional Acceptance Test Documentation: The ICM Supplier shall prepare two types of test procedures and forms as follows.

Functional Test Documentation:

1) Specification page and paragraph of function demonstrated
2) Description of Function
3) Test procedure description
4) Space after each specific test to facilitate signoff on completion of each test.

E. Resumes of all Instrumentation and Controls Technicians performing the work which shall include name, address, last 10 years work experience, education, certifications and training received.

1.04 TESTING

A. Operational Field Acceptance Testing:

1. Installation Supervision: Furnish the services of authorized factory personnel specially trained and experienced in the installation of the equipment to:

a Supervise the installation in accordance with the approved Instruction Manual;
b. Be present when the instruments and equipment are first put into operation;
c. Inspect, check, adjust as necessary, and approve the installation;
d. Calibrate the instruments, in accordance with the Specifications herein, until all trouble or defects are corrected and the installation and operation are acceptable.

2. Contractor's Certified Reports: Upon completion of all testing, the Contractor, or his authorized representative, shall submit a certified report for each control panel and associated field instruments certifying that the equipment (1) had been properly installed under his supervision, (2) is in accurate calibration, (3) was placed in operation in his presence, (4) has been checked, inspected, calibrated, and adjusted as necessary, (5) has been operated under maximum power variation conditions and operated satisfactorily, and (6) is fully covered under the terms of the guarantee.

B. Functional Acceptance Testing:

1. Upon completion of instrument calibration and system validation, test all systems under actual process conditions in the presence of the Engineer. The intent of this test is to demonstrate and verify the operational interrelationship of the DCS and PLC ICM systems. This testing shall include, but not be limited to, all specified operational modes, taking process variables to their limits (simulated or process) to verify all alarms, failure interlocks, and operational interlocks between systems and/or mechanical equipment.

2. Testing shall be observed by the Engineer. Notify the Engineer in writing a minimum of 14 days prior to the proposed date for commencing the test. Upon completion of this test the Contractor shall begin or have begun system start up. Engineer reserves the right to set the schedule.
3. Submit for approval not later than 30 days prior to the functional acceptance test demonstration, a written plan for demonstrating that each system of equipment provided under Division 17 meets the specified operational requirements.
4. The plan shall detail procedures to be used in functional acceptance testing of all systems. The plan shall including a description of test methods and materials utilized for testing each system.
5. Immediately correct defects and malfunctions with approved methods and materials in each case and repeat the testing.
6. Submit three copies of test results and records for all functional acceptance tests.
7. Upon completion of functional acceptance testing, submit certified report, with substantiating data sheets, indicating that total ICM System meets all the functional requirements specified herein. The Engineer will countersign this report and it shall constitute final acceptance of the ICM System.

C. System Commissioning Assistance: Provide the services of a factory trained and field experienced instrumentation engineer to assist City's personnel during startup of the system. Purpose of this assistance is to support in making final adjustments of settings on the systems.

D. Final Acceptance: Approved completion of the following shall constitute Final Acceptance of the ICM System.
1. Certified Functional Testing Report countersigned by the Engineer.
2. Final Documentation.
3. Spares and expendables delivery.
4. Training.

1.05 OPERATION & MAINTENANCE MANUALS

A. Furnish six (6) sets of Instruction Manuals and Part Lists for instrumentation equipment provided under Division 17. Obtain distribution method instructions from the Engineer.

B. Schedule: Deliver two (2) copies of manuals not later than the equipment shipment date. After installation is complete, update the manuals to reflect any changes which occurred during installation and deliver balance of manuals to Engineer.

C. Material Content: Include in the manuals not less than the following applicable information for each instrument, equipment, subsystem and/or control loop. The O&M Manuals shall consist of, at least, the following material:
1. Bill of Materials: A listing of all the panels, racks, instruments, components, and devices supplied. The list may be similar to the Instrument List in the Supplements. All components shall be grouped by component type, with the component types identified in a similar manner to the component identification code used in these specifications. The list shall contain, as a minimum:
   a. Device, panel, rack or device tag number
   b. Description
   c. Quantity supplied
   d. Reference to component data sheet and/or

catalog cut
   e. Component type
2. Component Data Sheets
3. Catalog Cuts
4. Component O&M Manuals: An O&M manual shall be submitted for all instruments and devices supplied. The O&M manuals shall contain, as a minimum:
   a. Operating procedures
   b. Installation procedures
   c. Maintenance procedures
   d. Troubleshooting procedures
   e. Calibration procedures
   f. Internal device schematics and wiring diagrams
   g. Shutdown procedures
   h. Component parts list
   i. Detailed circuit operational description including programmable controller ladder diagrams.
5. Spare Parts and Expendables List: The spare parts and expendables list shall include not only those items supplied, but also the additional items recommended for successful long term operation.

1.06 FINAL "AS INSTALLED" DOCUMENTATION

A. Reproducible Drawings:
   1. Contractor shall submit one (1) set of reproducibles of complete schematics, wiring diagrams and installation drawings to include all installed field and panel instruments, mounting details, point to point diagrams with a cable, wire, and termination numbers. Drawings shall be a record of work as actually constructed and shall be labeled as "AS INSTALLED." One copy of applicable schematics and diagrams shall be placed in each control panel in a protective envelope or binder.
   2. Interconnecting Wiring Diagrams: See 1.02 C.6 specified herein before.

B. Process and Instrumentation Diagrams: The Engineer will supply the ICM Supplier with one set of the P&ID's for revisions to reflect the final installed system to be updated by the ICM Supplier. The ICM Supplier may use these drawings for producing the final documentation.

C. Software Documentation: In addition to the reproducible hard copy of drawings and literature generated specifically for the project, one (1) set of electronic files on CD/DVD-ROM shall be submitted to the Engineer with a copy of all custom files specifically created to generate the drawings, data sheets, bill of materials, operating procedures etc using computer assisted drawing (CAD). Drawing format shall be "AutoCAD 2007" and Adobe.pdf files. Disks shall be clearly identified by the following:
   1. Project Name
   2. Volume Number
   3. Software Program Name and Version used to generate the files.
   4. Labeled "AS INSTALLED."

1.07 TRAINING REQUIREMENTS

General:

1. Provide the services of a factory trained and field experienced DCS/PLC engineer to conduct group training of City's designated personnel in the operation of each system. Obtain Engineer's written consent that the training has been adequate. Include instruction covering basic system theory, operating principles and adjustments, routine maintenance and repair, and "hands on" operation. The text for this training shall be the operation and maintenance manuals furnished under these Specifications.
2. Duration: Training specific to the system hardware. This training shall be for a minimum time period of two (2) days, one day of which may be performed during the operational testing period.
3. Training is in addition to on-site and off-site training requirements in Section 17500.

1.08 POST CONTRACT SYSTEM SUPPORT

1. Foxboro components are covered by a five (5) year service agreement specified in 01010 and 17500 in addition to General Conditions Warranty
2. Remaining Division 17 components have no service or maintenance agreement.

1.09 GUARANTEE AND WARRANTEES

Guarantee all work of Division 17 in accordance with the Conditions of Contract and Division 1. With respect to instruments and equipments, guarantee shall cover (a) faulty or inadequate design; (b) improper assembly or erection; (c) defective workmanship or materials; and (d) leakage, breakage, or other failure not caused by City misuse. For equipment bearing a manufacturer's warranty in excess of one year, furnish a copy of the warranty to Engineer with City named as beneficiary.

PART 2 - PRODUCTS

2.01 HARDWARE REQUIREMENTS

A. Job Conditions: Drawings are diagrammatic and show the intended arrangement for system operation, raceways, and appurtenances. Conform to Drawings as closely as possible and exercise care (1) to secure neat arrangement of conduit, hangers, supports, ductbanks and like items, and (2) to overcome structural interferences. Verify dimensions and conditions at the place of work, and install materials and equipment in the available spaces.

B. Materials and Standard Specifications: Provide equipment and materials suitable for service conditions and meeting standard specifications. The intent of this Specification is to secure equipment of a uniform quality and manufacturer throughout the facilities; i.e., all equipment in the plant, supplied by the Contractor, of the same type shall be by the same manufacturer. This allows the stocking of the minimum number of spare parts.

C. Product Delivery, Storage, and Handling: Box, crate, or otherwise enclose and

protect equipment during shipment, handling, and storage. Keep all equipment dry and covered from exposure to weather, moisture, corrosive liquids and gases or any element which could degrade the equipment. Protect painted surfaces against impact, abrasion, discoloration, and other damage. Repair any damage as directed and approved..

D. Instrument Identification:
   1. All components provided under this section shall be provided with permanently mounted name tags bearing the entire tag number of the component. Refer to Identification Spec Section 16075 for further details and requirements.
   2. Field mounted tags shall be 16 gauge, 304 stainless steel with 3/16 inch high characters.
   3. Tags shall be attached to equipment with a commercial tag holder using a stainless steel band with a worm screw clamping device or by a holder fabricated with standard stainless steel hose clamps and meeting the same description. In some cases where this would be impractical, use 20 gage stainless steel wire.
   4. For field panels or large equipment cases use stainless steel screws, however, such permanent attachment shall not be on an ordinarily replaceable part. In all cases the tag shall be plainly visible to a standing observer and not obscure adjustment ports or impair the function of the instrument. Field mounted control stations, recorders or indicators shall have a nameplate indicating their function and the variable controlled or displayed. Nameplates shall be white with black lettering. Nameplate shall be attached by one of the above methods.

E. Electronic Equipment: If the equipment is electronic in nature, provide solid state equipment to the greatest extent practicable. Select components of construction for their suitability and reliability. Employ adequate component de-rating to preclude failures because of transients and momentary overloads reasonably expected in normal operation. Where conduit connection is provided for mounting a surge/lightning suppressor directly to the instrument, the arrestor shall be so mounted.

F. Equipment Operating Conditions:
   1. All equipment shall be rated for normal operating performance with varying operating conditions over the following minimum ranges:
   2. Electrical. 110 Vac +/ 10 percent, 60 Hz +/ 1 Hz except where specifically stated otherwise on the drawings or in the specifications.

G. Power Supplies:
   1. Provide electrical instruments and control devices for operation on 110 Vac, 60 Hz current.
   2. Output overvoltage and overcurrent protective devices shall be provided for DC power supplies to protect instruments from damage due to power supply failure and to power supply from damage due to external failure. Power supplies shall be provided with NEMA1 enclosures. Power supplies shall be mounted such that dissipated heat does not adversely affect other components. Source of operating power shall be 110 Vac, 60 Hz commercial power. Units shall be mounted within the control panels.

H. Electrical:
   1. The construction work shall include all the power supply wiring, instrumentation wiring, interconnecting wiring and equipment grounding as indicated, specified and required and not specifically included under Division 16.
   2. Wiring installations shall include cables, conductors, terminals, connectors, wire

markers, conduits, conduit fittings, supports, hardware and all other required materials not specifically included in the work of other Divisions.

3. Provide the materials and complete all the required installations for equipment grounding as specified in Division 16 of these Specifications and indicated on the Electrical Drawings.
4. Incidental items not specifically included in the Contract Documents that can legitimately and reasonably be inferred to belong in the instrumentation work shall be provided and installed by the Contractor at no additional cost to the City.
5. Field Wiring. For wiring materials, refer to Division 16 and Details on the Electrical Drawings. Ring out signal wiring prior to termination. Provide wire number tags marked in indelible waterproof form of slip on type heat shrink or equal for each termination.

I. Electrical Transient Protection:
   1. All instrument and control equipment mounted outside of protective structures (field mounted equipment) or that have interconnecting lines from outside the protective structure shall be equipped with suitable surge arresting devices to protect the equipment from damage due to electrical transients induced in the interconnecting lines from lightning discharges or nearby electrical devices. Both power and signal circuits shall be protected with surge and transient protectors installed at the source and destination ends of the circuits. Protective devices used on 120V ac inputs to field mounted equipment shall be secondary valve surge protectors conforming to the requirements of IEEE Standard 28 1972 (ANSI C62.1 1971).
   2. Surge and transient protectors shall be grounded according to Division 16, ELECTRICAL.

J. Spares and Maintenance Materials:
   1. Furnish the following items as specified herein. Deliver to Engineer, as directed, with itemized list in a letter of transmittal accompanying each shipment.
   2. Materials shall be delivered in the manufacturer's original containers labeled to completely describe contents and equipment for which it is furnished.

END OF SECTION 17000

SECTION 17400

INSTRUMENTATION, CONTROL AND MONITORING SYSTEM

PART 1 - GENERAL

1.01 SCOPE

A. This section covers the specific work necessary for engineering, furnishing, installing, adjusting, testing, documenting, and starting up of the Programmable Logic Controllers (PLC's) of the Instrumentation and Control System.

B. Programmable Logic Controller's (PLC's) shall be furnished complete with all materials, equipment, and work required to implement a complete and operating system.

C. The general requirements for the I & C System and common requirements for the PLC are included in Section 17000, GENERAL INSTRUMENTATION, CONTROL AND MONITORING SYSTEM REQUIREMENTS. This section contains only the specific requirements for the PLC which are in addition to the requirements in Section 17000.

D. The units shall be provided with all necessary hardware and software to communicate with the Foxboro DCS system. It shall be the responsibility of the Instrumentation Subcontractor to coordinate and establish the software interface requirements with the City and the Foxboro Company manufactured IA system. Final acceptance of the PLC subsystem shall be contingent upon successfully demonstrating the two way communications between the two systems.

E. The Instrumentation Subcontractor shall provide the PLC system and software as specified herein and as required of other sections of Division 17.

F. The Instrumentation Subcontractor shall provide and coordinate all system tags required to integrate with the DCS system.

1.02 SUBMITTALS

A. In addition to the detailed submittal requirements of Section 17000 of this Specification, the following shall also be provided:
   1. All accessories.
   2. Listing of all PLC hardware.
   3. I/O arrangement drawings.
   4. Software program listing and I/O address mapping.
   5. System block diagram and cabling requirements.

B. Contractor shall include a copy of the specification section with check marks acknowledging compliance with each paragraph or an explanation of non-compliance.

1.03 EQUIPMENT AND SERVICES

A. In order to operate the RM Clayton facility, an integrated control system utilizing programmable logic controllers (PLC) shall be required.

B. This specification is intended to procure a complete control system including but not limited to:
   1. Programmable Logic Controllers (PLC's).
   2. Foxboro I/A hardware/software.
   3. PLC programming services.
   4. PLC hardware and software system test and start-up.
   5. PLC to CCM and DCS communications.
   6. Operator training.

7. System warranty.

PART 2 - PRODUCTS

2.01 HARDWARE REQUIREMENTS

A. General:

1. A programmable logic controllers (PLC) shall be provided as specified herein and/or on the Drawings. PLC shall be installed, wired, and tested as an integral part of the panels indicated on the drawings. PLCs shall receive, condition, act upon, and output analog and discrete signals required to provide a complete and functional turn-key operating system as specified.
2. The PLC shall consist of a memory section for program instruction storage, a central processing unit (CPU) to act upon the instructions as a function of external inputs, and an input/output section to interface to field devices.
3. The controller shall be modular and all circuit elements shall be solid state unless otherwise specified. The memory and input/output capacity shall be selected to adequately provide the required operations, with at least 25% additional unused I/O and memory after the system is fully operational.
4. The operating environment shall be 0oC to 60oC with a relative humidity of 5% to 95% non-condensing.
5. PLCs shall be manufactured by Rockwell Automation Allen-Bradley Logix Platform.

B. System Memory Requirements

The standard storage medium shall consist of battery-packed read/write random memory (RAM), and erasable/re-programmable read only memory (EPROM). The processor and associated memory shall be incorporated into the same enclosure. Under normal operating conditions, the PLC RAM shall retain a program for no less than one week in the event of power failure. Memory shall be sufficient to accommodate the final program plus twenty-five percent spare programmable capacity.

C. Central Processing Unit

1. The CPU shall plug directly into the I/O base and require no additional wiring to the base, power supply or the local I/O system. The unit will have indicators on the front bezel that monitor the PLC operation, the PLC battery, the CPU's mode of operation. The CPU shall incorporate all necessary logic ability to sequentially scan the inputs, the instruction memory, temp-orary internal memory (if any) and the outputs; and to perform all necessary logic to execute the solution of the logic equations entered via the stored instructions. The CPU shall be capable of performing PID instruction for process control applications.
2. Non-volatile memory shall store the operating system information to protect against loss in the case of power loss or system shut-down.

D. PLC I/O Subsystem

1. General
   a. All inputs and outputs shall be isolated from the field components. Modules and their rack assemblies shall contain all circuitry for interfacing inputs and outputs to the PLC system. The CPU shall allow user-configurable I/O mapping. I/O modules shall be able to be plugged into any location of any I/O base. I/O modules shall be capable of being removed from the I/O base without disconnecting field wiring through the use of removable terminal block assemblies. Standard I/O module features shall include optical isolation, load side indicators and fused outputs. I/O modules provided shall be of a consistent type for both analog and discrete signals.

b. As a standard feature, the PLC shall have the capability of addressing remote I/O modules up to 3,300 cable feet from the processor. The communication link between the CPU and the I/O chassis shall be via a twin axial cable or fiber optic link.

c. A malfunction in any remote I/O channel shall affect the operation of only the operation of only that channel and not the operation of the CPU or any other channel.

d. The I/O rack assemblies will provide mounting slots for the processor, power supply and I/O modules. Units shall be designed specifically for 19 inch rack mounting.

2. I/O Modules

The following standard I/O modules shall be utilized:

1) Discrete Inputs: Unless otherwise noted, all digital input modules shall be eight or sixteen channel 120V ac type.

2) Discrete Outputs: Discrete outputs shall be eight or sixteen channel modules. Interposing relays as specified in Section 17200, shall be utilized for all outputs.

3) Analog Outputs: Unless otherwise noted, all analog output modules shall be of the isolated type.

4) Analog Inputs: Unless otherwise noted, all analog input modules shall be of the isolated type.

3. RS-232 Communication Link: An RS-232 interface shall be provided.

4. Remote CCM Communications Link

a. The Contractor shall provide all necessary hardware (i.e., PLC processors, modems, gateways, Ethernet switches, etc.), software, and programming services required to provide a bidirectional communication link that is fully supported by the CCM manufacturer (Schneider/Foxboro).

b. Foxboro does not support the Ethernet IP communication link with Allen-Bradley CompactLogix PLCs. Foxboro only OFFICIALLY SUPPORTS the Ethernet IP communications interface with the Allen-Bradley ControLogix PLCs. Contractor shall provide this work thru other means.

E. Spare Parts.

1. Ten percent (rounded up to nearest whole number but a minimum of one) of each type I/O module used(analog and discrete). This requirement is in addition to the installed spare capacity specified herein above.

2. Five fuses of each size and type per every 20 used (minimum of five each).

3. One RS-232 communications interface module designed to be housed in the I/O chassis.

2.02 SOFTWARE REQUIREMENTS

A. PLC

1. PLC System Programming

a. The PLC software shall perform all logic and interlock functions presented in the Process and Instrumentation Drawings and Specifications in Section 17100.

b. The method of programming shall permit enter-ing of instructions by keyboard. The programming language shall consist of symbols and/or short English words and abbreviations representing relay contacts (switches), relay coils (outputs) and Boolean algebra operators and/or their equivalents. Special functions such as timers, counters, shift registers, comparators, stepping switches, and relays shall be generated by pre-programmed instructions, addressable and controlled by the main program, or generated by detailed instructions written in the main program at the election of the

Vendor.

c. All programming services and software programs necessary to provide a complete and operational system including minor software additions during startup, whether or not specified herein, shall be included.

2. Math and Data Functions.

The logic program shall be capable of containing up to three comparisons on one line of logic. It shall be possible to perform a block data transfer of relay ladder logic. Math functions shall include addition, subtraction, multiplication, division and square root capable of generating an answer in the range -32,767 to +32,767. In the event these limits are exceeded, an overflow bit will be set, indicating that numerical conditioning is necessary to generate an accurate result. Image registers and shift registers shall operate on a first-in, first-out (FIFO) basis. There shall be an instruction that emulates an electro-mechanical drum operation.

3. Alarm Functions

a. Not in Auto Alarms

Before operating any field device, the PLC program shall check to see that the device has been switched to the "AUTO" mode. If the device is not in "AUTO", the PLC shall set an error bit and suspend control of the device until it is switched to "AUTO". The CCM system shall use the error bit to log a "Not in AUTO" alarm.

b. No Response Alarms

If at any time a field device fails to respond to an output command from the PLC, the PLC shall set an error bit. The CCM shall use the error bit to log a "No Response" alarm.

4. Timers: Foxboro components are covered by a five (5) year service agreement specified in 01010 and 17500. The preset values for all PLC timers and process setpoints shall be operator accessible and adjustable from the CRT interface. Values shall be capable of being changed remotely by the CCM operator.

B. Graphical CRT Operator Interface

1. The graphical interface shall be developed with direction from the Engineer. Programming services shall include as a minimum, two (2) meetings with the Engineer to develop the interactive graphic displays and to discuss what data will be communicated between the CCM and the PLC.

2. The first meeting will be used to present the capabilities of the software and to provide the Engineer with vendor recommended sketches of the displays he proposes to furnish. The displays shall include the following information as a minimum:

a. Plant Overview Graphic including the operating status of all major equipment (Run, Stopped, and Failed), levels, and flows (10 object oriented displays minimum).

b. Alarm History (1 display).

c. Specific Equipment Data Access Displays for control and monitoring (as required).

d. Motor Elapsed Time Display (1 display).

3. The second meeting will be to review the agreed format of displays generated from the first meeting and to agree on what information will be communicated to and from the CCM system.

END OF SECTION 17400

SECTION 17500
DISTRIBUTED CONTROL SYSTEM (DCS)

PART 1 – GENERAL

1.01 SCOPE

A. Requirements of the General and Special Conditions of the Contract, Division 1, and Section 17000 form a part of this Section.

B. Provide all labor, material, and software required to furnish, install, test, calibrate, place in operation, document and service a complete Distributed Control System (DCS), as required on the Drawings and in this Section.

C. Coordinate with Section 17940-Communication Links.

H. Bidders shall review the Foxboro scope of services for the I/A Advantage Upgrade for City of Atlanta refer as Attachment "A" and the Foxboro 5 year Service Agreement; refer to Attachment "B" at the end of this spec section which is included as a supplement to the specifications. **This describes the scope of services to be supplied by Foxboro and is available as information to the bidder**. Terms and conditions in the Foxboro Proposal and 5 year Service Agreement do not apply. Refer to Terms and Conditions of the Contract Documents.

D. Foxboro work includes Hardware and Software, Engineering and Field Service, 4 weeks training at Foxboro Facilities including travel and living expenses for four (4)_City I&C Engineers, Reduction Data Migration and the 5 year Customer FIRST Program Support and Services Agreement Premium for the City of Atlanta

D. Provide DCS training of the City's Process Control Engineer at the DCS Supplier's facility and for the Operations and Maintenance Personnel at the job site.

E. Update the existing City systems to the latest level of software consistent with the new system.

F. Provide a 5 year Customer FIRST Program Support and Services Agreement Premium for City of Atlanta per scope of the Foxboro proposal with terms and conditions meeting attached City of Atlanta Service Agreement, referred as Attachment "C". ,An Allowance and an Alternative covers the Foxboro's cost for the 5 year Customer FIRST Program Support and Services Agreement Premium and covers the costs, overhead, profit and incidentals for the Contractor to manage and contract with Foxboro to meet the requirements of the Contract Documents. Coordination and negotiation effort to come to terms with Foxboro, City and the Contractor on the 5 year Customer FIRST Program Support and Services Agreement Premium is part of the base bid.

G. Provide DCS guarantees and warranties. The City is not responsible for delineation of work between the Contractor and vendors.

I. Add the following work in the Digester 100 and 150 headhouse to the attached Foxboro Proposal and 5 year Service Agreement scope– Upgrade existing Foxboro workstation to H92 with ver. 9x. Provide new keyboard, monitor and mouse.

J. Dates listed in the Foxboro proposal and 5 year Service Agreement do not apply. Date for any work shall be based on the actual City approved construction schedule.

1.02 SUBMITTALS

A. At the DCS end show FBM connections and as a minimum the I/O block definition. Make provisions to show all components and associated connections required including the following information:
   1. Tag numbers of each item.
   2. Functional name of each item.
   3. Manufacturer's model or catalog number for each item.
   4. Location of each item.

B. Prior to the Operational Field Testing, provide updated loop drawings with all information as required above.

C. Provide a legend and abbreviation list.

D. Provide DCS interconnection drawings showing all equipment, equipment locations, interconnecting cables and connectors with lengths indicated, and communication links.

E. Provide enclosure layout drawings including the following information:
   1. Front, side, and plan views.
   2. Dimensions.
   3. Nameplate legend including text, letter size, and colors to be used.
   4. Terminal block designations cross referenced to the I/O list.

F. Provide a complete material and software list. Identify software components by title, functional description, revision identification and date, and other appropriate identifying information.

G. Provide the following product information for each component provided.
   1. Manufacturer's product name and number.
   2. Tag number (if applicable).
   3. Functional name.
   4. Description of construction and features.
   5. Performance data.
   6. Service requirements (power, environment, etc.).
   7. Dimensions.

H. Drawings shall be prepared using latest version of AutoCAD and shall be provided on hardcopy and CD-ROM media. Provide Adobe.pdf files of all documentation.

I. Within 4 weeks of Notice to Proceed, Contractor shall include a copy of the specification section with check marks acknowledging compliance with each paragraph or an explanation of non-compliance.

J. Provide a draft 5 Year Customer FIRST Program Support and Services Agreement

Premium for the City of Atlanta which a suggested scope of work for Foxboro after Contractor incorporates input from Plant Operations. The draft 5 Year Customer FIRST Program Support and Services Agreement Premium shall meet terms and conditions of the Contract Documents including the attached draft City of Atlanta Service.

1.03 TESTING

A. Factory Testing:

1. The complete DCS including all hardware, software, and interconnections shall be staged and tested at the factory prior to shipment. The Factory Test shall verify that the configured DCS conforms to requirements. The test shall conform to Section 8, Recommended Tests for Interacting Systems, established by the Instrument Society of America under Standard RP 55.1, unless otherwise required. The test shall simulate all operating conditions including steady-state, start-up, shutdown, and power failure. Testing shall not relieve the Contractor or the DCS supplier from requirements herein.
2. Preparation: The test may be witnessed by the Engineer. Provide written notice of start date twenty (20) days prior to beginning the test. Submit procedures thirty (30) days prior to beginning the test. Procedures shall include a schedule of each step, the expected results, and the method for discrepancy resolution.
3. Configuration Audit: Audit the hardware and software provided. Verify conformance of the staged hardware to the approved configuration. Verify cabling, module configuration (including spare slots and connectors), spare components, expandability, physical appearance, and workmanship. Audit software by title, revision identification and date, and other identifying information. Verify availability of all necessary test equipment.
4. Human Interface: Verify the operation of each human interface device including hardcopy generators, monitors, touch screens, function panels, keyboards, mice, and trackballs. Verify displays including environment configurations, passwords, security, etc. Verify operator navigation within the overall display structure. Verify each display for layout, symbols, colors, etc.
5. Data Acquisition: Test the system database using module configuration data sheets as a guide. Verify analog inputs at three points rising and falling (0, 50, and 100 percent). Verify each alarm function. Verify scan rate, offset or gain, filtering, delta band, and engineering units. Toggle digital inputs to verify functions and scan rate.
6. Data Management Testing: Verify Application Processor and Historian data collection, retrieval, display, and reporting periodically during the test using manually entered data and real time data collected by simulation.
7. Failure Mode Testing: Test all failure modes including loss of primary power source, loss of communications (Fieldbus, Nodebus, or LAN), loss of primary fault tolerant processors, loss of system communications (Fieldbus, Nodebus, or LAN), and loss of primary hardcopy devices.
   a. For redundant communication links, verify that no single point of communications failure results in loss of function. Disconnect the primary communication cable (Fieldbus, Nodebus, or LAN), and verify that the automatic switchover to the redundant link is transparent to operation with no degradation of data transfer. Verify proper operation after reconnecting the cable.
   b. Shut down or physically remove fault tolerant devices and verify no

degradation of operation.

c. Verify the transfer of functions among hardcopy devices upon device failure.

8. Diagnostics: Verify the network diagnostics provided using the System Management Display Handler (SMDH). Alarms generated during the previous phase shall be observed, investigated as to the cause, and acknowledged through SMDH displays. Review performance information statistics. Verify on-line diagnostics.
9. Documentation: Provide evidence that each step has been satisfactorily performed. Include itemized check lists for each step and a witness signature area. Indicate any unresolved concerns. Provide all hardcopy information generated during the test.
10. The DCS shall not be shipped until the Factory Test and associated documentation has been satisfactorily completed as determined by the Engineer.
11. The cost of travel, meals, and lodging for the City's personnel while witnessing the test shall be paid from the travel and subsistence allowance.

B. Operational Field Testing:
1. Check and approve the installation and connection of all DCS components prior to placing them into operation.
2. Repeat the following steps of the Factory Test:
   a. Configuration Audit.
   b. Human Interface.
   c. Failure Mode Testing.
   d. Diagnostics.
3. Provide all test equipment necessary to perform the DCS testing.

C. Functional Field Testing:
1. Perform a complete system test to verify that all equipment and software is operating properly as a fully integrated on-line system. Verify that the intended monitoring and control functions are fully implemented and operational. Tune control loops as required.
2. The system guarantee and warranty period shall begin upon successful completion of the Functional Field Test.

1.04 FINAL DOCUMENTATION

A. Provide the following Operation and Maintenance Manuals:
1. In printed form supplied in indexed, 3-ring binders (2 sets), and as electronic documentation on CD ROM in.pdf format:
   a. Complete and detailed operating instructions for each hardware and software product.
   b. Complete and detailed maintenance instructions.
2. A list of all components to the module level.
3. All drawings.

B. Provide updated versions of all submittal information showing as-built conditions.

1.05 TRAINING

A. Provide operation and maintenance training for all hardware and software

provided.

B. Site Training: Provide two (2) five day training periods for up to eight City personnel for each period.

C. Provide 4 weeks in-class training at Foxboro for four (4) City Employees (to be determined by the Engineer). Refer to Section 6. Training in Attachment A. I/A Advantage Upgrade for City of Atlanta for scope of training.

D. Provide all travel and living expenses for the four (4) City Employees for the full duration of the in-class training at Foxboro.

1. Provide single rooms for each individual at a business class hotel. Hotel stay shall overlap one day before start of training and one day (1) after training to allow for travel to and from the training. If available, book hotel that offers free breakfast.

2. Between arrival and departure flight times, provide one (1) midsize rental car and fuel for all City I&C Engineers to carpool.

3. Provide $64 per I&C Engineer per day for meals which is the Massachusetts Government Per Diem Rate.

4. Meals shall be arranged by the Contractor and paid directly to the respective eating establishment.

1.06 GUARANTEE AND WARRANTIES

A. Equipment, software, and materials that do not achieve design requirements after the installation shall be replaced to attain compliance at no addition cost to the City. Following replacement or modification, the Contractor shall re-test the component or loop and perform any additional procedures needed to place the complete system in satisfactory operation and attain approval from the Engineer.

B. The system shall be warranted for 12 months following final completion date per the General Conditions

C. The warranty shall provide coverage which includes labor, material, and 24-hour technical support commencing on the date of final completion.

1.07 FIVE (5) YEAR SERVICE AGREEMENT.

A. 5 Year Service Agreement shall start after Substantial Completion and shall cover all new and existing equipment and shall include the Premium Level of Service. Refer to Attachment B which is provided as Information to the Bidder..

B. Service Agreement shall not be used to complete Contractor warranty work on the Foxboro Distributed Control System or other guarantees provided by the Contractor. City Facility Manager will have final determination of responsibility on any disputes between warranty and the 5 year service agreement.

C. City Facility Manager will authorize all work provided under this agreement.

D. Scope covers all provided Foxboro Equipment per the Contract Documents and includes the following services as a minimum: (Refer to Attachment B for further explanation and specific level of service provided)

1. Technical Phone Access.
2. Emergency 24 Hour 7 Day Support.
3. Available Web Based Technical Information, Documentation, Solutions and Programs
4. En Route Corrective Assistance.

5. Preventative Maintenance Site Visits.
6. Software Maintenance Releases, Service Packs, Patches and Updates.
7. Software Version Upgrades and Revisions.
8. Module Exchange Program to Rapidly Replace Malfunctioning Equipment.
9. Annual Lifecycle Assessment Report.
10. Upgrade Planning Roadmap.
11. Support Usage and Summary Report.
12. Contract Management Performance Review.
13. Access to Tools such as the Autodiag Life Time Assessment Tool and the System Asset Viewer.
14. Premium Level Advantage Program with 50% discount for equipment upgrades if old equipment returned to Foxboro.
15. Premium Level Site Support Services Discount of 10% for Labor on New Projects.
16. Premium Level Module Exchange Program of 43% discount off List Price.
17. Premium Level 10% Discount on Consulting Services List Price.
18. Premium Level 10% Discount on Purchase of Spares off List Price.
19. Premium Level 50% Discount on Test and Offline Development System Licenses.
20. Premium Level Flexible Services Fund and Flexible Materials Fund.
21. Additional Services and Discounts for Lifetime Cycle Support of Each Piece of Equipment.

PART 2 – PRODUCTS

2.01 GENERAL

Provide all hardware and software necessary to meet the product and functional requirements of this Section and of the DCS requirements on the Drawings for a complete turn-key system.

2.02 HARDWARE

A. Hardware to be supplied is tabulated in Attachment A of this Section.

B. Provide all cables, connectors, and wire taps necessary to meet the requirements of this Section for a complete turn-key system.

2.03 SOFTWARE

A. General:
   1. Provide all software necessary for the required functions.
   2. All software shall be completely debugged and operable prior to shipment. The City shall not be required to provide any programming effort to achieve a fully operational system.
   3. System parameters (e.g., setpoints, alarm limits, and loop tuning constants) shall be entered or modified using a Workstation with a modular key board.

B. Operating Software
   1. The operating software shall include the operating system and other standard software that supports the complete process control system.

2. Operating software to be supplied is tabulated in Attachment A of this Section.

PART 3 – EXECUTION

3.01 GENERAL

In addition to other requirements herein, coordinate with others to affect the following:

A. PLC Communication: Effect the DCS/PLC communication requirements as indicated on drawings for the UV System PLC, Blower PLC's and Incinerator PLC's. Provide complete documentation of the necessary hardware and software.
B. Product Delivery: Provide equipment handling and storage instructions.
C. Enclosure Installation: Provide enclosure installation instructions.
D. Enclosure Inspection: Verify proper enclosure installation.
E. DCS Component Installation: Install all DCS components including modules, cables, connectors, wire taps, operator interfaces, and fiber optic converters.
F. DCS Field Wire Installation: Provide signal cabling and power connection instructions.
G. DCS Field Wire Inspection: Verify proper signal cabling and power connection installation. Coordinate, and witness with the Contractor, the application of electrical power to all electric powered DCS components.
H. DCS Communication Link Connection: Make final wire and fiber optic connections to DCS components.
I. DCS Communication Link Inspection: Verify proper test procedures and results. Verify proper installation.
J. Coordinate with the Contractor for the following field testing.
    1. Operational
    2. Functional
K. Operation and Maintenance Manuals: Incorporate all loop wiring drawing as-built information from associated specification section suppliers.

3.02 SOFTWARE CONFIGURATION

A. Standard function requirements are those required by article STANDARD FUNCTIONS hereafter.
B. Special function requirements are those required by the loop functional descriptions as supplemented by article SPECIAL FUNCTIONS hereafter and by standard functions.
C. The requirements herein shall be provided as configured functions. Creation and modification of the following items shall be effected with software directed (using menus, instruction displays, etc.) procedures and without code modification.
    1. Input/output (I/O) configuration, assignments, and functions.
    2. Content and functions of displays, reports, logs, and other hard copy items.
    3. Manual entry changes including all manually entered values.
    4. Automatic control functions.

3.03 STANDARD SOFTWARE FUNCTIONS

A. Local/Remote/Enabled Terminology:
The following convention is used for this project. "Local-remote" denotes proximity or distance from a point of control or indication. "Enable(d)" denotes the ability to

control. If control is enabled at some location, conditions at that location may still disable manual or automatic control (for example, if the device has failed or is out-of-service). Provide a convenient method to determine the reason for each disabled mode. "Out-of-service" denotes that manual and automatic control of a device is manually disabled.

B. Out-of-Service: Provide manual out-of-service mode selecting for all control outputs.

C. Input/Output Lists:
Standard and special function requirements apply equally for new equipment, existing equipment, and pseudo input points.

D. Process Graphic Displays:
1. Display the current status of discrete inputs. Indicate elapsed run time for motors with an on-off discrete input.
2. Digitally display the current value of analog inputs and outputs.
3. Display level analog inputs as a color level in a structure outline.
4. Provide manual control of outputs. Provide manual selection of manual or automatic mode where automatic control is required. Indicate the mode (enabled, disabled, manual, automatic, lead, lag, etc.) of outputs and other control functions. Indicate if equipment is out-of-service.
5. Display process related alarm conditions near, or as part of, a corresponding graphic symbol.
6. As a minimum, provide a sufficient number of process graphic displays to accomplish the control and monitoring of the processes as described in Section 17010 Control Strategies.
7. Notice that the process graphic displays do not include the following types of required displays.

3.04 PROCESS TABULAR

A. Alarm

B. Trend

C. Diagnostic

D. System Configuration

E. Help

F. Alarms:
1. Indicate the alarm source where there is more than one source; for example, a level alarm discrete input and an analog input alarm limit.
2. Where a fail discrete input alarm and a generated alarm are required for the same equipment, they shall be treated as separate alarms.

END OF SECTION 17500

ATTACHMENT A

I/A Advantage Upgrade

for

City of Atlanta

Atlanta, GA

RM Clayton WRC

Instrumentation and Controls Reliability Restoration

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This proposal contains technical and business information that is confidential and proprietary to Invensys. It is provided to City of Atlanta solely for internal review and evaluation. The information contained herein may not be shown or disclosed in any form to third parties without the express consent of Invensys.

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Invensys and Schneider Electric

Schneider Electric, a global specialist in energy management, completed its acquisition of Invensys PLC on 17th January, 2014. The Invensys Group is now part of the Schneider Electric group of companies. This change does not affect the terms or commitments of this proposal in any way and Schneider Electric will continue to support and invest in Invensys products and solutions.

Combining the strengths of Schneider Electric and Invensys will offer greater value to your business. Through this integration, we are building a global, innovative, technology company with a strong position in integrated industrial automation, software and energy management. Our ability to offer more comprehensive solutions – along with our global execution capabilities will enable Schneider Electric to help you increase business performance and improve operational efficiency.

1. EXECUTIVE SUMMARY

A key feature of Invensys' / Schneider Electric's product development is the "continuously current" concept, whereby backward compatibility of new equipment with legacy systems is maintained. This allows the installation of new systems with confidence that future product development will not result in the entire system being rendered obsolete overnight and requiring a complete replacement to return to the latest iteration of development. Invensys' commitment to product interoperability and coexistence helps ensure your I/A System is able to support cutting edge technology, while protecting your investment. This commitment has resulted in extending the life of your I/A System while maintaining the highest performance level, at the lowest possible cost of ownership.

The I/A Series® system continues to demonstrate world-class technology leadership in all sectors of the process industry. The I/A Series® system open architecture system can guarantee the economic success of your automation requirements, safeguards your investment, and provides a future-proof solution that keeps you one step ahead of changing technologies.

I/A Series® customers will never be forced into a total system replacement. Invensys is unique in the market place. From the start, the I/A Series® System was designed to evolve, remain a technology leader, and endure without end. Introduced in 1987, the I/A Series® was the first open industrial system that was modular in design and standards based. Every component of the system (networks, controllers, workstations and I/O modules) has continued to evolve with technology improvements, all the while preserving interoperability and backward compatibility of newer generation products with older generation products. Invensys branded control processors are internally designed and manufactured. By preserving data base structures and hardware form factors, Invensys can offer customers newer, more powerful and capable modules as direct replacements without the need of rewiring, or re-engineering control schemes or graphics. It's a simple plug-in replacement. In a similar manner, Invensys branded I/O modules are internally designed and manufactured.

You are already an I/A Series® user, and you already know we are dedicated to providing you with the best in systems technology and services. The Advantage Upgrade Program exemplifies that commitment by providing a financially attractive way to help you keep your process running at peak efficiency by increasing functionality while reducing maintenance costs and downtime.

2. PROJECT OVERVIEW

The system will be upgrade to Foxboro Evo 9.1 with a Galaxy Server, Wonderware Historian, and InTouch graphics.

This upgrade at the R. M. Clayton Facility will be comprised of the following Hardware replacements:

2.1 INFLUENT BUILDING (HEADWORKS, Z270AD)

1. Upgrade workstation HWWP01 to H92 with ver 9.x. Reuse furniture, monitor; new keyboard, mouse
2. Upgrade all 100 Series FBMs in enclosures H1, H2

FBM01	FBM04	FBM08	FBM10	FBM13	FBM15	Total
7	2	9	6	4	6	34

2.2 FILTER BUILDING CONTROL ROOM, UV BLD'G

1. Upgrade workstation 2AW51A to H90 with ver 9.x – new keyboard, monitor, mouse
2. Provide 2 new A4 switches
3. Replace existing CPs (2CP40D, 2CP30E) with one fault-tolerant pair of FCP280s, with baseplate
4. Remove Nodebus Extenders
5. Relocate one Root Switch from Admin Bldg to Filter Control Room Bldg
6. Provide new Server enclosure for H90, FCPs
7. Replace 2 100 Series FBMs in filter control room, and 9 in UV Bldg (2CP30E)
8. Assume UV Allen-Bradley 5/40 PLC is upgraded (by others) to ControlLogix with FDSI FBM232, AB Driver

FBM01	FBM04	FBM08	FBM10	FBM13	FBM15	Total
3	3	3	1	1	0	11

2.3 FILTER BUILDING LOWER LEVEL

1. Replace all 100 Series FBMs in Main Filter Control Panel, and all four Filter Control Panels (2CP40D)
2. Existing enclosures are retained

FBM01	FBM04	FBM08	FBM10	FBM13	FBM15	Total
1	0	13	11	13	9	47

2.4 MIXED LIQUOR BUILDING, G5, G6 ENCLOSURES

1. Upgrade workstation 2WP51B to H92 with ver 9.x – new keyboard, monitor, mouse
2. Provide 2 new A4 switches
3. Replace existing CP (2CP40C) with pair of fault-tolerant FCP280s, with baseplate
4. Run fibers back to Filter Control Bldg – by others
5. Replace all 100 Series FBMs

FBM01	FBM04	FBM08	FBM10	FBM13	FBM15	Total
7	11	6	9	7	8	48

Note: FBM01 in bottom rack (AI17G4) is not wired to any IO. This FBM will not be upgraded. This 1X8 rack will be removed.

2.5 BLOWER BUILDING

1. Remove ATSs
2. Remove nodebus extenders
3. Terminate, extend fiber runs as necessary

2.6 INCINERATOR BUILDING

1. Upgrade workstation INCWP1 to H92 with ver 9.x – new keyboard, monitor, mouse
2. Run Fibers back to Admin Bldg – by others

Total of 100 Series FBMs to be upgraded

FBM01	*FBM04*	*FBM08*	*FBM10*	*FBM13*	*FBM15*	*Total*
18	*16*	*31*	*27*	*25*	*23*	*140*

3. HARDWARE OVERVIEW

3.1 FIELD CONTROL AND I/O

3.1.1 Field Control and Interfaces

3.1.1.1 Control Processor

New Generation Controller - FCP280

The new generation Foxboro Field Control Processor 280 (FCP280) is a distributed, optionally fault-tolerant, field-mounted controller that performs process control and alarming functions according to a user-defined control strategy.

Compared to the earlier version FCP270, the new generation FCP280 has increased capacity, more powerful performance, and greater flexibility all available at lower cost options. It also provides a future proof platform through its support to multiple generations and different types of I/O and Engineering tools.

FCP280 consists of many new features and enhancements such as:

- Unique LCD monitor to display letterbug and real-time roles and statuses
- Connects Control Network via Copper or Fiber 100 Mbps Ethernet cables
- Supports multiple I/O types: 100 Series, 200 Series, Compact 200 Series, Universal I/O (FBM247), Intrinsically Safe I/O and Competitive Migration I/O modules
- Offers on-line image upgrade (OLUG) of FCP280 without shutting down the process
- Supports 4 fieldbus connections
- No Fieldbus Communication Module is required
- No Fieldbus Expansion Module is required for expanded fieldbus support

3.1.1.2 FBM232 - Field Device System Integrator Module (10/100 Mbps Ethernet, Single)

The FBM232 connects to a single 10 Mbps or 100 Mbps copper Ethernet network to communicate with devices. The FBM232 can be connected directly to a single field device or connected to Ethernet switches or hubs to communicate with up to 64 field devices.

This FBM is a generic Ethernet hardware module in which different software drivers can be loaded. These drivers configure the FBM to recognize a particular protocol used by the device. Several of the software drivers are standard product offerings. Other custom drivers can be developed to meet specific needs.

These drivers are dynamically downloaded to the FBM232 with software code specifically designed to interface with the third party device's protocol. The configuration procedures and the software requirements for each driver are unique to the device(s) being integrated into the system.

Data communication between the FBM232 and field devices is through the RJ-45 connector located on the front of the FBM232 module. The RJ-45 connector of the FBM232 can be connected directly to the field device, through hubs, or through Ethernet switches to the field devices (refer to "ETHERNET HUBS AND SWITCHES" on page 7). Connection of multiple devices to the FBM232 requires a hub or switch. Connection of the FBM232 directly to a device may require a null hub adapter cable.

For more information refer to:
http://resource.invensys.com/iaseries/pss/21h2/21h2z32b4.pdf?searchid=1385096503238

3.2 WORKSTATIONS / SERVERS

3.2.1 H92

H92 WORKSTATION

The Model H92 workstation can be used with the Foxboro workstation software and can also provide a platform for third-party or other user written applications.

As multipurpose workstations running the Windows 7 operating system, these workstations support execution of system applications, data communications for a broad range of applications, file serving capabilities, and display of graphics and text. It also interfaces with corporate networks at a local or worldwide level.

As symbolized by the CE logo, the Model H92 workstation conforms to the applicable European Union directives.

For more information refer PSS:
http://resource.invensys.com/iaseries/pss/21h4/21h4d13b4.pdf?searchid=1385013689771

3.2.2 H90

H90 SERVER

The Model H90 Workstation Server is a 2U high rack-mounted server-class processor running the Microsoft Windows Server 2008® R2 operating system.

The Model H90 Workstation Servers for Windows Server 2008 Release 2 (R2) operating system, available with a Foxboro Evo S10 software license, feature:

- A premium level system with **high-end processor speed, 4 GB of memory,** upto **eight internal Redundant Array of Independent Disks** (RAID) with optional hot swap spare drives, and **redundant hot-swap power supplies**
- The **ability to host control stations** and/or **support data acquisition and monitoring** functions
- **Serves as** Foxboro **application platform** and a **human interface station**
- The **ability to support viewing** Foxboro applications **from remote client stations** over local area networks (LANs)
- **Security enhancements** provided by the following McAfee® software packages:
  - VirusScan with AntiSpyware Enterprise
  - ePolicy Orchestrator
  - Host Intrusion Prevention
  - Data Loss Prevention (Device Control).

For more information refer PSS:
http://resource.invensys.com/iaseries/pss/21h4/21h4u12b4.pdf?searchid=1385013689771

3.2.3 Server Enclosure

The G50 Server Enclosure with front and rear access provides environmental protection and housing for compatible Foxboro workstations, servers and the Control Network switches.

For more information on G50 functions and features refer to:
http://resource.invensys.com/iaseries/pss/21h2/21h2x50b4.pdf?searchid=1385013689771

4. FIELD SERVICE / ENGINEERING

4.1 PROJECT MANAGEMENT

Invensys / Schneider Electric project management will provide the City of Atlanta with the following services:

- Management of all activities required to implement the project scope.
- Plan, monitor, and control the project, and report on its status.
- A single Invensys contact for all questions or concerns, from receipt of the purchase order to the system acceptance.
- Progress report as applicable including the following pertinent information on the project –
    - Project schedule
    - Engineering design
    - Manufacturing status
    - Invensys action items
    - Clayton action items
    - Commercial issues

These project services include a kick-off meeting on site. In addition the project plan provides for one other site progress meeting to include the Project Manager and assigned Project Team personnel at the R. M. Clayton site in Atlanta, Georgia.

Additional project meetings not conducted via conference call will incur extra charges with man-hours expended, per diem travel time, travel costs and living expenses billed separately. Alternatively the City of Atlanta may amend the specification to state specific meeting requirements, including meeting locations and quantities, and this proposal can be amended to include those specified meetings.

The Project Manager will direct a team of dedicated Lead Engineers which will be assigned for the duration of the project. Other team members will be added as required to ensure schedule integrity and milestone deliverables are achieved.

4.2 R. M. CLAYTON UPGRADE IMPLEMENTATION

Invensys proposes to establish an engineering project team consisting of project supervision and project applications engineering based in Invensys' Atlanta, GA, office. This Team is well-qualified to successfully implement this Project.

4.2.1 Project Scope of Work

Invensys proposes to replace the aging process control equipment in several areas of the R. M. Clayton Plant. The antiquated UNIX workstations will be replaced by new Windows workstations, and the old control processors and field bus modules will be replaced by their modern equivalent. This will allow the equipment at the Clayton plant to be more serviceable, replaceable and allow the plant less down time.

Influent Bldg

The workstation designated as HWWP01 in the influent building will be upgraded to a Windows workstation running the latest version of Foxboro's Intelligent Automation software. The furniture housing the workstation along with the monitor will be reused. The workstation will come with a new keyboard, and mouse. The older 100 series fieldbus modules in enclosures H1, and H2 will be replaced with 200 series fieldbus modules. The quantities to be replaced are below:

FBM01	FBM04	FBM08	FBM10	FBM13	FBM15	Total
7	2	9	6	4	6	34

Filter Bldg Control Room, UV Bldg

The workstation designated as 2AW51A in the filter control room will be upgraded to a server class Windows workstation running the latest version of Foxboro's Intelligent Automation software. A new enclosure will be supplied to house the new equipment in this area. The workstation will come with a new keyboard, and mouse. Two new A4 series switches will be provided to link the filter building to the rest of the plant process control network. All fiber optic cable installation and testing is not part of the Invensys scope. The existing control processors 2CP40D, and 2CP30E will be replaced with one pair of fault-tolerant FCP280s. Unused modules including the old control processors and nodebus extenders will be removed. For improved network reliability, one of the existing root switched currently in the administration building will be relocated to the filter building.

The two 100 series fieldbus modules in the filter control room area and the UV building will be replaced with 200 series fieldbus modules. A new FBM232 will be installed in the UV building to communicate with a new Allen-Bradley ControlLogix PLC. The UV Allen-Bradley 5/40 PLC will be upgraded by others to ControlLogix and the PLC work is not part of the Invensys scope. The quantities of fieldbus modules to be replaced are below:

FBM01	FBM04	FBM08	FBM10	FBM13	FBM15	Total
3	3	3	1	1	0	11

Filter Bldg Lower Level

The Invensys scope includes replacing all 100 Series FBMs in Main Filter Control Panel, and all four Filter Control Panels. All existing enclosures are retained. The quantities of fieldbus modules to be replaced are below:

FBM01	FBM04	FBM08	FBM10	FBM13	FBM15	Total
1	0	13	11	13	9	47

Mixed Liquor Bldg, G5, G6 Enclosures

The workstation designated as 2WP51B in the mixed liquor building will be upgraded to a Windows workstation running the latest version of Foxboro's Intelligent Automation software. The workstation will come with a new monitor, keyboard, and mouse. Two new A4 series switches will be provided to link the mixed liquor building to the rest of the plant process control network. All fiber optic cable installation and testing is not part of the Invensys scope. The existing control processors 2CP40C will be replaced with one pair of fault-tolerant FCP280s.

The older 100 series fieldbus modules in the mixed liquor building enclosures and enclosures G5, and G6 will be replaced with 200 series fieldbus modules. The quantities to be replaced are below:

FBM01	FBM04	FBM08	FBM10	FBM13	FBM15	Total
7	11	6	9	7	8	48

Blower Bldg

The blower building links the administration building to the filter plant. Here the unused modules including the ATS and nodebus extenders will be removed. All fiber cable work in this building is not part of the Invensys scope.
Incinerator Bldg
The workstation designated as INCWP1 in the incinerator building will be upgraded to a Windows workstation running the latest version of Foxboro's Intelligent Automation software. The workstation will come with a new monitor, keyboard, and mouse. All fiber cable work in this building is not part of the Invensys scope.

4.2.2 Progress Meetings

In addition to the initial kick-off meeting on site this proposal includes a total of four (4) progress meetings with the Project Manager and Project Engineer in attendance. It is expected that these will be Monthly progress meetings of 2 hours duration for a total of 16 man-hours for Progress Meetings. Invensys recognizes these will be conducted when required and at the discretion of City of Atlanta.

If it is determined that Invensys attendance in progress meetings exceed the allotted amount of time for this purpose Invensys will evaluate the impact on the upgrade project effort and submit the cost impact to City of Atlanta. This will be treated as a scope change.

4.2.3 Engineering/Configuration Services

a. Operator Interface Configuration

The existing HMI interface – graphics, overlays, etc – will be ported to the new system in their current form with no required modifications.

If it is determined that other displays not currently defined need to be added as part of the upgrade, Invensys will evaluate the impact on the Engineering effort and submit the cost impact to City of Atlanta. This will be treated as a scope change.

b. Blower Building PLC interfaces

Invensys will configure the existing IA system to connect to the 4 new PLC's in the Blower Building. Invensys expects to purchase the FDSI driver and has estimated the work based on the following count of IO:

	BIN	BOUT	IIN	IOUT	RIN	ROUT
PLC000	11		9	0	33	0
PLC003	98		58	0	67	0
PLC004	98		58	0	67	0
PLC005	98		58	0	67	0
Total	**305**	**0**	**183**	**0**	**234**	**0**

Analog Inputs	417
Analog Outputs	0
Discrete Inputs	305
Discrete Outputs	0
	722

Invensys will need from the City of Atlanta a spreadsheet with the PLC tag address and tag name for each of the four PLC's.

If it is determined that other points not currently defined need to be added as part of the upgrade, Invensys will evaluate the impact on the Engineering effort and submit the cost impact to City of Atlanta. This will be treated as a scope change.

d. Reports

There are no specific requirements for implementation or modification of Reports, Logs or data files.

If it is determined that such reports are needed to be included as part of the upgrade, Invensys will evaluate the impact on the Engineering effort and submit the cost impact to City of Atlanta. This will be treated as a scope change.

e. Interface to external Data Systems

There are no requirements for interfacing to external third party information / data systems.

If it is determined that such an interface needs to be included as part of the upgrade, Invensys will evaluate the impact on the Engineering effort and submit the cost impact to City of Atlanta. This will be treated as a scope change.

f. Network Firewalls and Security

This proposal does not include any provision for Network analysis, security or firewall installation.

If it is requested that Invensys' scope of supply include these services, Invensys will evaluate the impact on the Upgrade effort and submit the cost impact to City of Atlanta. This will be treated as a scope change.

4.2.4 Training

Please refer to Section 6 for training.

4.2.4.1 Distributed Control System Testing and Commissioning

It shall be City of Atlanta's responsibility at the time that start-up service is requested that all parties be **completely** ready for this service. All necessary utilities, such as air, water and electricity shall be connected and functioning, as well as all process items directly related to the instrumentation system, such as pumps, motors, feeders, etc. Return trips to the site or delays incurred due to non-Invensys-furnished equipment not functioning, or additional time spent as a result of the City of Atlanta's failure to comply with the above shall be charged to City of Atlanta at the current demand service rate. Invensys will require advance notification of at least 10 working days prior to the date start-up service is requested.

Start-up and operational testing services will require Foxboro Service personnel to use such service equipment as hand tools, test equipment, etc. This will, in certain instances, involve removing wires from terminals to perform equipment and/or loop checkout, testing, and calibration. In no circumstance will Invensys accept any/all responsibility for additional costs incurred by the use of union personnel as a result of jurisdictional labor requirements due to Foxboro Service personnel start-up activity on this project.

4.2.4.2 Distributed Control System Documentation

Invensys will provide an as-built network drawing for the new fiber network.

No other documentation is provided in this scope of supply.

If it is requested that Invensys' scope of supply include these services, Invensys will evaluate the impact on the Upgrade effort and submit the cost impact to City of Atlanta. This will be treated as a scope change.

4.3 ICC TO FOXBORO EVO CONTROL EDITOR

4.3.1 Application Engineering Scope of Supply

1. Convert three CP's from ICC to FoxEvo Control Editor

Schneider Electric proposes to convert the three existing ICC control databases contained in the existing three CP's (control processors) in the Filter Area for use with the FoxEvo Galaxy.

The name of the three CP's are: 2CP40C, 2CP40D, and 2CP30E.

Schneider Electric will perform the following tasks:

- Compile all sequence code and print a compilation listing of each block.
- Save all include and header files.
- Do an upload and saveall of the existing CP and freeze the database.
- Record all remote links.
- Set LOOPIDS on each block before bringing the saveall into the galaxy. The LOOPID will become the new strategy name. The number of blocks per strategy will be limited to a maximum of 20 blocks and the City of Atlanta will be given the opportunity to review and change the proposed LOOPIDS.
- Import the current system definition into the new galaxy.
- Create the needed FBM's under the network tab in the galaxy.
- Perform a bulk data import of the saveall into the galaxy.
- Generate the new strategies.
- Bring up each strategy and review it, print it, and save it.
- Compare the new saveall's with the original saveall's to confirm all changes to the CP's are correct.
- Deploy the new strategies to the new FCP280's.

Schneider Electric realizes there will be a reasonable amount of work to re-arrange the blocks on each strategy to the customer satisfaction. Each customer is unique in their expectations and this task can easily reach the estimated man hours.

Additional time necessary that is not due to Schneider Electric will be treated as a change of scope. In accordance with the service agreement, additional engineering time may be purchased in increments of days by the City of Atlanta at an all-inclusive rate of $1618.00 per day.

2. Operator Interface Configuration

All displays will be converted from FoxView to Foxboro Control HMI

3. **PLC programming, Ladder Logic**

   This proposal does not include any hardware, software or labor for upgrade or configuration of any plc programming or ladder logic.

4. **Reports, Historian and Trends Alarms**

   There are no specific requirements for implementation or modification of Historians, Reports, Logs or data files.

   If it is determined that such reports are needed to be included as part of the upgrade, Schneider Electric will evaluate the impact on the Engineering effort and submit the cost impact to The City of Atlanta. This will be treated as a scope change.

5. **Interface to external Data Systems**

   There are no requirements for interfacing to external third party information / data systems.

6. **Network Firewalls and Security**

   This proposal does not include any provision for Network analysis, security or firewall installation.

4.3.2 Implementation

To the extent possible, the project upgrade work will be done in the Schneider Electric office. When deemed appropriate based on program installation and plant operations considerations, some portion of this work may be required to be accomplished on-site.

4.3.3 Project Start-Up and Commissioning Scope of Supply

This proposal includes Checkout, Start-up and Commissioning Services for a total of (1) one Application Engineer to assist the City of Atlanta in this effort.

We realize the issue with loading CP's and being able to shutdown and reboot the process.

The total man hours in this proposal, including travel time to and from site, are estimated at 24 man-hours for start-up and check-out and commissioning.

Please note these estimates are based upon these hours falling within the normal work week of Monday – Friday, 8:00am to 5:00pm and does not take into account overtime or weekend / holiday premiums. There is a premium for overtime of 1.5x for time over 8 hours per day and Saturdays, and 2x for Sundays and holidays.

4.3.4 Project Documentation / Deliverables

This proposal scope does not include preparation of any Construction Engineering drawings or O&M Manuals or other documentation including revised architecture, fiber inter-connects, loop sheet or elementary and wiring diagrams.

4.3.5 Travel and Living Expenses

This proposal includes associated Travel and Living expenses for the project scope as identified above.

4.3.6 Distributed Control System Testing and Commissioning

It shall be the City of Atlanta's responsibility at the time that start-up service is requested that all parties be **completely** ready for this service. All necessary utilities, such as air, water and electricity shall be connected and functioning, as well as all process items directly related to the instrumentation system, such as pumps, motors, feeders, etc. Return trips to the site or delays incurred due to non-Schneider Electric-furnished equipment not functioning, or additional time spent as a result of the City of Atlanta's failure to comply with the above shall be charged to the City of Atlanta at the current demand service rate. Schneider Electric will require advance notification of at least 10 working days prior to the date start-up service is requested.

Start-up and operational testing services will require Schneider electric Service personnel to use such service equipment as hand tools, test equipment, etc. This will, in certain instances, involve removing wires from terminals to perform equipment and/or loop checkout, testing, and calibration. In no circumstance will Schneider Electric accept any/all responsibility for additional costs incurred by the use of union personnel as a result

of jurisdictional labor requirements due to Schneider Electric Service personnel start-up activity on this project.

4.4 LEGACY HISTORIAN DATA MIGRATION

4.4.1 Scope of Services

Engineering Services to migrate the I/A Series Legacy Historian Sample data to Foxboro Evo Historian.
The data migration work is assumed to take place at the Schneider Electric Canada Inc. facility in Montreal Quebec, Canada.

Database Migration Activities:
Gather data
Migration Set-up, Unix Style B test bed set-up Execution Supervision, Co-ordination
Execution of the Database Migration
Validation Tool & Document Preparation
Validation Execution
Standard Project Management, Technical Management and Project Administration Services
Only sample data is migrated. Alarm messages or any other data will NOT be migrated.
*Reduction group data extraction into CSV is offered as an option.

Validation:
Using a subset of the tags, for example ten (10) known tags (their values can be easily identified) at different indexes ranges in the Legacy configuration, a query is
made at different time spans (6 months, 12, months) in the migration interval. The result of the query is saved in an Excel workbook for later comparison with the migrated data.
Once the data is migrated, the same query is made against the migrated data. A subtraction result should = 0 for all the values.
The test procedure will follow Schneider Electric Canada standard test procedures format.
Expected size of the procedure is less than 15 pages.
Test coverage will be as follows: 10 tags, 1 year of data, 2 test time slices.

Estimate Basis:
Tag count **1500**
Time span **5 year**
Legacy Historian size **< 10GB**

Key Assumptions:
A full image backup of the Unix station hosting the legacy historian will be made available to Schneider Electric for the data migration.
The image backup is assumed to be readable on first attempt.
The customer tag list of the new historian along with the mapping of the source tagnames to the destination tagnames will be supplied by the customer.
Any changes to the tag list during the migration process will result in a scope change equivalent to the re-work required by the new tag list.

Deliverables
Migrated data in the form of AIM* Windows RTP files or Foxboro Evo Historian circular files, ready to be used in the windows historian.
Migration & validation report.

4.5 REDUCTION DATA MIGRATION

The migration of the reduction data to CSV files is offered as an option

Engineering Services to extract the I/A Series Legacy Historian Reduction data and save into CSV fles.
The data migration work is assumed to take place at the Schneider Electric Canada Inc. facility in Montreal Quebec, Canada.

Estimate Basis:
Tag count **1500**
Time span **5 years**
Legacy Historian size **< 10GB**
Hourly reduction
Daily reduction

Key Assumptions:
The reduction data extraction is executed as part of the Sample data migration project. (The scope for the reduction data extraction is tied to the sample data migration scope)

5. BILL OF MATERIAL

Item	Qty	Product	Short Description
** Inffluent Bld'g (Headworks) **			
20.00	1	H926048B070J	Model H92 Workstation For Windows
20.01	2	P0972KW	Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 15 m
30.00	1	K0201HY	Foxboro Evo Control Core Services v9.1
40.00	1	P0924SJ	USB External Floppy Drive for P90/91/92
50.00	6	P0924JM	Migration mounting structure for 1 x 8
50.01	8	P0924SM	Power Supply, FPS 240-24
50.02	12	P0922XR	TSC Power Cable, 1 m
50.03	8	P0170PA	Cable, Power, 6 feet
50.04	4	P0928BP	FBM 2xx Base To Base Cable, LSZH, 1.0 m
50.05	4	P0916RB	Fieldbus Baseplate Terminator
60.00	6	P0923XL	FBI200A Fieldbus Isolater
60.01	3	P0923XM	FBI200A Adapter
70.00	6	P0998EA	UgdDoc P0927AG FBM239 Discrete 8in/8out/8In/8Out
70.01	6	P0923RK	FBM10 Term Assy Adapter (TAA)
70.02	6	P0923RQ	FBM15 Term Assy Adapter (TAA)
70.03	6	P0927AG	FBM239, Discrete I/O 32 Channels, 8 In-8 Out-8 In-
80.00	9	P0997NB	Upg Doc FBM217 Adv 100-200 P0914TR
80.01	9	P0923RH	FBM08 Term Assy Adapter (TAA)
80.02	4	P0923RN	FBM13 Term Assy Adapter (TAA)
80.03	9	P0914TR	FBM217, Discrete Inputs, 32 Channels
90.00	2	P0997MU	Upg Doc FBM204 Adv 100-200 P0914SY
90.01	2	P0923RD	FBM04 Term Assy Adapter (TAA)
90.02	2	P0914SY	FBM204 4 Channel 0-20 In + 4 Channel 0-20 Out
100.00	7	P0997MS	Upg Doc FBM201 Adv 100-200 P0914SQ
100.01	7	P0923RA	FBM01 Term Assy Adapter (TAA)
100.02	7	P0914SQ	FBM201 Channel Isolated 8 Input 0-20 mA
** Filter Bld'g Control Room, UV Bld'g **			
120.00	2	H90J9CA0417G	Workstation Server Model H90 For Windows®
120.01	2	P0928JJ	FPD, 23" LCD with LED backlight, and Prot Screen
120.02	2	P0972VT	15 Ft DVI-D Digital Video Cable
120.03	4	P0972KV	Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 3 m
120.04	4	P0972RJ	10 Ft USB Extension Cable
130.00	1	P0924SJ	USB External Floppy Drive for P90/91/92
140.00	2	P0973JN	24-Port Fiber Managed Switch
140.01	4	P0972WT	MGBIC, 1000Base-SX, MMF, LC, Use w/P0972WR/YK
140.02	2	P0972TP	LC To LC Fiber Optic Cable, 15 m
150.00	1	K0173ZU	Mesh Configuration Tool & Switch/Network Documents
160.00	3	P0924JM	Migration mounting structure for 1 x 8
160.01	4	P0924SM	Power Supply, FPS 240-24

160.02	6	P0922XR	TSC Power Cable, 1 m
160.03	4	P0170PA	Cable, Power, 6 feet
160.04	4	P0916RB	Fieldbus Baseplate Terminator
160.05	1	P0928BP	FBM 2xx Base To Base Cable, LSZH, 1.0 m
170.00	4	P0923XL	FBI200A Fieldbus Isolater
170.01	2	P0923XM	FBI200A Adapter
180.00	3	P0997MU	Upg Doc FBM204 Adv 100-200 P0914SY
180.01	3	P0923RD	FBM04 Term Assy Adapter (TAA)
180.02	3	P0914SY	FBM204 4 Channel 0-20 In + 4 Channel 0-20 Out
190.00	3	P0997NB	Upg Doc FBM217 Adv 100-200 P0914TR
190.01	3	P0923RH	FBM08 Term Assy Adapter (TAA)
190.02	1	P0923RN	FBM13 Term Assy Adapter (TAA)
190.03	3	P0914TR	FBM217, Discrete Inputs, 32 Channels
200.00	3	P0997MS	Upg Doc FBM201 Adv 100-200 P0914SQ
200.01	3	P0923RA	FBM01 Term Assy Adapter (TAA)
200.02	3	P0914SQ	FBM201 Channel Isolated 8 Input 0-20 mA
210.00	1	P0998EA	UgdDoc P0927AG FBM239 Discrete 8in/8out/8In/8Out
210.01	1	P0923RK	FBM10 Term Assy Adapter (TAA)
210.02	1	P0927AG	FBM239, Discrete I/O 32 Channels, 8 In-8 Out-8 In-
220.00	1	RH924YF	FCP280 Vertical Baseplate
220.01	2	P0926KM	Power Supply Output Cable - 121 cm (48 in)
220.02	1	P0928BP	FBM 2xx Base To Base Cable, LSZH, 1.0 m
230.00	4	P0916RB	Fieldbus Baseplate Terminator
240.00	1	P0926JF	4 Slots Vert. Baseplate, Time Strobe, 4 FBM
240.01	1	P0928BP	FBM 2xx Base To Base Cable, LSZH, 1.0 m
240.02	2	P0926KM	Power Supply Output Cable - 121 cm (48 in)
250.00	2	P0922YU	Power Supply, FPS 400-24
250.01	2	P0926DZ	Power Connection Kit For FPS 400-24
250.02	2	P0926CM	110/240V FPS Power Cable, 2 Ft
260.00	1	P0926GW	FBM232, 10/100 Mbps Ethernet, Single
270.00	1	K0201BM	Media: Allen Bradley EtherNet/IP Driver for FDSI
280.00	2	P28000000011	Advantage Upgrade of Non-Preferred CPs to FCP280
280.01	2	RH924WA	FCP280 Fiber Optic Network Adapter
280.02	2	P0972TR	3 m, MMF, Fiber, MT-RJ To LC Adapter Cable
280.03	2	RH924YA	FCP280 Control Processor
290.00	3	P0997KF	Non-CF Adv Upg. Foxboro Evo 2014 Cont Lic 100 Anal
300.00	1	P0997KM	Non-CF Adv Upg Foxboro Evo 2014 Cont Lic. 1000 Dis
310.00	7	P0997KK	Non-CF Adv Upg.Foxboro Evo 2014 Cont Lic 2014 100
320.00	4	P0997KR	N-CF Adv Upg Foxboro Evo 2014 Cont Lic 1,000 S IO
330.00	1	G50112222210	600 x 1000 x 2000 mm Server Enclosure F/R Access
** Filter Lower Level **			
350.00	7	P0924JM	Migration mounting structure for 1 x 8
350.01	10	P0924SM	Power Supply, FPS 240-24
350.02	14	P0922XR	TSC Power Cable, 1 m
350.03	10	P0170PA	Cable, Power, 6 feet
350.04	10	P0916RB	Fieldbus Baseplate Terminator
350.05	2	P0928BP	FBM 2xx Base To Base Cable, LSZH, 1.0 m
360.00	10	P0923XL	FBI200A Fieldbus Isolater
360.01	5	P0923XM	FBI200A Adapter

370.00	1	P0997MS	Upg Doc FBM201 Adv 100-200 P0914SQ
370.01	1	P0923RA	FBM01 Term Assy Adapter (TAA)
370.02	1	P0914SQ	FBM201 Channel Isolated 8 Input 0-20 mA
380.00	13	P0997NB	Upg Doc FBM217 Adv 100-200 P0914TR
380.01	13	P0923RH	FBM08 Term Assy Adapter (TAA)
380.02	13	P0923RN	FBM13 Term Assy Adapter (TAA)
380.03	13	P0914TR	FBM217, Discrete Inputs, 32 Channels
390.00	11	P0998EA	UgdDoc P0927AG FBM239 Discrete 8in/8out/8In/8Out
390.01	11	P0923RK	FBM10 Term Assy Adapter (TAA)
390.02	9	P0923RQ	FBM15 Term Assy Adapter (TAA)
390.03	11	P0927AG	FBM239, Discrete I/O 32 Channels, 8 In-8 Out-8 In-
** Mixed Liquor Bld'g **			
410.00	1	H926048B070J	Model H92 Workstation For Windows
410.01	1	P0928JJ	FPD, 23" LCD with LED backlight, and Prot Screen
410.02	1	P0972VT	15 Ft DVI-D Digital Video Cable
410.03	2	P0972KV	Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 3 m
410.04	2	P0972RJ	10 Ft USB Extension Cable
420.00	1	P0924SJ	USB External Floppy Drive for P90/91/92
430.00	2	P0973JN	24-Port Fiber Managed Switch
430.01	4	P0972WT	MGBIC, 1000Base-SX, MMF, LC, Use w/P0972WR/YK
430.02	2	P0972TP	LC To LC Fiber Optic Cable, 15 m
440.00	1	K0173ZU	Mesh Configuration Tool & Switch/Network Documents
450.00	1	RH924YF	FCP280 Vertical Baseplate
450.01	2	P0926KM	Power Supply Output Cable - 121 cm (48 in)
450.02	1	P0928BP	FBM 2xx Base To Base Cable, LSZH, 1.0 m
460.00	4	P0916RB	Fieldbus Baseplate Terminator
470.00	2	P0922YU	Power Supply, FPS 400-24
470.01	2	P0926DZ	Power Connection Kit For FPS 400-24
470.02	2	P0926CM	110/240V FPS Power Cable, 2 Ft
480.00	2	P28000000011	Advantage Upgrade of Non-Preferred CPs to FCP280
480.01	2	RH924YA	FCP280 Control Processor
490.00	2	RH924YA	FCP280 Control Processor
500.00	2	P0972TR	3 m, MMF, Fiber, MT-RJ To LC Adapter Cable
510.00	2	RH924WA	FCP280 Fiber Optic Network Adapter
520.00	10	P0924JM	Migration mounting structure for 1 x 8
520.01	12	P0924SM	Power Supply, FPS 240-24
520.02	20	P0922XR	TSC Power Cable, 1 m
520.03	12	P0170PA	Cable, Power, 6 feet
520.04	6	P0928BP	FBM 2xx Base To Base Cable, LSZH, 1.0 m
520.05	8	P0916RB	Fieldbus Baseplate Terminator
530.00	8	P0923XL	FBI200A Fieldbus Isolater
530.01	4	P0923XM	FBI200A Adapter
540.00	7	P0997MS	Upg Doc FBM201 Adv 100-200 P0914SQ
540.01	7	P0923RA	FBM01 Term Assy Adapter (TAA)
540.02	7	P0914SQ	FBM201 Channel Isolated 8 Input 0-20 mA
550.00	11	P0997MU	Upg Doc FBM204 Adv 100-200 P0914SY
550.01	11	P0923RD	FBM04 Term Assy Adapter (TAA)
550.02	11	P0914SY	FBM204 4 Channel 0-20 In + 4 Channel 0-20 Out
560.00	4	P0997NB	Upg Doc FBM217 Adv 100-200 P0914TR
560.01	4	P0923RH	FBM08 Term Assy Adapter (TAA)

560.02	4	P0923RN	FBM13 Term Assy Adapter (TAA)
560.03	4	P0914TR	FBM217, Discrete Inputs, 32 Channels
570.00	2	P0997SB	Upg Doc FBM219 Disc I/O24I+8OAdv100-200 P0916RH
570.01	2	P0923RH	FBM08 Term Assy Adapter (TAA)
570.02	2	P0923RQ	FBM15 Term Assy Adapter (TAA)
570.03	2	P0916RH	FBM219, Discrete I/O, 32 Channels, 24 DIN+8 DOUT
580.00	3	P0998DZ	UgdDoc P0927AF FBM238 Discrete I/O 8In/8Out/16In
580.01	3	P0923RK	FBM10 Term Assy Adapter (TAA)
580.02	3	P0923RN	FBM13 Term Assy Adapter (TAA)
580.03	3	P0927AF	FBM238, Discrete I/O 32 Channels, 8 In-8 Out-8 In-
590.00	6	P0998EA	UgdDoc P0927AG FBM239 Discrete 8in/8out/8In/8Out
590.01	6	P0923RK	FBM10 Term Assy Adapter (TAA)
590.02	6	P0923RQ	FBM15 Term Assy Adapter (TAA)
590.03	6	P0927AG	FBM239, Discrete I/O 32 Channels, 8 In-8 Out-8 In-
** Rev 01 Adds **			
640.00	6	P0972KW	Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 15 m
650.00	54	P0972TR	3 m, MMF, Fiber, MT-RJ To LC Adapter Cable
660.00	1	J0201FS	MS Remote Desktop Services 2008 User CAL 5 pack
670.00	1	J0201FP	MS Remote Desktop Services 2008 Device CAL 5 pack
** Rev 02 Adds **			
690.00	1	K0201HJ	Foxboro Evo Control Editors and Control HMI v6.0
700.00	1	S5640010122G	Foxboro Evo Base Platform License
710.00	1	S5740100402G	Foxboro Evo Platform Client License
720.00	1	S5850000002G	Foxboro Evo Terminal Server Session license
730.00	1	K0201GA	V8.x Windows 7 & Windows Server 2008 CD Media Kit

Add following scope:

Digesters 100 & 150 Headhouse:

Upgrade existing Foxboro Workstation to H92 with Ver. 9X

6. TRAINING

6.1 PROJECT DELIVERABLE

Process Automation Learning Services (PALS) mission is to help customers obtain the performance expected from technology. This is done by helping customer personnel acquire the knowledge and process control skills necessary to turn automation into performance. The continual acquisition of the right skills and knowledge is a fundamental requirement for organizations to remain innovative and competitive. Therefore, the acquisition of skills and knowledge cannot be separated from their application in the work place.

Schneider-Electric Learning has designed a curriculum of more than 200 courses and services to maximize the expertise of the customer's workforce. These training solutions are designed to help maximize plant availability and utilization through establishing consistency of methods and applications, managing risks through reducing incorrect methods, applications, and design, and maximizing revenue and margins through improved performance.

Choose the most appropriate method of learning for staff from the many options provided by Learning Services:

- Instructor-led Classroom Learning at world-class PALS Centers in North America
- Instructor-led On-Site Learning at your own location
- Distance Learning with customized live, online web seminars
- PALS E^2Learning^{SM} Web-based programs offering cost-effective training on the Foxboro Evo system
- Custom Training Sessions for Operators, Engineers, and Maintenance Technicians with course materials and software customized to unique requirements and environment
- Advanced Process Simulations utilize elite SimSci-Esscor technology to create a virtual replica of a company's process. Through APS, a staff can achieve the equivalent of up to six years on-the-job training in just one month.
- Self Study programs can be accessed from anywhere, anytime, and give users the benefit of instructor interface.

Student performance is measured relative to levels of knowledge retention and knowledge transfer to the job environment. Results can be imported into the customer’s enterprise database and evaluated on an on-going basis as part of the employee’s professional development planning.

Details about the Learning Services programs can be found in our current course catalog and online at http://iomtraining.invensys.com or call 866-746-6477 or 508-549-2424.

6.2 LEARNING SERVICES OVERVIEW

Invensys Learning Services broadly fit into three main areas of technology:

- Plant Systems cover non-vendor-specific training on instrumentation, field devices, process control, advanced process control strategies, and plant optimization. Plant Systems also cover product training on I/A Series® systems, Foxboro® Automation instrumentation, Triconex® safety systems, and SimSci-Esscor® advanced control and optimization software.
- Engineering Systems include training on optimization and offline and integrated simulator packages, as well as non-vendor specific training on System Lifecycle planning, engineering standards, and project management. Training on I/A Series® documentation products is also offered in this technology category.
- Asset and Business Systems include training on inventory control, procurement, and project accounting as well as non-vendor specific training on maintenance best-practices and identifying real-time financial and operational metrics, as well as business intelligence from plant data and performance improvement.

6.3 LEARNING GOALS

The learning objectives for this training for new technicians and engineers to learn how to use the FCS control tools.

Objectives:

The learning objectives for this training for engineers already familiar with the I/A series system are:

- List the basic hardware components of an I/A Series system: the MESH network, station on the network, their functions and interrelationships
- Follow documented procedures to verify proper system installation of new 200 Series FBM's
- For a given I/A Series system, which includes fault-tolerant stations, identify each module and peripheral device, trace all bus and cable connections, and demonstrate proper removal and replacement procedures
- Demonstrate the procedures required to replace a MESH switch
- Apply FoxDraw to construct process displays that interact with live process data. Make on-line modifications to real-time and historical trend displays
- Operate system management displays to access status, configuration, and fault analysis information related to an I/A Series system network, individual modules, and peripheral devices
- Operate system management displays to update firmware of I/A Series system stations and peripherals
- Maintenance Functions for new Windows Stations including Backup and Recovery

6.4 CLASSROOM LEARNING

Training each day starts at 8 AM local time and runs until about 5 PM, The above training courses/workshops are scheduled to run in starting Tuesday-Thursday. This is still to be scheduled to run before Dec 20, 2014.

6.5 EQUIPMENT AND INSTRUCTIONAL MATERIALS

This course has a high percentage of hands-on laboratory exercises. Two students will share a workstation and have access to equipment which will typically include

- Dell P91 Server or P92 Workstation
- I/A Series Monitor, 19 in., Table Top

Each workstation will be capable of simulating a simple process and will be used in all student exercises.

Note: Four (4) Weeks of In-Class training at either Foxboro, MA or Houston, TX has been included within this pricing. Travel and Living Expenses have not been included and are the responsibility of the City of Atlanta.

7. COMMERCIAL

7.1 BASE PROPOSAL

Hardware / Software and Engineering / Field Services	
4 Weeks of Training at Schneider Facilities	
Estimated Travel & Living Expenses	
Historian Reduction Data Migration	
Add UPS Contact block with Alarm for every UPS (total 18)	
Total:	

7.2 OPTIONAL PRICING

7.2.1 UPS

It is assumed that if owner wants to wire UPS alarms into the DCS, that there are sufficient spares on existing FBMs to accommodate these alarm points. This section includes only the UPSs and does not include any labor for wiring alarm points or for building an alarm display in the DCS.

Building Number	Building Name	Panel	UPS Size VA/Watt	UPS	Price, net
1	Digester	LP-COGEN	1950/1920	SMT2200	
7	Admin	-	8000/7200	SURT8000XLT	
12	Pri Chem	PPL-1	1950/1920	SMT2200	
13	Incinerator	-	1950/1920	SMT2200	
15	Sludge Dewater	-	3000/2700	SMT3000	
21	TWAS	TCA	1950/1920	SMT2200	
24A	Pri Sludge 1,2	-	1950/1920	SMT2200	
24B	Pri Sludge 3, 4	-	1950/1920	SMT2200	
32	Headworks	HWB	12000/10800	SURT15KRMXLT	
51	Mixed Liquor	-	3000/2700	SMT3000RMT2U	
53A	Clarifier 1, 2	SCA	1440/1440	SMT1500	
53B	Clarifier 3, 4	SCB	1440/1440	SMT1500	
54	Filters	MLB	1440/1440	SMT1500	
57	Electrical	ESA	1440/1440	SMT1500	

64	Blower	BB-508	1950/1920	SMT2200	
71	Nancy Creek	LA	1950/1920	SMT2200	
74	Grit Electrical	PPU-GR	1950/1920	SMT2200	
81	Operations	-	8000/7200	SURT8000XLT	

7.3 TRAINING

Four (4) Weeks of standard training courses are included in this pricing. These courses are held in Foxboro, MA; or, Houston, TX whichever is preferable. Travel & Living for City of Atlanta personnel is not included in this pricing.

APPENDIX A – HARDWARE DESCRIPTIONS

Add following work in Didgester 100 & 150 Headhouse: Upgrade existing Foxboro Workstation to H92 with Version 9X
Delete any scope in Incinerators.

Item	Qty	Model	Description
10.00	**1**		**** Inffluent Bld'g (Headworks) ****
			FUNCTION: ** Inffluent Bld'g (Headworks) **

Item	Qty	Model	Description
20.00	**1**	**H926048B070J**	**Model H92 Workstation For Windows**
	H92		FUNCTION: Model H92 Workstation for Windows® Workstation Class Xeon processor, with pre-configured and installed Microsoft® Windows®7 64 bit operating system, in a Mini-Tower package. The base unit consists of an Internal SATA Hard Drive, 4 Gb of ECC RAM, Internal DVD/CDRW Drive, Mouse, Keyboard and PCIe Dual Head Digital Video Interface. The Workstation Model H92 for Windows can be connected to the I/A Series V8.x Mesh Control Network via required fiber optic or copper ethernet adapter cards for MESH connectivity.
		6	SYSTEM VERSION/O.S. LICENSES: I/A Series® Software Version 8.8 (and later) with Windows 7
		0	FUTURE OPTION: Not used
		4	POINTING DEVICE & VIDEO CARD: Mouse + Dual Head Digital DisplayPort/DVI-D interface (Nvidia NVS 295)
		8	RAM: 6GB of DDR3 ECC RAM
		B	INTERNAL SYSTEM DISK: One 500 GB Serial ATA hard drive
		0	BACKUP DEVICE: None
		7	ETHERNET CARD: Two Single Port Fiber MT-RJ PCIe card NICs + One Integrated RJ-45 NIC
		0	I/O CARDS: None
		J	HARDWARE TRADE-IN UPGRADE CREDIT: Advantage Discount for return of 51B

Tags			
Set 1	1	Workstation Id	WKS0010003
	1	Workstation Desc	I/A Series Model H92 Workstation

Item	Qty	Model	Description
20.01	**2**	**P0972KW**	**Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 15 m**
	P0972KW		FUNCTION: Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 15 m Length: 15 Meters. MMF 62.5/125 µm Fiber Optic Plenum Cable. Connectors: MT-RJ On Each End. Wiring: 1 To 1 (i.e. No Crossover).

Item	Qty	Model	Description
30.00	**1**	**K0201HY**	**Foxboro Evo Control Core Services v9.1**
	K0201HY	FUNCTION: Foxboro Evo Control Core Services v9.1 Software media for Windows 7 and Server 2008 platforms, release notes and electronic documentation. Provides support for qualified workstations and servers to run with multiple CPU cores enabled. Requires S10 software license.	

Item	Qty	Model	Description
40.00	**1**	**P0924SJ**	**USB External Floppy Drive for P90/91/92**
	P0924SJ	FUNCTION: USB External Floppy Drive for P90/91/92 External, USB, 3.5", 1.44MB floppy driver for P92*K (and later) workstations and P90*D/P91*G (and later) servers.	

Item	Qty	Model	Description
50.00	**6**	**P0924JM**	**Migration mounting structure for 1 x 8**
	P0924JM	FUNCTION: Migration mounting structure for 1 x 8 Migration mounting structure for 1 x 8, used to connect DIN-rail FBM to 100-Series TCA (nosecones).	

Item	Qty	Model	Description
50.01	**8**	**P0924SM**	**Power Supply, FPS 240-24**
	P0924SM	FUNCTION: Power Supply, FPS 240-24 DIN-rail mounted power supply with 85/276 Vac or 88-375Vdc input and 24Vdc output. UL And UL-C Listed For Class I, Division 2, Groups A,B,C,D. Rated Output 240 Watts.	

Item	Qty	Model	Description
50.02	**12**	**P0922XR**	**TSC Power Cable, 1 m**
	P0922XR	FUNCTION: TSC Power Cable, 1 m 1 m power cable which connects FPS400 to F&P ISTA-BP and power conditioners.	

Item	Qty	Model	Description
50.03	**8**	**P0170PA**	**Cable, Power, 6 feet**
	P0170PA	FUNCTION: Cable, Power, 6 feet	

Item	Qty	Model	Description
50.04	**4**	**P0928BP**	**FBM 2xx Base To Base Cable, LSZH, 1.0 m**
	P0928BP	FUNCTION: FBM 2xx Base To Base Cable, LSZH, 1.0 m Cable to connect 2 Mbps fieldbus between baseplates. One cable provides bus redundancy.	

Item	Qty	Model	Description
50.05	**4**	**P0916RB**	**Fieldbus Baseplate Terminator**
	P0916RB	FUNCTION: Fieldbus Baseplate Terminator Connector With Termination Resistors. Plugs Into A Connector On The Baseplate. Two Are Required For Each Module Fieldbus Branch Consisting Of 1 To 4 Baseplates.	

Item	Qty	Model	Description
60.00	**6**	**P0923XL**	**FBI200A Fieldbus Isolater**
	P0923XL	FUNCTION: FBI200A Fieldbus Isolater The FBI200a Fieldbus Isolator/Filter extends this Fieldbus to 1830m (6000 ft). Module Is In 1/2 Y Form Factor. Two Modules Are Required For Redundant Fieldbus Installations.	

Item	Qty	Model	Description
60.01	**3**	**P0923XM**	**FBI200A Adapter**
	P0923XM	FUNCTION: FBI200A Adapter The FBI200a Adapter is required when connecting two FBM200a to a 100-Series migration structure.	

Item	Qty	Model	Description
70.00	**6**	**P0998EA**	**UgdDoc P0927AG FBM239 Discrete 8in/8out/8In/8Out**
	P0998EA	FUNCTION: UgdDoc P0927AG FBM239 Discrete 8in/8out/8In/8Out Must be returned within 3 months in refurbishable condition.	

Item	Qty	Model	Description
70.01	**6**	**P0923RK**	**FBM10 Term Assy Adapter (TAA)**
	P0923RK	FUNCTION: FBM10 Term Assy Adapter (TAA) FBM10 TAA interfaces a DIN-rail mounted FBM with an FBM10 TCA (nosecone).	

Item	Qty	Model	Description
70.02	**6**	**P0923RQ**	**FBM15 Term Assy Adapter (TAA)**
	P0923RQ	FUNCTION: FBM15 Term Assy Adapter (TAA) FBM15 TAA interfaces a DIN-rail mounted FBM with an FBM15 TCA (nosecone).	

Item	Qty	Model	Description
70.03	**6**	**P0927AG**	**FBM239, Discrete I/O 32 Channels, 8 In-8 Out-8 In-**
	P0927AG	FUNCTION: FBM239, Discrete I/O 32 Channels, 8 In-8 Out-8 In-8 Out The FBM239 discrete I/O interface module provides 32 channels of I/O in the pattern 8 In, 8 Out, 8 In, 8 Out. This module is typically used when migrating 100-Series fieldbus modules.	

Item	Qty	Model	Description
80.00	**9**	**P0997NB**	**Upg Doc FBM217 Adv 100-200 P0914TR**
	P0997NB	FUNCTION: Upg Doc FBM217 Adv 100-200 P0914TR Must be returned within 3 months in refurbishable conditions. Reference documentation for return of 100 series FBMs as replaced by 200 series FBMs. Return to Foxboro, MA, USA within 3 months of shipment of 200 Series. Advantage discount is provided on 200 Series FBMs and identified peripherals connected to CP270s in exchange for the return of 100 Series I/O, power supplies and associated peripherals.	

Item	Qty	Model	Description
80.01	**9**	**P0923RH**	**FBM08 Term Assy Adapter (TAA)**
	P0923RH	FUNCTION: FBM08 Term Assy Adapter (TAA) FBM08 TAA interfaces a DIN-rail mounted FBM with an FBM08 TCA (nosecone).	

Item	Qty	Model	Description
80.02	**4**	**P0923RN**	**FBM13 Term Assy Adapter (TAA)**
	P0923RN	FUNCTION: FBM13 Term Assy Adapter (TAA) FBM13 TAA interfaces a DIN-rail mounted FBM with an FBM13 TCA (nosecone).	

Item	Qty	Model	Description
80.03	**9**	**P0914TR**	**FBM217, Discrete Inputs, 32 Channels**
	P0914TR	FUNCTION: FBM217, Discrete Inputs, 32 Channels FBM217 Provides 32 Two Wire Channels For Monitoring On/ Off Voltage Levels. Termination Assemblies Are Available To Support 15-60 Vdc, 120 Vac/115 Vdc, And 240 Vac.	

Item	Qty	Model	Description
90.00	**2**	**P0997MU**	**Upg Doc FBM204 Adv 100-200 P0914SY**
	P0997MU	FUNCTION: Upg Doc FBM204 Adv 100-200 P0914SY Must be returned within 3 months in refurbishable conditions. Reference documentation for return of 100 series FBMs as replaced by 200 series FBMs. Return to Foxboro, MA, USA within 3 months of shipment of 200 Series. Advantage discount is provided on 200 Series FBMs and identified peripherals connected to CP270s in exchange for the return of 100 Series I/O, power supplies and associated peripherals.	

Item	Qty	Model	Description
90.01	**2**	**P0923RD**	**FBM04 Term Assy Adapter (TAA)**
	P0923RD	FUNCTION: FBM04 Term Assy Adapter (TAA) FBM04 TAA interfaces a DIN-rail mounted FBM with an FBM04 TCA (nosecone).	

Item	Qty	Model	Description
90.02	**2**	**P0914SY**	**FBM204 4 Channel 0-20 In + 4 Channel 0-20 Out**
	P0914SY	FUNCTION: FBM204 4 Channel 0-20 In + 4 Channel 0-20 Out FBM Module For Mounting On DIN Rail Baseplate. Provides Per Channel Loop Power With Per Channel Isolation.	

Item	Qty	Model	Description
100.00	**7**	**P0997MS**	**Upg Doc FBM201 Adv 100-200 P0914SQ**
	P0997MS	FUNCTION: Upg Doc FBM201 Adv 100-200 P0914SQ Must be returned within 3 months in refurbishable conditions. Reference documentation for return of 100 series FBMs as replaced by 200 series FBMs. Return to Foxboro, MA, USA within 3 months of shipment of 200 Series. Advantage discount is provided on 200 Series FBMs and identified peripherals connected to CP270s in exchange for the return of 100 Series I/O, power supplies and associated peripherals.	

Item	Qty	Model	Description
100.01	**7**	**P0923RA**	**FBM01 Term Assy Adapter (TAA)**
	P0923RA	FUNCTION: FBM01 Term Assy Adapter (TAA) FBM01 TAA interfaces a DIN-rail mounted FBM with an FBM01 or FBM43 TCA (nosecone).	

Item	Qty	Model	Description
100.02	**7**	**P0914SQ**	**FBM201 Channel Isolated 8 Input 0-20 mA**
	P0914SQ	FUNCTION: FBM201 Channel Isolated 8 Input 0-20 mA FBM Module For Mounting On DIN Rail Baseplate. Provides Per Channel Loop Power With Per Channel Isolation. Termination Assembly Allows Per Channel Selection For FBM Loop Power Or External Power.	

Item	Qty	Model	Description
110.00	**1**		**** Filter Bld'g Control Room, UV Bld'g ****
		FUNCTION: ** Filter Bld'g Control Room, UV Bld'g **	

Item	Qty	Model	Description
120.00	**2**	**H90J9CA0417G**	**Workstation Server Model H90 For Windows®**
	H90	FUNCTION: Workstation Server Model H90 For Windows® Server Class Xeon processor, with pre-configured and installed Microsoft® Windows Server® 2008 64 bit operating system, in a rack mounted package. The base unit includes 4 Gb RAM, one 300 Gb SAS hard drive, DVD/CDRW, mouse, keyboard, graphics interface, and redundant Hot-Swap power supplies. The Model H90 can be connected to an I/A Series V8.x Mesh Control Network via required fiber optic or copper Ethernet adapter cards for MESH connectivity. Additional options include support for internal RAID 1 or RAID 5, up to 8 internal hard drives, multiport serial/parallel card and USB speakers.	
	J	POINTING DEVICE/VIDEO HEADS: Mouse + Dual Head	

digital DisplayPort /DVI-D interface (Nvidia NVS 295)
9 RAM: 8GB Unbuffered UDIMMs
C INTERNAL HARD DRIVES: PC with four 300 Gb internal disks
A ETHERNET INTERFACES: Two Single Port Fiber MT-RJ PCIe NICs + Four RJ-45 Integrated NICs
0 I/O CARDS: None
4 HIGH AVAILABILITY OPTIONS: Internal RAID 5 with hot spare
1 PROCESSOR OPTIONS: 1 processor (i.e. six cores)
7 SYSTEM VERSION/O.S. LICENSES: I/A Series Software Version 8.8 (and later): Microsoft Server 2008 Server
G HARDWARE TRADE-IN UPGRADE CREDIT: Advantage Discount for return of 51A

Tags			
Set 1	2	Workstation Id	WKS0010004
	2	Workstation Desc	I/A Series Model H90 Rack Mount Server

Item	Qty	Model	Description
120.01	**2**	**P0928JJ**	**FPD, 23" LCD with LED backlight, and Prot Screen**
	P0928JJ	FUNCTION: FPD, 23" LCD with LED backlight, and Prot Screen Flat Screen Display, 23" LCD with LED backlight, and Protective Screen	

Item	Qty	Model	Description
120.02	**2**	**P0972VT**	**15 Ft DVI-D Digital Video Cable**
	P0972VT	FUNCTION: 15 Ft DVI-D Digital Video Cable 15 Foot DVI-D (Male/Male) Video Cable for connecting a DVI-D Digital Video source to a Digital-Capable Monitor	

Item	Qty	Model	Description
120.03	**4**	**P0972KV**	**Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 3 m**
	P0972KV	FUNCTION: Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 3 m Length: 3 Meters. MMF 62.5/125 µm Fiber Optic Cable. Connectors: MT-RJ On Each End. Wiring: 1 To 1 (i.e. No Crossover).	

Item	Qty	Model	Description
120.04	**4**	**P0972RJ**	**10 Ft USB Extension Cable**
	P0972RJ	FUNCTION: 10 Ft USB Extension Cable Includes A USB(A) Female And A USB(A) Male Connector. Use With Command Center II Locally Mounted Processors.	

Item	Qty	Model	Description
130.00	**1**	**P0924SJ**	**USB External Floppy Drive for P90/91/92**
	P0924SJ	FUNCTION: USB External Floppy Drive for P90/91/92 External, USB, 3.5", 1.44MB floppy driver for P92*K (and later) workstations and P90*D/P91*G (and later) servers.	

Item	Qty	Model	Description
140.00	**2**	**P0973JN**	**24-Port Fiber Managed Switch**
	P0973JN	FUNCTION: 24-Port Fiber Managed Switch The 24-Port Fiber managed switch (P0973JN) provides twenty-four 100Base-FX ports with MTRJ connectors, two fixed 10/100/1000 stacking / uplink (ISL) ports and two 1000Base-X uplink (ISL) Gigabit (SFP) ports. The two 1000Base-X uplink (ISL) Gigabit (SFP) ports can be populated with Mini-GBIC uplink (ISL) connector modules (P0972WT, P0972WU, P0972YQ, P0972YL, P0973JD or P0973FT). The switch allows high-performance, full-featured layer-2 Ethernet switching in small to medium-sized network applications, as wel	

Item	Qty	Model	Description
140.01	**4**	**P0972WT**	**MGBIC, 1000Base-SX, MMF, LC, Use w/P0972WR/YK**
	P0972WT	FUNCTION: MGBIC, 1000Base-SX, MMF, LC, Use w/P0972WR/YK A MGBIC Plug-In Module. Use With The P0972WR/YK Port Module Or Any Other MGBIC Port. 1000Base-SX. Has LC Connectors For Multimode Fiber.	

Item	Qty	Model	Description
140.02	**2**	**P0972TP**	**LC To LC Fiber Optic Cable, 15 m**
	P0972TP	FUNCTION: LC To LC Fiber Optic Cable, 15 m Extension Fiber Optic Cable With LC Connectors, 15 m	

Item	Qty	Model	Description
150.00	**1**	**K0173ZU**	**Mesh Configuration Tool & Switch/Network Documents**
	K0173ZU	FUNCTION: Mesh Configuration Tool & Switch/Network Documents One K0173ZU CDROM is needed per MESH network. This CDROM contains the Mesh Configuration Tool (K0173XS), which is needed to properly configure network Ethernet switches. It also contains all network and switch documentation.	

Item	Qty	Model	Description
160.00	**3**	**P0924JM**	**Migration mounting structure for 1 x 8**
	P0924JM	FUNCTION: Migration mounting structure for 1 x 8 Migration mounting structure for 1 x 8, used to connect DIN-rail FBM to 100-Series TCA (nosecones).	

Item	Qty	Model	Description
160.01	**4**	**P0924SM**	**Power Supply, FPS 240-24**
	P0924SM	FUNCTION: Power Supply, FPS 240-24 DIN-rail mounted power supply with 85/276 Vac or 88-375Vdc input and 24Vdc output. UL And UL-C Listed For Class I, Division 2, Groups A,B,C,D. Rated Output 240 Watts.	

Item	Qty	Model	Description
160.02	**6**	**P0922XR**	**TSC Power Cable, 1 m**
	P0922XR	FUNCTION: TSC Power Cable, 1 m 1 m power cable which connects FPS400 to F&P ISTA-BP and power conditioners.	

Item	Qty	Model	Description
160.03	**4**	**P0170PA**	**Cable, Power, 6 feet**
	P0170PA	FUNCTION: Cable, Power, 6 feet	

Item	Qty	Model	Description
160.04	**4**	**P0916RB**	**Fieldbus Baseplate Terminator**
	P0916RB	FUNCTION: Fieldbus Baseplate Terminator Connector With Termination Resistors. Plugs Into A Connector On The Baseplate. Two Are Required For Each Module Fieldbus Branch Consisting Of 1 To 4 Baseplates.	

Item	Qty	Model	Description
160.05	**1**	**P0928BP**	**FBM 2xx Base To Base Cable, LSZH, 1.0 m**
	P0928BP	FUNCTION: FBM 2xx Base To Base Cable, LSZH, 1.0 m Cable to connect 2 Mbps fieldbus between baseplates. One cable provides bus redundancy.	

Item	Qty	Model	Description
170.00	**4**	**P0923XL**	**FBI200A Fieldbus Isolater**
	P0923XL	FUNCTION: FBI200A Fieldbus Isolater The FBI200a Fieldbus Isolator/Filter extends this Fieldbus to 1830m (6000 ft). Module Is In 1/2 Y Form Factor. Two Modules Are Required For Redundant Fieldbus Installations.	

Item	Qty	Model	Description
170.01	**2**	**P0923XM**	**FBI200A Adapter**
	P0923XM	FUNCTION: FBI200A Adapter The FBI200a Adapter is required when connecting two FBM200a to a 100-Series migration structure.	

Item	Qty	Model	Description
180.00	**3**	**P0997MU**	**Upg Doc FBM204 Adv 100-200 P0914SY**
	P0997MU	FUNCTION: Upg Doc FBM204 Adv 100-200 P0914SY Must be returned within 3 months in refurbishable conditions. Reference documentation for return of 100 series FBMs as replaced by 200 series FBMs. Return to Foxboro, MA, USA within 3 months of shipment of 200 Series. Advantage discount is provided on 200 Series FBMs and identified peripherals connected to CP270s in exchange for the return of 100 Series I/O, power supplies and associated peripherals.	

Item	Qty	Model	Description
180.01	**3**	**P0923RD**	**FBM04 Term Assy Adapter (TAA)**
	P0923RD	FUNCTION: FBM04 Term Assy Adapter (TAA) FBM04 TAA interfaces a DIN-rail mounted FBM with an FBM04 TCA (nosecone).	

Item	Qty	Model	Description
180.02	**3**	**P0914SY**	**FBM204 4 Channel 0-20 In + 4 Channel 0-20 Out**
	P0914SY	FUNCTION: FBM204 4 Channel 0-20 In + 4 Channel 0-20 Out FBM Module For Mounting On DIN Rail Baseplate. Provides Per Channel Loop Power With Per Channel Isolation.	

Item	Qty	Model	Description
190.00	**3**	**P0997NB**	**Upg Doc FBM217 Adv 100-200 P0914TR**
	P0997NB	FUNCTION: Upg Doc FBM217 Adv 100-200 P0914TR Must be returned within 3 months in refurbishable conditions. Reference documentation for return of 100 series FBMs as replaced by 200 series FBMs. Return to Foxboro, MA, USA within 3 months of shipment of 200 Series. Advantage discount is provided on 200 Series FBMs and identified peripherals connected to CP270s in exchange for the return of 100 Series I/O, power supplies and associated peripherals.	

Item	Qty	Model	Description
190.01	**3**	**P0923RH**	**FBM08 Term Assy Adapter (TAA)**
	P0923RH	FUNCTION: FBM08 Term Assy Adapter (TAA) FBM08 TAA interfaces a DIN-rail mounted FBM with an FBM08 TCA (nosecone).	

Item	Qty	Model	Description
190.02	**1**	**P0923RN**	**FBM13 Term Assy Adapter (TAA)**
	P0923RN	FUNCTION: FBM13 Term Assy Adapter (TAA) FBM13 TAA interfaces a DIN-rail mounted FBM with an FBM13 TCA (nosecone).	

Item	Qty	Model	Description
190.03	**3**	**P0914TR**	**FBM217, Discrete Inputs, 32 Channels**
	P0914TR	FUNCTION: FBM217, Discrete Inputs, 32 Channels FBM217 Provides 32 Two Wire Channels For Monitoring On/ Off Voltage Levels. Termination Assemblies Are Available To Support 15-60 Vdc, 120 Vac/115 Vdc, And 240 Vac.	

Item	Qty	Model	Description
200.00	**3**	**P0997MS**	**Upg Doc FBM201 Adv 100-200 P0914SQ**
	P0997MS	FUNCTION: Upg Doc FBM201 Adv 100-200 P0914SQ Must be returned within 3 months in refurbishable conditions. Reference documentation for return of 100 series FBMs as replaced by 200 series FBMs. Return to Foxboro, MA, USA within 3 months	

of shipment of 200 Series. Advantage discount is provided on 200 Series FBMs and identified peripherals connected to CP270s in exchange for the return of 100 Series I/O, power supplies and associated peripherals.

Item	Qty	Model	Description
200.01	**3**	**P0923RA**	**FBM01 Term Assy Adapter (TAA)**
	P0923RA	FUNCTION: FBM01 Term Assy Adapter (TAA) FBM01 TAA interfaces a DIN-rail mounted FBM with an FBM01 or FBM43 TCA (nosecone).	

Item	Qty	Model	Description
200.02	**3**	**P0914SQ**	**FBM201 Channel Isolated 8 Input 0-20 mA**
	P0914SQ	FUNCTION: FBM201 Channel Isolated 8 Input 0-20 mA FBM Module For Mounting On DIN Rail Baseplate. Provides Per Channel Loop Power With Per Channel Isolation. Termination Assembly Allows Per Channel Selection For FBM Loop Power Or External Power.	

Item	Qty	Model	Description
210.00	**1**	**P0998EA**	**UgdDoc P0927AG FBM239 Discrete 8in/8out/8In/8Out**
	P0998EA	FUNCTION: UgdDoc P0927AG FBM239 Discrete 8in/8out/8In/8Out Must be returned within 3 months in refurbishable condition.	

Item	Qty	Model	Description
210.01	**1**	**P0923RK**	**FBM10 Term Assy Adapter (TAA)**
	P0923RK	FUNCTION: FBM10 Term Assy Adapter (TAA) FBM10 TAA interfaces a DIN-rail mounted FBM with an FBM10 TCA (nosecone).	

Item	Qty	Model	Description
210.02	**1**	**P0927AG**	**FBM239, Discrete I/O 32 Channels, 8 In-8 Out-8 In-**
	P0927AG	FUNCTION: FBM239, Discrete I/O 32 Channels, 8 In-8 Out-8 In-8 Out The FBM239 discrete I/O interface module provides 32 channels of I/O in the pattern 8 In, 8 Out, 8 In, 8 Out. This module is typically used when migrating 100-Series fieldbus modules.	

Item	Qty	Model	Description
220.00	**1**	**RH924YF**	**FCP280 Vertical Baseplate**
	RH924YF	FUNCTION: FCP280 Vertical Baseplate Vertical Baseplate For A Fault-Tolerant FCP280 With Time Strobe And Local Fieldbus Connectors.	

Item	Qty	Model	Description
220.01	**2**	**P0926KM**	**Power Supply Output Cable - 121 cm (48 in)**
		P0926KM	FUNCTION: Power Supply Output Cable - 121 cm (48 in) Cable To Connect P0917LY Power Supply To Modular Baseplate. One Cable Per Baseplate Required For Non-Redundant Power, Two Cables For Redundant Cable. Length 48 Inches / 121 cm.

Item	Qty	Model	Description
220.02	**1**	**P0928BP**	**FBM 2xx Base To Base Cable, LSZH, 1.0 m**
		P0928BP	FUNCTION: FBM 2xx Base To Base Cable, LSZH, 1.0 m Cable to connect 2 Mbps fieldbus between baseplates. One cable provides bus redundancy.

Item	Qty	Model	Description
230.00	**4**	**P0916RB**	**Fieldbus Baseplate Terminator**
		P0916RB	FUNCTION: Fieldbus Baseplate Terminator Connector With Termination Resistors. Plugs Into A Connector On The Baseplate. Two Are Required For Each Module Fieldbus Branch Consisting Of 1 To 4 Baseplates.

Item	Qty	Model	Description
240.00	**1**	**P0926JF**	**4 Slots Vert. Baseplate, Time Strobe, 4 FBM**
		P0926JF	FUNCTION: 4 Slots Vert. Baseplate, Time Strobe, 4 FBM Vertical Baseplate With 4 FBMs' Slots, With Time Strobe And Local Fieldbus Connectors.

Item	Qty	Model	Description
240.01	**1**	**P0928BP**	**FBM 2xx Base To Base Cable, LSZH, 1.0 m**
		P0928BP	FUNCTION: FBM 2xx Base To Base Cable, LSZH, 1.0 m Cable to connect 2 Mbps fieldbus between baseplates. One cable provides bus redundancy.

Item	Qty	Model	Description
240.02	**2**	**P0926KM**	**Power Supply Output Cable - 121 cm (48 in)**
		P0926KM	FUNCTION: Power Supply Output Cable - 121 cm (48 in) Cable To Connect P0917LY Power Supply To Modular Baseplate. One Cable Per Baseplate Required For Non-Redundant Power, Two Cables For Redundant Cable. Length 48 Inches / 121 cm.

Item	Qty	Model	Description
250.00	**2**	**P0922YU**	**Power Supply, FPS 400-24**
		P0922YU	FUNCTION: Power Supply, FPS 400-24 Power Supply With Universal ac/dc Mains @ 85/265 Vac 47/63 Cycles Or 125 Vdc; Output 24 Vdc. UL And UL-C Listed For Class I, Division 2, Groups A,B,C,D And CENELEC Certified For Zone 2 Group IIC. For G3 Environmental Locations. Rated Output 400 Watts.

Item	Qty	Model	Description
250.01	**2**	**P0926DZ**	**Power Connection Kit For FPS 400-24**
		P0926DZ	FUNCTION: Power Connection Kit For FPS 400-24 Input Power Connection Kit For FPS 400-24. Includes Terminal Blocks.

Item	Qty	Model	Description
250.02	**2**	**P0926CM**	**110/240V FPS Power Cable, 2 Ft**
		P0926CM	FUNCTION: 110/240V FPS Power Cable, 2 Ft Cable To Connect Input Power Connection Kit To P0917LY Power Supply. One Cable Per Power Supply Required. Length 2 Feet/60cm.

Item	Qty	Model	Description
260.00	**1**	**P0926GW**	**FBM232, 10/100 Mbps Ethernet, Single**
		P0926GW	FUNCTION: FBM232, 10/100 Mbps Ethernet, Single Communication Interface With 1 Ethernet Port, 10/100 Mbps.

Item	Qty	Model	Description
270.00	**1**	**K0201BM**	**Media: Allen Bradley EtherNet/IP Driver for FDSI**
		K0201BM	FUNCTION: Media: Allen Bradley EtherNet/IP Driver for FDSI Media for Allen Bradley EtherNet/IP Driver for FDSI and driver configurator. Requires purchase of S61 code license for operation.

Item	Qty	Model	Description
280.00	**2**	**P28000000011**	**Advantage Upgrade of Non-Preferred CPs to FCP280**
		P280	FUNCTION: Paper document that identifies children FCP280 (RH924YA) Baseplate Mounted Control Processor With Control Network And Fieldbus Network Connections.
		0	FOXBORO EVO VERSION: For Version 2014 FOXBORO EVO Systems
		0	CONTROLLER TYPE: FCP280 Control Processor
		0	FUTURE OPTION: Not used
		0	FUTURE OPTION: Not used
		0	FUTURE OPTION: Not used
		0	FUTURE OPTION: Not used
		1	HARDWARE TRADE-IN UPGRADE CREDIT: Non-Svc Agmt Adv Disc for Non-Preferred CP Return
		1	ADDITIONAL DISCOUNT FOR RETURN OF ADDITIONAL PRODU Trade in of 1 additional CP/GW (Total 2)

Item	Qty	Model	Description
280.01	**2**	**RH924WA**	**FCP280 Fiber Optic Network Adapter**
		RH924WA	FUNCTION: FCP280 Fiber Optic Network Adapter Fiber Optic Network Adapter for use with FCP280 baseplate

Item	Qty	Model	Description
280.02	**2**	**P0972TR**	**3 m, MMF, Fiber, MT-RJ To LC Adapter Cable**
		P0972TR	FUNCTION: 3 m, MMF, Fiber, MT-RJ To LC Adapter Cable 3 Meter Fiber, MMF, 62.5/125 um, Riser, MT-RJ To LC Adapter Cable Used To Connect FCP/ZCPs To MT-RJ Fiber Switches. Has PVC Content.

Item	Qty	Model	Description
280.03	**2**	**RH924YA**	**FCP280 Control Processor**
		RH924YA	FUNCTION: FCP280 Control Processor Baseplate Mounted Control Processor.

Item	Qty	Model	Description
290.00	**3**	**P0997KF**	**Non-CF Adv Upg. Foxboro Evo 2014 Cont Lic 100 Anal**
		P0997KF	FUNCTION: Non-CF Adv Upg. Foxboro Evo 2014 Cont Lic 100 Anal Non-Customer FIRST Advantage Discounted Foxboro Evo 2014 Site License for Control and Monitoring, 100 Analog Inputs and/or Outputs for the return of upgraded Control Processors. This license for Analog IO includes all devices physically connected to the controller: 4-20 mA, HART devices, FF devices, Profibus PA devices, DeviceNet Devices, ...One HART device counts for one IO point. Advantage discounts are provided on new equipment in exchange for the return of older CP and / or GW and/or Competitive Controller hardware, software and associated peripherals within 3 months of Advantage order shipment to Foxboro-Schneider Electric, Foxboro, MA, USA.

Item	Qty	Model	Description
300.00	**1**	**P0997KM**	**Non-CF Adv Upg Foxboro Evo 2014 Cont Lic. 1000 Dis**
		P0997KM	FUNCTION: Non-CF Adv Upg Foxboro Evo 2014 Cont Lic. 1000 Dis Non-Customer FIRST Advantage Discounted Foxboro Evo 2014 Site License fro Control and Monitoring, 1,000 Discrete Inputs and/or Outputs for the return of upgraded Control Processors. Advantage discounts are provided on new equipment in exchange for the return of older CP and / or GW and/or Competitive Controller hardware, software and associated peripherals within 3 months of Advantage order shipment to Foxboro-Schneider Electric, Foxboro, MA, USA.

Item	Qty	Model	Description
310.00	**7**	**P0997KK**	**Non-CF Adv Upg.Foxboro Evo 2014 Cont Lic 2014 100**
		P0997KK	FUNCTION: Non-CF Adv Upg.Foxboro Evo 2014 Cont Lic 2014 100 Non-Customer FIRST Advantage Discounted Foxboro Evo 2014 Site License for Control and Monitoring IO, 100 Discrete Input and/or Output for the return of upgraded Control Processors. Advantage discounts are provided on new equipment in exchange for the return of older CP and / or GW

and/or Competitive Controller hardware, software and associated peripherals within 3 months of Advantage order shipment to Foxboro-Schneider Electric, Foxboro, MA, USA.

Item	Qty	Model	Description
320.00	**4**	**P0997KR**	**N-CF Adv Upg Foxboro Evo 2014 Cont Lic 1,000 S IO**
	P0997KR	FUNCTION: N-CF Adv Upg Foxboro Evo 2014 Cont Lic 1,000 S IO Non-Customer FIRST Advantage Discounted Foxboro Evo 2014 Site License for Control and Monitoring, 1,000 Soft Inputs and Outputs for the return of upgraded Control Processors and / or Gateways. The Soft IO are typically data exchanged between Foxboro Evo and PLCs, Packages,... any third party device connected to Foxboro Evo, via FDSI. Advantage discounts are provided on new equipment in exchange for the return of older CP and / or GW and/or Competitive Controller hardware, software and associated peripherals within 3 months of Advantage order shipment to Foxboro-Schneider Electric, Foxboro, MA, USA.	

Item	Qty	Model	Description
330.00	**1**	**G50112222210**	**600 x 1000 x 2000 mm Server Enclosure F/R Access**
	G50	FUNCTION: 600 x 1000 x 2000 mm Server Enclosure F/R Access NEMA 12/IP 43 rated enclosure, painted metal construction, front and rear doors. Enclosure provides space for mounting rack or tower form factor Server class workstations which require 1000 mm deep mounting space. Options are provided for sliding shelves for mounting workstations in tower type form factors. The enclosure is also designed to accomodate Mesh network equipment such as chassis based and 19 inch rail mounted network switches Refer to PSS 21H 2X50 B4 for complete details.	
	1	INGRESS PROTECTION: Vented NEMA 1 - perforated front & rear doors	
	1	ENCLOSURE CONSTRUCTION: Left and right sidewalls	
	2	CIRCUIT BREAKER/FUSE LOCATION: BOTTOM of enclosure	
	2	TOP HALF ENCLOSURE POWER OPTIONS: 2 pair of power strips (2-Pri/2-Sec), (16A max/10A per socket) only	
	2	BOTTOM HALF ENCLOSURE POWER OPTIONS: 2 pair of power strips (2-Pri/2-Sec), (16A max/10A per socket) only	
	2	TOP HALF ENCLOSURE IEC-320 MALE/FEMALE CORD SETS: 4 Cord Sets	
	2	BOTTOM HALF ENCLOSURE IEC-320 MALE/FEMALE CORD SET 4 Cord Sets	
	1	ENCLOSURE ACCESSORIES: PVC Wireways	
	0	FUTURE OPTION: None	

Item	Qty	Model	Description
340.00	**1**		**** Filter Lower Level ****
		FUNCTION: ** Filter Lower Level **	

Item	Qty	Model	Description
350.00	**7**	**P0924JM**	**Migration mounting structure for 1 x 8**
	P0924JM	FUNCTION: Migration mounting structure for 1 x 8 Migration mounting structure for 1 x 8, used to connect DIN-rail FBM to 100-Series TCA (nosecones).	

Item	Qty	Model	Description
350.01	**10**	**P0924SM**	**Power Supply, FPS 240-24**
	P0924SM	FUNCTION: Power Supply, FPS 240-24 DIN-rail mounted power supply with 85/276 Vac or 88-375Vdc input and 24Vdc output. UL And UL-C Listed For Class I, Division 2, Groups A,B,C,D. Rated Output 240 Watts.	

Item	Qty	Model	Description
350.02	**14**	**P0922XR**	**TSC Power Cable, 1 m**
	P0922XR	FUNCTION: TSC Power Cable, 1 m 1 m power cable which connects FPS400 to F&P ISTA-BP and power conditioners.	

Item	Qty	Model	Description
350.03	**10**	**P0170PA**	**Cable, Power, 6 feet**
	P0170PA	FUNCTION: Cable, Power, 6 feet	

Item	Qty	Model	Description
350.04	**10**	**P0916RB**	**Fieldbus Baseplate Terminator**
	P0916RB	FUNCTION: Fieldbus Baseplate Terminator Connector With Termination Resistors. Plugs Into A Connector On The Baseplate. Two Are Required For Each Module Fieldbus Branch Consisting Of 1 To 4 Baseplates.	

Item	Qty	Model	Description
350.05	**2**	**P0928BP**	**FBM 2xx Base To Base Cable, LSZH, 1.0 m**
	P0928BP	FUNCTION: FBM 2xx Base To Base Cable, LSZH, 1.0 m Cable to connect 2 Mbps fieldbus between baseplates. One cable provides bus redundancy.	

Item	Qty	Model	Description
360.00	**10**	**P0923XL**	**FBI200A Fieldbus Isolater**
	P0923XL	FUNCTION: FBI200A Fieldbus Isolater The FBI200a Fieldbus Isolator/Filter extends this Fieldbus to 1830m (6000 ft). Module Is In 1/2 Y Form Factor. Two Modules Are Required For Redundant Fieldbus Installations.	

Item	Qty	Model	Description
360.01	**5**	**P0923XM**	**FBI200A Adapter**
	P0923XM	FUNCTION: FBI200A Adapter The FBI200a Adapter is required when connecting two FBM200a to a 100-Series migration structure.	

Item	Qty	Model	Description
370.00	**1**	**P0997MS**	**Upg Doc FBM201 Adv 100-200 P0914SQ**
	P0997MS	FUNCTION: Upg Doc FBM201 Adv 100-200 P0914SQ Must be returned within 3 months in refurbishable conditions. Reference documentation for return of 100 series FBMs as replaced by 200 series FBMs. Return to Foxboro, MA, USA within 3 months of shipment of 200 Series. Advantage discount is provided on 200 Series FBMs and identified peripherals connected to CP270s in exchange for the return of 100 Series I/O, power supplies and associated peripherals.	

Item	Qty	Model	Description
370.01	**1**	**P0923RA**	**FBM01 Term Assy Adapter (TAA)**
	P0923RA	FUNCTION: FBM01 Term Assy Adapter (TAA) FBM01 TAA interfaces a DIN-rail mounted FBM with an FBM01 or FBM43 TCA (nosecone).	

Item	Qty	Model	Description
370.02	**1**	**P0914SQ**	**FBM201 Channel Isolated 8 Input 0-20 mA**
	P0914SQ	FUNCTION: FBM201 Channel Isolated 8 Input 0-20 mA FBM Module For Mounting On DIN Rail Baseplate. Provides Per Channel Loop Power With Per Channel Isolation. Termination Assembly Allows Per Channel Selection For FBM Loop Power Or External Power.	

Item	Qty	Model	Description
380.00	**13**	**P0997NB**	**Upg Doc FBM217 Adv 100-200 P0914TR**
	P0997NB	FUNCTION: Upg Doc FBM217 Adv 100-200 P0914TR Must be returned within 3 months in refurbishable conditions. Reference documentation for return of 100 series FBMs as replaced by 200 series FBMs. Return to Foxboro, MA, USA within 3 months of shipment of 200 Series. Advantage discount is provided on 200 Series FBMs and identified peripherals connected to CP270s in exchange for the return of 100 Series I/O, power supplies and associated peripherals.	

Item	Qty	Model	Description
380.01	**13**	**P0923RH**	**FBM08 Term Assy Adapter (TAA)**
	P0923RH	FUNCTION: FBM08 Term Assy Adapter (TAA) FBM08 TAA interfaces a DIN-rail mounted FBM with an FBM08 TCA (nosecone).	

Item	Qty	Model	Description
380.02	**13**	**P0923RN**	**FBM13 Term Assy Adapter (TAA)**
	P0923RN	FUNCTION: FBM13 Term Assy Adapter (TAA) FBM13 TAA interfaces a DIN-rail mounted FBM with an FBM13 TCA (nosecone).	

Item	Qty	Model	Description
380.03	**13**	**P0914TR**	**FBM217, Discrete Inputs, 32 Channels**
	P0914TR	FUNCTION: FBM217, Discrete Inputs, 32 Channels FBM217 Provides 32 Two Wire Channels For Monitoring On/ Off Voltage Levels. Termination Assemblies Are Available To Support 15-60 Vdc, 120 Vac/115 Vdc, And 240 Vac.	

Item	Qty	Model	Description
390.00	**11**	**P0998EA**	**UgdDoc P0927AG FBM239 Discrete 8in/8out/8In/8Out**
	P0998EA	FUNCTION: UgdDoc P0927AG FBM239 Discrete 8in/8out/8In/8Out Must be returned within 3 months in refurbishable condition.	

Item	Qty	Model	Description
390.01	**11**	**P0923RK**	**FBM10 Term Assy Adapter (TAA)**
	P0923RK	FUNCTION: FBM10 Term Assy Adapter (TAA) FBM10 TAA interfaces a DIN-rail mounted FBM with an FBM10 TCA (nosecone).	

Item	Qty	Model	Description
390.02	**9**	**P0923RQ**	**FBM15 Term Assy Adapter (TAA)**
	P0923RQ	FUNCTION: FBM15 Term Assy Adapter (TAA) FBM15 TAA interfaces a DIN-rail mounted FBM with an FBM15 TCA (nosecone).	

Item	Qty	Model	Description
390.03	**11**	**P0927AG**	**FBM239, Discrete I/O 32 Channels, 8 In-8 Out-8 In-**
	P0927AG	FUNCTION: FBM239, Discrete I/O 32 Channels, 8 In-8 Out-8 In-8 Out The FBM239 discrete I/O interface module provides 32 channels of I/O in the pattern 8 In, 8 Out, 8 In, 8 Out. This module is typically used when migrating 100-Series fieldbus modules.	

Item	Qty	Model	Description
400.00	**1**		**** Mixed Liquor Bld'g ****
		FUNCTION: ** Mixed Liquor Bld'g **	

Item	Qty	Model	Description
410.00	**1**	**H926048B070J**	**Model H92 Workstation For Windows**
	H92	FUNCTION: Model H92 Workstation for Windows® Workstation Class Xeon processor, with pre-configured and installed	

Microsoft® Windows®7 64 bit operating system, in a Mini-Tower package. The base unit consists of an Internal SATA Hard Drive, 4 Gb of ECC RAM, Internal DVD/CDRW Drive, Mouse, Keyboard and PCIe Dual Head Digital Video Interface. The Workstation Model H92 for Windows can be connected to the I/A Series V8.x Mesh Control Network via required fiber optic or copper ethernet adapter cards for MESH connectivity.

6 SYSTEM VERSION/O.S. LICENSES: I/A Series® Software Version 8.8 (and later) with Windows 7
0 FUTURE OPTION: Not used
4 POINTING DEVICE & VIDEO CARD: Mouse + Dual Head Digital DisplayPort/DVI-D interface (Nvidia NVS 295)
8 RAM: 6GB of DDR3 ECC RAM
B INTERNAL SYSTEM DISK: One 500 GB Serial ATA hard drive
0 BACKUP DEVICE: None
7 ETHERNET CARD: Two Single Port Fiber MT-RJ PCIe card NICs + One Integrated RJ-45 NIC
0 I/O CARDS: None
J HARDWARE TRADE-IN UPGRADE CREDIT: Advantage Discount for return of 51B

Tags

Set 1	1	Workstation Id	WKS0010004
	1	Workstation Desc	I/A Series Model H90 Rack Mount Server

Item	Qty	Model	Description
410.01	**1**	**P0928JJ**	**FPD, 23" LCD with LED backlight, and Prot Screen**
	P0928JJ	FUNCTION: FPD, 23" LCD with LED backlight, and Prot Screen Flat Screen Display, 23" LCD with LED backlight, and Protective Screen	

Item	Qty	Model	Description
410.02	**1**	**P0972VT**	**15 Ft DVI-D Digital Video Cable**
	P0972VT	FUNCTION: 15 Ft DVI-D Digital Video Cable 15 Foot DVI-D (Male/Male) Video Cable for connecting a DVI-D Digital Video source to a Digital-Capable Monitor	

Item	Qty	Model	Description
410.03	**2**	**P0972KV**	**Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 3 m**
	P0972KV	FUNCTION: Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 3 m Length: 3 Meters. MMF 62.5/125 µm Fiber Optic Cable. Connectors: MT-RJ On Each End. Wiring: 1 To 1 (i.e. No Crossover).	

Item	Qty	Model	Description
410.04	**2**	**P0972RJ**	**10 Ft USB Extension Cable**
	P0972RJ	FUNCTION: 10 Ft USB Extension Cable Includes A USB(A) Female And A USB(A) Male Connector. Use With Command Center II Locally Mounted Processors.	

Item	Qty	Model	Description
420.00	**1**	**P0924SJ**	**USB External Floppy Drive for P90/91/92**
	P0924SJ	FUNCTION: USB External Floppy Drive for P90/91/92 External, USB, 3.5", 1.44MB floppy driver for P92*K (and later) workstations and P90*D/P91*G (and later) servers.	

Item	Qty	Model	Description
430.00	**2**	**P0973JN**	**24-Port Fiber Managed Switch**
	P0973JN	FUNCTION: 24-Port Fiber Managed Switch The 24-Port Fiber managed switch (P0973JN) provides twenty-four 100Base-FX ports with MTRJ connectors, two fixed 10/100/1000 stacking / uplink (ISL) ports and two 1000Base-X uplink (ISL) Gigabit (SFP) ports. The two 1000Base-X uplink (ISL) Gigabit (SFP) ports can be populated with Mini-GBIC uplink (ISL) connector modules (P0972WT, P0972WU, P0972YQ, P0972YL, P0973JD or P0973FT). The switch allows high-performance, full-featured layer-2 Ethernet switching in small to medium-sized network applications, as wel	

Item	Qty	Model	Description
430.01	**4**	**P0972WT**	**MGBIC, 1000Base-SX, MMF, LC, Use w/P0972WR/YK**
	P0972WT	FUNCTION: MGBIC, 1000Base-SX, MMF, LC, Use w/P0972WR/YK A MGBIC Plug-In Module. Use With The P0972WR/YK Port Module Or Any Other MGBIC Port. 1000Base-SX. Has LC Connectors For Multimode Fiber.	

Item	Qty	Model	Description
430.02	**2**	**P0972TP**	**LC To LC Fiber Optic Cable, 15 m**
	P0972TP	FUNCTION: LC To LC Fiber Optic Cable, 15 m Extension Fiber Optic Cable With LC Connectors, 15 m	

Item	Qty	Model	Description
440.00	**1**	**K0173ZU**	**Mesh Configuration Tool & Switch/Network Documents**
	K0173ZU	FUNCTION: Mesh Configuration Tool & Switch/Network Documents One K0173ZU CDROM is needed per MESH network. This CDROM contains the Mesh Configuration Tool (K0173XS), which is needed to properly configure network Ethernet switches. It also contains all network and switch documentation.	

Item	Qty	Model	Description
450.00	**1**	**RH924YF**	**FCP280 Vertical Baseplate**
	RH924YF	FUNCTION: FCP280 Vertical Baseplate Vertical Baseplate For A Fault-Tolerant FCP280 With Time Strobe And Local Fieldbus Connectors.	

Item	Qty	Model	Description
450.01	**2**	**P0926KM**	**Power Supply Output Cable - 121 cm (48 in)**
	P0926KM	FUNCTION: Power Supply Output Cable - 121 cm (48 in) Cable To Connect P0917LY Power Supply To Modular Baseplate. One Cable Per Baseplate Required For Non-Redundant Power, Two Cables For Redundant Cable. Length 48 Inches / 121 cm.	

Item	Qty	Model	Description
450.02	**1**	**P0928BP**	**FBM 2xx Base To Base Cable, LSZH, 1.0 m**
	P0928BP	FUNCTION: FBM 2xx Base To Base Cable, LSZH, 1.0 m Cable to connect 2 Mbps fieldbus between baseplates. One cable provides bus redundancy.	

Item	Qty	Model	Description
460.00	**4**	**P0916RB**	**Fieldbus Baseplate Terminator**
	P0916RB	FUNCTION: Fieldbus Baseplate Terminator Connector With Termination Resistors. Plugs Into A Connector On The Baseplate. Two Are Required For Each Module Fieldbus Branch Consisting Of 1 To 4 Baseplates.	

Item	Qty	Model	Description
470.00	**2**	**P0922YU**	**Power Supply, FPS 400-24**
	P0922YU	FUNCTION: Power Supply, FPS 400-24 Power Supply With Universal ac/dc Mains @ 85/265 Vac 47/63 Cycles Or 125 Vdc; Output 24 Vdc. UL And UL-C Listed For Class I, Division 2, Groups A,B,C,D And CENELEC Certified For Zone 2 Group IIC. For G3 Environmental Locations. Rated Output 400 Watts.	

Item	Qty	Model	Description
470.01	**2**	**P0926DZ**	**Power Connection Kit For FPS 400-24**
	P0926DZ	FUNCTION: Power Connection Kit For FPS 400-24 Input Power Connection Kit For FPS 400-24. Includes Terminal Blocks.	

Item	Qty	Model	Description
470.02	**2**	**P0926CM**	**110/240V FPS Power Cable, 2 Ft**
	P0926CM	FUNCTION: 110/240V FPS Power Cable, 2 Ft Cable To Connect Input Power Connection Kit To P0917LY Power Supply. One Cable Per Power Supply Required. Length 2 Feet/60cm.	

Item	Qty	Model	Description
480.00	**2**	**P28000000011**	**Advantage Upgrade of Non-Preferred CPs to FCP280**
	P280	FUNCTION: Paper document that identifies children FCP280 (RH924YA) Baseplate Mounted Control Processor With Control Network And Fieldbus Network Connections.	

0 FOXBORO EVO VERSION: For Version 2014 FOXBORO EVO Systems
0 CONTROLLER TYPE: FCP280 Control Processor
0 FUTURE OPTION: Not used
0 FUTURE OPTION: Not used
0 FUTURE OPTION: Not used
0 FUTURE OPTION: Not used
1 HARDWARE TRADE-IN UPGRADE CREDIT: Non-Svc Agmt Adv Disc for Non-Preferred CP Return
1 ADDITIONAL DISCOUNT FOR RETURN OF ADDITIONAL PRODU Trade in of 1 additional CP/GW (Total 2)

Item	Qty	Model	Description
480.01	**2**	**RH924YA**	**FCP280 Control Processor**
	RH924YA	FUNCTION: FCP280 Control Processor Baseplate Mounted Control Processor.	

Item	Qty	Model	Description
490.00	**2**	**RH924YA**	**FCP280 Control Processor**
	RH924YA	FUNCTION: FCP280 Control Processor Baseplate Mounted Control Processor.	

Item	Qty	Model	Description
500.00	**2**	**P0972TR**	**3 m, MMF, Fiber, MT-RJ To LC Adapter Cable**
	P0972TR	FUNCTION: 3 m, MMF, Fiber, MT-RJ To LC Adapter Cable 3 Meter Fiber, MMF, 62.5/125 um, Riser, MT-RJ To LC Adapter Cable Used To Connect FCP/ZCPs To MT-RJ Fiber Switches. Has PVC Content.	

Item	Qty	Model	Description
510.00	**2**	**RH924WA**	**FCP280 Fiber Optic Network Adapter**
	RH924WA	FUNCTION: FCP280 Fiber Optic Network Adapter Fiber Optic Network Adapter for use with FCP280 baseplate	

Item	Qty	Model	Description
520.00	**10**	**P0924JM**	**Migration mounting structure for 1 x 8**
	P0924JM	FUNCTION: Migration mounting structure for 1 x 8 Migration mounting structure for 1 x 8, used to connect DIN-rail FBM to 100-Series TCA (nosecones).	

Item	Qty	Model	Description
520.01	**12**	**P0924SM**	**Power Supply, FPS 240-24**
	P0924SM	FUNCTION: Power Supply, FPS 240-24 DIN-rail mounted power supply with 85/276 Vac or 88-375Vdc input and 24Vdc output. UL And UL-C Listed For Class I, Division 2, Groups A,B,C,D. Rated Output 240 Watts.	

Item	Qty	Model	Description
520.02	**20**	**P0922XR**	**TSC Power Cable, 1 m**
	P0922XR	FUNCTION: TSC Power Cable, 1 m 1 m power cable which connects FPS400 to F&P ISTA-BP and power conditioners.	

Item	Qty	Model	Description
520.03	**12**	**P0170PA**	**Cable, Power, 6 feet**
	P0170PA	FUNCTION: Cable, Power, 6 feet	

Item	Qty	Model	Description
520.04	**6**	**P0928BP**	**FBM 2xx Base To Base Cable, LSZH, 1.0 m**
	P0928BP	FUNCTION: FBM 2xx Base To Base Cable, LSZH, 1.0 m Cable to connect 2 Mbps fieldbus between baseplates. One cable provides bus redundancy.	

Item	Qty	Model	Description
520.05	**8**	**P0916RB**	**Fieldbus Baseplate Terminator**
	P0916RB	FUNCTION: Fieldbus Baseplate Terminator Connector With Termination Resistors. Plugs Into A Connector On The Baseplate. Two Are Required For Each Module Fieldbus Branch Consisting Of 1 To 4 Baseplates.	

Item	Qty	Model	Description
530.00	**8**	**P0923XL**	**FBI200A Fieldbus Isolater**
	P0923XL	FUNCTION: FBI200A Fieldbus Isolater The FBI200a Fieldbus Isolator/Filter extends this Fieldbus to 1830m (6000 ft). Module Is In 1/2 Y Form Factor. Two Modules Are Required For Redundant Fieldbus Installations.	

Item	Qty	Model	Description
530.01	**4**	**P0923XM**	**FBI200A Adapter**
	P0923XM	FUNCTION: FBI200A Adapter The FBI200a Adapter is required when connecting two FBM200a to a 100-Series migration structure.	

Item	Qty	Model	Description
540.00	**7**	**P0997MS**	**Upg Doc FBM201 Adv 100-200 P0914SQ**
	P0997MS	FUNCTION: Upg Doc FBM201 Adv 100-200 P0914SQ Must be returned within 3 months in refurbishable conditions. Reference documentation for return of 100 series FBMs as replaced by 200 series FBMs. Return to Foxboro, MA, USA within 3 months of shipment of 200 Series. Advantage discount is provided on 200 Series FBMs and identified peripherals connected to CP270s in exchange for the return of 100 Series I/O, power supplies and associated peripherals.	

Item	Qty	Model	Description
540.01	**7**	**P0923RA**	**FBM01 Term Assy Adapter (TAA)**
	P0923RA	FUNCTION: FBM01 Term Assy Adapter (TAA) FBM01 TAA interfaces a DIN-rail mounted FBM with an FBM01 or FBM43 TCA (nosecone).	

Item	Qty	Model	Description
540.02	**7**	**P0914SQ**	**FBM201 Channel Isolated 8 Input 0-20 mA**
	P0914SQ	FUNCTION: FBM201 Channel Isolated 8 Input 0-20 mA FBM Module For Mounting On DIN Rail Baseplate. Provides Per Channel Loop Power With Per Channel Isolation. Termination Assembly Allows Per Channel Selection For FBM Loop Power Or External Power.	

Item	Qty	Model	Description
550.00	**11**	**P0997MU**	**Upg Doc FBM204 Adv 100-200 P0914SY**
	P0997MU	FUNCTION: Upg Doc FBM204 Adv 100-200 P0914SY Must be returned within 3 months in refurbishable conditions. Reference documentation for return of 100 series FBMs as replaced by 200 series FBMs. Return to Foxboro, MA, USA within 3 months of shipment of 200 Series. Advantage discount is provided on 200 Series FBMs and identified peripherals connected to CP270s in exchange for the return of 100 Series I/O, power supplies and associated peripherals.	

Item	Qty	Model	Description
550.01	**11**	**P0923RD**	**FBM04 Term Assy Adapter (TAA)**
	P0923RD	FUNCTION: FBM04 Term Assy Adapter (TAA) FBM04 TAA interfaces a DIN-rail mounted FBM with an FBM04 TCA (nosecone).	

Item	Qty	Model	Description
550.02	**11**	**P0914SY**	**FBM204 4 Channel 0-20 In + 4 Channel 0-20 Out**
	P0914SY	FUNCTION: FBM204 4 Channel 0-20 In + 4 Channel 0-20 Out FBM Module For Mounting On DIN Rail Baseplate. Provides Per Channel Loop Power With Per Channel Isolation.	

Item	Qty	Model	Description
560.00	**4**	**P0997NB**	**Upg Doc FBM217 Adv 100-200 P0914TR**
	P0997NB	FUNCTION: Upg Doc FBM217 Adv 100-200 P0914TR Must be returned within 3 months in refurbishable conditions. Reference documentation for return of 100 series FBMs as replaced by 200 series FBMs. Return to Foxboro, MA, USA within 3 months of shipment of 200 Series. Advantage discount is provided on 200 Series FBMs and identified peripherals connected to CP270s in exchange for the return of 100 Series I/O, power supplies and associated peripherals.	

Item	Qty	Model	Description
560.01	**4**	**P0923RH**	**FBM08 Term Assy Adapter (TAA)**
	P0923RH	FUNCTION: FBM08 Term Assy Adapter (TAA) FBM08 TAA interfaces a DIN-rail mounted FBM with an FBM08 TCA (nosecone).	

Item	Qty	Model	Description
560.02	**4**	**P0923RN**	**FBM13 Term Assy Adapter (TAA)**
	P0923RN	FUNCTION: FBM13 Term Assy Adapter (TAA) FBM13 TAA interfaces a DIN-rail mounted FBM with an FBM13 TCA (nosecone).	

Item	Qty	Model	Description
560.03	**4**	**P0914TR**	**FBM217, Discrete Inputs, 32 Channels**
	P0914TR	FUNCTION: FBM217, Discrete Inputs, 32 Channels FBM217 Provides 32 Two Wire Channels For Monitoring On/ Off Voltage Levels. Termination Assemblies Are Available To Support 15-60 Vdc, 120 Vac/115 Vdc, And 240 Vac.	

Item	Qty	Model	Description
570.00	**2**	**P0997SB**	**Upg Doc FBM219 Disc I/O24I+8OAdv100-200 P0916RH**
	P0997SB	FUNCTION: Upg Doc FBM219 Disc I/O24I+8OAdv100-200 P0916RH Must be returned within 3 months in refurbishable condition. Reference documentation for return of 100 series FBMs as replaced by 200 series FBMs. Return to Foxboro, MA, USA within 3 months of shipment of 200 Series. Advantage discount is provided on 200 Series FBMs and identified peripherals connected to CP270s in exchange for the return of 100 Series I/O, power supplies and associated peripherals.	

Item	Qty	Model	Description
570.01	**2**	**P0923RH**	**FBM08 Term Assy Adapter (TAA)**
	P0923RH	FUNCTION: FBM08 Term Assy Adapter (TAA) FBM08 TAA interfaces a DIN-rail mounted FBM with an FBM08 TCA (nosecone).	

Item	Qty	Model	Description
570.02	**2**	**P0923RQ**	**FBM15 Term Assy Adapter (TAA)**
	P0923RQ	FUNCTION: FBM15 Term Assy Adapter (TAA) FBM15 TAA interfaces a DIN-rail mounted FBM with an FBM15 TCA (nosecone).	

Item	Qty	Model	Description
570.03	**2**	**P0916RH**	**FBM219, Discrete I/O, 32 Channels, 24 DIN+8 DOUT**
	P0916RH	FUNCTION: FBM219, Discrete I/O, 32 Channels, 24 DIN+8 DOUT FBM219 Provides 24 Two Wire Input Channels For Monitoring On/Off Voltage Levels And 8 Two Wires Channels For Externally Sourced Outputs. Termination Assemblies Are Available To Support A Variety Of Discrete Signal Types And	

Voltage Ranges.

Item	Qty	Model	Description
580.00	**3**	**P0998DZ**	**UgdDoc P0927AF FBM238 Discrete I/O 8In/8Out/16In**
	P0998DZ	FUNCTION: UgdDoc P0927AF FBM238 Discrete I/O 8In/8Out/16In Must be returned within 3 months in refurbishable condition.	

Item	Qty	Model	Description
580.01	**3**	**P0923RK**	**FBM10 Term Assy Adapter (TAA)**
	P0923RK	FUNCTION: FBM10 Term Assy Adapter (TAA) FBM10 TAA interfaces a DIN-rail mounted FBM with an FBM10 TCA (nosecone).	

Item	Qty	Model	Description
580.02	**3**	**P0923RN**	**FBM13 Term Assy Adapter (TAA)**
	P0923RN	FUNCTION: FBM13 Term Assy Adapter (TAA) FBM13 TAA interfaces a DIN-rail mounted FBM with an FBM13 TCA (nosecone).	

Item	Qty	Model	Description
580.03	**3**	**P0927AF**	**FBM238, Discrete I/O 32 Channels, 8 In-8 Out-8 In-**
	P0927AF	FUNCTION: FBM238, Discrete I/O 32 Channels, 8 In-8 Out-8 In-8 In The FBM238 discrete I/O interface module provides 32 channels of I/O in the pattern 8 In, 8 Out, 16 in. This module is typically used when migrating 100-Series fieldbus modules.	

Item	Qty	Model	Description
590.00	**6**	**P0998EA**	**UgdDoc P0927AG FBM239 Discrete 8in/8out/8In/8Out**
	P0998EA	FUNCTION: UgdDoc P0927AG FBM239 Discrete 8in/8out/8In/8Out Must be returned within 3 months in refurbishable condition.	

Item	Qty	Model	Description
590.01	**6**	**P0923RK**	**FBM10 Term Assy Adapter (TAA)**
	P0923RK	FUNCTION: FBM10 Term Assy Adapter (TAA) FBM10 TAA interfaces a DIN-rail mounted FBM with an FBM10 TCA (nosecone).	

Item	Qty	Model	Description
590.02	**6**	**P0923RQ**	**FBM15 Term Assy Adapter (TAA)**
	P0923RQ	FUNCTION: FBM15 Term Assy Adapter (TAA) FBM15 TAA interfaces a DIN-rail mounted FBM with an FBM15 TCA (nosecone).	

Item	Qty	Model	Description
590.03	**6**	**P0927AG**	**FBM239, Discrete I/O 32 Channels, 8 In-8 Out-8 In-**
	P0927AG	FUNCTION: FBM239, Discrete I/O 32 Channels, 8 In-8 Out-8 In-8 Out The FBM239 discrete I/O interface module provides 32 channels of I/O in the pattern 8 In, 8 Out, 8 In, 8 Out. This module is typically used when migrating 100-Series fieldbus modules.	

Item	Qty	Model	Description
600.00	**1**		**** Incinerator Building ****
		FUNCTION: ** Incinerator Building **	

Item	Qty	Model	Description
610.00	**1**	**H926048B070J**	**Model H92 Workstation For Windows**
	H92	FUNCTION: Model H92 Workstation for Windows® Workstation Class Xeon processor, with pre-configured and installed Microsoft® Windows®7 64 bit operating system, in a Mini-Tower package. The base unit consists of an Internal SATA Hard Drive, 4 Gb of ECC RAM, Internal DVD/CDRW Drive, Mouse, Keyboard and PCIe Dual Head Digital Video Interface. The Workstation Model H92 for Windows can be connected to the I/A Series V8.x Mesh Control Network via required fiber optic or copper ethernet adapter cards for MESH connectivity.	
	6	SYSTEM VERSION/O.S. LICENSES: I/A Series® Software Version 8.8 (and later) with Windows 7	
	0	FUTURE OPTION: Not used	
	4	POINTING DEVICE & VIDEO CARD: Mouse + Dual Head Digital DisplayPort/DVI-D interface (Nvidia NVS 295)	
	8	RAM: 6GB of DDR3 ECC RAM	
	B	INTERNAL SYSTEM DISK: One 500 GB Serial ATA hard drive	
	0	BACKUP DEVICE: None	
	7	ETHERNET CARD: Two Single Port Fiber MT-RJ PCIe card NICs + One Integrated RJ-45 NIC	
	0	I/O CARDS: None	
	J	HARDWARE TRADE-IN UPGRADE CREDIT: Advantage Discount for return of 51B	

Tags			
Set 1	1	Workstation Id	WKS0010004
	1	Workstation Desc	I/A Series Model H90 Rack Mount Server

Item	Qty	Model	Description
610.01	**1**	**P0928JJ**	**FPD, 23" LCD with LED backlight, and Prot Screen**
	P0928JJ	FUNCTION: FPD, 23" LCD with LED backlight, and Prot Screen Flat Screen Display, 23" LCD with LED backlight, and Protective Screen	

Item	Qty	Model	Description
610.02	**1**	**P0972VT**	**15 Ft DVI-D Digital Video Cable**
	P0972VT	FUNCTION: 15 Ft DVI-D Digital Video Cable 15 Foot DVI-D (Male/Male) Video Cable for connecting a DVI-D Digital Video source to a Digital-Capable Monitor	

Item	Qty	Model	Description
610.03	**2**	**P0972KV**	**Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 3 m**
	P0972KV	FUNCTION: Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 3 m Length: 3 Meters. MMF 62.5/125 µm Fiber Optic Cable. Connectors: MT-RJ On Each End. Wiring: 1 To 1 (i.e. No Crossover).	

Item	Qty	Model	Description
610.04	**2**	**P0972RJ**	**10 Ft USB Extension Cable**
	P0972RJ	FUNCTION: 10 Ft USB Extension Cable Includes A USB(A) Female And A USB(A) Male Connector. Use With Command Center II Locally Mounted Processors.	

Item	Qty	Model	Description
620.00	**1**	**P0924SJ**	**USB External Floppy Drive for P90/91/92**
	P0924SJ	FUNCTION: USB External Floppy Drive for P90/91/92 External, USB, 3.5", 1.44MB floppy driver for P92*K (and later) workstations and P90*D/P91*G (and later) servers.	

Item	Qty	Model	Description
630.00	**1**	**** Rev 01 Adds **	
** Rev 01 Adds **		FUNCTION:	

Item	Qty	Model	Description
640.00	**6**	**P0972KW**	**Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 15 m**
	P0972KW	FUNCTION: Fiber Optic Multimode Cable, MT-RJ/MT-RJ, 15 m Length: 15 Meters. MMF 62.5/125 µm Fiber Optic Plenum Cable. Connectors: MT-RJ On Each End. Wiring: 1 To 1 (i.e. No Crossover).	

Item	Qty	Model	Description
650.00	**54**	**P0972TR**	**3 m, MMF, Fiber, MT-RJ To LC Adapter Cable**
	P0972TR	FUNCTION: 3 m, MMF, Fiber, MT-RJ To LC Adapter Cable 3 Meter Fiber, MMF, 62.5/125 um, Riser, MT-RJ To LC Adapter Cable Used To Connect FCP/ZCPs To MT-RJ Fiber Switches. Has PVC Content.	

Item	Qty	Model	Description
660.00	**1**	**J0201FS**	**MS Remote Desktop Services 2008 User CAL 5 pack**
	J0201FS	FUNCTION: MS Remote Desktop Services 2008 User CAL 5 pack MS Windows Remote Desktop Services 2008 User CAL 5	

pack. This is a Microsoft Windows Server 2008 Remote Desktop Services (RDS CAL) per User Client Access License for embedded systems, 5 pack. A Windows Server 2008 RDS CAL is required for licensing server (H90, V90, or VM) RDS clients to allow remote desktop access to user sessions on the server (H90, V90, or VM) via a plant network, Internet, or intranet. J0201FS provides RDS access for 5 users from an unlimited number of client computers or devices. RDS User CALs are not concurrent, they are linked to 5 specific users. In addition to an RDS CAL license, a Microsoft Server 2008 Server CAL (J0201FN) is needed for licensing each user connecting to the server (H90, V90, or VM).

Item	Qty	Model	Description
670.00	**1**	**J0201FP**	**MS Remote Desktop Services 2008 Device CAL 5 pack**
	J0201FP	FUNCTION: MS Remote Desktop Services 2008 Device CAL 5 pack MS Windows Remote Desktop Services 2008 Device CAL 5 Pack. This is a Microsoft Windows Server 2008 Remote Desktop Services (RDS CAL) per Device Client Access License for embedded Systems, 5 pack. A Windows Server 2008 RDS CAL is required for licensing server (H90, V90, or VM) RDS clients to allow remote desktop access to user sessions on the server (H90, V90, or VM) via a plant network, Internet, or intranet. J0201FP provides RDS access from 5 devices, irrespective of the user that logs in. RDS Device CALs are not concurrent, they are linked to 5 specific devices. In addition to an RDS CAL license, a Microsoft Server 2008 Server CAL (J0201FN) is needed for licensing each device connecting to the server (H90, V90, or VM).	

Item	Qty	Model	Description
680.00	**1**	**** Rev 02 Adds ****	
** Rev 02 Adds **		FUNCTION:	

Item	Qty	Model	Description
690.00	**1**	**K0201HJ**	**Foxboro Evo Control Editors and Control HMI v6.0**
	K0201HJ	FUNCTION: Foxboro Evo Control Editors and Control HMI v6.0 Contains the software media used to install Foxboro Evo Control Editors and Control HMI v6.0 features onto system workstations. It contains infrastructure software, configuration tools and other support software. Separate license files are required for software use. This part number supercedes K0201EK.	

Item	Qty	Model	Description
700.00	**1**	**S5640010122G**	**Foxboro Evo Base Platform License**
	S56	FUNCTION: Foxboro Evo Control Editors Base Platform License Foxboro Evo Control Editors Base Platform License establishes the base configuration for a single Galaxy configuration for Foxboro Evo Control Editors Software. It includes the number of platforms, device integration, Galaxy	

sizing, and Historian sizing.

4 PLATFORM COUNT: Five Platforms
0 INTEGRATION PLATFORMS QTY: None
0 FUTURE: None
1 I/O QTY Foxboro Evo Platform I/O (ANALOG & DIGITAL Up to 250 I/O
0 FUTURE: None
1 OPTIONS: Control Software Include only Control Software
2 WONDERWARE HISTORIAN WITH INFORMATION SERVER: Wonderware Historian w/Info Srvr 5,000 Tag This license provides the primary Historian. A separate part number should be used for a redundant Historian instance.
2 EDITION 6.0
G UPGRADES AND INCENTIVES: NonSvdAgmt AdvDisc for return of I/A Series V6.x Advantage Discount for customer sites that are upgrading to the Preferred FCS from I/A V6.x

Item	Qty	Model	Description
710.00	**1**	**S5740100402G**	**Foxboro Evo Platform Client License**

S57 FUNCTION: The Foxboro Evo Platform License defines the full complement of software for a Foxboro Evo system including Control HMI, Control Editors, Historian clients and Information Server (Web) clients for Plant Intelligence.
4 LOCAL OPERATOR INTERFACE (Foxboro Evo InTouch App Four Foxboro Evo InTouch Application Stations This is the license for enabling Foxboro Evo InTouch Application, including Historian Client. Do not order an additional Engineering Interface License for workstations licensed for Foxboro Evo Operator Interface, as the Engineering Interface license includes an InTouch Runtime license.
0 LOCAL OPERATOR INTERFACE (FoxView): None
1 LOCAL ENGINEERING/RUNTIME INTERFACES (Foxboro Evo One Engr/Oper Station w/InTouch Dev and Runtime This is the license for enabling Foxboro Evo Control Editors and Control HMI InTouch Development (WindowMaker). This license includes an InTouch runtime and Historian Client license. Do not order an additional Operator Interface License for workstations licensed for Foxboro Evo Control Editors.
0 LOCAL ENGINEERING INTERFACES (FoxDraw): None
0 FUTURE None
4 WONDERWARE HISTORIAN SERVER FOR DESKTOP CLIENTS: Four Historian Clients, Per Device License
0 WONDERWARE INFORMATION SERVER CLIENTS FOR DESKTOP None
2 EDITION 6.0
G UPGRADES AND INCENTIVES: NonSvdAgmt AdvDisc for return of I/A Series V6.x

Item	Qty	Model	Description
720.00	**1**	**S5850000002G**	**Foxboro Evo Terminal Server Session license**
	S58	FUNCTION: The Terminal Server Session license supports the total number of remote TSE clients in a single Galaxy configuration. It includes either or both Foxboro Evo Control HMI InTouch Application and Foxboro Evo Control Editors sessions.	
	5	REMOTE OPERATOR INTERFACES (Foxboro Evo Control HM Five Foxboro Evo InTouch Application Interfaces This is for a read-write InTouch license. Read-only license is available as a separate part number. The InTouch Access Anywhere TSE Concurrent license is also available as a separate part number.	
	0	REMOTE OPERATOR INTERFACES (FoxView): None	
	0	REMOTE ENGINEERING INTERFACES (No HMI Dev) None	
	0	REMOTE ENGINEERING/RUNTIME INTERFACES (Foxboro Evo None	
	0	FUTURE None	
	0	FUTURE None	
	0	FUTURE None	
	2	EDITION 6.0	
	G	UPGRADES AND INCENTIVES: NonSvdAgmt AdvDisc for return of I/A Series V6.x	

Item	Qty	Model	Description
730.00	**1**	**K0201GA**	**V8.x Windows 7 & Windows Server 2008 CD Media Kit**
	K0201GA	FUNCTION: V8.x Windows 7 & Windows Server 2008 CD Media Kit Includes base I/A Series 8.x software media for Windows 7 and Windows Server 2008 platforms, release notes and electronic documentation. Requires S10 software license.	

SECTION 17940
COMMUNICATION LINKS

PART 1 - GENERAL

1.01 SCOPE

A. Requirements of Section 17000 form a part of this Section.

B. Provide fiber optic and wire communication links to interconnect components of the Distributed Control System (DCS) and second Ethernet network system See the DCS Block Diagram, drawings for additional communication link require-ments, including equipment locations and quantities.

C. Items provided under this Section are installed in enclosures, panels and in wireways.

1.02 SUBMITTALS

A. Submittals shall be made in accordance with the requirements of the General Conditions of the Contract Documents. In addition, the following specific information shall be provided:

1. Manufacturer installation recommendations for all products. Provide complete installation procedures that will be followed for this work.
2. Test procedures prior to testing. Provide test documentation after testing.
3. Training procedures prior to training.
4. Catalog cut sheets.
5. Contractor shall include a copy of the specification section with check marks acknowledging compliance with each paragraph or an explanation of non-compliance.

1.03 FINAL DOCUMENTATION

A. Provide final documentation required by Section 17000.

B. Provide all test documentation.

1.04 TRAINING

Provide one day of training for City personnel during installation. Provide one day of training for City personnel during post-installation testing.

PART 2 - PRODUCTS

2.01 FIBER OPTIC COMMUNICATION LINKS

A. Fiber Optic Cable:

1. Each cable shall contain a minimum number of functional fibers as indicated on drawings after installation, connection, and testing are complete.
2. Fiber shall be a multimode, graded index, solid glass waveguide, and shall be coated to preserve the intrinsic strength of the glass. Each fiber shall be color coded. Fiber shall have the following characteristics:
   a. Core diameter: 50 microns
   b. Cladding diameter: 125 microns
   c. Refractive index delta 2.0 percent
   d. Numerical aperture (NA) 0.275
   e. Attenuation at 1300 nm 1.0 dB/km maximum
   f. Bandwidth at 1300 nm 500 MHz/km minimum
   g. Attenuation at 850 nm 3.0 dB/km maximum
   h. Bandwidth at 850 nm 1500 MHz/km minimum

3. Cable shall include a buffer tube surrounding the fibers, one or more strength members, and an outer jacket. Cable components shall be of continuous material with no factory splices, holes, blisters, or other imperfections. Cable shall have the following characteristics:
   a. Material: non-metallic
   b. Tensile load rating: 600 lb minimum, long term
   c. Bend radius rating 5 inches maximum unloaded (0-180 lb); 10 inches maximum loaded (181-600lb)
   d. Diameter: 0.5 inches nominal
   e. Buffer tube shall allow for free fiber movement and thermal expansion. Buffer tube shall be flooded internally with a gel compound to prevent fiber contamination and freezing stress from moisture.
      1) Strength members shall protect fibers from mechanical stress during installation and required service.
      2) Cable shall be for outdoor installation in conduit.

B. Fiber Optic Connectors:
   1. Provide a connector on each end of each fiber.
   2. Type: LC
   3. Typical attenuation: 0.2 dB.
   4. Maximum attenuation: 0.4 dB.
   5. Loss repeat: less than 0.2 dB per 1,000 reconnects.

C. Fiber Optic Patch Panels:
   1. Provide a patch panel at fiber optic cable termination as shown on the Drawings.
   2. Patch panel shall include coupling panel(s), bayo-net/threaded couplings, and a lockable door. Patch panel shall totally enclose the connectors and patch cords. Provide 19-inch rack mounting brackets.
   3. Mount 2 patch panels side-by-side in, as required. Terminate each fiber optic cable at a separate patch panel.
   4. Going clockwise around the site, terminate the incoming cable at the left patch panel and the outgoing cable at the right patch panel.

D. Fiber Optic Patch Cords:
   1. Provide patch cords to interconnect two cable fibers between panels (pass through jumper) or to connect cable fibers to converters as indicated on the Block Diagram. Each patch cord shall have 2 fibers for 2 direction communication.
   2. Patch cord fibers shall be 50-micron with associated attenuation and bandwidth para-meters as specified. Each fiber shall have an individual thermoplastic tight buffer tube, strength member, and a thermoplastic jacket.
   3. Provide a minimum of 20 percent spare or 2 spare patch cords, whichever is greater, of each type and length.

E. Products Supplied, but not installed:
   1. (2) Fiber Optic Test Kits Fluke Networks Analyzer or equal.
   2. (2) Cable Tester kits Fluke Networks Analyzer or equal.

2.02 WIRE COMMUNICATION LINKS

A. Fieldbus Extension Cable
   1. Cable shall be 20 AWG, stranded, shielded twinaxial cable with poly-ethylene insulation and PVC jacket.
   2. Cable shall be Belden 9207; or equal.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General
   1. Provide all equipment, instrumentation, and supplies necessary for installation.
   2. Remove wire from existing wireways as required.
   3. Install fiber optic communication links to ensure a minimum number of splices. Fiber splices shall be made only with written approval from the Engineer prior to implementation. Wire conductors shall not be spliced.
   4. Provide a minimum of 5 feet spare cable (fiber optic and wire) coiled at each cable access point (manholes, handholes, and trenches).
   5. Provide cable supports in manholes and handholes according to requirements of Manholes and Handhole specifications. Existing cable supports may be used where available and not damaged.
   6. Tag all cables, fibers, and conductors. Provide tag documentation.
   7. Pull a 200-pound tensile strength polyolefin cord through each conduit where cable is pulled.
   8. Install all cable according to manufacturer recommendations. Pull all cable through conduit at the same time. Do not exceed the manufacturer recommended pulling tension.

B. Fiber Optics:
   1. Demonstrate to the Engineer that manufacturer installation recommendations are strictly followed for all fiber optic components.
   2. Fiber optic cable fibers shall be "fanned out" and each individual fiber shall be sleeved over with a kevlar reinforced furcation tube. At the convergence point of all furcation tubes, provide fiber strain relief with a fan-out collar. Provide fiber strain relief at each connector. Provide cable gel blocking. Provide dust caps on each fiber connector until final assembly. Provide dust caps on each connector that is not coupled.
   3. Attenuation for a single fiber optic connection point (connector through coupling through connector) shall be 0.7 dB maximum.
   4. Attenuation for each fiber optic link shall be 17 dB maximum, as required for a minimum gain margin of 4 dB. The gain margin is the decibel difference between the gain of the fiber optic converters (17 dB) and the loss budget of the fiber optic link (fiber optic cables, connectors, patch cords, and splices).

3.02 TESTING

A. Provide all equipment, instrumentation, and supplies necessary for testing. The Engineer shall have the option to witness and actively participate in the on-site tests.

B. Fiber Optic Pre-installation Testing:

   Prior to installing each cable, provide an Optical Time Domain Reflecto-meter (OTDR) test for each fiber at 1700 nm wavelength on the shipping spool. The OTDR test shall verify that each fiber meets the manufacturer attenuation specifications and that the cable was not damaged during shipping. Provide hard copy test documentation, including traces. Obtain approval from the Engineer prior to cable installation.

C. Fiber Optic Post-Installation Testing:
   1. After cables and connectors are installed, OTDR test each fiber in both directions at 1700 nm wavelength. Provide hard copy and diskette test documentation.
   2. After patch cords and couplings are installed, end-to-end attenuation test each fiber between transceiver connectors in both directions at 1700 nm wavelength. Use a stabilized light source and an optical power meter. Provide test documentation, including traces and reference power reading.
   3. Provide test documentation, DCS supplier including detailed specifications for all cables and connectors used.

D. Fiber Optic Test Documentation:
   Test documentation shall include cable and fiber identification; fiber length; test direction; test wavelength; traces; fiber attenuation; attenuation breakdown for each fiber segment, connector, and coupling; and splice attenuation if applicable.

END OF SECTION 17940

Exhibit D

Scope of Work

EXHIBIT D

GENERAL SCOPE OF WORK

The City of Atlanta, Department of Watershed Management (DWM) is seeking to identify a single qualified company to upgrade various outdated Distributive Control Systems (DCS) and Process Logic Controller (PLC) systems as well as add fibers and duct banks at the RM Clayton WRC.
The Upgrading of the Systems will ensure that DWM can provide redundancy in DCS and PLC systems for prevention of the treatment plant process failures, and ensure regulatory compliance with the National Pollutant Discharge Elimination System and air quality permitting during any maintenance activity.

The scope of this project includes but is not limited to the following:

- Installing additional duct banks and fiber optic cables to support connections and provide redundancy between Engineer's workstation and networks at Admin Building, TWAS Building, Blower Building, Filter Building, UV Building, and MLSS Pumping Station;
- Replacing input and output modules in Filter Building, MLPS, Secondary Clarifiers, and Headworks;
- Upgrading and consolidate DCS control processors, translate old databases for new control modules, and replace PLCs at Incinerator Building, and Blower Building;
- Installing new fiber network for connectivity between Filter Building and lower level control panels, Admin Building to Dewatering Building, Admin Building to Headworks, Headworks to West CSO Facility, and Headworks to Nancy Creek Pump Station.

The Contractor shall furnish all management, labor, supervision, tools, materials, equipment and transportation necessary to address all elements outlined in the **Part 5, Exhibits**.

Exhibit E

Drawings

96”

48”

Atlanta City Council

Ceasar C. Mitchell	**Council President**
Carla Smith	District 1
Kwanza Hall	District 2
Ivory Lee Young, Jr.	District 3
Cleta Winslow	District 4
Natalyn Mosby Archibong	District 5
Alex Wan	District 6
Howard Shook	District 7
Yolanda Adrean	District 8
Felicia A. Moore	District 9
C.T. Martin	District 10
Keisha Lance Bottoms	District 11
Joyce Sheperd	District 12
Michael Julian Bond	Post 1 At-Large
Mary Norwood	Post 2 At-Large
Andre Dickens	Post 3 At-Large

Department of Watershed Management
Jo Ann J. Macrina, P.E.
Commissioner

CITY OF ATLANTA
Kasim Reed, Mayor

Project
Project Name

Cost: $

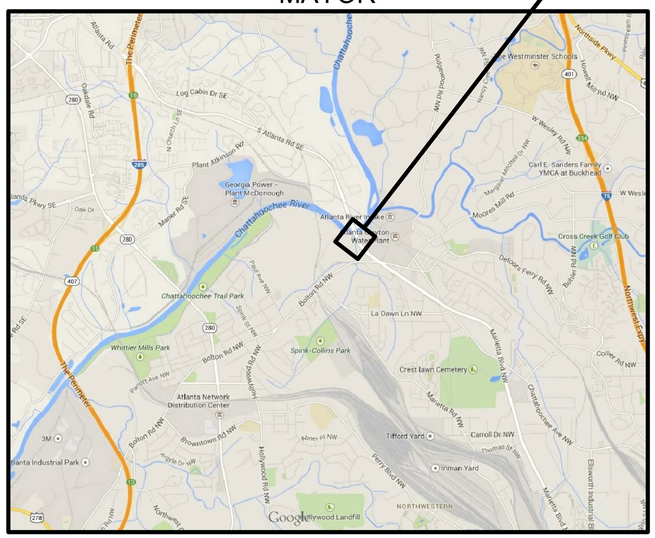
DWM Project Hotline Number: 404-546-3200
www.atlantawatershed.org
facebook.com/atlwatershed
twitter.com/atlwatershed

Department of Watershed Management | A Project of the Five-Year Capital Improvement Plan

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT
OFFICE OF ENGINEERING SERVICES

CITY OF ATLANTA
KASIM REID
MAYOR

SITE LOCATION

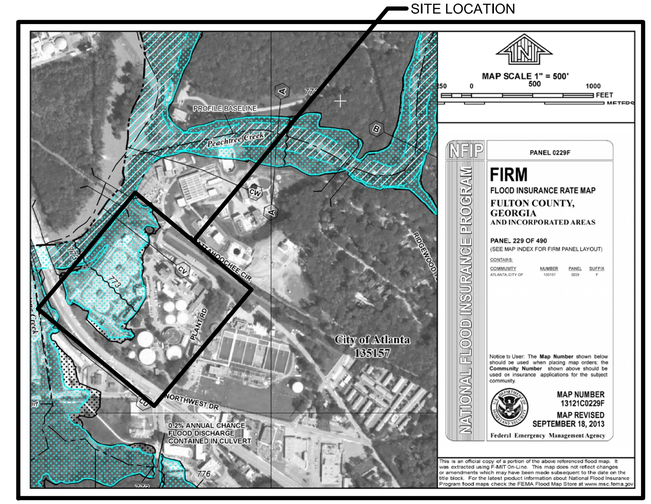


PLAN
SCALE: NTS
N

LOCATION MAP
RM CLAYTON WATER RECLAMATION CENTER
2440 BOLTON ROAD, NW
ATLANTA, GA 30318

DEPARTMENT OF WATERSHED MANAGEMENT
JO ANN J. MACRINA, P.E.
COMMISSIONER

SITE LOCATION



FIRM FLOOD INSURANCE RATE MAP

NOTE:

STATE WATERS ARE LOCATED ON OR WITHIN 200 FT OF THE PROJECT SITE

F.I.R.M. NOTE:

AS SHOWN ON FLOOD INSURANCE RATE MAP OF FULTON COUNTY, GEORGIA COMMUNITY PANEL NUMBER: 13121C0229 F EFFECTIVE DATE SEPTEMBER 18 2013,PORTIONS OF THIS PROPERTY ARE LOCATED IN ZONE AE, IN AN UNSTUDIED AREA.

CONTRACT PLANS FOR
F.C. - #8437
RM CLAYTON WATER RECLAMATION CENTER
INSTRUMENTATION AND CONTROLS
RELIABILITY RESTORATION

SEPTEMBER 2015

PROJECT DESCRIPTION

THIS PROJECT WILL UPGRADE OUTDATED DISTRIBUTIVE CONTROL SYSTEMS (DCS) AND PROCESS LOGIC CONTROLLER (PLC) SYSTEMS AS WELL AS ADD FIBERS AND DUCT BANKS AT THE RM CLAYTON WRC. THESE SYSTEMS MONITOR AND CONTROL VARIOUS PROCESS EQUIPMENT AND PROVIDE THE INTERCONNECTIVITY REQUIRED TO TREAT WASTEWATER AND MEET REGULATORY COMPLIANCE PERMITS.

THIS PROJECT IS EXEMPT FROM NPDES PERMITTING REQUIREMENTS, DISTURBED AREA IS LESS THAN 1 ACRE.

TREE PROTECTION ORDINANCE
PLEASE NOTE THAT THIS PROJECT DOES NOT AFFECT THE TREES AND VEGITATION AT THIS SITE.

Know what's **below.**
Call before you dig.

TREATMENT PLANT FACILITIES VARIOUS IMPROVEMENTS PROJECT - PACKAGE 1

GEORGIA REGISTERED No. 10756 PROFESSIONAL ENGINEER BHUSHAN SAWHNEY
ENGINEER OF RECORD

GEORGIA REGISTERED No. 8421 PROFESSIONAL ENGINEER CHARLES D. BOOTH
ENGINEER OF RECORD

GEORGIA REGISTERED No. 035 PROFESSIONAL ENGINEER AARON D. WILBURN 9/24/15
ENGINEER OF RECORD

REVISIONS	
DATE	DESCRIPTION

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		DATE

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		DATE

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

REVISIONS

△	DATE	DESCRIPTION

REVISIONS

△	DATE	DESCRIPTION

DESIGNED BY:	B.S.
DRAWN BY:	NAP
CHECKED BY:	B.S.
APPROVED BY:	G.R.
DATE:	9/24/15
SCALE:	NTS

DEPT. OF WATERSHED MANAGEMENT

RM CLAYTON WRC

INSTRUMENTATION & CONTROL PACKAGE

DRAWING LIST

DRAWING NO.

G-RM-1

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GENERAL NOTES-OUTLINE OF WORK

GENERAL CONTRACTOR OUTLINE OF WORK				
BUILDING	GENERAL SCOPE	FOXBORO INTEGRATOR SCOPE	PLC CONTROLS INTEGRATOR SCOPE	BUILDING
ADMINISTRATION	· INSTALLATION OF NEW FIBER BACKBONE RACEWAYS AND CABLES. · INSTALLATION OF VARIOUS PATCH/CROSS CONNECT PANELS WITHIN NEW CABINET TO SUPPORT NEW FIBER BACKBONE. · RELOCATION OF EXISTING ROOT SWITCH FROM ADMIN BUILDING TO FILTER BUILDING. · INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK.			ADMINISTRATION
BLOWER	· INSTALLATION OF NEW FIBER BACKBONE RACEWAYS AND CABLES. · INSTALLATION OF VARIOUS PATCH/CROSS CONNECT PANELS IN A NEW NETWORK CABINET TO SUPPORT THE FIBER BACKBONE. · INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK.	· REMOVE ATS'S · REMOVE NODEBUS EXTENDERS · FOXBORO ADVANTAGE UPGRADE TO EXISTING SYSTEM COMPONENTS.	REPLACEMENT OF BLOWER PLC'S AND INTEGRATE WITH FOXBORO DCS	BLOWER
TWAS	· INSTALLATION OF FIBER TO REMOTE I/O'S FROM BLOWER BUILDING. · INSTALLATION OF UPS SYSTEM WITH STATUS ALARMING TO DCS AND BYPASS CAPABILITY.			TWAS
FILTER	· INSTALLATION OF NEW FIBER BACKBONE RACEWAYS AND CABLES. · INSTALLATION OF FIBER TO REMOTE I/O'S AT FILTER PUMP PANELS AND UV BUILDING. · INSTALLATION OF VARIOUS PATCH/CROSS CONNECT PANELS IN A NEW NETWORK CABINET TO SUPPORT THE FIBER BACKBONE. · INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK. · INSTALLATION OF ROOT SWITCH RELOCATED FROM ADMINISTRATION BUILDING.	· FOXBORO ADVANTAGE UPGRADE TO EXISTING SYSTEM COMPONENTS. · UPGRADE WORKSTATION, MONITOR, KEYBOARD AND MOUSE · REPLACE EXISTING CP'S WITH FAULT TOLERANT PAIR OR FCP280'S · PROVIDE (2) NEW EDGE SWITCHES · REMOVE NODEBUS EXTENDERS · LOCATE ROOT SWITCH FROM ADMIN BUILDING TO THIS LOCATION · PROVIDE AND INSTALL NEW RACK FOR H90 SERVER AND FCP'S · UPGRADE ALL 100 SERIES FBMS IN FILTER BUILDING, INCLUDING REMOTE FBMS AT UV BUILDING AND FILTER CONTROL PANELS.		FILTER
UV	· INSTALLATION OF FIBER TO REMOTE I/O'S FROM FILTER BUILDING. · INSTALLATION OF VARIOUS PATCH/CROSS CONNECT PANELS IN TO SUPPORT NEW FIBER. · INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK.	· FOXBORO ADVANTAGE UPGRADE TO EXISTING SYSTEM COMPONENTS. · UPGRADE DRIVER AND FDSI FOR IMPLEMENTATION OF UV BUILDING PLC REPLACEMENT	REPLACEMENT OF UV PLC AND INTEGRATE WITH FOXBORO DCS	UV
MIXED LIQUOR	· INSTALLATION OF NEW FIBER BACKBONE RACEWAYS AND CABLES. · INSTALLATION OF FIBER TO REMOTE I/O'S AT SECONDARY CLARIFIERS. · INSTALLATION OF VARIOUS PATCH/CROSS CONNECT PANELS TO SUPPORT THE FIBER BACKBONE. · INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK. · FOXBORO ADVANTAGE UPGRADE TO EXISTING SYSTEM COMPONENTS.	· UPGRADE WORKSTATION, MONITOR, KEYBOARD AND MOUSE · PROVIDE (2) NEW EDGE SWITCHES · REPLACE EXISTING CP WITH FAULT TOLERANT PAIR OF FCP280'S · UPGRADE ALL 100 SERIES FBM'S		MIXED LIQUOR
SECONDARY CLARIFIERS #1	· INSTALLATION OF FIBER TO REMOTE I/O'S FROM MIXED LIQUOR BUILDING.			SECONDARY CLARIFIERS #1
SECONDARY CLARIFIERS #2	· INSTALLATION OF FIBER TO REMOTE I/O'S FROM MIXED LIQUOR BUILDING.			SECONDARY CLARIFIERS #2
DEWATERING	· INSTALLATION OF NEW FIBER BACKBONE RACEWAYS AND CABLES. · INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK.			DEWATERING
HEADWORKS	· INSTALLATION OF NEW FIBER BACKBONE RACEWAYS AND CABLES. · INSTALLATION OF VARIOUS PATCH/CROSS CONNECT PANELS TO SUPPORT THE FIBER BACKBONE. · INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK. ·FOXBORO ADVANTAGE UPGRADE TO EXISTING SYSTEM COMPONENTS.	· UPGRADE WORKSTATION, MONITOR, KEYBOARD AND MOUSE · UPGRADE ALL 100 SERIES FBM'S IN TWO EXISTING ENCLOSURES		HEADWORKS
NANCY CREEK	· INSTALLATION OF NEW FIBER BACKBONE RACEWAYS AND CABLES.			NANCY CREEK
CSO BUILDING	· INSTALLATION OF NEW FIBER BACKBONE RACEWAYS AND CABLES.			CSO BUILDING
DIGESTER BUILDING	· INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK.	· UPGRADE EXISTING FOXBORO WORKSTATION. · FOXBORO ADVANTAGE UPGRADE TO EXISTING SYSTEM COMPONENTS.		DIGESTER BUILDING

ELECTRICAL POWER SCOPE
FURNISH AND INSTALL AN UNINTERRUPTABLE POWER SUPPLY SYSTEM FOR EACH FOXBORO CONTROL PANEL TO MAINTAIN CONTINUOUS (ZERO INTERRUPTION) AND QUALITY POWER. THESE SYSTEMS APPLY TO THE NINETEEN (19) BUILDINGS NOTED IN DRAWINGS EP-RM-1, EP-RM-2 & EP-RM-3.

1. SCOPE IS FOR INFORMATION PURPOSES ONLY AND DOES NOT INCLUDE ALL DCS AND PLC WORK CONTRACTOR TO REVIEW ENTIRE SPECIFICATIONS AND PLANS TO DETERMINE SCOPE OF WORK.
2. CONTRACTOR SHALL CONSULT COORDINATE AND MAKE NECESSARYMODIFICATIONS IN THE WORK WITH THE ORIGINAL EQUIPMENT MANUFACTURER FOR ALL WORK WHICH INTERFACES, INTERUPTS, OR DEPENDS ON THE RESPECTIVE EQUIPMENT'S CONTROL SYSTEM.
3. CONTRACTOR SHALL CERTIFY THAT THEY HAVE COORDINATED WITH FOXBORO AND IS ABLE TO MEET THE CITY OF ATLANTA INSURANCE AND LIABILITY REQUIREMENTS IN THEIR BID DOCUMENTS.

APPLICABLE CONSTRUCTION CODES

EFFECTIVE JANUARY 1, 2014
THE FOLLOWING WILL BE THE STATE OF GEORGIA'S MINIMUM STANDARD CONSTRUCTION CODES:

- INTERNATIONAL BUILDING CODE, 2012 EDITION, WITH GEORGIA AMENDMENTS (2014)(2015)
- INTERNATIONAL FIRE CODE, 2012 EDITION, WITH GEORGIA AMENDMENTS (2014)
- INTERNATIONAL PLUMBING CODE, 2012 EDITION, WITH GEORGIA AMENDMENTS (2014)(2015)
- INTERNATIONAL MECHANICAL CODE, 2012 EDITION, WITH GEORGIA AMENDMENTS (2015)
- INTERNATIONAL FUEL GAS CODE, 2012 EDITION, WITH GEORGIA AMENDMENTS (2014)(2015)
- NATIONAL ELECTRICAL CODE, 2014 EDITION, WITH NO GEORGIA AMENDMENTS
- INTERNATIONAL ENERGY CONSERVATION CODE, 2009 EDITION, WITH GEORGIA SUPPLEMENTS AND AMENDMENTS (2011)(2012)
- 2012 NFPA 101 - LIFE SAFETY CODE WITH STATE AMENDMENTS (2013)

NOTE TO CONTRACTOR:
BEGINNING FEBRUARY 1, 2015 THE 2014 NATIONAL ELECTRIC CODE WILL BE ENFORCED ON ALL BUILDING PERMITS ISSUED AFTE JANUARY 1, 2015. THERE WILL BE A 90DAY OVERLAP, WHEREBY THE CITY OF ATLANTA WILL CONTINUE TO ACCEPT THE PLANS PREPARED UNDER THE CURRENT CODES IN USE. AFTER MARCH 31, 2014, ALL PLANS SUBMITTED MUST CONFORM TO THE ABOV STATED CODES TO BE ACCEPTABLE FOR PERMITTING.

DUE TO A DISCREPANCY BETWEEN NFPA 13 2013 EDITION AND THE NFPA 101 2012 EDITION IN REGARD TO HEADS IN RESIDENTIA CLOSETS IN OTHER THAN MOTELS AND HOTELS, THE CITY OF ATLANTA WILL BEGIN ENFORCING THE MORE STRINGENT REQUIRE AND REQUIRE HEADS IN ALL CLOSETS IN RESIDENTIAL OCCUPANCIES EXCEPT IN MOTELS AND HOTELS. THE CITY OF ATLANTA W CONTINUE TO ACCEPT THE PLANS PREPARED UNDER THE LESS STRINGENT CODE THROUGH SEPTEMBER 30, 2014. ALL PLANS SUBMITTED AFTER SEPTEMBER 30, 2014 MUST CONFORM TO THE MORE STRINGENT REQUIREMENT TO BE ACCEPTABLE FOR PERMITTING.

GEORGIA REGISTERED No. 033 PROFESSIONAL ENGINEER AARON D. WILBURN 9/24/15

GEORGIA REGISTERED No. 10756 PROFESSIONAL ENGINEER BHUSHAN SAWHNEY

GEORGIA REGISTERED No. 8421 PROFESSIONAL ENGINEER CHARLES D. BOOTH

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
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Atlanta, GA. 30328
P: 404.979.3300
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jp2
value ▪ innovation ▪ results

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION
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DESIGNED BY: Y.H.
DRAWN BY: NAP
CHECKED BY: Y.H.
APPROVED BY: G.R.
DATE: 9–24–15
SCALE: NA

DEPT. OF WATERSHED MANAGEMENT
RM CLAYTON WRC
INSTRUMENTATION & CONTROL PACKAGE
GENERAL NOTES

DRAWING NO.
G-RM-2

MATCHLINE SHEET C-RM-3

MATCHLINE SHEET C-RM-2

INCINERATOR BUILDING

EXISTING DUCTBANK

DEWATERING BUILDING

PP

ROUTE CONDUIT FROM TUNNEL TO CONTROL ROOM OF DEWATERING BUILDING AND INSTALL PULLBOX FOR ACCESS TO EXISTING FOXBORO CABINET.

ADMIN BUILDING

TWAS BUILDING

SILT FENCE

TRENCH FROM TUNNEL TO BASEMENT LEVEL OF TWAS BUILDING. ROUTE CONDUITS IN BUILDING TO ELECTRICAL ROOM AND INSTALL PULLBOX FOR ACCESS TO EXISTING FOXBORO CABINET.

PARKING

TANK

PIPING TUNNEL

A

NOTE:

A ESTABLISH STAGING AREA ADEQUATE FOR THE SCOPE OF WORK BEHIND THE ADMINISTRATION BUILDING (WHERE OTHER CONTRACTORS HAVE STAGING) COORDINATE WITH CURRENT USERS TO AVOID DISRUPTION OF ONGOING ACTIVITY.

NORTH

1 OVERALL PLAN
C-RM-1 SCALE: 1/64"= 1'-0"

PARCEL #0231 LAND LOT #0352

GEORGIA REGISTERED No. 10756 PROFESSIONAL ENGINEER Expires BHUSHAN SAWHNEY

FIBER ROUTING NOTES

1. UTILIZE EXISTING TUNNEL SYSTEM FOR FIBER OPTIC BACKBONE. ALL FIBER IN TUNNEL SHALL BE INSTALLED IN 3" PVC COATED RIGID CONDUIT. PROVIDE ACCESS/PULL POINTS AS REQUIRED TO ACCOMODATE PULLING DISTANCES. PHYSICALLY SEPARATE RACEWAYS ON OPPOSITE SIDES OF TUNNEL. CONTRACTOR SHALL PROVIDE ALL HARDWARE REQUIRED FOR MOUNTING AND SUPPORT.
2. UTILIZE EXISTING DUCTBANK FOR FIBER OPTIC BACKBONE. SPARE DUCTS SHOULD BE VERIFIED BY CONTRACTOR AND TWO DUCTS WITH FURTHEST PHYSICAL SEPARATION SHOULD BE USED.
3. FIBER CABLES IN THIS AREA SHALL BE INSTALLED WITHIN CONCRETE ENCASED DUCTBANK. TRANSITIONS FROM PVC DUCT BELOW GRADE TO ABOVE GRADE SHALL BE MADE WITH PVC COATED RIGID CONDUIT.
4. ROUTE FIBER OPTIC RACEWAYS ALONG EXISTING PIPE RACK /PEDESTRIAN BRIDGE.
5. PROVIDE 48" X 48" X 48" MANHOLE FOR FIBER OPTIC PULLING AND LOOP

FIBER OPTIC LINETYPE LEGEND

SILT FENCE	
EXPOSED CONDUIT	
ROUTE IN EXISTING TUNNEL	
ROUTE WITHIN BUILDING	
NEW DUCT BANK	
ROUTE IN EXISTING DUCT BANK	

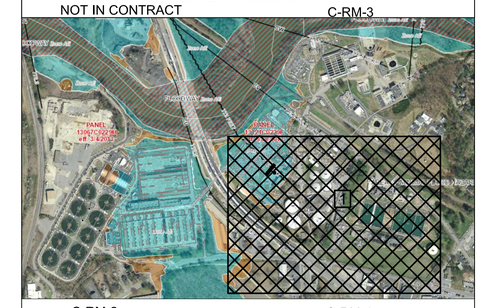
100 YEAR FLOOD NOTE:

ACCORDING TO THE "FIRM" (FLOOD INSURANCE RATE MAP) OF FULTON COUNTY, GEORGIA (PANEL NUMBER 13121C0229 F), DATED SEPTEMBER 18, 2013; PORTIONS OF THIS PROPERETY WHOSE ELEVATION ARE LESS THAN 773.5 FEET ABOVE SEA LEVEL ARE WITHIN THE 100 YEAR FLOOD PLAIN.

Flood Hazard Zones
- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard

KEY PLAN/FLOOD MAP - N.T.S.

NOT IN CONTRACT C-RM-3



C-RM-2 C-RM-1

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

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RESURGENS ATLANTA, GA. 1881

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY:	B.S.
DRAWN BY:	NAP
CHECKED BY:	B.S.
APPROVED BY:	G.R.
DATE:	9/24/15
SCALE:	1/64" = 1"

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-
RM CLAYTON WRC
OVERALL SITE
EROSION CONTROL PLAN

DRAWING NO. C-RM-1

SHEET 4 OF 49

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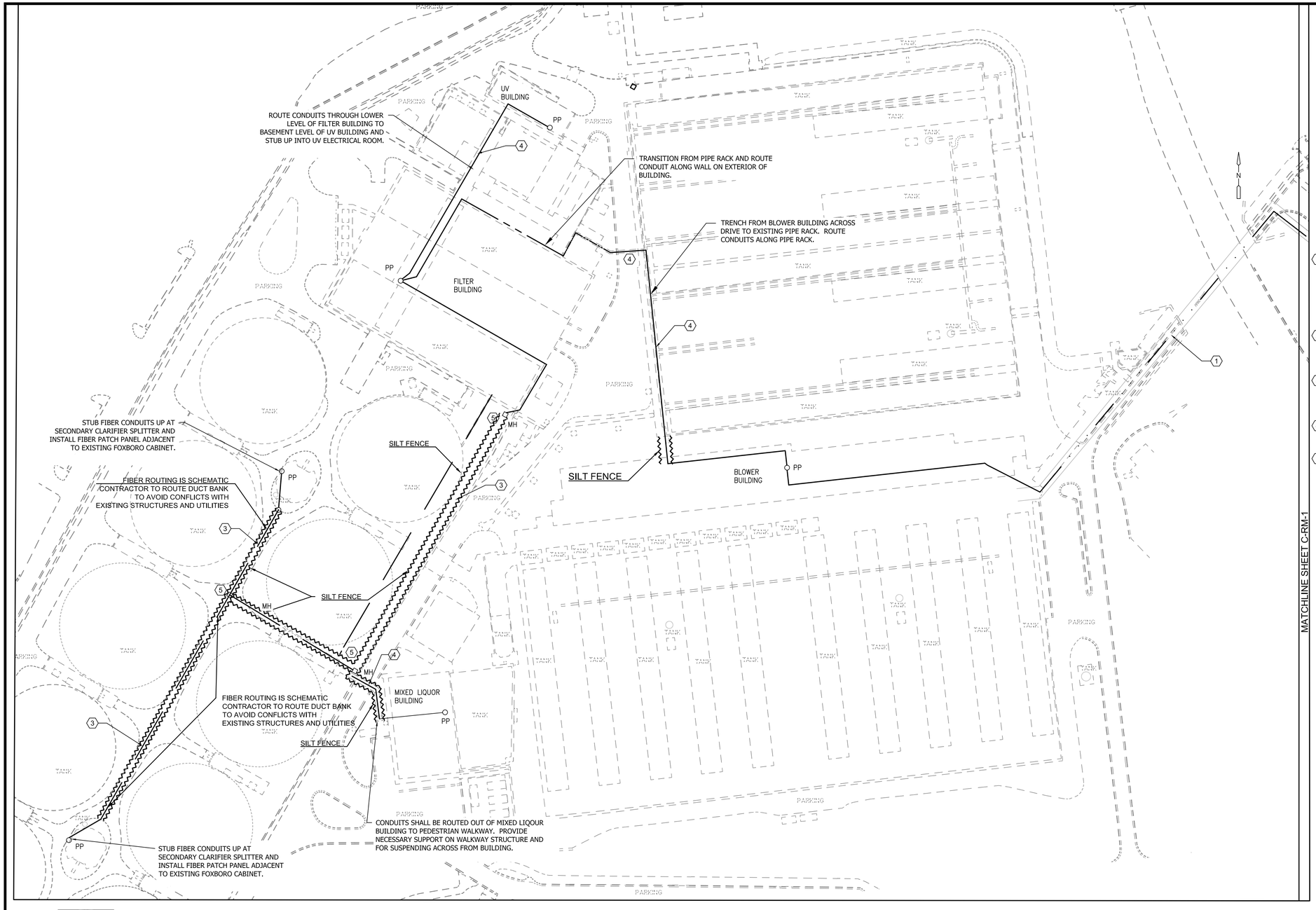


1 OVERALL PLAN
C-RM-2 SCALE: 1/64" = 1'-0"

NORTH

PARCEL #0231 LAND LOT #0352

GEORGIA REGISTERED No. 10756 PROFESSIONAL ENGINEER BHUSHAN SAWHNEY Expires

FIBER ROUTING NOTES

1. UTILIZE EXISTING TUNNEL SYSTEM FOR FIBER OPTIC BACKBONE. ALL FIBER IN TUNNEL SHALL BE INSTALLED IN 3" PVC COATED RIGID CONDUIT. PROVIDE ACCESS/PULL POINTS AS REQUIRED TO ACCOMODATE PULLING DISTANCES. PHYSICALLY SEPARATE RACEWAYS ON OPPOSITE SIDES OF TUNNEL. CONTRACTOR SHALL PROVIDE ALL HARDWARE REQUIRED FOR MOUNTING AND SUPPORT.
2. UTILIZE EXISTING DUCTBANK FOR FIBER OPTIC BACKBONE. SPARE DUCTS SHOULD BE VERIFIED BY CONTRACTOR AND TWO DUCTS WITH FURTHEST PHYSICAL SEPARATION SHOULD BE USED.
3. FIBER CABLES IN THIS AREA SHALL BE INSTALLED WITHIN CONCRETE ENCASED DUCTBANK. TRANSITIONS FROM PVC DUCT BELOW GRADE TO ABOVE GRADE SHALL BE MADE WITH PVC COATED RIGID CONDUIT.
4. ROUTE FIBER OPTIC RACEWAYS ALONG EXISTING PIPE RACK /PEDESTRIAN BRIDGE.
5. PROVIDE 48" X 48" X 48" MANHOLE FOR FIBER OPTIC PULLING AND LOOP

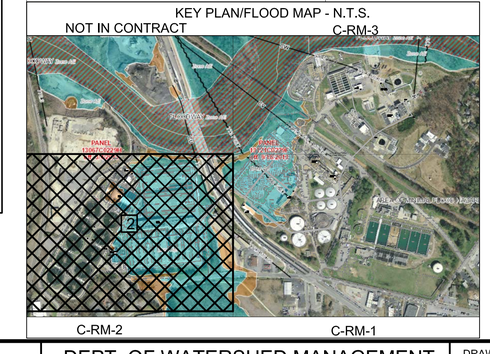
FIBER OPTIC LINETYPE LEGEND

SILT FENCE	
EXPOSED CONDUIT	
ROUTE IN EXISTING TUNNEL	
ROUTE WITHIN BUILDING	
NEW DUCT BANK	
ROUTE IN EXISTING DUCT BANK	

100 YEAR FLOOD NOTE:
ACCORDING TO THE "FIRM" (FLOOD INSURANCE RATE MAP) OF FULTON COUNTY, GEORGIA (PANEL NUMBER 13121C0229 F), DATED SEPTEMBER 18, 2013; PORTIONS OF THIS PROPERETY WHOSE ELEVATION ARE LESS THAN 773.5 FEET ABOVE SEA LEVEL ARE WITHIN THE 100 YEAR FLOOD PLAIN.

Flood Hazard Zones
- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard

KEY PLAN/FLOOD MAP - N.T.S.



CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

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RESURGENS ATLANTA, GA. 1985

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY:	B.S.
DRAWN BY:	NAP
CHECKED BY:	B.S.
APPROVED BY:	G.R.
DATE:	9/24/15
SCALE:	1/64" = 1"

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E
RM CLAYTON WRC
OVERALL SITE
EROSION CONTROL PLAN

DRAWING NO. C-RM-2

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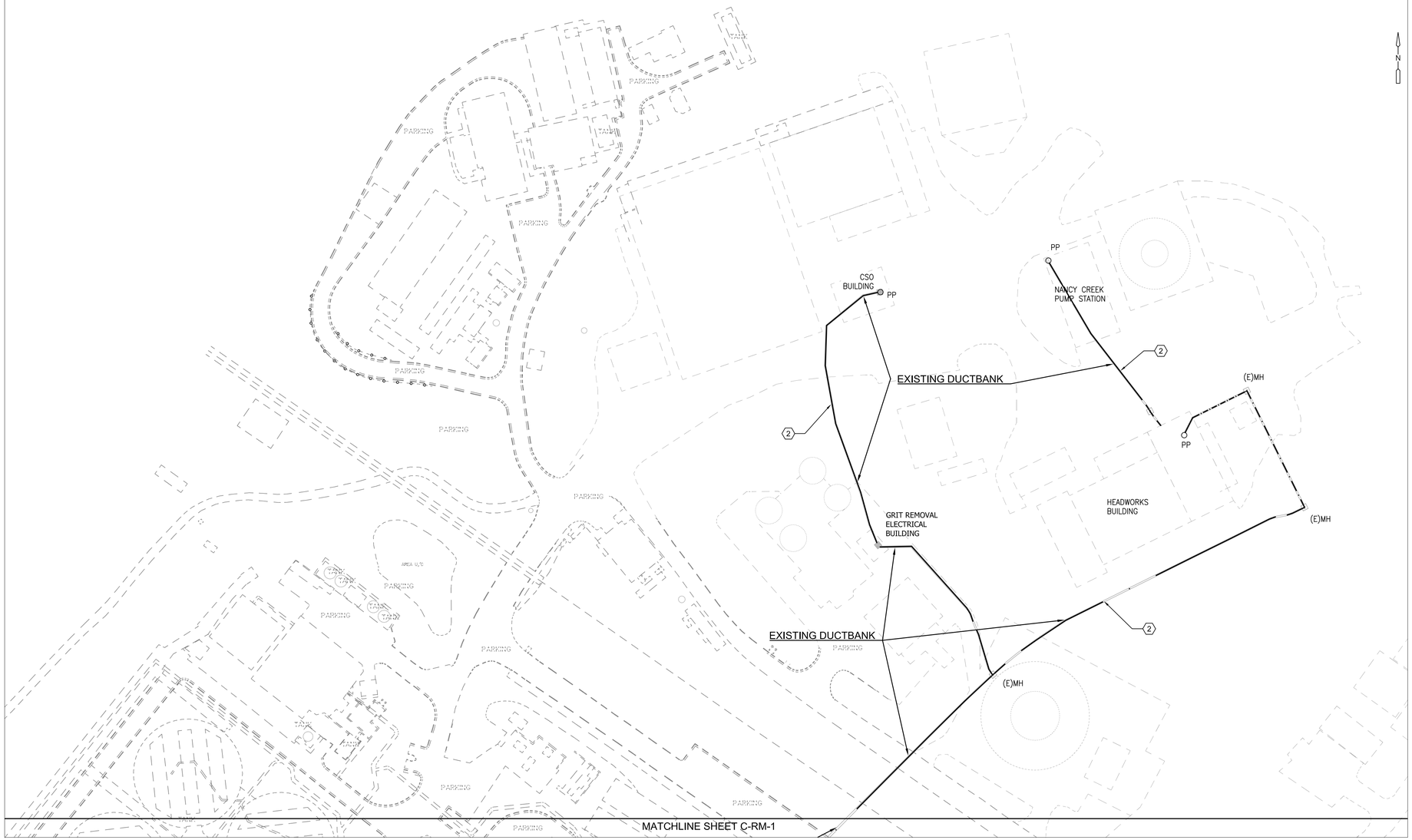

1 OVERALL PLAN
C-RM-3 SCALE: 1/64" = 1'-0"

NORTH

PARCEL #0231 LAND LOT #0352

FIBER ROUTING NOTES

1. UTILIZE EXISTING TUNNEL SYSTEM FOR FIBER OPTIC BACKBONE. ALL FIBER IN TUNNEL SHALL BE INSTALLED IN 3" PVC COATED RIGID CONDUIT. PROVIDE ACCESS/PULL POINTS AS REQUIRED TO ACCOMODATE PULLING DISTANCES. PHYSICALLY SEPARATE RACEWAYS ON OPPOSITE SIDES OF TUNNEL. CONTRACTOR SHALL PROVIDE ALL HARDWARE REQUIRED FOR MOUNTING AND SUPPORT.
2. UTILIZE EXISTING DUCTBANK FOR FIBER OPTIC BACKBONE. SPARE DUCTS SHOULD BE VERIFIED BY CONTRACTOR AND TWO DUCTS WITH FURTHEST PHYSICAL SEPARATION SHOULD BE USED.
3. FIBER CABLES IN THIS AREA SHALL BE INSTALLED WITHIN CONCRETE ENCASED DUCTBANK. TRANSITIONS FROM PVC DUCT BELOW GRADE TO ABOVE GRADE SHALL BE MADE WITH PVC COATED RIGID CONDUIT.
4. ROUTE FIBER OPTIC RACEWAYS ALONG EXISTING PIPE RACK /PEDESTRIAN BRIDGE.
5. PROVIDE 48" X 48" X 48" MANHOLE FOR FIBER OPTIC PULLING AND LOOP

FIBER OPTIC LINETYPE LEGEND

SILT FENCE	
EXPOSED CONDUIT	
ROUTE IN EXISTING TUNNEL	
ROUTE WITHIN BUILDING	
NEW DUCT BANK	
ROUTE IN EXISTING DUCT BANK	

100 YEAR FLOOD NOTE:
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Flood Hazard Zones
- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard

KEY PLAN/FLOOD MAP - N.T.S.
NOT IN CONTRACT

GEORGIA REGISTERED No. 10756 PROFESSIONAL ENGINEER BHUSHAN SAWHNEY

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

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RESURGENS 1881 ATLANTA, GA. 1885

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY:	B.S.
DRAWN BY:	NAP
CHECKED BY:	B.S.
APPROVED BY:	G.R.
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SCALE:	1/64" = 1"

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E
RM CLAYTON WRC
OVERALL SITE
EROSION & SEDIMENTCONTROL PLAN

DRAWING NO.
C-RM-3

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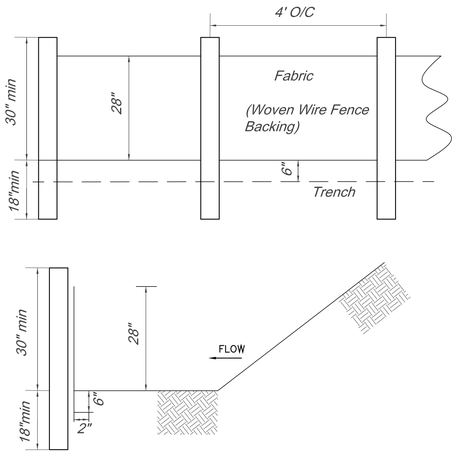


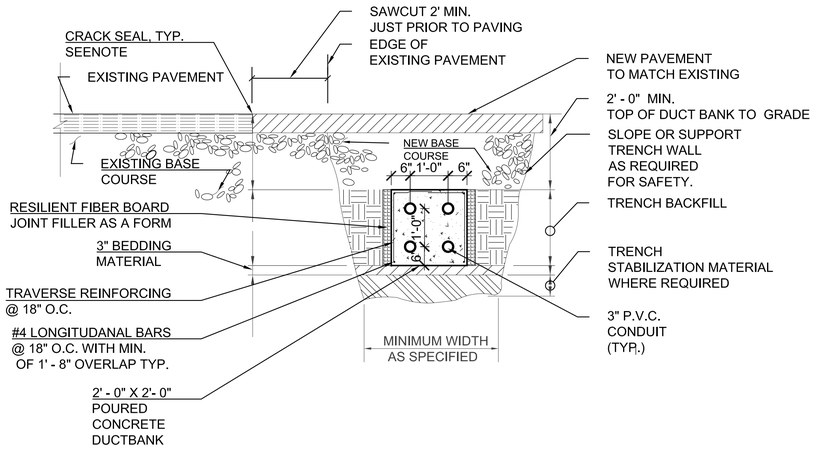
SILT FENCE

THE MANUFACTURER SHALL HAVE EITHER AN APPROVED COLOR MARK YARN IN THE FABRIC OR LABEL THE FABRICATED SILT FENCE WITH BOTH THE MANUFACTURER AND FABRIC NAME EVERY 100 FEET.

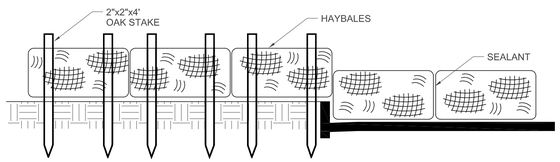
THE TEMPORARY SILT FENCE SHALL BE INSTALLED ACCORDING TO THIS SPECIFICATION, AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. FOR INSTALLATION OF THE FABRIC, SEE DETAIL.
POST INSTALLATION SHALL START AT THE CENTER OF THE LOW POINT (IF PPLICABLE) WITH THE REMAINING POSTS SPACED 4 FEET APART FOR TYPE C SILT FENCE. ONLY STEEL POST SHALL BE USED WITH TYPE C SILT FENCE. POSTS SHALL BE 4' IN LENGTH, 1.3 LBS/FT.
ALONG STREAM BUFFERS AND OTHER SENSITIVE AREAS, TWO ROWS OF TYPE C SILT FENCE OR ONE ROW OF TYPE C SILT FENCE BACKED BY HAYBALES SHALL BE USED.

MAINTENANCE
SEDIMENT SHALL BE REMOVED ONCE IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE BARRIER. FILTER FABRIC SHALL BE REPLACED WHENEVER IT HAS DETERIORATED TO SUCH AN EXTENT THAT THE EFFECTIVENESS OF THE FABRIC IS REDUCED (APPROXIMATELY SIX MONTHS). TEMPORARY SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED. ALL SEDIMENT ACCUMULATED AT THE BARRIER SHALL BE REMOVED AND PROPERLY DISPOSED OF BEFORE THE BARRIER IS REMOVED.

Sd1-C TYPE C SILT FENCE



C-1 DUCT BANK DETAIL
N.T.S.

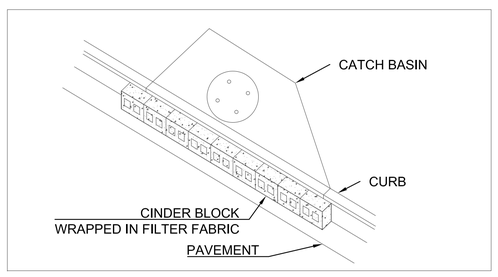


PROFILE VIEW

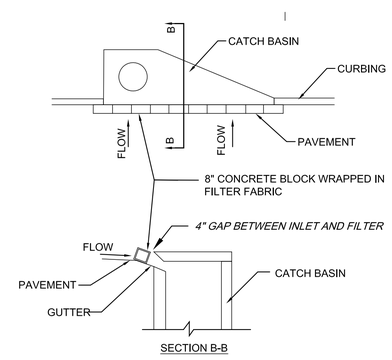
HAYBALES Sd1-Hb

NOT TO SCALE

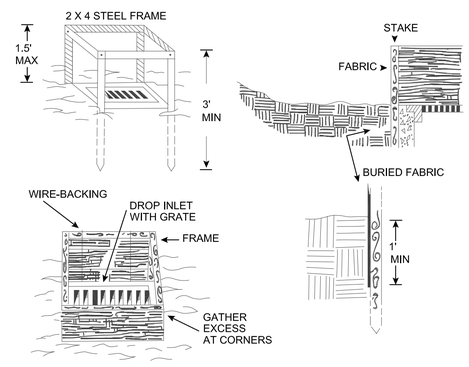
NOTES:
1. STAKE BALES WHERE POSSIBLE MIN. 6" DEEP
2. ON PAVED SURFACES, USE LIQUID NAILS OR EPOXY FOAM TO SEAL HAYBALES ENDS TOGETHER.
3. INSTALL EROSION CONTROL ITEMS BEFORE ANY GRADING.
4. AS SOON AS CLEARING AND GRUBBING ARE COMPLETE, INSTALL TEMPORARY TERRACES TO PREVENT WASHES.
5. PLACE STRAW BALES AT THE TOE OF ANY LOOSE EMBANKMENTS TO ELIMINATE SILTING OFF SITE.
6. APPLY HYDROSEED OR EQUIVALENT ON FINAL CUTS AND EMBANKMENTS WITHIN 7 DAYS AFTER FINAL GRADE IS SET.
7. ALL EROSION CONTROL ITEMS ARE TO BE MAINTAINED THROUGHOUT CONSTRUCTION.



INLET PROTECTION
N.T.S.



SECTION B-B



DESIGN CRITERIA FOR ALL Sd2 APPLICATIONS

MANY SEDIMENT FILTERING DEVICES CAN BE DESIGNED TO SERVE AS TEMPORARY SEDIMENT TRAPS. SEDIMENT TRAPS MUST BE SELF-DRAINING UNLESS THEY ARE OTHERWISE PROTECTED IN AN APPROVED FASHION THAT WILL NOT PRESENT A SAFETY HAZARD. **THE AREA DRAINING TO THE INLET SEDIMENT TRAP SHALL BE NO GREATER THAN ONE ACRE.**

IF RUNOFF MAY BYPASS THE PROTECTED INLET, A TEMPORARY DIKE SHOULD BE CONSTRUCTED ON THE DOWN SLOPE SIDE OF THE STRUCTURE. ALSO, A STONE FILTER RING MAY BE USED ON THE UP SLOPE SIDE OF THE INLET TO SLOW RUNOFF AND FILTER LARGER SOIL PARTICLES. REFER TO FR-STONE FILTER RING.

MAINTENANCE FOR ALL Sd2 APPLICATIONS

ALL TRAPS SHALL BE INSPECTED DAILY AND AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE HEIGHT OF THE TRAP. SEDIMENT SHALL BE REMOVED FROM CURB INLET PROTECTION IMMEDIATELY. FOR EXCAVATED INLET SEDIMENT TRAPS, SEDIMENT SHALL BE REMOVED WHEN ONE-HALF OF THE SEDIMENT STORAGE CAPACITY HAS BEEN LOST TO SEDIMENT ACCUMULATION. SOD INLET PROTECTION SHAL BE MAINTAINED AS SPECIFIED IN DS4-DISTURBED AREA STABLIZATION (WITH SODDING).

SEDIMENT SHALL NOT BE WASHED INTO THE INLET. IT SHALL BE REMOVED FROM THE SEDIMENT TRAP AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLET, AGAIN.
WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, ALL MATERIALS AND ANY SEDIMENT SHALL BE REMOVED, AND EITHER SALVAGED OR DISPOSED OF PROPERLY. THE DISTURBED AREA SHALL BE BROUGHT TO PROPER GRADE, THEN SMOOTHED AND COMPACTED. ALL DISTURBED AREAS AROUND THE INLET SHALL BE APPROPRIATELY STABILIZED.

Sd2 INLET SEDIMENT BARRIER

CURB INLET PROTECTION

ONCE PAVEMENT HAS BEEN INSTALLED, A CURB INLET FILTER SHALL BE INSTALLED ON INLETS RECEIVING RUNOFF FROM DISTURBED AREAS. THIS METHOD OF INLET PROTECTION SHALL BE REMOVED IF A SAFETY HAZARD IS CREATED.

ONE METHOD OF CURB INLET PROTECTION USES "PIGS-IN-A-BALNKET": 8-INCH CONCRETE BLOCKS WRAPPED IN FILTER FABRIC. SEE DETAIL. ANOTHER METHOD USES GRAVEL BAGS CONSTRUCTED BY WRAPING DOT #57 STONE WIHT FILTER FABRIC, WIRE, PLASTIC MESH, OR EQUIVALENT MATERIAL.
A GAP OF APPROXIMATELY 4 INCHES SHALL BE LEFT BETWEEN THE INLET FILTER AND THE INLET TO ALLOW FOR OVERFLOW AND PREVENT HAZARDOUS PONDING IN THE ROADWAY. PROPER INSTALLATION AND MAINTENANCE ARE CRUCIAL TO AVOID PONDING IN THE ROADWAY, RESULTING IN A HAZARDOUS CONDITION.

Sd2-P CURB INLET PROTECTION

FILTER FABRIC WITH SUPPORTING FRAME

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) AND SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS. AS SHOWN IN DETAIL, TYPE C SILT FENCE SUPPORTED BY STEEL POSTS SHALL BE USED. THE STAKES SHALL BE SPACED EVENLY AROUND THE PERIMETER OF THE INLET A MAXIMUM OF 3 FEET APART, AND SECURELY DRIVEN IN TO THE GROUND, APPORIMATELY 18 INCHES DEEP. THE FABRIC SHALL BE ENTRENCHED 12 INCHES AND BACKFILLED WITH WITH CRUSHED STONE OR COMPACTED SOIL. FABRIC AND WIRE SHALL BE SECURELY FASTENED TO THE POSTS, AND FABRIC ENDS MUST BE OVERLAPPED A MINIMUN OF 18 INCHES OR WRAPPPED TOGETHER AROUND A POST TO PROVIDE A CONTINUOUS FABRIC BARRIER AROUND THE INLET.

Sd2-F FILTER FABRIC WITH SUPPORTING FRAME

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY: B.S.
DRAWN BY: NAP
CHECKED BY: XX
APPROVED BY: XX
DATE: 9/24/15
SCALE: 1/64" = 1"

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E
RM CLAYTON WRC
EROSION CONTROL PLAN
CIVIL DETAILS

DRAWING NO.
C-RM-4
SHEET 7 OF 49

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UNIFORM CODING SYMBOLS FOR SES&PC BMPs

STRUCTURAL PRACTICES

CODE	PRACTICE	DESCRIPTION
Cd-Hb	CHECK DAM (HAY BALES)	A SMALL TEMPORARY BARRIER OR DAM CONSTRUCTED ACROSS A SWALE OR DITCH TO MINIMIZE EROSION BY MINIMIZING STORMWATER VELOCITIES IN AREAS OF CONCENTRATED FLOW.
Cd-S	CHECK DAM (STONE CREEK)	A SMALL TEMPORARY BARRIER OR DAM CONSTRUCTED ACROSS A SWALE OR DITCH TO MINIMIZE EROSION BY MINIMIZING STORMWATER VELOCITIES IN AREAS OF CONCENTRATED FLOW.
Ch-C	CHANNEL STABILIZATION (CONCRETE LINING)	IMPROVING, CONSTRUCTING OR STABILIZING AN OPEN CHANNEL FOR WATER CONVEYANCE.
Ch-V	CHANNEL STABILIZATION (VEGETATED LINING)	IMPROVING, CONSTRUCTING OR STABILIZING AN OPEN CHANNEL FOR WATER CONVEYANCE.
Ch-Rp	CHANNEL STABILIZATION (ROCK RIPRAP LINING)	IMPROVING, CONSTRUCTING OR STABILIZING AN OPEN CHANNEL FOR WATER CONVEYANCE.
Co	CONSTRUCTION EXIT	A CRUSHED STONE PAD LOCATED AT THE CONSTRUCTION SITE EXIT TO PROVIDE A PLACE FOR REMOVING MUD FROM TIRES THEREBY PROTECTING PUBLIC STREETS.
Cr	CONSTRUCTION ROAD STABILIZATION	A TRAVELWAY CONSTRUCTED TO PROVIDE A FIXED ROUTE OF TRAVEL FOR CONSTRUCTION TRAFFIC TO REDUCE EROSION AND SUBSEQUENT REGRADING.
Dc	STREAM DIVERSION CHANNEL	A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANANT STRUCTURE IS BEING CONSTRUCTED IN A STREAM CHANNEL.
Di	DIVERSION	A RIDGE OF COMPACTED SOIL, CONSTRUCTED ABOVE, ACROSS OR BELOW A SLOPE.
Dn1	TEMPORARY DOWNDRAIN STRUCTURE	TEMPORARY STRUCTURES USED TO CONVEY CONCENTRATED FLOW FROM THE ELEVATED PUMP STATION AREA (AFTER FILL PLACEMENT) DOWN THE FACE OF THE STEEP FILL SLOPES.
Dn2	PERMANENT DOWNDRAIN STRUCTURE	A PERMANENT STRUCTURE TO SAFELY CONVEY SURFACE RUNOFF FROM THE TOP OF A SLOPE TO THE BOTTOM OF THE SLOPE TO MINIMIZE EROSION.
Fr	FILTER RING	A TEMPORARY STONE BARRIER CONSTRUCTED AT STORM DRAIN INLETS AND POND OUTLETS TO REDUCE FLOW VELOCITIES AND TO PREVENT SEDIMENT FROM LEAVING THE SITE.
Ga	GABION	LARGE, MULTI-CELLED, WELDED OR RECTANGULAR WIRE MESH BOXES.
Gr	GRADE STABILIZATION STRUCTURE	A STRUCTURE TO STABALIZE THE GRADE IN NATURAL OR ARTIFICIAL CHANNELS.
Lv	LEVEL SPREADER	A STORM FLOW OUTLET DEVICE CONSTRUCTED AT ZERO GRADE ACROSS THE SLOPE WHEREBY CONCENTRATED RUNOFF MAY BE DISCHARGED AT NON-EROSIVE VELOCITIES ONTO UNDISTURBED AREAS STABILIZED BY EXISTING VEGETATION
Rd	ROCK FILTER DAM	A STONE DAM INSTALLED TO SERVE AS A SEDIMENT FILTER DEVICE IN DRAINAGE WAYS
Re	RETAINING WALL	A STONE DAM INSTALLED TO SERVE AS A SEDIMENT FILTER DEVICE IN DRAINAGE WAYS
Rt-P	RETROFITTING (PERFORATED HALF-ROUND PIPE WITH STONE FILTER)	A DEVICE OR STRUCTURE PLACED IN FRONT OF A PERMANANT STORMWATER DETENTION POND OUTLET STRUCTURE TO SERVE AS A TEMPORARY SEDIMENT FILTER.
Rt-B	RETROFITTING (SLOTTED BOARD DAM WITH STONE)	A DEVICE OR STRUCTURE PLACED IN FRONT OF A PERMANANT STORMWATER DETENTION POND OUTLET STRUCTURE TO SERVE AS A TEMPORARY SEDIMENT FILTER.
Sd1-A	SEDIMENT BARRIER (TYPE A)	A TEMPORARY BARRIER TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITe. USED WHERE LIFE OF PROJECT IS GREATER THAN SIX MONTHS.
Sd1-B	SEDIMENT BARRIER (TYPE B)	A TEMPORARY BARRIER TO PREVENT SEDIMENT FROM LEAVING CONSTRUCTION SITE. LIMITED TO MINOR PROJECTS WHERE PERMANENT STABILIZATION IS COMPLETE IN SIX MONTHS OR LESS.
Sd1-C	SEDIMENT BARRIER (TYPE C)	A TEMPORARY BARRIER TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. USED WHERE RUNOFF FLOWS OR VELOCITIES ARE PARTICULARLY HIGH OR WHERE SLOPES EXCEED A VERTICAL HEIGHT OF TEN FEET.
Sd2-F	INLET SEDIMENT TRAP (FILTER FABRIC)	A TEMPORARY PROTECTIVE DEVICE FORMED AROUND A STORM DRAIN INLET TO TRAP SEDIMENT. INLET TO TRAP SEDIMENT. LIMITED TO SHALLOW SLOPES WITH NO CONCENTRATED FLOW.

STRUCTURAL PRACTICES

CODE	PRACTICE	DESCRIPTION
Sd2-B	INLET SEDIMENT TRAP (BAFFLE BOX)	A TEMPORARY PROTECTIVE DEVICE FORMED AROUND A STORM DRAIN INLET TO TRAP SEDIMENT. INLETS RECEIVING RUNOFF WITH HIGHER VOLUME OR VELOCITY.
Sd2-Bg	INLET SEDIMENT TRAP (BLOCK AND GRAVEL)	A TEMPORARY PROTECTIVE DEVICE FORMED AROUND A STORM DRAIN INLET TO TRAP SEDIMENT. MAY BE USED WHERE HEAVY FLOWS ARE EXPECTED AND OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING.
Sd2-G	INLET SEDIMENT TRAP (GRAVEL DROP)	A TEMPORARY PROTECTIVE DEVICE FORMED AROUND A STORM DRAIN INLET TO TRAP SEDIMENT. USED WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED.
Sd2-S	INLET SEDIMENT TRAP (SOD)	A TEMPORARY PROTECTIVE DEVICE FORMED AROUND A STORM DRAIN INLET TO TRAP SEDIMENT. APPLICABLE ONLY AT THE TIME OF PERMANENT SEEDING.
Sd2-P	INLET SEDIMENT TRAP (CURB INLET PROTECTION)	ONCE PAVEMENT HAS BEEN INSTALLED, A CURB INLET FILTER SHALL BE INSTALLED ON INLETS RECEIVING RUNOFF FROM DISTURBED AREAS. (REMOVE IF SAFETY HAZARD IS CREATED.)
Sd3	TEMPORARY SEDIMENT BASIN	A BASIN CREATED TO DETAIN RUNOFF WATERS AND TRAP SEDIMENT FROM ERODIBLE AREAS.
Sr-B	TEMPORARY STREAM CROSSING (BRIDGE)	A TEMPORARY STRUCTURE INSTALLED ACROSS A STREAM FOR USE BY CONSTRUCTION EQUIPMENT.
Sr-C	TEMPORARY STREAM CULVERT CROSSING	A TEMPORARY STRUCTURE INSTALLED ACROSS A STREAM FOR USE BY CONSTRUCTION EQUIPMENT.
St	STORM DRAIN OUTLET PROTECTION	A SECTION OF RIPRAP MEASURING 10 FT FROM THE OUTLET OF A STORM DRAIN SYSTEM INTENDED TO REDUCE THE VELOCITY OF FLOW BEFORE ENTERING RECEIVING CHANNELS.
Su	SURFACE ROUGHENING	PROVIDING A ROUGH SOIL SURFACE TO REDUCE EROSION, INCREASE INFILTRATION AND AID IN THE ESTABLISHMENT OF VEGETATION.
Tp	TOPSOILING	STRIPPING OFF THE MORE FERTILE TOP SOIL, STORING IT, THEN SPREADING IT OVER THE DISTURBED AREA AFTER CONSTRUCTION TO PROVIDE A SUITABLE SOIL MEDIUM.
Wt	VEGETATED WATERWAY OR STORMWATER CONVEYANCE CHANNEL	A CHANNEL FOR THE STABLE CONVEYANCE OF RUNOFF.

VEGETATIVE PRACTICES

CODE	PRACTICE	DESCRIPTION
Bf	BUFFER ZONE	AN UNDISTURBED AREA VEGETATION SERVING TO PROTECT WATER QUALITY AND QUANTITY BY REDUCING WATER VELOCITY AND SEDIMENT. IT ALSO SERVES AS A NOISE OR "VISION POLLUTION" BARRIER.
Ds1	DISTURBED AREA STABILIZATION (W\ MULCHING ONLY)	A TEMPORARY COVER OF PLANT RESIDUE APPLIED TO THE SOIL SURFACE FOR A PERIOD OF SIX (6) MONTHS OR LESS WHEN SEEDING IS NOT PRACTICAL
Ds2	DISTURBED AREA STABILIZATION (TEMPORARY SEEDING)	THE ESTABLISHMENT OF TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS FOR SEASONAL PROTECTION OF DISTURBED OR DENUDED AREAS.
Ds3	DISTURBED AREA STABILIZATION (PERMANENT VEGETATION)	THE PLANTING OF PERENNIAL VEGETATION SUCH AS TREES, SHRUBS, VINES, GRASSES, OR LEGUMES ON EXPOSED AREAS FOR FINAL PERMANENT STABILIZATION.
Ds4	DISTURBED AREA STABILIZATION (SODDING)	A PERMANENT VEGETATIVE COVER USING SODS ON HIGHLY ERODIBLE OR CRITICALLY ERODED LANDS.
Du	DUST CONTROL ON DISTURBED AREA	CONTROLLING SURFACE AND AIR MOVEMENT OF DUST ON CONSTRUCTION SITES.
Mb	EROSION CONTROL MATTING AND BLANKETS	A PROTECTIVE COVERING (BLANKET) OR SOIL STABILIZATION MAT USED TO ESTABLISH PERMANENT VEGETATION ON STEEP SLOPES (2.5:1 OR GREATER.)
Pm	POLYACRYL-AMIDE (PAM)	THE LAND APPLICATION OF PRODUCT CONTAINING ANIONIC POLYACRYLAMIDE (PAM) AS TEMPORARY SOIL BINDING AGENTS TO REDUCE SOIL EROSION.
Sb	STREAMBANK STABILIZATION (WITH PERMANENT VEGETATION)	THE USE OF READILY AVAILABLE NATIVE PLANT MATERIALS TO MAINTAIN AND ENHANCE STREAMBANKS, OR TO PREVENT, OR RESTORE AND REPAIR SMALL STREAMBANK EROSION PROBLEMS.
Tb	TACKIFIERS AND BINDERS	SUBSTANCES USED TO ANCHOR STRAW OR HAY MULCH BY CAUSING THE ORGANIC MATERIAL TO BIND TOGETHER.

GEORGIA REGISTERED No. 10756 PROFESSIONAL ENGINEER Expires BHUSHAN SAWHNEY

MINIMUM SES&PC PRACTICES

1. Prior to land-disturbing activities, the Contractor shall schedule a pre-construction meeting with the area Erosion Control inspector. Call (404) 546-1300 to contact the inspector.

2. The property owner and contractor are equally responsible for all erosion control activities.

3. It is the responsibility of the the contractor to obtain qualified professional advice when questions arise concerning design and effectiveness or erosion control devices, not the City of Atlanta.

4. For each site on which land disturbing activity occurs, each entity or person acting as either a primary, secondary, or tertiary permittee, as defined in the state general permit, shall have as a minimum one person who is in responsible charge of erosion and sedimentation control activities on behalf of said entity or person and meets the applicable (Level 1A) education or training certification requirements (O.C.G.A 12-7-19(a)(2)).

5. Subcontractors involved with land disturbance activities shall meet the education requirements (Level 1) described in O.C.G.A 12-7-19.

6. Contractor shall obtain a Land Disturbance Permit from the Local Issuing Authority and notify Owner and Engineer at least one week prior to any land disturbance. Contractor shall also file an NPDES Notice of Intent (NOI) as required by law. See the Project-Specific Notes sheet.

7. Individual builder (within a common development) must file a Notice of Intent (NOI) with EPD for coverage under NPDES GAR 100003 as secondary permittee 14 days prior to land disturbance activity. NOI must be posted on site at all times.

8. Prior to commencing land disturbance activity, the limits of land disturbance shall be clearly and accurately demarcated with stakes, ribbons, or other appropriate means. The location and extent of all authorized land disturbance shall be demarcated for the duration of the construction activities. No land disturbance shall occur outside the approved limits indicated on the approved plans.

9. Erosion control practices shall comply with standards/specifications in the Manual for Erosion and Sediment Control in Georgia. The contractor shall maintain all erosion control devices in good working condition at all times and shall inspect all devices after each rain event.

10. Sediment control structures shall be cleaned out in accordance with the Drawing Details and applicable laws.

11. Perimeter SES&PC BMPs must be installed prior to any other site disturbance or construction activity. These BMPs include stabilized construction entrances, sediment barriers, and sediment basins.

12. Tree protection fencing must be installed prior to any land disturbance activity in the intermediate construction phase, and maintained until final landscape is installed. The contractor shall install all erosion control devices prior to any land disturbance activities.

13. The design professional who prepared this ES&PC Plan must inspect the installation of the required BMPs within seven (7) days after installation. The inspection is to determine whether the BMPs are installed as designed and are being maintained as required by this Plan and by the "Manual for Erosion and Sediment Control in Georgia". The inspection results must be reported to the Primary Permittee within seven (7) days, and the Primary Permittee must correct any deficiencies within two (2) business days after receiving the report (unless additional time is needed due to adverse weather).

14. The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to, or concurrent with, land-disturbing activities.

15. Non-exempt construction activities shall not be conducted within the 25-foot and 50-foot undisturbed stream buffers along the banks of any state waters, as measured from the point of wrested vegetation, without first acquiring the necessary variances and permits.

16. Any disposal of solid waste or other waste materials to waters of the State is prohibited unless authorized by a Section 404 permit.

17. Any amendments or revisions to this Plan which have a significant effect on BMPs with a hydraulic component (e.g., a sediment basin) must be certified by the design professional.

18. In concentrated flow areas, all steep slopes steeper than 2.5:1 and with a height ten feet or greater, and cuts and fills within stream buffers, shall be stabilized with the appropriate erosion control matting or blanket.

19. Storm water sampling must be conducted during the project as described further on the Project-Specific Notes Sheet.

20. This Plan is in compliance with waste disposal, sanitary sewer, and/or septic tank regulations as described on this sheet.

21. Any and all on-site wetlands, and all state waters located within 200 feet of the project site, have been delineated.

22. A copy of the approved land disturbance plans and permit shall be maintained on the site at all times during construction.

23. The Land Disturbance Permit shall be displayed on site at all times during construction and in plain view from a public road or street.

MINIMUM SES&PC PRACTICES CONTINUED

24. Any disturbed areas remaining idle for 5 days, and not to final grade, shall be stabilized with temporary vegetation (Ds2). Any disturbed area left exposed for a period greater than 14 days (or more frequently if specified on the Project-Specific Notes Sheet) shall be stabilized with mulch or temporary seeding, unless a more-frequent schedule is required. Any disturbed areas remaining idle for 30 days shall be stabilized with permanent vegetation. All areas to final grade shall be established to permanent vegetation (Ds3) immediately upon completion.

25. The use of polymers (PAMS) is accepted as a BMP as recommended by the STATE SOIL & WATER CONSERVATION COMMISSION BMO "green book". Cobb County also requires that polymers used to stabilize construction sites must be used in conjunction with mulching and/or hydro seeding.

26. All temporary and permanent seeding must be performed at the appropriate season. In such instances where the establishment of vegetation is inopportune due to season drought, disturbed areas shall be temporarily stabilized using 2" - 4" of mulch (Ds1). Additional plantings will be necessary if a sufficient stand of grass fails to grow.

27. Silt fences shall not be placed in stream buffer of floodplains, unless utilized for the construction of an exempt activity (i.e. roadway drainage structures, sewer/water crossings, or drainage structures) per the approved plans. For such disturbances within the buffer, the area shall be immediately stabilized using erosion control matting an/or blankets once the activity is complete.

28. Silt fence shall meet the requirements of Section 171 - Type C temporary silt fence, of the Georgia Deparment of Transportation Standard Specifications, 1993 edition, and be wire reinforced.

29. Additional erosion control devices to be used as required by the City of Atlanta.

30. There are no planned changes in the area of impervious surfaces within the project site.

POLLUTANT MINIMIZATION AND BEST MANAGEMENT PRACTICES

1. The specified BMPs shown on the plan sheets should be sufficient to control erosion, sedimentation and pollution during the project, if followed as shown.

2. Any tracking of sediment onto the public roads shall be cleaned up at the end of each work day at a minimum, and additional measures installed to minimize further occurrences.

3. Supplies of dust suppression agents, temporary seed, mulch, and straw should be maintained on-site or readily available from supplies near the site during the construction period, in case additional erosion control measures are found to be necessary.

4. Concrete washdown of tools, mixer chutes, hoppers, drums on the rear of the vehicles is not allowed at the project site.

5. All excavated soil shall be placed on the high side of the trench or excavation, away from State waters, where work is conducted near State waters.

6. Sanitary and Hazardous Waste Management

Sanitary Waste

A. No release of sanitary waste to the environment is permissible. Temporary sanitary facilities (porta-johns) shall be provided throughout the construction project. A minimum of one portable unit shall be provided for every ten (10) workers on the site. All sanitary waste shall be collected from the portable units a minimum of one time per week by a licensed portable facility provider in complete compliance with local and State regulations.

B. All sanitary waste units shall be located in one area where the likelihood of the unit contributing to storm water discharge is negligible. Additional containment BMPs must be implemented such as gravel bags or specially-designed plastic skid containers around the base, to prevent wastes from contributing to storm water discharges. The location of the sanitary waste units must be identified on the Erosion Control Plan Grading Phase by the contractor once the locations have been determined.

C. Permanent Sanitary Sewer shall be established and provided by the local Municipal Authority or as a septic system as applicable for the proposed work.

Hazardous Waste

A. All hazardous waste materials shall be disposed of in a manner specified by local, State, and/or federal regulations and by the manufacturer of such products. The job site superintendent, who shall also be responsible for seeing that these practices are followed, shall instruct site personnel in these practices. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site shall be obtained and used for proper management of potential wastes that may result from these products. An MSDS shall be posted in the immediate area where such product is stored and/or used, and another copy shall be maintained in the ESPCP file at the job site construction trailer. Each employee who must handle hazardous products/substances shall be instructed on the use of MSDS's and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

B. The contractor shall implement the SPCC measures listed below and found within this Plan, and shall train all personnel in the proper cleanup and handling of spilled materials. No spilled hazardous materials or hazardous wastes shall be allowed to come into contact with storm water discharges. If such contact occurs, the storm water discharge shall be contained on site until appropriate measures are taken in compliance with State and federal regulations to dispose of such contaminated storm water. It shall be the responsibility of the job site superintendent to properly train all personnel in the use of the SPCC measures.

POLLUTANT MINIMIZATION AND BEST MANAGEMENT PRACTICES CONTINUED

7. Good Housekeeping, Spill Prevention and Control, and Spill Cleanup

Good Housekeeping

A. Quantities of products stored on site shall be limited to the amounts necessary to perform the work.
B. Products and materials shall be stored in a neat, orderly manner in appropriate containers protected from rainfall where possible.
C. Products shall be stored in original containers with manufacturer's labels legible and visible.
D. Product mixing, product disposal, and container disposal shall be according to manufacturer's recommendations.
E. Contractor shall inspect products and materials to ensure proper use, storage and disposal.

Product-Specific Practices

A. Accidental releases of petroleum or other pollutants of any kind shall be cleaned up and removed from the environment immediately. The removed material must be containerized and disposed, and the spill reported, as required by local, State and federal regulations.

Spill Cleanup and Control Practices

A. Cleanup supplies including but not limited to brooms, rags, gloves, goggles, oil- absorbent material, oil containment booms, and waste containers shall be maintained on site in material storage areas during the construction activities.

B. Local, State and manufacturer's recommended methods for spill cleanup shall be clearly posted, and procedures made available to site personnel.

C. Spill response procedures shall be reviewed after any spill, and adjusted as necessary, to prevent future spills.

D. Spill Notification

- Impact surface water (sheen) and/or an unknown amount: Call NRC within 24 hours: (800)-426-2675

- Spills > 25 gallons but no surface water impacts: Call EPD within 24 hours.

- Spills < 25 gallons and no surface water impacts: Call local agencies as required.

E. The Contractor shall notify the licensed design professional who prepared this Plan if more htan 1,320 gallons or petroleum is stored on site (including equipment capacities) or if any piece of equipment has a capacity greater than 660 gallons. If this occurs, the Contractor will need a Spill Prevention Containment and Countermeasures Plan (SPCC Plan) prepared by that licensed design professional.

TEMPORARY SEEDING (Type Ds2)

1. Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Temporary grassing can be applied to rough graded areas that will be exposed for less than six months. If an area is expected to be undisturbed for longer than six months, permanent perennial vegetation shall be used.

2. If optimum planting conditions for temporary grassing are lacking, mulch can be used as a singular erosion control device for up to six months but it shall be applied at the appropriate depth, anchored, and have a continuous 90% cover or greater of the soil surface. This Plan does not specify mulch-only temporary practices. If these are required, refer to specification Ds1- Disturbed Area Stabilization (With Mulching Only) in the State Manual.

3. Temporary vegetative measures should be coordinated with permanent measures to assure economical and effective stabilization. Most types of temporary vegetation are ideal to use as companion crops until the permanent vegetation is established. Note: Some species of temporary vegetation are not appropriate for companion crop plantings because of their potential to out-compete the desired species (e.g. annual ryegrass).

4. Seedbed Preparation - Seedbed preparation is not required when using a hydraulic seeder, or for conventional or hand-seeding if the soil material is loose and not sealed by rainfall. When soil has been sealed by rainfall or consists of smooth cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

5. Lime and Fertilizer - Agricultural lime is required unless soil tests indicate otherwise. Apply agricultural lime at a rate of one ton per acre. Soils can be tested to determine if fertilizer is needed. For soils with very low fertility, 500 to 700 pounds of 10-10-10 fertilizer or the equivalent per acre shall be applied. Fertilizer should be applied before land preparation and incorporated with a disk, ripper or chisel.

6. Seeding - Select a grass or grass-legume mixture suitable to the area and season of the year. Use Annual Ryegrass 40 pounds PLS per acre unless otherwise approved. Acceptable seeding schedule for this species is August 1 to mid-April for the Georgia Piedmont region, with the optimal seeding period being from September 1 to mid-December. Other species may be required if seeding is conducted during other periods.

7. Seed shall be applied uniformly by hand, cyclone seeder, drill, culti-packer seeder, or hydraulic seeder. Drill or cultipacker seeders should normally place seed one-quarter to one-half inch deep. Appropriate depth of planting is ten times the seed diameter. Soil should be "raked" lightly to cover seed with soil if seeded by hand.

8. Mulching - Mulch must not be anchored on slopes that are 4:1 or steeper. Temporary vegetation can, in most cases, be established without the use of mulch.

9. Irrigation - During times of drought, water shall be applied at a rate not causing runoff and erosion. The soil shall be thoroughly wetted to a depth that will ensure germination of the seed. Subsequent applications should be made when needed.

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

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jp²
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RESURGENS 1847 1865 ATLANTA, GA.

REVISIONS

△	DATE	DESCRIPTION

REVISIONS

△	DATE	DESCRIPTION

DESIGNED BY:	B.S.
DRAWN BY:	NAP
CHECKED BY:	BS
APPROVED BY:	GR
DATE:	9/24/15
SCALE:	NA

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E
RM CLAYTON WRC
EROSION CONTROL PLAN
PROJECT SPECIFIC NOTES

DRAWING NO.
C-RM-5

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PROJECT CONTACTS / 24-HOUR PROJECT CONTACT

1. The primary permittee is the Contractor, to be determined by bidding.

2. The 24-hour contact responsible for erosion, sedimentation, and pollution controls is the contractor. The contractor is to be determined by bidding.

PROJECT DESCRIPTION AND SCHEDULE

1. The site is located in the City of Atlanta, GA. The project is owned by:
City of Atlanta Watershed Management
55 Trinity Avenue, Suite 3350
Atlanta, GA 30303
404-330-6000

2. The project entails constructed modifications to an existing wastewater reclamation facility.

3. The project is to be permitted under GAR100001.

4. Portions of the project area are located within the 100-year flood plain as indicated in the plan sheets, based on FEMA Flood Map 13121C0229E, June 22, 1998.

5. Land use is an existing wastewater treatment plant site.

6. The total disturbed area is 0.01 acres, and the site size is 5.41 acres.

7. The project is located within the following district, land lot and parcel numbers:
District 17, land lot 0230: parcel 4025, 4026, 4027, 4028, 4029
land lot 0231: parcel LL029, LL035
land lot 0243: parcel LL012, 2017, 2019, 2020
land lot 0244

8. There is no work with the 25' stream buffer.

9. There are no trees or root zones impacted by site work.

SITE HYDROLOGY

1. There is no proposed change in surface runoff coefficients and peak discharge flows resulting from this project.

SEDIMENT STORAGE PROVISIONS

1. Sediment basins are not proposed for the project due to limited disturbance. Sediment can be effectively controlled by the implementation of the BMPs indicated in this plan.

2. Sediment barriers must be inspected, cleaned out, and maintained throughout the project to maximize the sediment storage availability of these devices.

3. 15 cubic yards of sediment storage is required for 0.05 disturbed acres of project area.

4. 322 linear feet of silt fence will be installed on the project, and available for sediment storage. Lengths of double-row silt fence were counted once (not twice) when calculating this quantity. 322 linear feet x 15" sediment storage height x 12 foot width of sediment against fence/ 27 = 15 cubic yards of sediment storage provided.

5. Sediment storage volume @ 67 cy/acre must be installed prior to any other land disturbance activity and in place until final stabilization occurs.

~~**SITE WATERSHED AND RECEIVING WATERS**~~

1. The project is located in the Chattahoochee River watershed. The total watershed area at the point where the Chattahoochee flows past the project site is 1,800 square miles.

2. The receiving water is the Chattahoochee River.

CRITICAL AREAS

1. Steep slopes shall be stabilized at the end of each construction day with 3 - 4 inches of mulch or with erosion control matting. Final stabilization on these slopes shall include erosion control matting.

PROJECT SCHEDULE

ANTICIPATED LAND DISTURBING ACTIVITY SCHEDULE

DESCRIPTION	MONTH 1				MONTH 2				MONTH 3				MONTH 4				MONTH 5				MONTH 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
INSTALLATION OF EROSION SEDIMENT CONTROL MEASURES	X	X																						
STAKING AND TRENCHING			X	X	X	X																		
DUCTBANK CONSTRUCTION						X	X	X	X	X	X													
SITE RESTORATION AND CLEANING						X	X	X	X	X	X													
REMOVAL OF EROSION AND SEDIMENT CONTROL MEASURES											X	X	X											

*** Final restoration may be required in the next available growing season if the site work is completed in non-acceptable time periods.**

INSPECTIONS AND MAINTENANCE

Inspections and Reporting

1. Erosion and sediment control measures shall be inspected at least weekly, after each rain, and repaired as necessary. Erosion, sedimentation, and pollution control measures must be inspected by a State-certified inspector in accordance with the following schedule until a Notice of Termination is submitted:

a. Daily - in areas where petroleum products are used, stored or handled for evidence of releases of petroleum; where vehicles enter or leave the site for evidence of sediment tracking off of the site; and measure rainfall for each 24-hour period.

b. Weekly; AND within 24 hours after the end of any and all rain events. Inspect the following: disturbed areas that have not undergone final stabilization; areas used for storage of materials; all structural BMPs; and all outfall locations. BMPs shall be observed to ensure that they are operating correctly. Discharge points shall be inspected to determine whether control measures are preventing significant impacts to receiving water(s).

c. Monthly - areas of the site that have undergone final stabilization. Inspect for evidence of or potential for pollutants to enter the drainage system and enter the receiving waters. BMPs shall be observed to ensure that they are operating correctly. Discharge points shall be inspected (if accessible) to determine whether control measures are preventing significant impacts to receiving water(s).

2. **Results of the inspections shall be documented.** Reports must include the name of the inspector(s) and certification number(s), the date(s) of each inspection, major observations relating to the implementation of the ES&PC Plan, and actions taken in response to the inspections. The reports must identify any incidents of non-compliance OR a certification that the site is in compliance with the Plan. **All reports must be signed in accordance with Part V.G.2.d of the General NPDES Permit.**

3. Additional erosion and sediment control measures shall be installed if determined necessary by on-site inspection.

4. The City's designee will verify adequate cover (100% cover, 70% cover) of permanent stabilization (Ds3, Ds4).

5. Copies of the inspection reports must be retained at the site or be readily available at a designated alternate location until the entire site has undergone final stabilization and a Notice of Termination has been submitted to EPD.

6. **Any known violations must be documented within seven (7) days and submitted to EPD District Office within 14 days of discovery of the violation.**

Maintenance

1. The contractor shall maintain all sediment basins and erosion control measures until permanent ground cover is established. Sediment shall be cleaned out of any basins when it reaches the cleanout elevation shown in the basin detail.

2. Each control measure shall be maintained (or replaced if appropriate) if sediment accumulation has reached one third the capacity of the measure.

3. ES&PC measures will be maintained at all times. If full implementation of the approved Plan does not provide for effective control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.

4. When permanent ground cover has been established, sediment shall be cleaned out of the BMPs, and the disturbed BMP areas stabilized and restored to pre-existing conditions.

STORM WATER MONITORING

Sampling Locations must be monitored for NTUs during the construction period as specified below. The appropriate NTU turbidity standard for this location is 750 NTUs, based on a warm water receiving stream, site size of 45.29 acres, and watershed area of approx. 1800 sq.mi. Any other outfalls generated by the work activities shall also be sampled and shall meet the 750 NTU standard.

Any samples collected directly from receiving waters (Chattahoochee River) must be monitored for NTUs during the construction period as specified below. A pair of samples is required for each in-stream sampling location/event, collected immediately upstream and downstream of the potential storm water discharges associated with the construction activity. The downstream sample must not exceed the upstream sample by more than 25 NTUs, based on a warm water receiving stream. Any other in-stream sample locations not shown on the Plans, that may become appropriate based on the work activities, shall meet the 25 NTU standard.

Sampling Methodology and Analysis

1. All samples shall be grab samples, and must be representative of the actual storm water discharges from the site.

2. Sample containers shall be labeled prior to collection. Clean, large mouth jars shall be used for collecting the samples.

3. Samples shall be collected from the horizontal and vertical center of the outfall channel. Care shall be taken to avoid stirring the bottom sediments in the outfall channel. The container shall be held so that the opening faces upstream, and the samples kept free of floating debris. Samples do not have to be cooled.

4. If analyzed at a laboratory, the samples shall be analyzed by EPA Method 180.1, immediately if possible and within 48 hours of collection.

5. Samples may be analyzed directly with a turbidimeter. The turbidimeter must be calibrated daily, and maintained regularly in accordance with manufacturer's instructions.

6. Sheet flow onto undisturbed natural areas or areas permanently stabilized by the project does not have to be sampled. "Permanently stabilized" means 100% of the soil surface is uniformly covered with a density of 70% in permanent vegetation or other equivalent permanent BMPs such as gabions or riprap. Therefore, care shall be taken to protect the undisturbed areas immediately outside the established limits of disturbance so that sampling of these areas does not become necessary during the project.

Sampling Frequency

1. For each area of the site that discharges to a receiving stream, samples shall be collected at the following times/events:

a. The first rain event of 0.5 inches of rainfall or greater which allows for sampling during normal business hours (See Note 5), that occurs after all clearing and grubbing activities have been completed in the drainage area contributing to the outfall(s).

b. The first rain event of 0.5 inches of rainfall or greater which allows for sampling during normal business hours (See Note 5), that occurs either 90 days following the first sampling event or after all mass grading operations have been completed in the drainage area contributing to the outfall(s), whichever comes first.

Samples shall be collected as soon as possible after accumulation of the minimum amount of rainfall for the qualifying event, but in no case more than 12 hours after the beginning of the storm water discharge.

2. At the time that samples are collected, if BMPs are found by the certified inspector to be properly designed, installed and maintained, no additional sampling is required.

3. If BMPs are found to not be properly designed, installed or maintained, corrective action must be defined and implemented within two (2) business days. Additionally, turbidity samples shall be taken from discharges for each subsequent rain event that reaches or exceeds 0.5 inches of rainfall, until the selected turbidity standard is attained, or until post-storm event inspections indicate that BMPs are properly designed, installed and maintained.

4. The permittee may choose to meet the requirements of the permit and this section by collecting turbidity samples from any rain event that reaches or exceeds 0.5 inches of rainfall and allows for monitoring at any time of the day or week.

5. Normal business hours are considered to be Monday through Saturday, 8:00 am to 5:00 pm, excluding all non-working Federal holidays.

Storm Water Monitoring - Documentation and Reporting

1. Monitoring results must be documented including: the turbidity result of the sample; the date, time and place of the monitoring event; the name of the individual who performed the sampling and any field measurements; the date and time that the analysis was performed; the name of the individual who performed the analysis; references and written procedures, when available, for the analytical methods used; the results of any laboratory analysis including bench sheets, instrument readouts, etc. used to determine the results.

2. Monitoring results which exceed 1,000 NTUs shall be reported as "exceeds 1,000 NTUs".

Storm Water Monitoring - Documentation and Reporting Continued

3. Monitoring documentation (as described above) shall be reported in writing to the GA EPD District Office by the fifteenth day of the month following the collection of the sample(s). Documentation must be in a clear, legible format. Sampling reports must be signed in accordance with Part V.G.2.d of the NPDES permit. Reporting shall continue until a Notice of Termination is submitted in accordance with Part VI of the NPDES permit. Upon written notification, EPD may require that sample results be submitted on a more frequent basis.

4. If monitoring is conducted more frequently than the minimum frequency identified in this Plan, documentation of those results must also be submitted to GA EPD.

5. All reporting required by this Plan and the NPDES permit must be submitted to GA EPD by retur receipt certified mail (or similar service).

Document Retention

1. The permittee must retain copies of the following documents, either at the site or at a readily accessible off-site designated location: Copy of NOI; Proof of NOI Submittal; SESPC Plan; Design Professional's Inspection Report; Daily Rainfall Data; Site Inspection Reports; Monitoring informatior results and reports; Violation Summary Reports; and Notice of Termination.

2. Permittees are encouraged to post copies of the NOI, this Plan, sampling results, and inspection reports on or in a permit board at the construction exit, to facilitate inspections by the Local Issuing Authority and GA EPD.

3. Copies of all permit-required documentation shall be retained by permittee for a period of at leas three years from the date that a valid Notice of Termination is submitted to the appropriate GAEPD District Office. Records must be retained at the permittee's primary place of business once the construction activity has ceased at the permitted site.

~~**DESIGN PROFESSIONAL'S CERTIFICATIONS**~~

1. I certify that the Erosion, Sedimentation and Pollution Control Plan provides for an appropriate and comprehensive system of best management practices required by the Georgia Water Quality Control Act and the document "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the State Soil and Water Conservation Commission as of January 1 of the year in which land disturbing activity was permitted, provides for the sampling of the receiving water(s) and/or the sampling of the stormwater outfalls and the designed system of best management practices and sampling methods is expected to meet the requirements contained in the General NPDES Permit No. GAR 100001.

2. I certify under penalty of law that this Plan was prepared after a site visit to the locations described herein by myself or my authorized agent, under my supervision.

______________________________ **Date:** ______________

Bhushan Sahwney — **Certification # 0000056448**

GSWCC Level II Design Professional — **Exp. 11/14/2017**

3. Inspection Certification: I certify that the site was inspected on ______________ for initial sediment storage controls and perimeter control BMPs within seven days of installation, and was in compliance with the ESPC Plan on the date of inspection.

______________________________ **Date:** ______________

Bhushan Sahwney — **Certification # 0000056448**

GSWCC Level II Design Professional — **Exp. 11/14/2017**

Inspection revealed the following discrepancies from the ESPC Plan:

____

____

____

Discrepancies must be corrected immediately and a reinspection scheduled. Work shall not proceed until the Design Professional's Certification is obtained.

GEORGIA REGISTERED No. 10756 PROFESSIONAL ENGINEER BHUSHAN SAHWNEY

CLEAN WATER ATLANTA — drinking water, stormwater, wastewater

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Atlanta, GA. 30328
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REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY:	B.S.
DRAWN BY:	NAP
CHECKED BY:	BS
APPROVED BY:	GR
DATE:	9/24/15
SCALE:	NA

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E
RM CLAYTON WRC
EROSION CONTROL PLAN
PROJECT SPECIFIC NOTES

DRAWING NO.
C-RM-6

F:\2014_Projects\4906E\TO#10\I&C\RM Clayton I&C\2 CIVIL\C-RM-6.dwg

PERMANENT VEGETATION (TYPE Ds3)

1. This practice shall be applied immediately to rough graded areas that will be undisturbed for longer than six months, and to all areas at final grade.

2. Final Stabilization means that all soil disturbing activities at the site have been completed, and that for unpaved areas and areas not covered by permanent structures, at least 70% of the soil surface is uniformly covered in permanent vegetation or that equivalent permanent stabilization measures (such as the use of rip rap, gabions, permanent mulches or geotextiles) have been employed.

3. Until the Final Stabilization standard is satisfied and permanent control measures and facilities are operational, interim stabilization measures and temporary erosion and sedimentation control measures shall not be removed.

TABLE A
Seed Mix and Application Requirements
(SOUTHERN PIEDMONT)

Species	Application Rate (pounds PLS/acre)	Application Planting Season
Sericia Lespedeza (3)	60	March 1 - June 10
Tall Fescue	30	August 15 - October 31
Common Bermuda (unhulled)	6	October 1 - March 1

Notes: (1) Other species identified in the *Manual for Erosion and Sediment Control in Georgia* shall be provided if final restoration is conducted outside the allowable planting seasons shown. Species shall meet *Manual for Erosion and Sediment Control in Georgia* Table 6.5.2 requirements, and shall be subject to Owner and Engineer approval.
(2): Strip and re-use topsoil.
(3): Requires EL Inoculant.

PERMANENT VEGETATION REQUIREMENTS (SOUTHERN PIEDMONT)

1.01 SCOPE

The Work is the permanent seeding of the construction site. Seeding operations specified herein are the permanent erosion control measure shown on the Drawings as Ds3, and meet the requirements in the *Manual For Erosion And Sediment Control In Georgia, 5th Edition* . The Ds3 designation includes the planting of trees and shrubs; however, plantings are not required unless specifically identified on these Drawings.

The Work consists of furnishing all labor, equipment and material required to place topsoil, seed, fertilizer, lime and mulch material, including seedbed preparation, harrowing, compacting and other placement operations on graded earthen areas as described herein or shown on the Drawings. Seeding shall be conducted on all disturbed project areas that are not otherwise shown to be covered by structures, pavement, sidewalks, hard armoring, permanent mulching or landscape plantings.

1.02 QUALITY ASSURANCE

Topsoil, seed, soil supplements, and mulch shall comply with applicable requirements of the Georgia Department of Agriculture.

One soil sample from each topsoil source, including native stripped topsoil, shall be collected, and analyzed by a qualified laboratory in accordance with Georgia Department of Agriculture and County Extension Service recommendations. Samples shall be analyzed to determine the necessary fertilizer and liming requirements, buffer pH, organic ignition analysis, and to demonstrate that all requirements in Paragraph 2.02 have been achieved.

Permanent seeding operations shall be carried out only during the seasons that are suitable for the specified seed species shown in Table A, unless otherwise specifically approved by the Engineer.

Notify the Engineer at least 48 hours in advance of all planned seeding operations and identify the specific materials to be used, their proposed location, and their application rates.

1.03 SUBMITTALS

Submittals shall be made in accordance with Section 01300 of the Specifications. The following specific information shall be provided prior to seeding operations:

1. Name and location of each proposed topsoil source for approval by Engineer.
2. Test results for topsoil analyses and certification that topsoil meets the requirements of Paragraph 2.02.
3. Certification of seed mixture, purity, germinating value, and crop year identification. Provide labels or certified laboratory reports from an accredited commercial seed laboratory or a state seed laboratory showing the analysis and germination of the seed to be furnished. Acceptance of the seed test reports shall not relieve the Contractor of any responsibility or liability for furnishing seed meeting the requirements of this Section.
4. Product data and application rates for all soil supplements, mulch, binders, or any other products proposed for the Work.
5. Hydroseeding mixture and rate of application.
6. Samples of all seed mixtures.

2.01 PRODUCTS

All materials used to establish ground cover shall be according to the *Manual for Erosion and Sediment Control in Georgia*, specific to the Coastal Major Land Resource Area.

2.02 TOPSOIL

Topsoil shall be a friable loam typical of locality, containing a large amount of humus, with the mixture of sand, silt and clay particles in approximately equal proportions. Topsoil shall be of good rich, uniform quality, free from any material such as hard clods, stiff clay, hardpan, partially disintegrated stone, pebbles larger than 1/2 inch in diameter, lime, cement, bricks, ashes, cinders, slag, concrete, bitumen or its residue, boards, stocks, chips or other undesirable material harmful or unnecessary to plant growth. Topsoil shall be reasonably free from perennial weeds and shall not contain objectionable plant material, toxic amounts of either acid or alkaline elements or vegetable debris undesirable or harmful to plant life.

Topsoil shall have a pH range from 5.5 to 7.0, and shall contain not less than 5 percent nor more than 20 percent, by weight, organic matter as determined by loss on ignition of oven-dried samples to 65 degrees C.

Topsoil may be obtained from borrow sources and stripped areas on site, or from off-site sources if necessary. Sources of topsoil shall be approved by the Engineer prior to disturbance.

2.03 SEED

Provide seed mix shown in Table A or other seed mix that meets Green Book requirements and is approved by Owner.

All seed shall be from the last crop available at time of purchase. It is recommended that seed have a 98 % purity and 90 % germination rate. Specified seed application rates are based on Pure Live Seed (PLS). The actual application rate in the field is related to the specified rate as follows:

PLS = (% purity) x (% germination)

Actual applied rate in the field (#/acre) = Specified rate (# PLS/Acre) /PLS

At the discretion of the Engineer, samples of seed may be collected to check the grower's analysis.

Seed shall be delivered in new bags or bags that are sound and labeled in accordance with the U.S. Department of Agriculture Federal Seed Act. Seed shall not be moldy, wet or otherwise damaged in transit or storage.

Plant selection may include annual companion crops. Annual companion crops should be used only when the perennial species are not planted during their optimum planting period. Care shall be taken in selecting companion crop species and seeding rates because annual crops will compete with perennial species for water, nutrients, and growing space. Ryegrass shall not be used in any seeding mixtures containing perennial species. Use of companion crops require Engineer's approval.

2.04 FERTILIZER

Use dry formulations of 6-12-12 N-P-K unless indicated otherwise by topsoil tests. Commercial fertilizer shall be a ready mixed material. Container bags shall have the name and address of the manufacturer, the brand name, net weight and chemical composition. Liquid formulations may be used in place of dry formulations, provided that:

1. A certified weigh bill, showing guaranteed analysis, accompanies each delivery to the project.
2. A minimum of 15 minutes of agitation is provided in storage tanks and transport vehicles prior to loading or discharge.
3. The liquid mixture application is in a concentration not greater than 200 gallons per 1,000 gallons of slurry.
4. A chart is provided showing the gallons required to provide the equivalent dry fertilizer required.

2.05 LIME

Lime shall be a pulverized calcitic or dolomitic agricultural limestone having a calcium carbonate content of not less than 85 percent by weight. Limestone containers shall be labeled indicating the calcium carbonate equivalent (CCE).

Lime spread by conventional equipment shall be "ground limestone" with 90 percent of the material passing a 10-mesh sieve, at least 50 percent passing a 50-mesh sieve and at least 25 percent passing a 100-mesh sieve.

Lime spread by hydraulic seeding equipment shall be "finely ground limestone" with 98 percent of the material passing a 20-mesh sieve and at least 70 percent passing a 100-mesh sieve.

2.06 MULCH MATERIALS

Mulch shall be composed of any of the following as appropriate:

1. Air-dried straw or hay free of noxious weeds, weed seeds or other materials detrimental to plant growth. Straw mulch shall be partially decomposed stalks of wheat, rye, oats or other approved grain crops.
2. Wood cellulose and wood pulp fibers appropriate for use with hydraulic seeding. Materials shall not contain germination or growth inhibiting factors, shall evenly disperse when agitated in water, and shall contain a dye to allow visual metering and aid in uniform application during seeding.
3. One thousand pounds of wood cellulose or wood pulp fiber plus a tackifier, for hydraulic seeding on slopes 3/4:1 or steeper.
4. When using erosion control blankets or turf reinforcement mats during permanent seeding, mulch is not required.

2.07 MULCH ANCHORING

Mulch anchoring shall consist of the application of any of the following as appropriate:

1. Pressing, but not plowing, hay and straw into the soil by packer disc.
2. Non-asphaltic tackifiers or binders.
3. Rye or wheat applied at ¼ to ½ bushel per acre, for any fall or winter plantings.
4. Plastic netting with maximum 1-inch by 1-inch mesh on steeper slopes.

2.8. INNOCULANTS FOR LEGUMES

All leguminous seed shall be inoculated prior to seeding with a standard pure culture of nitrogen-fixing bacteria that is adapted to the particular seed species involved, and used within the date shown on the container.

3.01 SECURING TOPSOIL

Topsoil stripped from the construction site shall be secured from areas approved by Engineer, from which topsoil has not been previously removed, either by erosion or mechanical methods. Topsoil shall not be removed to a depth in excess of the depth approved by the Engineer.

The area or areas from which topsoil is secured shall possess such uniformity of soil depth, color, texture, drainage and other characteristics as to offer assurance that, when removed the product will be homogeneous in nature and will conform to the requirements of these Specifications.

All secured topsoil must meet the requirements of Paragraph 2.02. Should strata or seams of material occur which do not meet the requirements for topsoil, such material shall be removed from the topsoil or if required by the Engineer, the pit shall be abandoned.

3.02 TOPSOIL PLACEMENT

Loosen subgrade soil to a depth of three (3) inches, and then place a layer of topsoil, 4 - 6 inches thick, spread evenly and compacted by means of a light pneumatic tired roller or similar equipment. The thickness of the topsoil layer shall be determined based on the ability of the subsoil to support vegetation. Stones, roots, branches and debris shall be removed from the topsoil and an evenly finished surface provided.

Topsoil shall not be placed in a frozen or muddy condition.

3.03 SEEDBED PREPARATION

Not earlier than 24 hours before the seed is to be sown, the soil surface to be seeded shall be thoroughly cultivated to a depth of not less than 2 inches with a weighted disc, tiller, or other equipment until the surface is smooth. The final finished seedbed shall result in a furrow-like configuration parallel to slopes. Final surface prior to seeding must be approved by the Engineer, or the topsoil placement reworked until the Engineer's approval is obtained.

Ground preparation operations shall be performed only when the ground is in a tillable and workable condition, as determined by the Engineer. If the prepared surface becomes eroded as a result of rain or for any other reason, or becomes crusted before the seed in sown, the surface shall again be cultivated for seeding.

Before liming, fertilizing and seeding, the topsoil surfaces shall be trimmed and worked to true line from unsightly variation, bumps, ridges and depressions and all detrimental material, roots and stones larger than 3 inches in any dimension shall be removed from the soil.

3.04 FERTILIZATION AND LIMING

Following seedbed preparation, fertilizer and lime shall be applied to all areas to be seeded.

Lime shall be applied at a rate of one to two tons per acre, unless the specified soil testing indicates a different rate is appropriate.

Fertilizer shall be applied at a rate of 1,500 pounds per acre, unless the specified soil testing indicates a different rate is appropriate.

1. Dry Application: Limestone and fertilizer shall be applied uniformly and thoroughly mixed into the soil. Apply to topsoil before the seedbed preparation step above, or spread evenly over the topsoil and lightly harrow, rake, or otherwise incorporate into the soil for a depth of 2 inches.
2. Hydraulic Application: When hydraulic methods are used, the fertilizer and lime are applied as part of the seeding operation. Refer to seeding section.

3.05 SEEDING

Leguminous seeds shall be inoculated prior to seeding with an approved and compatible nitrogen-fixing innoculant in accordance with the manufacturer's mixing instructions.

Seed mixes shall be applied at the rates shown in Table A.

Seed shall be sown as soon as preparation of the seedbed has been completed. No seed shall be sown during high winds. Seed mixtures may be sown together provided they are kept in a thoroughly mixed condition during the seeding operation.

Seed shall be uniformly sown by any approved mechanical method suitable for the slope and size of the areas to be seeded, preferably with a broadcast type seeder, or approved mechanical power drawn seed drills. Hydraulic methods (Hydroseeding) may be used provided full coverage is obtained. Care shall be taken to adjust the seeder for seedings at the proper rate before seeding operations are started and to maintain their adjustment during seeding. Seed in hoppers shall be agitated to prevent segregation of the various seeds in a seeding mixture.

1. Dry Application:

   Immediately after sowing, the seeds shall be covered and compacted to a depth of 1/8 to 3/8 inch by a cultipacker or suitable roller.

2. Hydraulic Application:

   Initial fertilizer shall be mixed with seed, innoculant (if needed), and wood cellulose or wood pulp fiber mulch and applied in a slurry. The innoculant, if needed, shall be mixed with the seed prior to being placed into the hydraulic seeder. The slurry mixture shall be agitated during application to keep the ingredients thoroughly mixed. The mixture shall be spread uniformly over the seeding area within 30 minutes after being placed in the hydroseeder.

Finely ground limestone shall be mixed with water and applied immediately after hydroseeding is completed or in combination with a top dressing. Hydroseeding shall not be performed during high winds or when the ground surface is too wet for working.

Any portions of seeded areas which do not produce a uniform erosion-resistant perennial vegetative cover, or are washed out, shall be regraded, refertilized and reseeded. All areas which have been seeded shall be watered and cared for until the disturbed areas are considered to be permanently stabilized with vegetation. The grassed areas shall be left in a condition acceptable to Engineer and Owner at the completion of the Contract.

3.06 MULCHING

All seeded areas shall be uniformly mulched in a continuous blanket immediately after seeding. The mulch shall be applied so as to permit some sunlight to penetrate and the air to circulate and, at the same time, shade the grounds, reduce erosion and conserve soil moisture. Approximately 25 percent of the ground shall be visible through the mulch blanket. When using temporary erosion control blankets, mulch is not required. Apply mulch as follows:

1. Air-dried straw or hay - 2 or 2.5 tons per acre, respectively.
2. Wood cellulose and wood pulp fibers (hydraulic methods) - 500 pounds per acre.
3. Wood cellulose/ pulp fiber plus tackifier (steep slopes) - 1,000 pounds per acre.

These rates may be adjusted at the discretion of the Engineer at no additional cost to the Owner, depending on the texture and condition of the mulch material and the characteristics of the seeded area.

Anchor mulch immediately after application, according to the methods identified in Paragraph 2.07. Cover structures, poles, fences and other items if the mulch binder is applied in such a way that it would come in contact with or discolor the structures.

3.07 WATERING

Maintain the proper moisture content of the soil to ensure adequate plant growth until a satisfactory vegetative stand is obtained. If necessary, watering shall be performed to maintain an adequate water content in the soil.

Watering shall be accomplished by hoses, tank truck or sprinklers in such a way to prevent erosion, excessive runoff and overwatered spots.

3.08 MAINTENANCE

Upon completion of seeding operations, clear the area of all equipment, debris and excess material and leave the premises in a neat and orderly condition.

Apply a slow-release, top-dressing fertilizer 6-12-12 N-P K at 50 to 100 pounds per acre when vegetation has reached an initial growth of two to four inches.

Maintain all seeded areas until final acceptance of the work. Any regrading, refertilizing, reliming, reseeding or remulching shall be done at Contractor's own expense. Work shall be repeated on defective areas until a satisfactory uniform stand is accomplished. Damage resulting from erosion, gulleys, washouts or other causes shall be repaired by filling with topsoil, compacting and repeating the seeding work at the Contractor's expense.

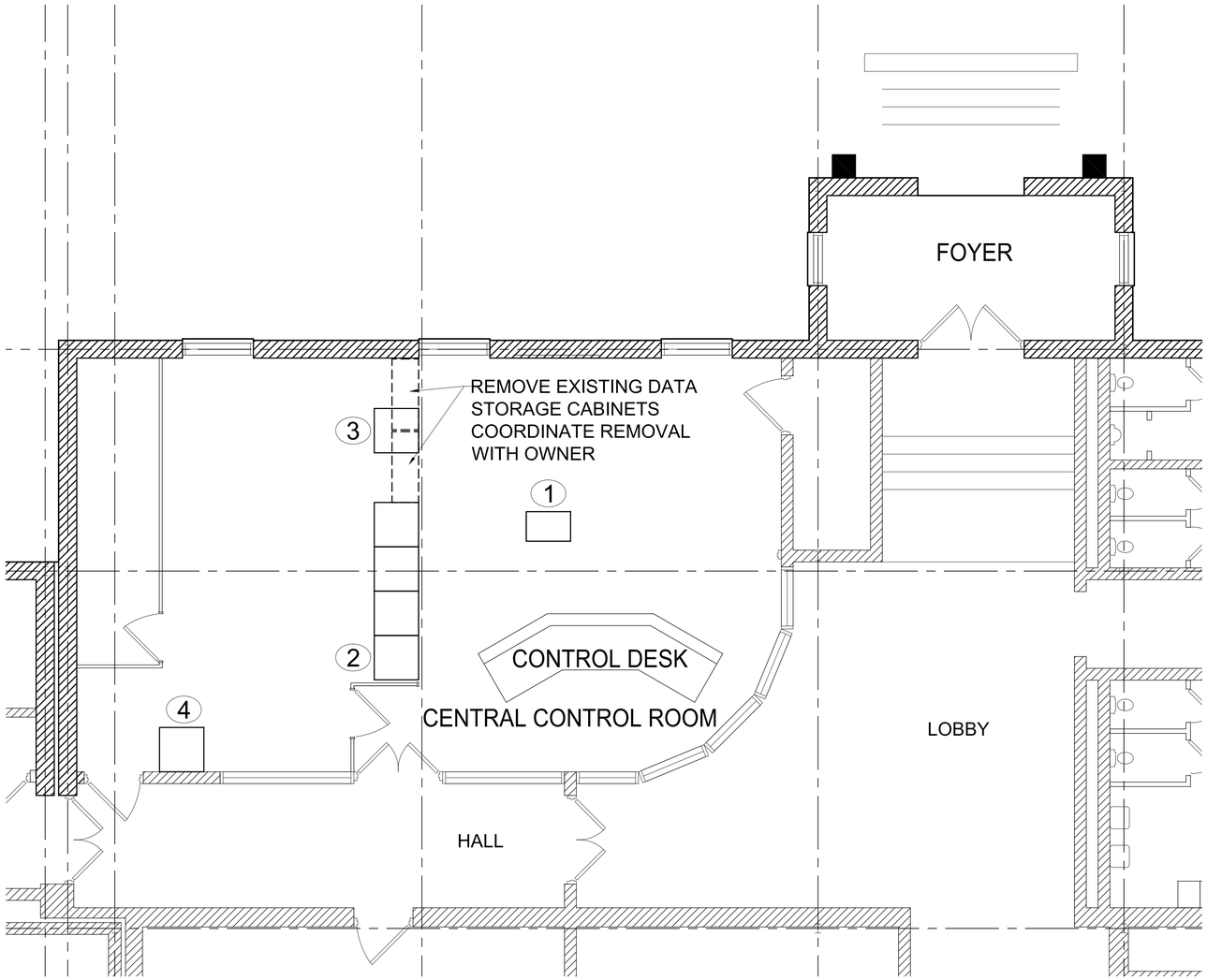
Contractor's guarantee of 1 year shall also cover a fully rooted stand of grass.

GEORGIA REGISTERED No. 10756 PROFESSIONAL ENGINEER BHUSHAN SAWHNEY Expires

I & C UPGRADE SCHEDULE

ADMINISTRATION BUILDING CENTRAL CONTROL CENTER

MARK	ITEM	EXISTING LABEL	REASSIGNED LABEL	NOTES
1	FOXBORO CABINET	A-2	07ABFC01	
2	ROOT SWITCH CABINET	NONE	07ABNC01	
3	NEW NETWORK CABINET	NONE	07ABNC02	NO PHOTO
4	UPS	NA	NA	UPGRADE



1 / A-AD-1 MAIN LEVEL ADMINISTRATION BUILDING CENTRAL CONTROL ROOM PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. EXISTING EQUIPMENT INDICATED TO BE REPLACED, REMOVE OR UPGRADE PER SCOPE OF WORK SHOWN ON G-RM-0
2. REFER TO ELECTRICAL POWER DRAWING EP-RM-4 FOR U.P.S. CONECTION REQUIREMENTS AND E1-RM-4
3. PHOTO DRAWINGS INDICATE THE LOCATION OF EXISTING EQUIPMENT AND ARROW DESIGNATES WHICH EQUIPMENT IS TO BE UPGRADED OR REPLACED.

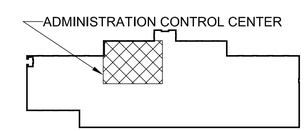
NORTH

CONTROL ROOM FLOOR PLAN

SCALE: 1/4"=1'-0"

4' 2' 0' 4'

SCALE: 1/4"=1'-0"



MAIN LEVEL
ADMINISTRATION BUILDING LEGEND
N.T.S.

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2 value ▪ innovation ▪ results

REGISTERED ATLANTA, GA. 1985

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY: RK
DRAWN BY: NAP
CHECKED BY: GR
APPROVED BY: YH
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT

RM Clayton WRC
Administration Control Center
Panel Location Plan

DRAWING NO. A-AD-1

SHEET 11 OF 49

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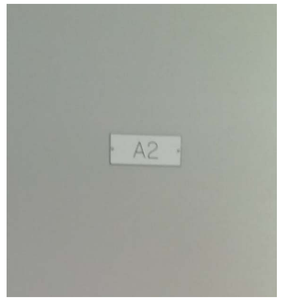

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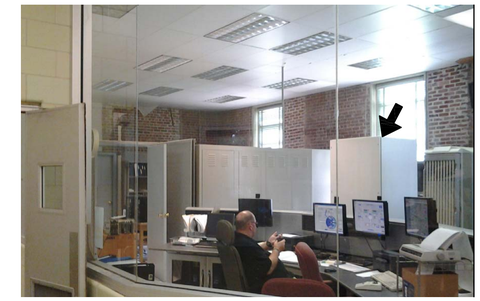
1B 07ABFCO1

1C 07ABFCO1



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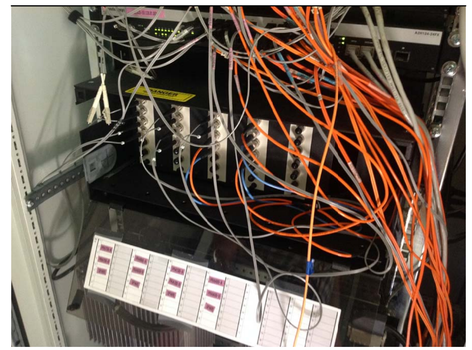
1E 07ABFCO1



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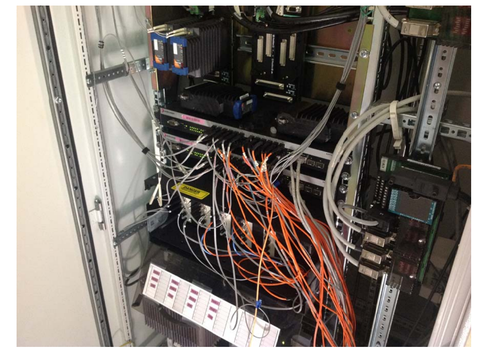

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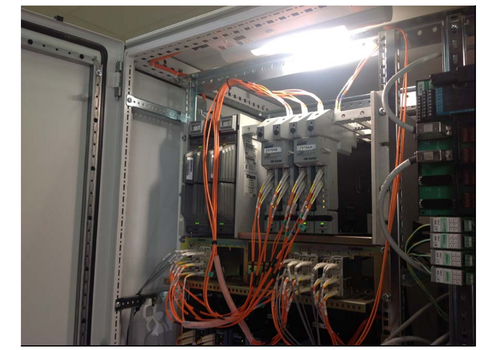

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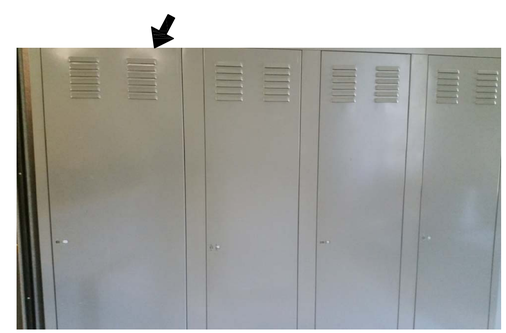

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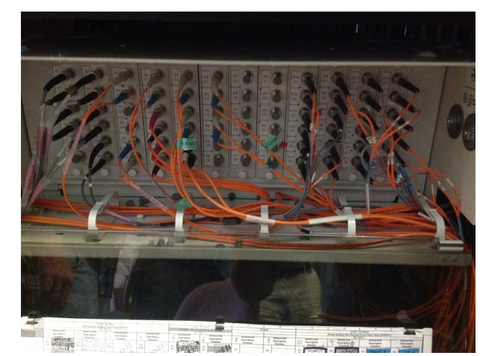

2D 07ABNCO1

1 EXISTING CONTROL PANEL PHOTOS
SCALE: N/A

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

RESURGENS 1965 ATLANTA, GA.

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION
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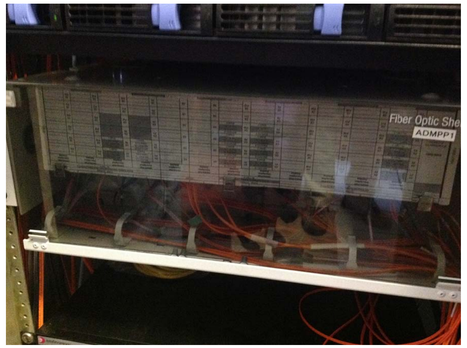
DESIGNED BY: ...
DRAWN BY: RK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E
RM Clayton WRC
Administration Control Center
Panel Photos

DRAWING NO.
A-AD-2A

F:\2014_Projects\JP2\WERK\JASON\J&C\RM-AD---Admin Control Center_J&C-10.21.dwg



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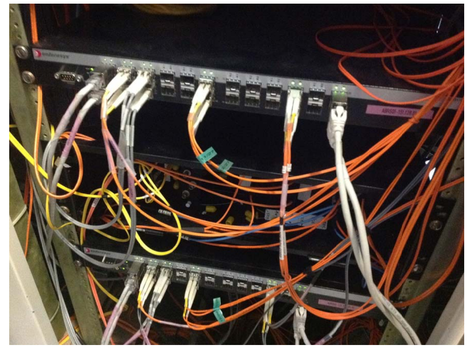

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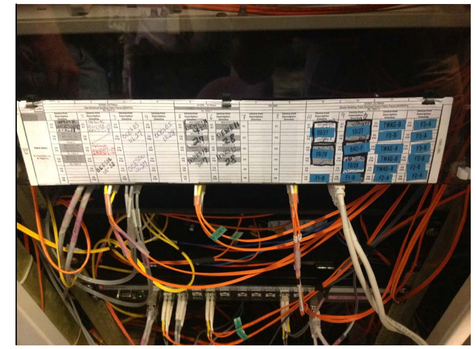

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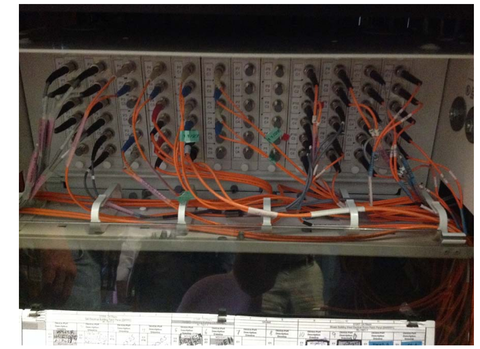

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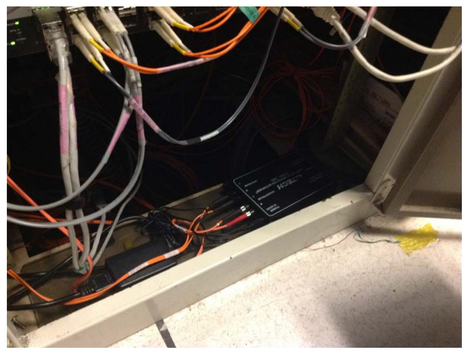

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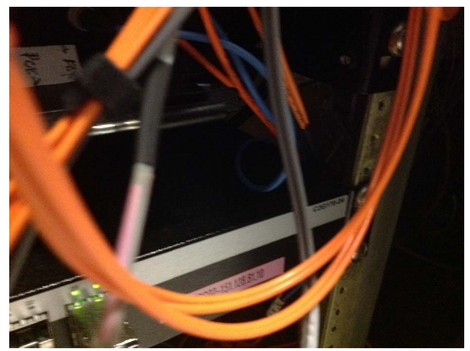

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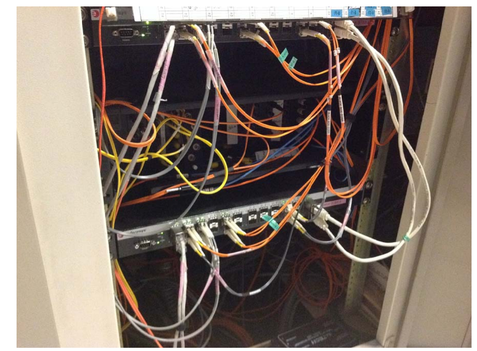

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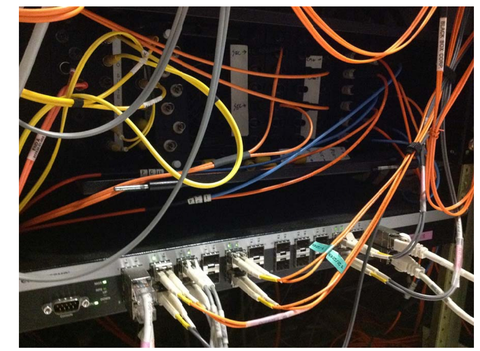

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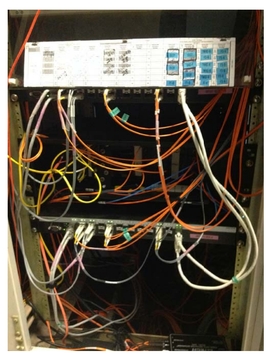

2N 07ABNCO1

2P 07ABNCO1

4A UPS

4B UPS

2 EXISTING CONTROL PANEL PHOTOS

SCALE: N/A

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

REVISIONS		
△	DATE	DESCRIPTION
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REVISIONS		
△	DATE	DESCRIPTION

DESIGNED BY: ...
DRAWN BY: RK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
Administration Control Center
Panel Photos

DRAWING NO.
A-AD-2B

SHEET 13 OF 49

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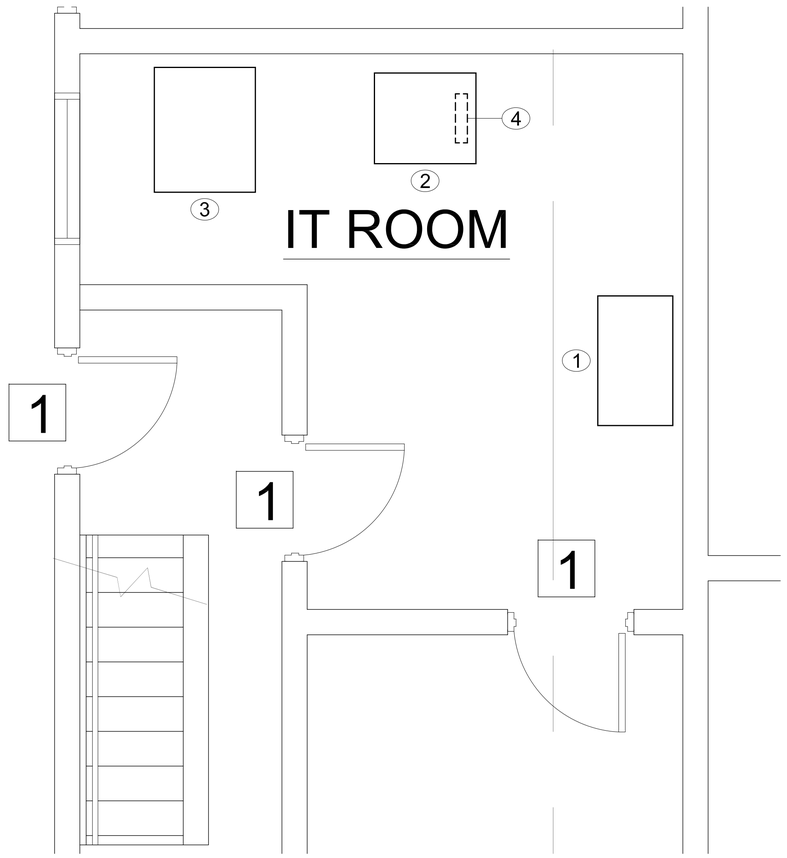


1 A-BL-4 INSTRUMENT & CONTROL ROOM PLAN
SCALE: 1/2" = 1'-0"

I & C UPGRADE SCHEDULE

BLOWER BUILDING I & C ROOM

MARK	ITEM	EXISTING LABEL	REASSIGNED LABEL	NOTES
1	EXISTING PLC CABINET	MCP	NO CHANGE	
2	EXISTING FOXBORO CABINET	BBO	64BBFC01	
3	NEW NETWORK CABINET	NA	64BBNC02	NO PHOTO
4	UPS	NA	NA	UPGRADE/INSIDE CAB 2

GENERAL NOTES:

1. EXISTING EQUIPMENT INDICATED TO BE REPLACED, REMOVE OR UPGRADE PER SCOPE OF WORK SHOWN ON G-RM-0
2. REFER TO ELECTRICAL POWER DRAWING EP-RM-4 FOR U.P.S. CONNECTION REQUIREMENTS AND E1-RM-5
3. PHOTO DRAWINGS INDICATE THE LOCATION OF EXISTING EQUIPMENT AND ARROW DESIGNATES WHICH EQUIPMENT IS TO BE UPGRADED OR REPLACED.

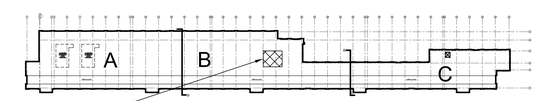
NORTH

INSTRUMENT & CONTROL ROOM PLAN

SCALE: 1/2"=1'-0"

2' 1' 0' 2'

SCALE: 1/2"=1'-0"



INSTRUMENT & CONTROL ROOM

BUILDING LEGEND MAIN FLOOR

SCALE: N/A

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

REVISIONS			REVISIONS		
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DESIGNED BY: ...
DRAWN BY: NAP/RRK
CHECKED BY: YH
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT

RM Clayton WRC
Blower Building
Instrument & Control Room Plan

DRAWING NO.
A-BL-4

SHEET 14 OF 49

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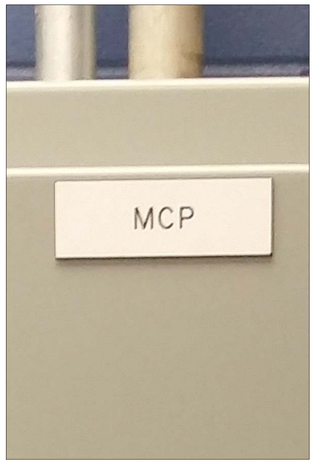

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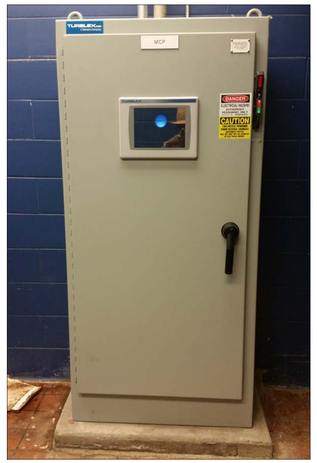
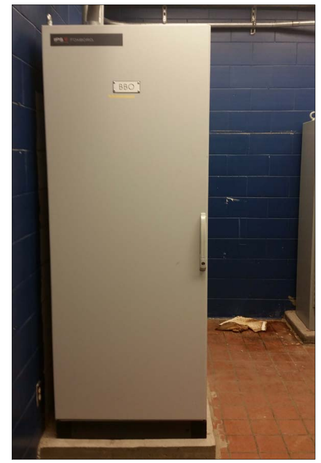


1B

2A 64BBFC01



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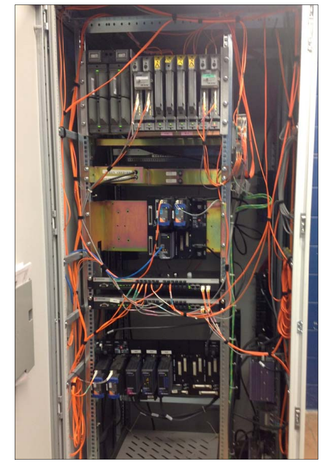
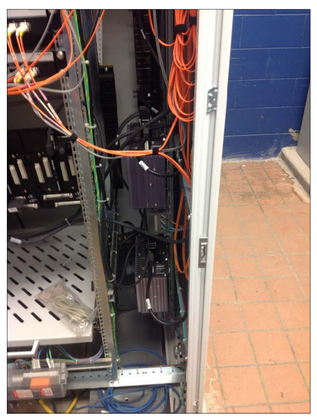


2C 64BBFC01

2D 64BBFC01

2E 64BBFC01

2F 64BBFC01



2G 64BBFC01

2H 64BBFC01

2J 64BBFC01

2K 64BBFC01

2L 64BBFC01

2M 64BBFC01

1 BUILDING CONTROL PANEL PHOTOS

SCALE: N/A

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

RESURGENS
ATLANTA, GA 1906

REVISIONS		
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REVISIONS		
△	DATE	DESCRIPTION

DESIGNED BY: ...
DRAWN BY: NAP/RRK
CHECKED BY: yh
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
Blower Building
Instrument & Control Panel Pictures

DRAWING NO.
A-BL-5A

SHEET 15 OF 49

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2N 64BBFC01

2P 64BBFC01

2 BUILDING CONTROL PANEL PHOTOS
SCALE: N/A

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION
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DESIGNED BY: ...
DRAWN BY: NAP/RRK
CHECKED BY: YH
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
Blower Building
Instrument & Control Panel Pictures

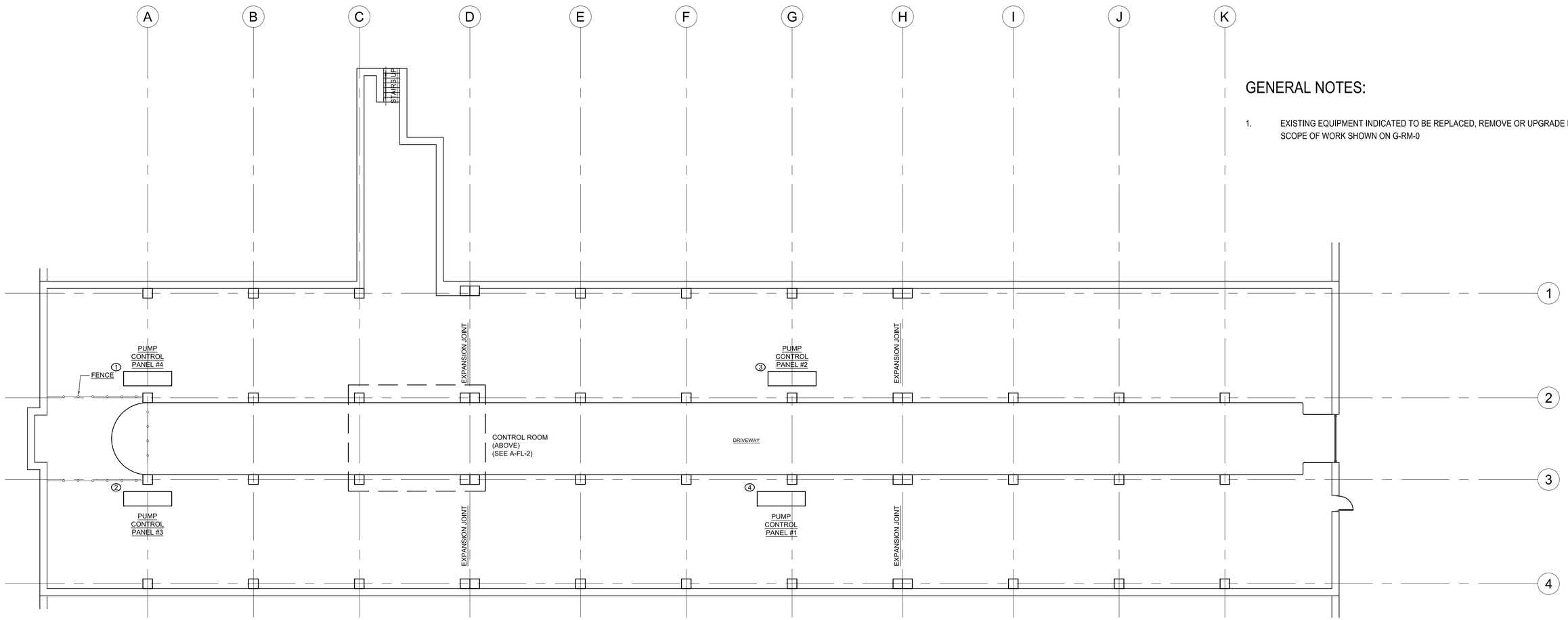
DRAWING NO.
A-BL-5B

I & C UPGRADE SCHEDULE

FILTER BUILDING PUMP ROOM

MARK	ITEM	EXISTING LABEL	REASSIGNED LABEL	NOTES
1	PUMP CONTROL PANEL #4	PANEL #4 *	PATCH PANEL FBPP02	PATCH PANEL ATTACHED TO PUMP CONTROL PANEL
2	PUMP CONTROL PANEL #3	PANEL #3 *	PATCH PANEL FBPP03	PATCH PANEL ATTACHED TO PUMP CONTROL PANEL
3	PUMP CONTROL PANEL #2	PANEL #3 *	PATCH PANEL FBPP04	PATCH PANEL ATTACHED TO PUMP CONTROL PANEL
4	PUMP CONTROL PANEL #1	PANEL #1 *	PATCH PANEL FBPP05	PATCH PANEL ATTACHED TO PUMP CONTROL PANEL

*LOCAL FILTER (PUMP) CONTROL PANEL #_ IS THE FULL PANEL NAME



GENERAL NOTES:

1. EXISTING EQUIPMENT INDICATED TO BE REPLACED, REMOVE OR UPGRADE PER SCOPE OF WORK SHOWN ON G-RM-0

NORTH

PUMP ROOM FLOOR PLAN

SCALE: 1/8"=1'-0"

8' 4' 0' 8'

SCALE: 1/8"=1'-0"

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

RESOURCENS ATLANTA, GA. 1985

REVISIONS		
△	DATE	DESCRIPTION

REVISIONS		
△	DATE	DESCRIPTION

DESIGNED BY: UNK
DRAWN BY: RK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: 1/8" = 1'

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
FILTER BUILDING
PUMP ROOM FLOOR PLAN

DRAWING NO.
A-FL-1

SHEET 17 OF 49

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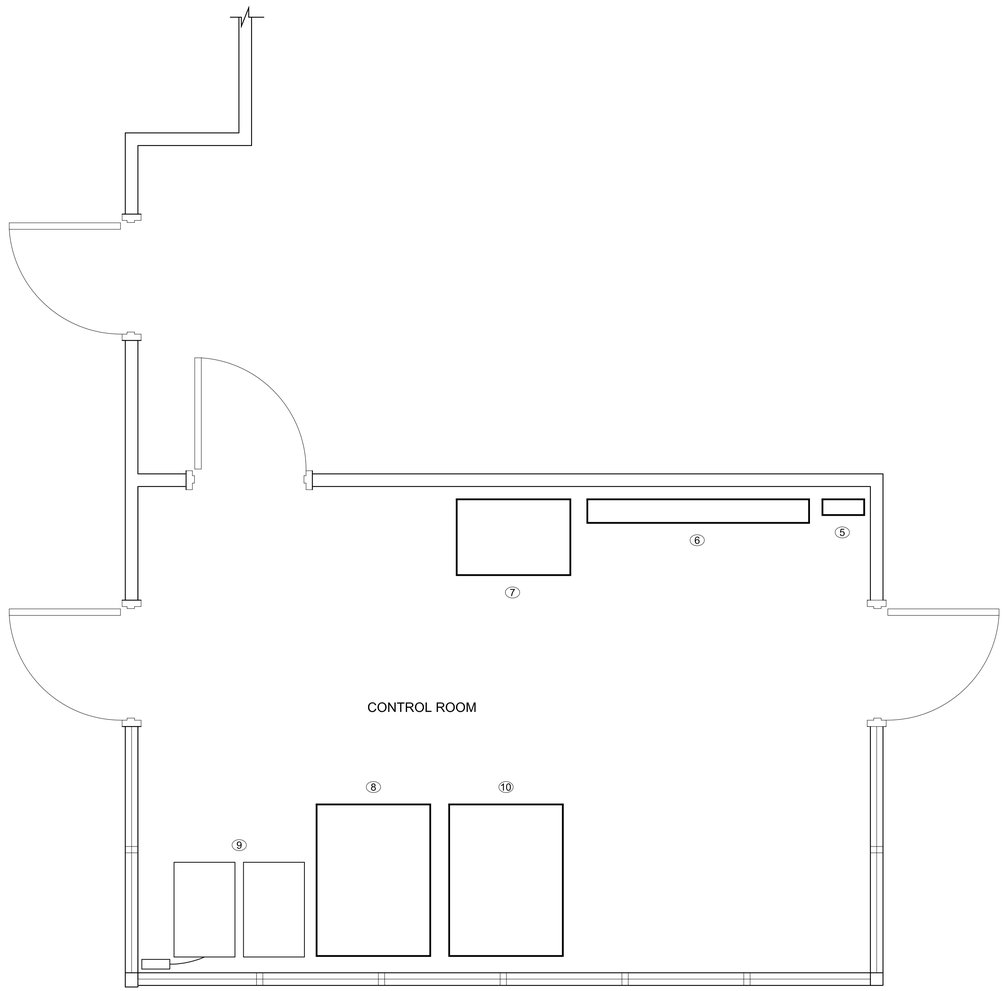


I & C UPGRADE SCHEDULE

FILTER BUILDING INSTRUMENT & CONTROL ROOM

MARK	ITEM	EXISTING LABEL	REASSIGNED LABEL	NOTES
5	EXISTING ROOT SWITCH CABINET & FIBER ENCLOSURE	NO LABEL	54FBNC01	
6	MAIN PUMP CONTROL PANEL #1	MAIN PUMP CONTROL PANEL	NONE	
7	EXISTING FOXBORO CABINET	NO LABEL	54FBFC01	
8	NEW (LOW) NETWORK CABINET	NA	54FBNC02	NO PHOTO
9	UPS AND BATTERY CABINET	NA	NA	UPGRADE
10	NEW FOXBORO CABINET	NA	54FBFC02	NO PHOTO

GENERAL NOTES:

1. EXISTING EQUIPMENT INDICATED TO BE REPLACED, REMOVE OR UPGRADE PER SCOPE OF WORK SHOWN ON G-RM-0
2. REFER TO ELECTRICAL POWER DRAWING EP-RM-4 FOR U.P.S. CONECTION REQUIREMENTS.
3. PHOTO DRAWINGS INDICATE THE LOCATION OF EXISTING EQUIPMENT AND ARROW DESIGNATES WHICH EQUIPMENT IS TO BE UPGRADED OR REPLACED.

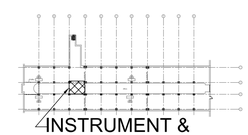
NORTH

CONTROL ROOM FLOOR PLAN

SCALE: 1/2"=1'-0"

2' 1' 0' 2'

SCALE: 1/2"=1'-0"



INSTRUMENT & CONTROL ROOM (TOP LEVEL)

BUILDING LEGEND

SCALE: N/A

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY: UNK
DRAWN BY: RK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: 1/8" = 1'

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
FILTER BUILDING
Control Room Floor Plan

DRAWING NO.
A-FL-2

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1A

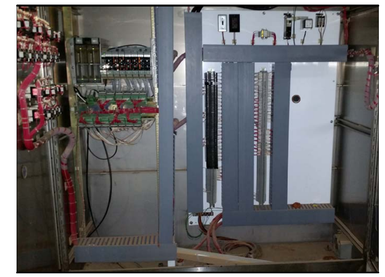
1B

1C

1D

2A

2B



2C

2D

3A

3B

3C

3D

4A

4B

4C

4D

PARCEL #0231 LAND LOT #0352

1 BUILDING CONTROL PANEL PHOTOS

SCALE: N/A

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

RESURGENS 1895 ATLANTA, GA

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY: UNK
DRAWN BY: RK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: 1/8" = 1'

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
FILTER BUILDING
CONTROL PANEL PHOTOS

DRAWING NO.
A-FL-3A

SHEET 19 OF 49

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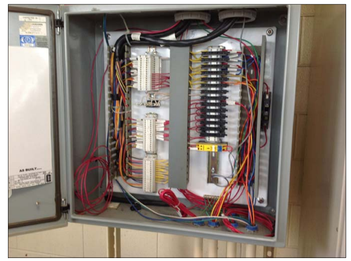
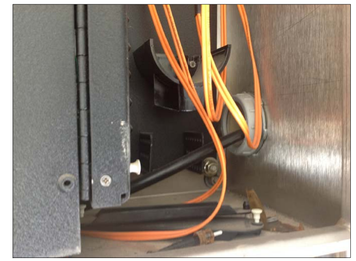
5A 54FBNC01

5B 54FBNC01



5C 54FBNC01



5D 54FBNC01

NO LABEL

7A 54FBFC01

7B 54FBFC01

7C 54FBFC01

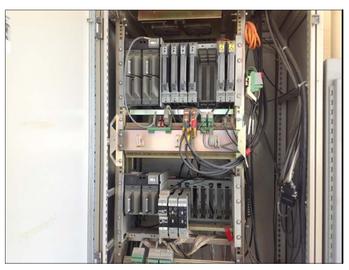
7D 54FBFC01

7E 54FBFC01

7F 54FBFC01

7G 54FBFC01

7H 54FBFC01



7J 54FBFC01

7K 54FBFC01

7L 54FBFC01

7M 54FBFC01

9

PARCEL #0231 LAND LOT #0352

2 BUILDING CONTROL PANEL PHOTOS

SCALE: N/A

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY:	UNK
DRAWN BY:	RK
CHECKED BY:	NAP
APPROVED BY:	GR
DATE:	9/24/15
SCALE:	1/8" = 1'

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
FILTER BUILDING
CONTROL PANEL PHOTOS

DRAWING NO.
A-FL-3B

SHEET 20 OF 49

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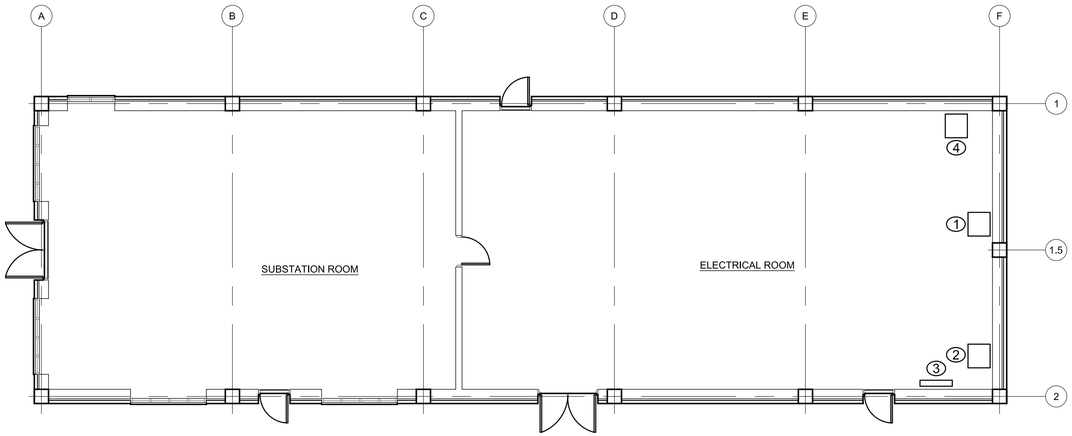


I & C UPGRADE SCHEDULE

UV ELECTRICAL BUILDING

MARK	ITEM	EXISTING LABEL	REASSIGNED LABEL	NOTES
1	EXISTING TROJAN SYSTEM UV 4000	NONE	NONE	
2	FOXBORO UNIT (UV FILTER ELECTRICAL BUILDING ESRIO)	ESRIO	56UVFC01	
3	NEW FIBER PATCH PANEL	NA	56UVPP01	NO PHOTO
4	NEW UPS TO REPLACE 7-1 UPS (NOT OPERATIONAL)	NA	NA	UPGRADE

GENERAL NOTES:

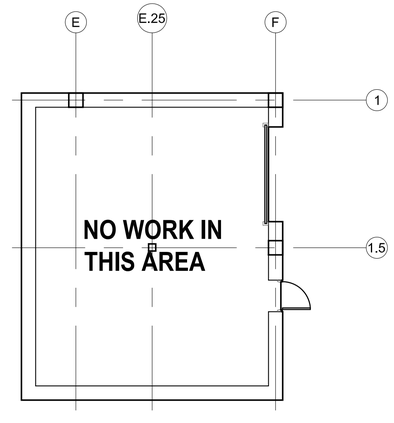
1. EXISTING EQUIPMENT INDICATED TO BE REPLACED, REMOVE OR UPGRADE PER SCOPE OF WORK SHOWN ON G-RM-0
2. REFER TO ELECTRICAL POWER DRAWING EP-RM-4 FOR U.P.S. CONNECTION REQUIREMENTS AND E1-RM-7.
3. PHOTO DRAWINGS INDICATE THE LOCATION OF EXISTING EQUIPMENT AND ARROW DESIGNATES WHICH EQUIPMENT IS TO BE UPGRADED OR REPLACED.

1st FLOOR PLAN

SCALE: 1/8"=1'-0"

8' 4' 0' 8'

SCALE: 1/8"=1'-0"



BASEMENT FLOOR PLAN

SCALE: 1/8"=1'-0"

8' 4' 0' 8'

SCALE: 1/8"=1'-0"

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

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REVISIONS

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REVISIONS

△	DATE	DESCRIPTION

DESIGNED BY: ...
DRAWN BY: RRK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT

RM Clayton WRC
UV Electrical Building
Floor Plans

DRAWING NO.
A-UV-1

SHEET 21 OF 49

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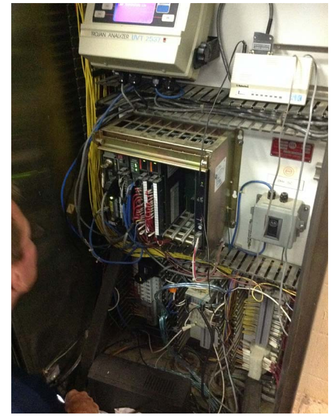
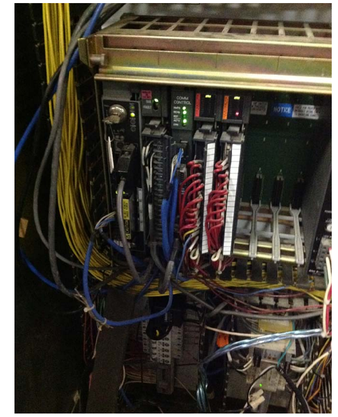
1A

1B



1C

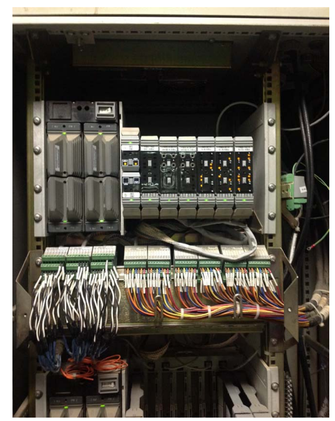


1D

1E

2A 56UVFC01

2B 56UVFC01



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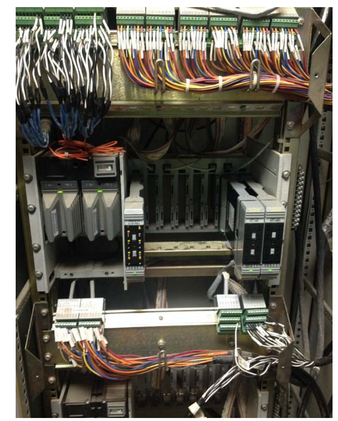
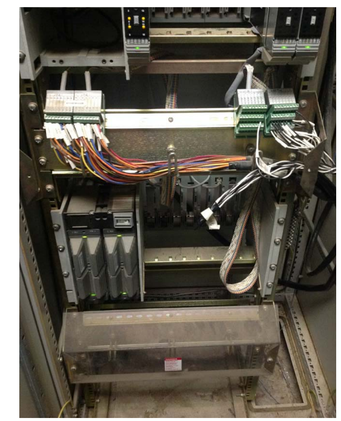


2D 56UVFC01



2E 56UVFC01

1 EXISTING CONTROL PANEL PHOTOS

SCALE: N/A

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

RESURGENS ATLANTA, GA 1885

REVISIONS			REVISIONS		
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DESIGNED BY: ...
DRAWN BY: RRK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
UV Electrical Building
Control Panel Photos

DRAWING NO.
A-UV-2A

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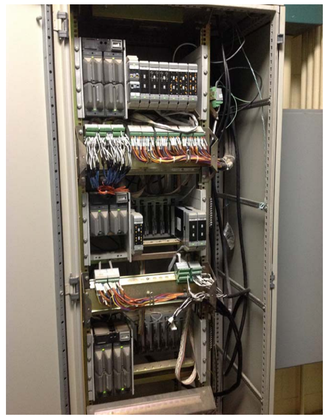
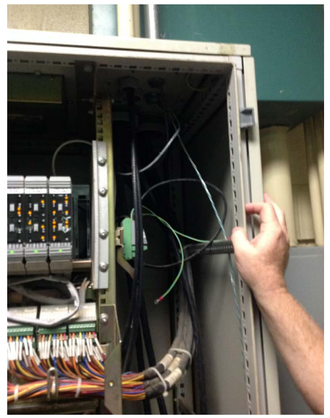


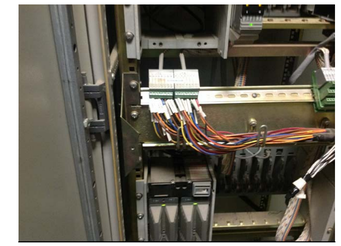
2F 56UVFC01



2G 56UVFC01

2H 56UVFC01

2J 56UVFC01



2K 56UVFC01

4

2 EXISTING CONTROL PANEL PHOTOS

SCALE: N/A

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

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Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

REVISIONS			REVISIONS		
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DESIGNED BY: ...
DRAWN BY: RRK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
UV Electrical Building
Control Panel Photos

DRAWING NO.
A-UV-2B

SHEET 23 OF 49

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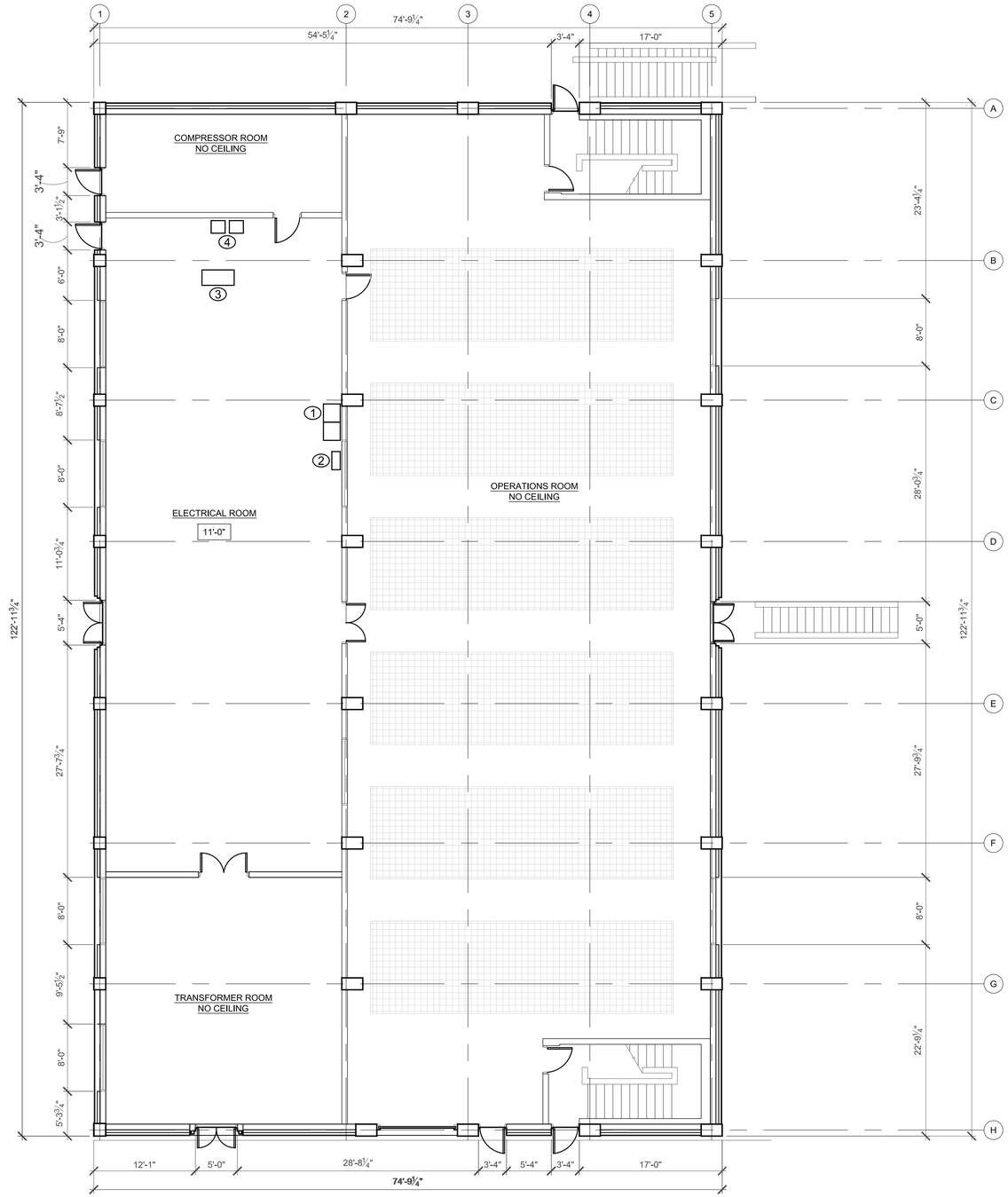

FLOOR PLAN

SCALE: 1/8"=1'-0"

8' 4' 0' 8'

SCALE: 1/8"=1'-0"

NORTH

I & C UPGRADE SCHEDULE

MIXED LIQUOR BUILDING

MARK	ITEM	EXISTING LABEL	REASSIGNED LABEL	NOTES
1	EXISTING FOXBORO CABINET	MLCP 1B	51MLFC01	
2	EXISTING FIBER PATCH PANEL	NO LABEL	51MLPP01	
3	EXISTING FOXBORO CONTROL COMPUTER CONSOLE	NA	NA	UPGRADE
4	FERR UPS SYSTEM	NA	NA	UPGRADE

GENERAL NOTES:

1. EXISTING EQUIPMENT INDICATED TO BE REPLACED, REMOVE OR UPGRADE PER SCOPE OF WORK SHOWN ON G-RM-0
2. REFER TO ELECTRICAL POWER DRAWING EP-RM-4 FOR U.P.S. CONNECTION REQUIREMENTS AND E1-RM-8.
3. PHOTO DRAWINGS INDICATE THE LOCATION OF EXISTING EQUIPMENT AND ARROW DESIGNATES WHICH EQUIPMENT IS TO BE UPGRADED OR REPLACED.

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2 value ▪ innovation ▪ results

RESURGENS 1917 ATLANTA, GA 1986

REVISIONS

△	DATE	DESCRIPTION
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REVISIONS

△	DATE	DESCRIPTION

DESIGNED BY: ...
DRAWN BY: JK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT

RM Clayton WRC
Mixed Liquor Pump Station
Floor Plan

DRAWING NO.
A-ML-1

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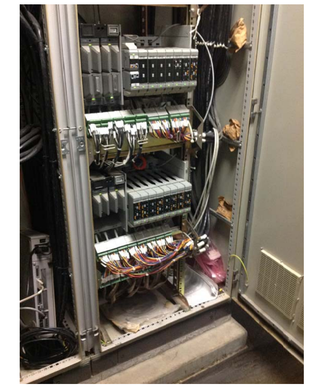
1A 51MLFC01

1B 51MLFC01

1C 51MLFC01

1D 51MLFC01

1E 51MLFC01



1F 51MLFC01

1G 51MLFC01

1H 51MLFC01

1J 51MLFC01

1K 51MLFC01

1L 51MLFC01

1M 51MLFC01

1 EXISTING CONTROL PANEL PHOTOS

SCALE: N/A

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

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value ▪ innovation ▪ results

RESURGENS 1967 ATLANTA, GA 1991

REVISIONS		
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REVISIONS		
△	DATE	DESCRIPTION

DESIGNED BY: ...
DRAWN BY: JK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
Mixed Liquor Pump Station
Control Panel Photos

DRAWING NO.
A-ML-2A

SHEET 25 OF 49

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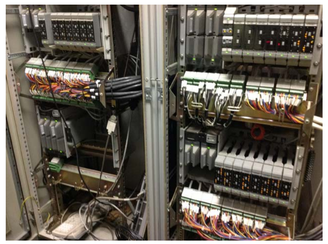
1N 51MLFC01

1P 51MLFC01

1R 51MLFC01

1S 51MLFC01



1T 51MLFC01

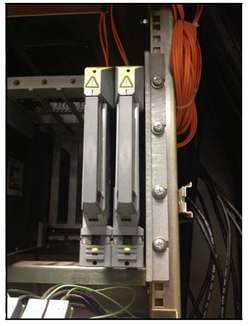
1U 51MLFC01

1V 51MLFC01

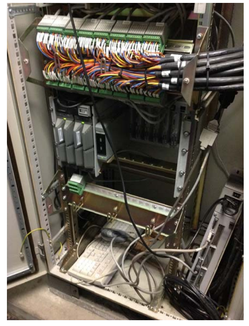
1W 51MLFC01

1X 51MLFC01

1Y 51MLFC01



1Z 51MLFC01



1AA 51MLFC01

2 EXISTING CONTROL PANEL PHOTOS

SCALE: N/A

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

RESURGENS 1901 ATLANTA, GA. 1981

REVISIONS			REVISIONS		
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DESIGNED BY: ...
DRAWN BY: JK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
Mixed Liquor Pump Station
Control Panel Photos

DRAWING NO.
A-ML-2B

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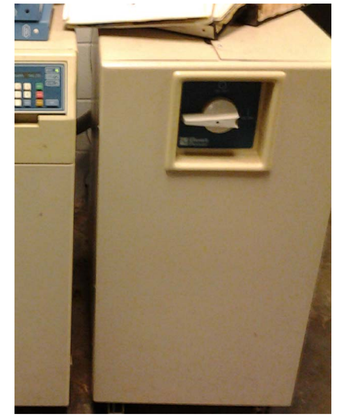
2 51MLPP01

3

4A



4B

3 EXISTING CONTROL PANEL PHOTOS
SCALE: N/A

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

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value ▪ innovation ▪ results

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REVISIONS		
△	DATE	DESCRIPTION

DESIGNED BY: ...
DRAWN BY: JK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
Mixed Liquor Pump Station
Control Panel Photos

DRAWING NO.
A-ML-2C

SHEET 27 OF 49

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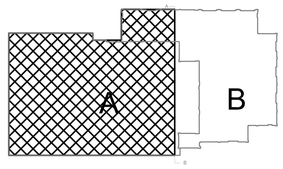
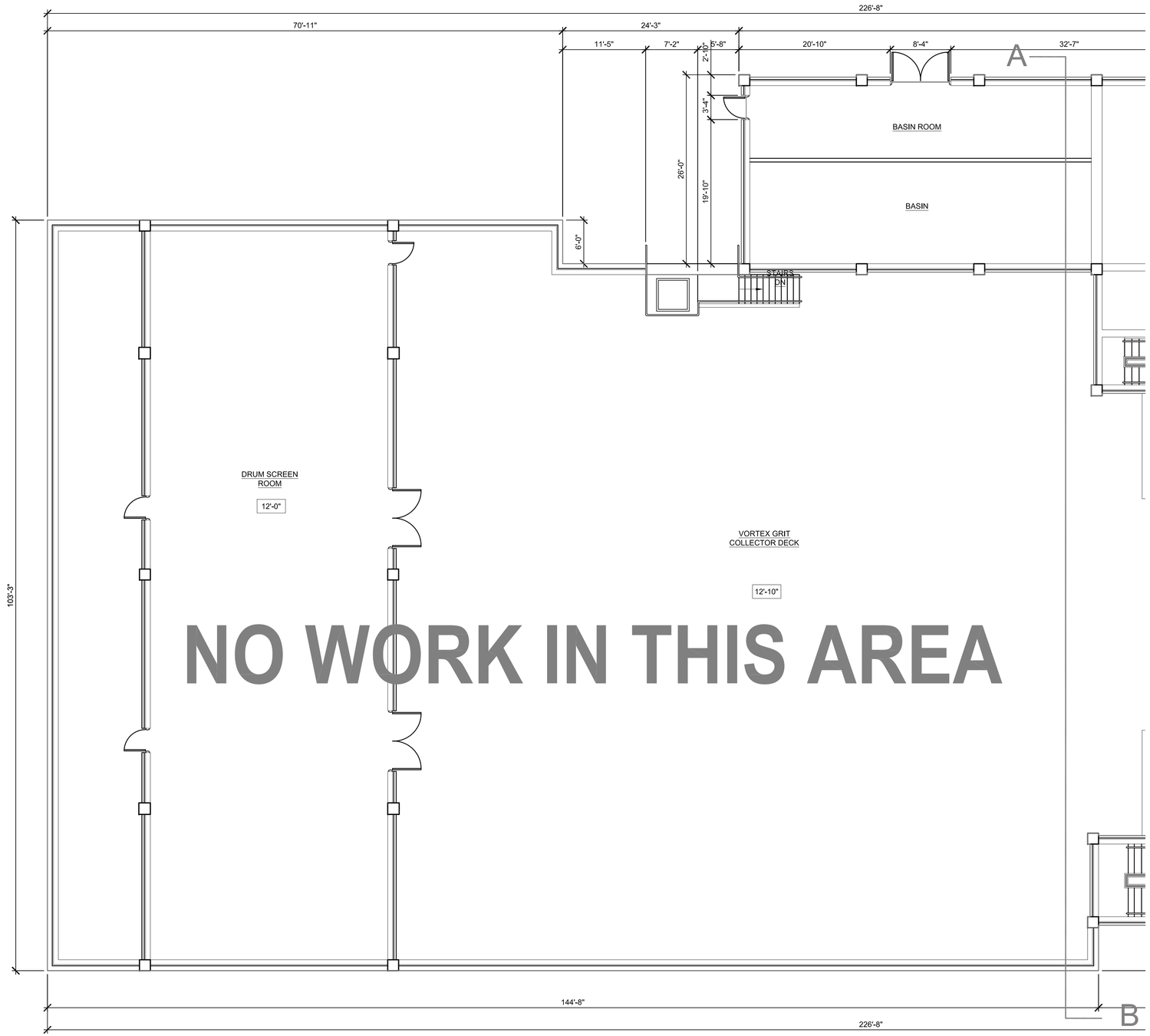


BUILDING LEGEND

SCALE: N/A



FLOOR PLAN PART "A"

SCALE: 1/8"=1'-0"

8' 4' 0' 8'

SCALE: 1/8"=1'-0"

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

RESURGENS 1881 ATLANTA, GA 1966

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY: unk
DRAWN BY: RRK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
Headworks Building
Floor Plan

DRAWING NO.
A-HW-1A

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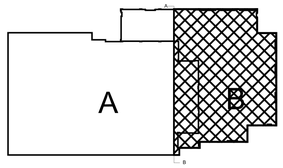
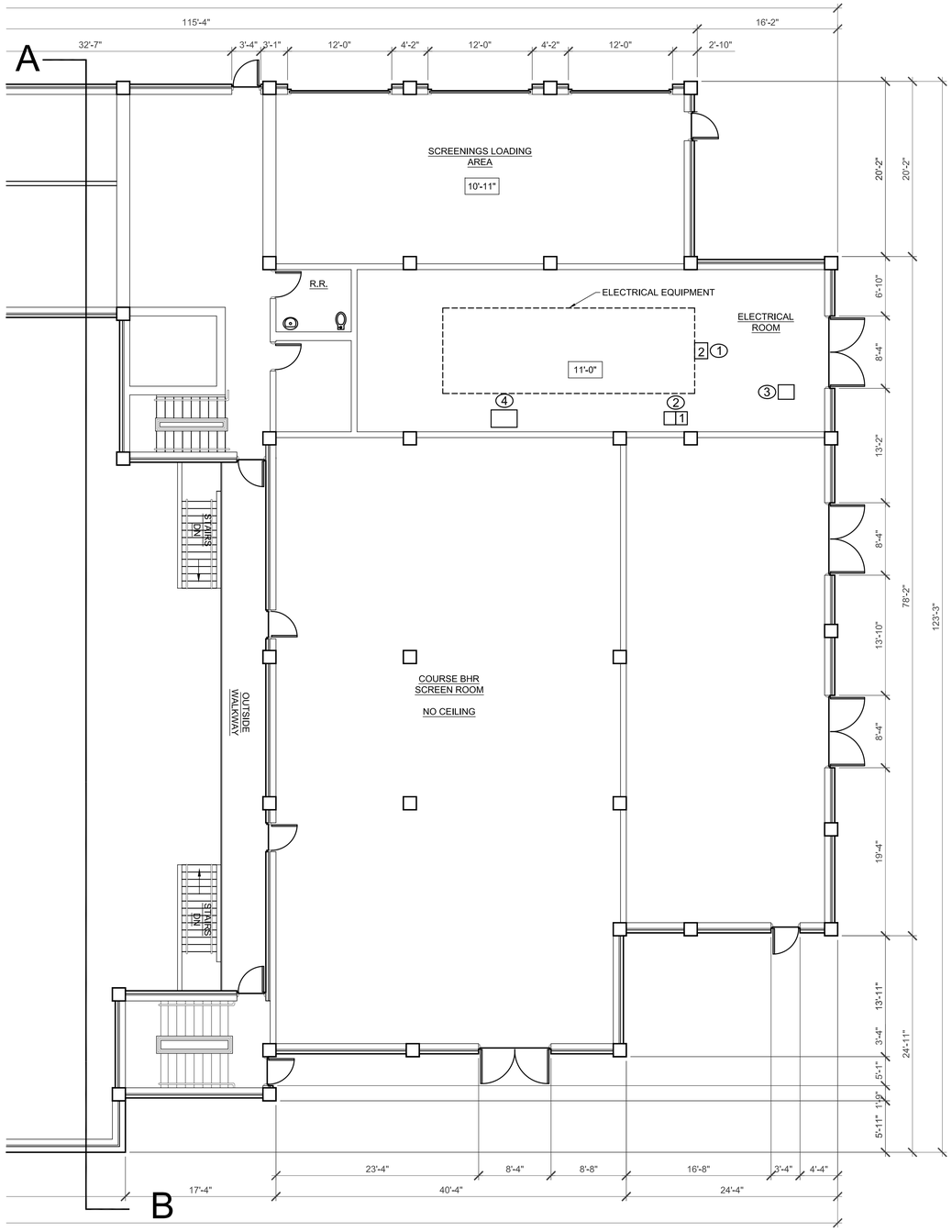


BUILDING LEGEND

SCALE: N/A



I & C UPGRADE SCHEDULE

HEADWORKS BUILDING

MARK	ITEM	EXISTING LABEL	REASSIGNED LABEL	NOTES
1	EXISTING FOXBORO RITTAL CABINET	NO LABEL	32HWFC01	
2	FOXBORO HEADWORKS ELECTRICAL ROOM H1 & H2	NO LABEL	32HWFC02	
3	FOXBORO CONTROL CONSOLE	NA	NA	UPGRADE
4	FERR UPS SYSTEM	NA	NA	UPGRADE

GENERAL NOTES:

1. EXISTING EQUIPMENT INDICATED TO BE REPLACED, REMOVE OR UPGRADE PER SCOPE OF WORK SHOWN ON G-RM-0
2. REFER TO ELECTRICAL POWER DRAWING EP-RM-4 FOR U.P.S. CONNECTION REQUIREMENTS AND E1-RM-9.
3. PHOTO DRAWINGS INDICATE THE LOCATION OF EXISTING EQUIPMENT AND ARROW DESIGNATES WHICH EQUIPMENT IS TO BE UPGRADED OR REPLACED.

NORTH

1 FLOOR PLAN PART "B"

SCALE: 1/8"=1'-0"

8' 4' 0' 8'

SCALE: 1/8"=1'-0"

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2
value ▪ innovation ▪ results

REVISIONS

△	DATE	DESCRIPTION
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REVISIONS

△	DATE	DESCRIPTION

DESIGNED BY: unk
DRAWN BY: RRK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT

RM Clayton WRC
Headworks Building
Floor Plan

DRAWING NO.
A-HW-1B

SHEET 29 OF 49

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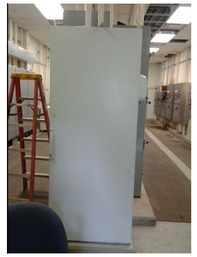
NO LABEL



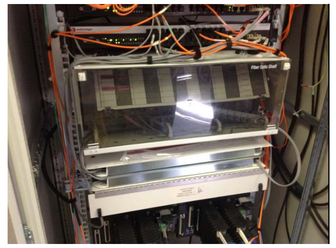
1A 32HWFCO1

1B 32HWFCO1

1C 32HWFCO1

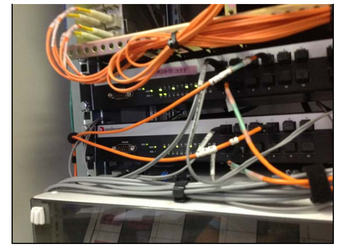
1D 32HWFCO1

1E 32HWFCO1



1F 32HWFCO1

1G 32HWFCO1



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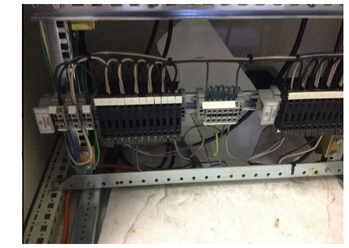
1K 32HWFCO1



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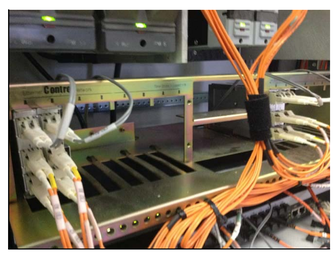

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1R 32HWFCO1

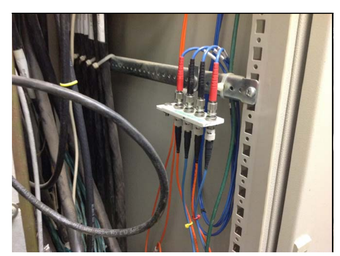
2A 32HWFCO2

2B 32HWFCO2

2C 32HWFCO2

2D 32HWFCO2

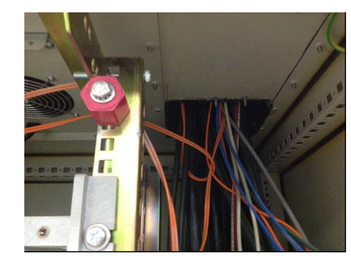
2E 32HWFCO2



2F 32HWFCO2

2G 32HWFCO2

2H 32HWFCO2



2J 32HWFCO2

1 BUILDING CONTROL PANEL PHOTOS

SCALE: N/A

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

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REVISIONS

△	DATE	DESCRIPTION
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REVISIONS

△	DATE	DESCRIPTION

DESIGNED BY: unk
DRAWN BY: RRK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
Headworks Building
Control Panel Photos

DRAWING NO.
A-HW-2A

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3

4

2 BUILDING CONTROL PANEL PHOTOS
SCALE: N/A

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

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REVISIONS		
△	DATE	DESCRIPTION

DESIGNED BY: unk
DRAWN BY: RRK
CHECKED BY: NAP
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM Clayton WRC
Headworks Building
Control Panel Photos

DRAWING NO.
A-HW-2B

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1 U.P.S. SITE PLAN
EP-RM-1 SCALE: 1/64"= 1'-0"

N

GENERAL ELECTRICAL NOTES:

1. THESE DRAWINGS HAVE BEEN PREPARED FROM THE LATEST INFORMATION AVAILABLE, BUT VARIATIONS MAY OCCUR IN THE ACTUAL CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACTING OFFICER PRIOR TO COMMENCING WORK AFFECTED. THESE ADJUSTMENTS SHALL BE INCLUDED IN THE BID PACKAGE. FOR FURTHER DESCRIPTION, ALSO REFER TO SCOPE OF WORK G-RM-0.

2. ELECTRICAL SCOPE OF WORK CONSISTS OF INSTALLATION AND RELOCATION OF NEW AND EXISTING UPS EQUIPMENT AND FURNISHING, DEVICES AND THEIR APPURTENANCES. THIS INCLUDES WORK ON THE POWER AND ELECTRICAL AS INDICATED, IN THE CONSTRUCTION DOCUMENT.

3. CONTRACTOR RESPONSIBLE TO IDENTIFY ALL EXISTING CIRCUIT(S) THAT WILL BE REUSED OR REMOVED BEFORE ELECTRICAL DEMOLITION STARTS. IN CASE THE DEMOLISHED CIRCUIT INCLUDES ANY EXISTING ELECTRICAL DEVICES (SUCH AS POWER AND/OR OUTLETS) THAT ARE NOT PART OF THE SCOPE OF WORK, CONTRACTOR ASLO RESPONSIBLE TO MAINTAIN THE INTERGRITY OF THE CIRCUIT FOR PROPER OPERATION OF THE REMAINING EXISTING DEVICES.

4. CONTRACTOR TO COORDINATE AND VERIFY LOCATION OF EXISTING CIRCUIT, PANELBOARD AND SINGLE PHASE CONNECTION TO UPS.

5. PROVIDE FIRE RATED CONDUIT SEALS WHEN PENETRATING FIRE RATED WALLS.

6. THE ELECTRICAL DRAWINGS ARE SCHEMATIC ONLY. VERIFY LOCATION OF UPS AND ELECTRICAL DEVICES.

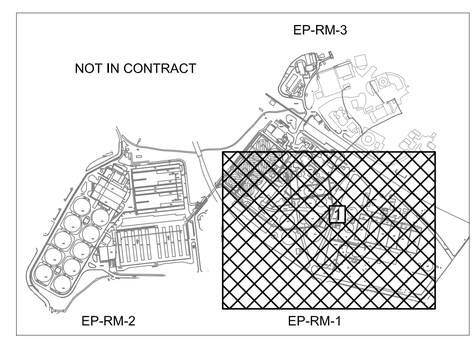
7. ALL ELECTRICAL EQUIPMENT AND WIRING SHALL BE INSTALLED AND COMPLY WITH APPLICABLE PROVISIONS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL, LIFE SAFETY, GEORGIA STATE ENERGY CODES AND LOCAL ORDINANCES.

8. BEFORE ANY EQUIPMENT, CONDUIT OR OUTLETS ARE LOCATED IN ANY AREA, COORINATE THE SPACE REQUIREMENTS WITH ALL OTHER TRADES. SPACE SHALL BE ARRANGED SO ALL TRADES CAN INSTALL THEIR WORK AND PERMIT FOR FUTURE MAINTENANCE AND SERVICING. FUTURE MAINTENANCE AND REPAIR.

9. CONTRACTOR SHALL OBTAIN AND PAY ALL FEES FOR REQUIRED PERMITS CONTRACTOR SHALL FURNISH A CERTIFICATION OF INSPECTION TO OWNER UPON THE COMPLETION OF PROJECT.

10. MATERIAL SHALL BE NEW AND CURRENTLY MANUFACTURED. ALL MATERIAL SHALL BE UL APPROVED, LABELED, AND SHALL MEET ALL INDUSTRY STANDARDS.

GEORGIA REGISTERED No. 8421 PROFESSIONAL ENGINEER CHARLES D. BOOTH



KEY PLAN - N.T.S.

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

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RESURGENS 1964 ATLANTA, GA 1985

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

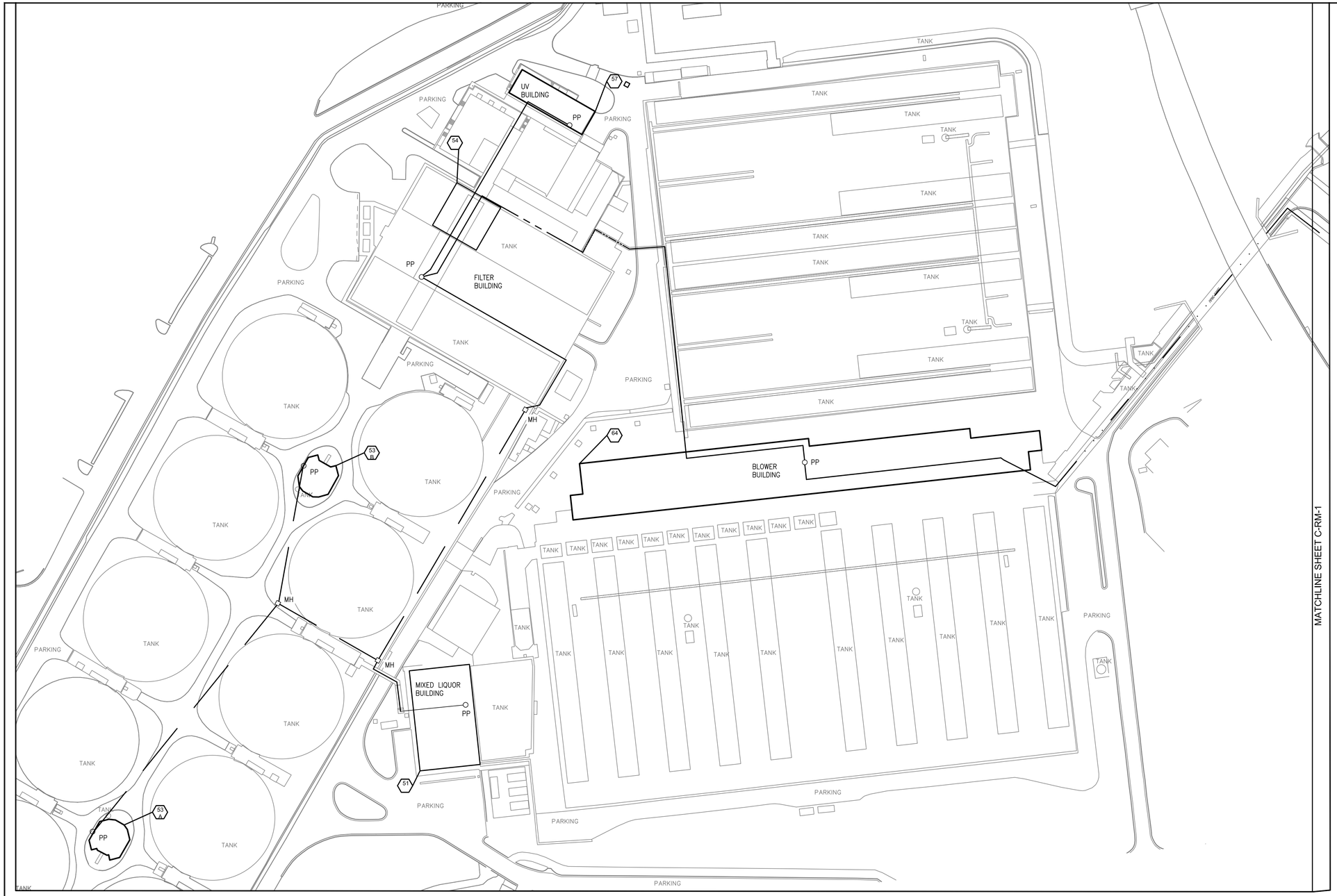
DESIGNED BY:	B.S.
DRAWN BY:	NAP
CHECKED BY:	CDB
APPROVED BY:	G.R.
DATE:	9/24/15
SCALE:	1/64" = 1"

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E

RM CLAYTON WRC

U.P.S. SITE PLAN

DRAWING NO.
EP-RM-1



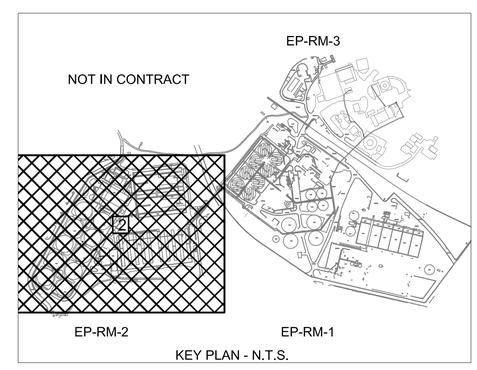
1 U.P.S. SITE PLAN
EP-RM-2 SCALE: 1/64" = 1'-0"

N

GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES TO PREVENT ANY CONFLICTS.
2. THESE DRAWINGS DO NOT PROPOSE TO SHOW ALL EXISTING CONDITIONS INSIDE OF BUILDING. PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING U.P.S. EQUIPMENT, WIRING, CIRCUIT BREAKERS AND PANELS. ALL DEMOLITION MATERIALS SHALL BE REMOVED FROM SITE PER OWNER.

GEORGIA REGISTERED No. 8421 PROFESSIONAL ENGINEER CHARLES D. BOOTH



KEY PLAN - N.T.S.

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

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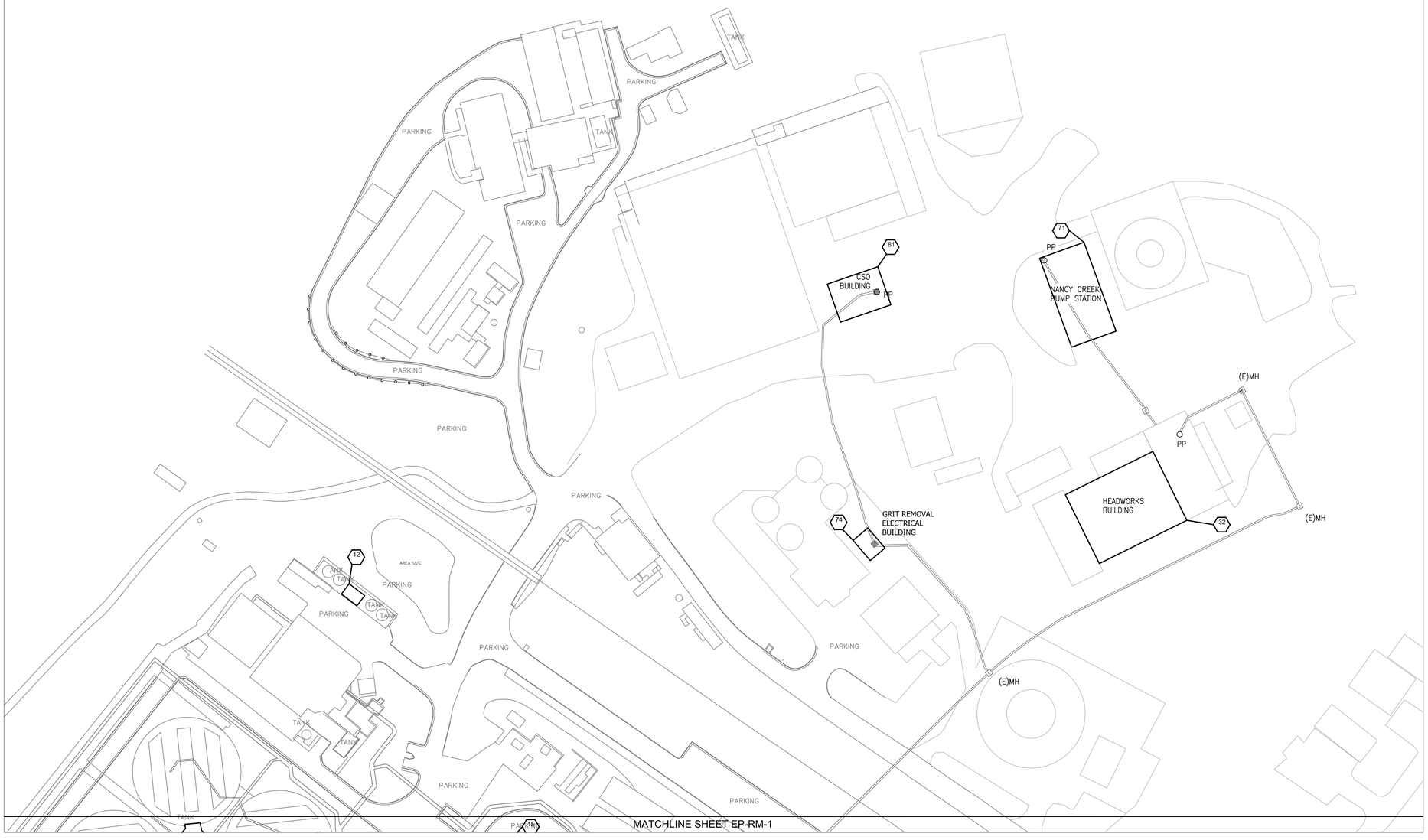
RESURGENS PLAZA ATLANTA, GA. 30346

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY:	B.S.
DRAWN BY:	NAP
CHECKED BY:	CDB
APPROVED BY:	G.R.
DATE:	9/24/15
SCALE:	1/64" = 1"

DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E
RM CLAYTON WRC
U.P.S. SITE PLAN

DRAWING NO. EP-RM-2

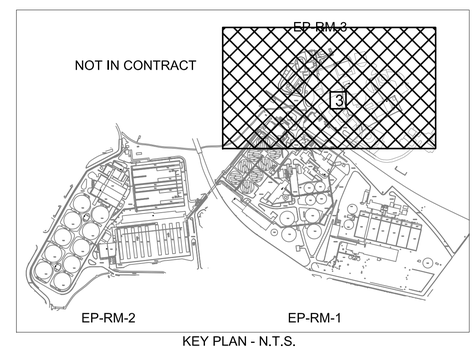


1 U.P.S. SITE PLAN
EP-RM-3 SCALE: 1/64"= 1'-0"

GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES TO PREVENT ANY CONFLICTS.
2. THESE DRAWINGS DO NOT PROPOSE TO SHOW ALL EXISTING CONDITIONS INSIDE OF BUILDING. PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING U.P.S. EQUIPMENT, WIRING, CIRCUIT BREAKERS AND PANELS. ALL DEMOLITION MATERIALS SHALL BE REMOVED FROM SITE PER OWNER.

GEORGIA REGISTERED No. 8421 PROFESSIONAL ENGINEER CHARLES D. BOOTH



KEY PLAN - N.T.S.

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

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RESURGENS 1847 ATLANTA, GA. USA

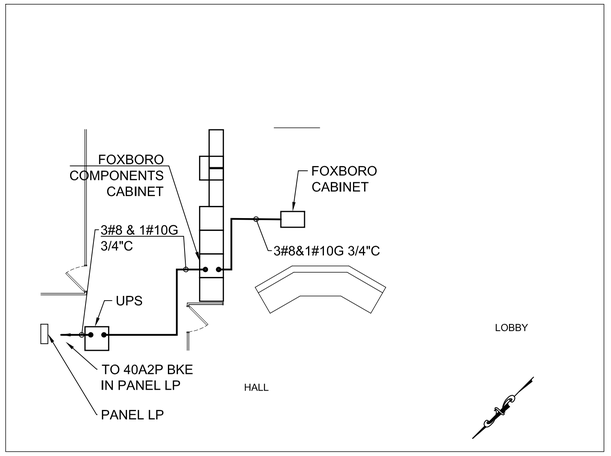
REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY:	CDB
DRAWN BY:	NAP
CHECKED BY:	B.S.
APPROVED BY:	G.R.
DATE:	9/24/15
SCALE:	1/64" = 1"

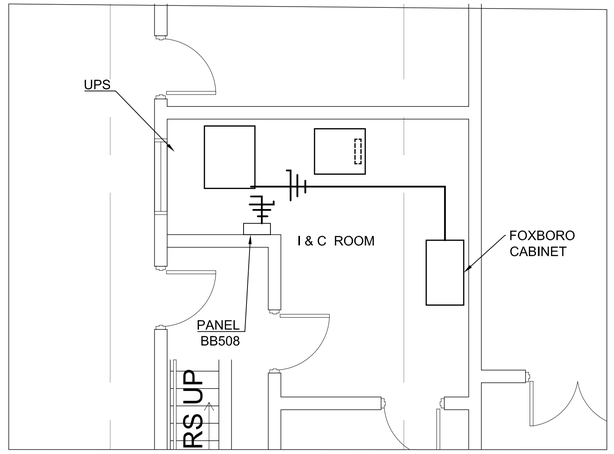
DEPT. OF WATERSHED MANAGEMENT
CITY OF ATLANTA CONTRACT NO. FC-4906-E
RM CLAYTON WRC
U.P.S. SITE PLAN

DRAWING NO.
EP-RM-3

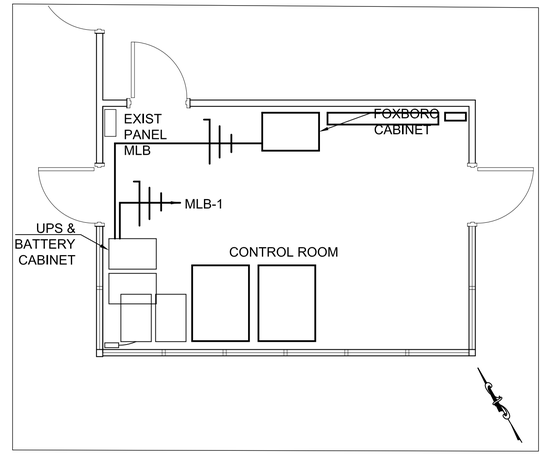
SHEET 34 OF 49



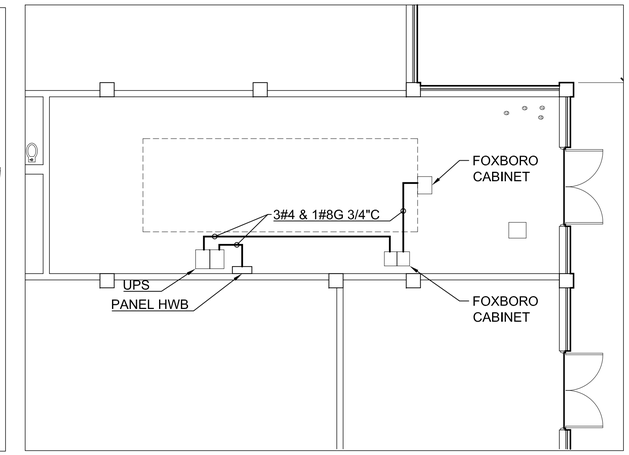
1 Administration Building-Central Control Room
SCALE: 1/8"=1' (see RM-AD-1 for LOCATION)



2 Blower Building-I & C Room Plan
SCALE: 1/4"=1' (see RM-BL-1 for LOCATION)



3 Filter Building-Control Room Floor Plan
SCALE: 1/4"=1' (see RM-FL-2 for LOCATION)

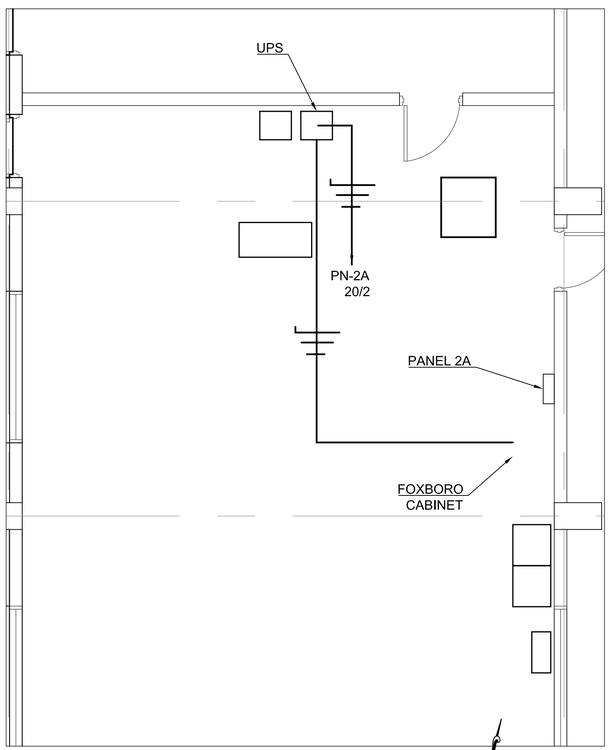


4 Headworks Building-Electrical Room
SCALE: 1/8"=1' (see RM-HW-1B for LOCATION)

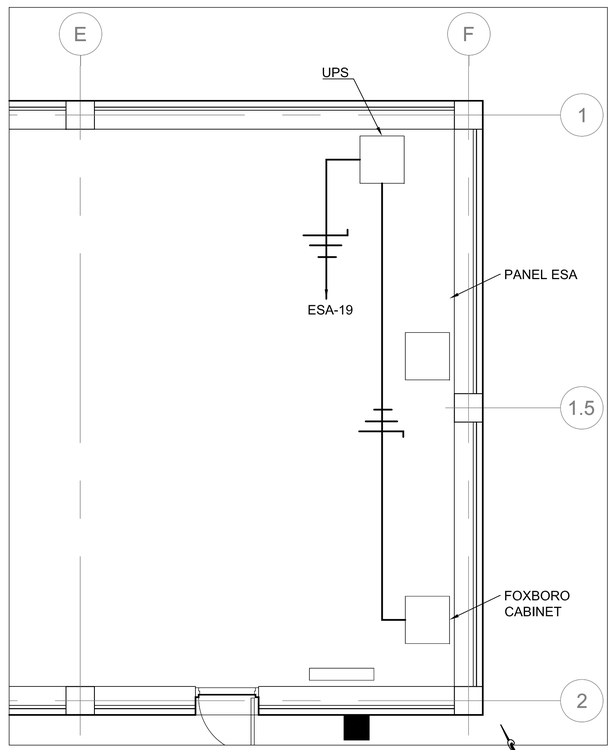
ALARM INTERFACE:

EACH U.P.S. SYSTEM SHALL BE INTERFACED WITH ALARM SYSTEM AT LOCAL AND CENTRAL POSITION.

GEORGIA REGISTERED No. 8421 PROFESSIONAL ENGINEER CHARLES D. BOOTH



5 Mixed Liquor Building
SCALE: 1/4"=1' (see RM-ML-1 for LOCATION)



6 UV Electrical Building
SCALE: 1/4"=1' (see RM-UV-1 for LOCATION)

SCHEDULE OF UNINTERRUPTIBLE POWER SUPPLIES

Building No.	Building Name	Panel	Breaker No.	Breaker Size	UPS Size VA/WATTS
1	Digester Gas Co-Generator	LP-COGEN	35	20A1P	1950 / 1920
7	Administration Building	*	*	40A2P	8000 / 7200
12	Primary Chemical Storage	PPL-1	12	20A1P	1950 / 1920
13	Incinerator Building	*	*	20A1P	1950 / 1920
15	Sludge Dewatering Building	*	*	30A1P	3000 / 2700
21	TWAS Building	TCA		20A1P	1950 / 1920
24A	Primary Sludge Pump Hse #1 & 2	*	*	20A1P	1950 / 1920
24B	Primary Sludge Pump Hse #3 & 4	*	*	20A1P	1950 / 1920
27	Primary Odor Control Building			20A1P	1950 / 1920 *
32	Headworks	HWB	*	70A2P	12,000 / 10,800
51	Mixed Liquor Pump Station	*	2, 4	20A2P	3000 / 2700
53A	Clarifier Inlet Box #1 & 2	SCA	*	15A1P	1440 / 1440
53B	Clarifier Inlet Box #3 & 4	SCB	*	15A1P	1440 / 1440
54	Filter Building	MLB	1	15A1P	1440 / 1440
57	Elec. Substation Building & UV Cont	ESA	19	15A1P	1440 / 1440
64	Blower Building	BB-508	8	20A1P	1950 / 1920
71	Nancy Creek Pump Station	LA	20	20A1P	1950 / 1920
74	Grit Electrical Building	PPU-GR	1	20A1P	1950 / 1920
81	Operations & Electrical Building	*	*	40A2P	8000 / 7200

POWER SUPPLIES SHALL BE CLOSED LOOP, CONSTANT POWER TYPE

* LOAD UNDETERMINED (ESTIMATE)

7 Schedule of Uninterruptable Power Supplies
N.T.S.

PARCEL #0231 LAND LOT #0352

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

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RESURGENS 1906 ATLANTA, GA

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REVISIONS		
△	DATE	DESCRIPTION
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DESIGNED BY: ...
DRAWN BY: NAP
CHECKED BY: CDB
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT

RM Clayton WRC
UNINTERRUPTIBLE POWER SUPPLY
Upgrade Plans

DRAWING NO.
EP-RM-4

SHEET 35 OF 49

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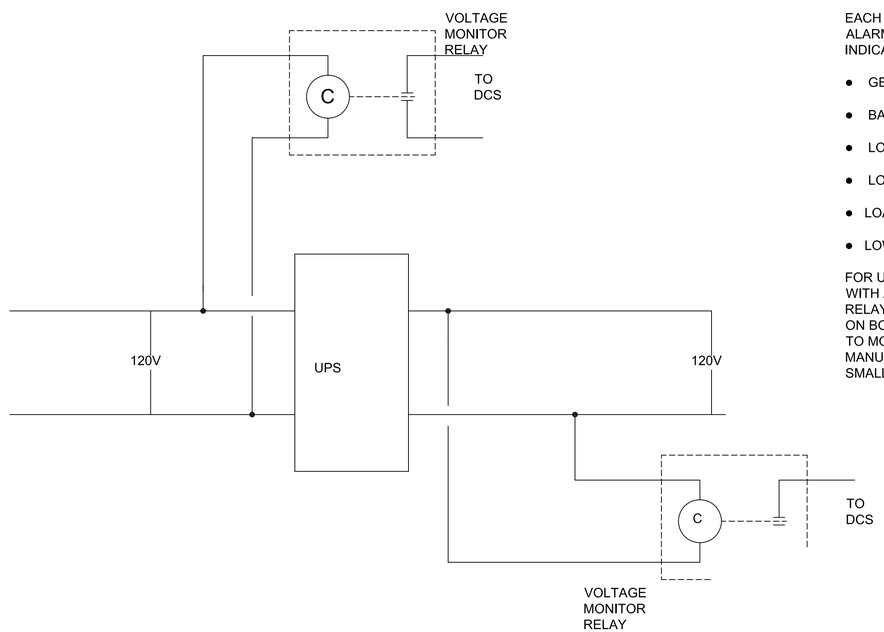

1 SMALL UPS SYSTEM
NTS

EACH UPS SHALL BE EQUIPPED WITH AN ALARM RELAY COMMUNICATION CARD TO INDICATED THE FOLLOWING:

- GENERAL ALARM
- BATTERY FAULT
- LOAD PROTECTED
- LOAD ON BYPASS
- LOAD ON BATTERY
- LOW BATTERY

FOR UPS's THAT CANNOT BE EQUIPPED WITH A RELAY COMMUNICATION CARD, A RELAY SHALL BE INSTALLED ON BOTH INPUT AND OUTPUT OF THE UPS TO MONITOR VOLTAGE. PROVIDE A MANUAL BYPASS SWITCH ON THE SMALLER RACK MOUNTED UPS's.

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RESURGENS ATLANTA, GA. USA

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY: CDB
DRAWN BY: AT
CHECKED BY: GR
APPROVED BY: GR
DATE: 9/24/15
SCALE: NOTED

DEPT. OF WATERSHED MANAGEMENT

RM Clayton WRC
UNINTERRUPTIBLE POWER SUPPLY
Upgrade Plans

DRAWING NO.
EP-RM-5

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GENERAL NOTES

1. THESE DRAWINGS ACCOMPANY THE PUBLISHED CONSTRUCTION DOCUMENT SPECIFICATION BOOK (PROJECT MANUAL).
2. DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS ON ARCHITECTURAL DRAWINGS AND IN FIELD PRIOR TO COMMENCEMENT OF WORK.
3. VISIT SITE PRIOR TO BID AND VERIFY THAT CONDITIONS ARE AS INDICATED. CONTRACTOR SHALL INCLUDE IN HIS BID COSTS REQUIRED TO MAKE HIS WORK MEET EXISTING CONDITIONS.
4. SYSTEM OUTAGES SHALL BE PERMITTED ONLY AT TIMES APPROVED BY OWNER - IN WRITING. WORK WHICH COULD RESULT IN AN ACCIDENTAL OUTAGE SHALL BE PERFORMED WITH THE OWNER'S MAINTENANCE PERSONNEL ADVISED OF SUCH WORK. CONTRACTOR SHALL PROVIDE A DETAILED WORK PLAN FOR ALL TIE-INS AND MODIFICATIONS TO THE EXISTING SYSTEMS WHICH WILL REQUIRE A SHUTDOWN OR AFFECT NORMAL PLANT PROCESSES.
5. REVIEW ALL DRAWINGS ISSUED WITH THIS PACKAGE PRIOR TO BID.
6. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE ARCHITECT.
7. WORK, MATERIALS, AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE OF GEORGIA, AND NATIONAL CODES AND ORDINANCES.
8. PROVIDE PERMITS AND INSPECTIONS REQUIRED.
9. CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIALS, EQUIPMENT, OR INSTALLATION METHODS.
10. VERIFY EXACT LOCATIONS OF EXISTING AND NEW UNDERGROUND UTILITIES, PIPING AND RACEWAY SYSTEMS PRIOR TO TRENCHING. PROVIDE NECESSARY TRENCHING, BACKFILL, EXCAVATION, SUPPORTS, PULLBOXES, SAWCUTTING AND PATCHING, CONCRETE/PAVING, ETC. REQUIRED. BACKFILL TRENCHES TO 90 PERCENT COMPACTION AND PATCH TO MATCH EXISTING. CONTRACTOR SHALL OBTAIN AND VERIFY EXACT UTILITY COMPANY DRAWINGS AND REQUIREMENTS.
11. EXISTING SYSTEMS AND CONDITIONS SHOWN ON DRAWINGS FOR EXISTING BUILDINGS ARE TO BE NOTED "FOR GUIDANCE ONLY ". THE ELECTRICAL CONTRACTOR TO FIELD CHECK ALL EXISTING CONDITIONS PRIOR TO BIDDING AND TO INCLUDE IN HIS BID AN ALLOWANCE FOR REMOVAL AND/OR RELOCATION OF EXISTING CONDUITS, WIRES, DEVICES, FIXTURES, OR OTHER EQUIPMENT AS INDICATED ON THE PLANS OR AS REQUIRED TO COORDINATE AND ADAPT NEW AND EXISTING ELECTRICAL SYSTEM TO ALL OTHER WORK AS REQUIRED
12. VERIFY EXACT LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
13. INSTALL ALL MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ANY DEVIATIONS SHALL BE BROUGHT TO THE ARCHITECT/ENGINEER'S ATTENTION PRIOR TO INSTALLATION.
14. FINAL CONNECTIONS TO EQUIPMENT SHALL BE IN ACCORDANCE WITH MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS, AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION, OR FACTORY WIRING IN EQUIPMENT PROVIDED UNDER THIS SECTION.
16. ALL ELECTRICAL SYSTEMS COMPONENTS SHALL BE LISTED OR LABELED BY U.L. OR OTHER RECOGNIZED TESTING FACILITY.
17. SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, CONTRACTOR SHALL MAKE CORRECTIONS NECESSARY AT NO COST TO OWNER.
18. GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR UNDER NORMAL USAGE FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE. DEFECTS SHALL BE PROMPTLY REMEDIED WITHOUT COST TO THE OWNER.
19. SYSTEMS SHALL BE COMPLETE, OPERABLE, AND READY FOR CONTINUOUS OPERATION.
20. MAINTAIN A CURRENT SET OF AS-BUILT RECORD DRAWINGS WHICH SHALL BE AVAILABLE FOR REVIEW DURING ENGINEER'S SITE OBSERVATIONS. UPON COMPLETION, PROVIDE RECORD DRAWINGS TO ARCHITECT. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTINGS, ETC.
21. CONTRACTOR SHALL COORDINATE ALL WORK UNDER THIS CONTRACT WITH WORK BEING DONE UNDER OTHER CONTRACTS AT THIS SITE.
22. CONTRACTOR IS RESPONSIBLE FOR ALL SCOPE IDENTIFIED IN THIS PACKAGE. THIS INCLUDES WORK THAT IS SUB CONTRACTED TO VARIOUS TRADES, SYSTEM INTEGRATORS, SUPPLIERS, INSTALLERS, ETC.. VARIOUS SCOPES IDENTIFIED FOR FOXBORO, IFCO, ETC. ULTIMATELY FALL UNDER THE SCOPE OF THE GENERAL CONTRACTOR AND THE CONTRACTOR IS RESPONSIBLE FOR A COMPLETE AND OPERATIONAL SYSTEM AT THE CLOSE OF THIS PROJECT.
23. CONTRACTOR SHALL COMPLETE A GIS SURVEY OF ALL DUCTBANKS, MANHOLES, ETC. UPON COMPLETION OF WORK AND HAND OVER TO OWNER ALONG WITH AS-BUILT/RECORD DRAWINGS.
24. ALL FIBER OPTIC CABLES SHALL BE LABELED/IDENTIFIED AT ALL TERMINATIONS, PULL BOXES, MANHOLES ETC.. NEW CONDUITS IN TUNNEL SHALL BE IDENTIFIED WITH AN ADHESIVE LABEL EVERY 100' OC.
25. CONTRACTOR SHALL SLEEVE AND SEAL ALL PENETRATIONS MADE TO FLOORS AND WALLS. PENETRATION SEALS SHALL MAINTAIN EXISTING WALL RATINGS AND EXTERIOR OR TUNNEL PENETRATIONS SHALL BE WATERTIGHT.
26. ALL WALL AND FLOOR PENETRATIONS SHALL BE CORED. THIS INCLUDES CONDUITS ROUTED WITHIN BUILDINGS WHERE PENETRATING RE-INFORCED CONCRETE WALLS.
27. CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING AND PATCHING OF CURBS, SIDEWALKS AND PAVING AS REQUIRED FOR DUCTBANK ROUTING. CONTRACTOR SHALL RE-SEED ALL AREAS DISTURBED BY TRENCHING OR EXCAVATING.

LEGEND

*** NOTE: NOT ALL SYMBOLS IN LEGEND ARE USED IN THIS DRAWNIG SET ***

COMMUNICATION

- MH MANHOLE
- PP PATCH / CROSS CONNECT PANEL
- FLOOR TELEPHONE
- IC INTERCOM 1
- OS OCCUPANCY SENSOR - 1-WAY
- OS OCCUPANCY SENSOR - 2-WAY
- OS OCCUPANCY SENSOR - CORRIDOR
- OS OCCUPANCY SENSOR - ROUND
- OS OCCUPANCY SENSOR - WALL
- PC PHOTOCELL
- PLAIN TELEPHONE
- PUSH BUTTON
- SPEAKER ROUND
- S SPEAKER SQUARE
- TELCOM CONNECTION
- TELCOM OUTLET - RECESSED
- DATA NETWORK OUTLET
- TC TIME CLOCK 1
- TV TV SQUARE
- D WALL DIMMER
- W WALL TELEPHONE

RECEPTACLES

- 220 VOLT
- C COUNTERTOP
- DUPLEX
- GROUND FAULT
- C COUNTERTOP GROUND FAULT
- IG ISOLATED GROUND
- POLE
- POWER CONNECTION
- QUADRUPLEX
- RECESSED DOUBLE DUPLEX
- RECESSED DUPLEX 1
- SINGLE
- SPECIAL PURPOSE
- WP WEATHER PROOF/GFCI

FIRE SAFETY

- BELL - CHIME
- BELL - SINGLE STROKE GONG
- DD S DUCT SMOKE DETECTOR - SUPPLY
- DD R DUCT SMOKE DETECTOR - RETURN
- FAA FIRE ALARM ANNUNCIATOR
- FACP FIRE ALARM CONTROL PANEL
- M FIRE ALARM DOOR HOLDER - MAGNETIC
- FIRE ALARM HOLD OPEN
- F FIRE ALARM HORN - STROBE 1
- F FIRE ALARM MINI HORN
- F FIRE ALARM PULL BOX
- P FIRE ALARM STROBE - SPEAKER
- FIRE ALARM STROBE 1
- TS FIRE ALARM TAMPER - SQUARE
- FIREMAN PHONE
- H HEAT DETECTOR
- MINI HORN
- S PLAIN ROUND SMOKE DETECTOR

POWER

- RECESSED 1
- RECESSED PLAIN
- RECESSED SOLID
- SURFACE 1
- SURFACE DOOR 1
- BUSWAY - HORIZONTAL
- DISCONNECT
- FUSED DISCONNECT
- H HAIR DRYER
- D HAND DRYER
- H HEATER
- MOTOR 1
- MOTOR 2
- P/B PULL BOX
- R RELAY
- STARTER
- STARTER - DISCONNECT
- T/F TRANSFORMER - STEP DOWN
- J ROUND PLAIN JUNCTION BOX
- J ROUND WALL MOUNTED JUNCTION BOX
- J SQUARE JUNCTION BOX

LIGHTING

- LINEAR PENDANT
- RECESSED 1X4
- SURFACE 1X4
- SURFACE 2X2
- RECESSED 2X2
- SURFACE 2X4
- RECESSED 2X4
- STRIP FIXTURE
- WALL MOUNTED
- WALL WASH SLOT
- PENDANT
- BOLLARD
- DOWN LIGHT
- WALL MOUNTED
- DUAL HEAD EMERGENCY LIGHTING UNIT
- EXIT LIGHT CEILING MOUNTED
- EXIT LIGHT WALL MOUNTED
- HID POST
- HID WALL
- TRACK LIGHT 1
- WALL WASHER
- HATCH INDICATES EMERGENCY
- NL NL INDICATES 24/7 NIGHT LIGHT

SWITCHES

- S_{DM} DIMMER
- S_F FAN
- S_4 FOUR WAY
- S_K KEY OPERATED
- S_L LOW VOLTAGE
- S_M MOTOR
- $\$_{MS}$ MOTORIZED SHADE
- $\$_{PS}$ PROJECTION SCREEN
- S SINGLE POLE
- S_3 THREE WAY

BUILDING NUMBERS

PRIMARY TREATMENT STRUCTURES

- 1 DIGESTER GAS CO-GENERATOR
- 2A A-DIGESTER BUILDING
- 2B B-DIGESTER BUILDING
- 3 (100, 150, 200 & 250)-SLUDGE DIGESTERS
- 4 METHANE TANK
- 5 INJECTOR BUILDING
- 6 (A-D-SLUDGE DIGESTERS
- 7 ADMINISIZTION BUILDING
- 8 CHLORINATION BUILDING
- 9 SEPTAGE DUMPING STATION
- 10 SCREENING AND GRIT BULDING
- 11 UNIT SUBSTATION SWITCHYARD 4160 V
- 12 PRIMARY CHEMICAL STORGE
- 13 INCINERATOR BUILDING
- 14 BLUE SHOP BUILDING
- 15 SLUDGE DEWATERING BUILDING
- 16 MAINTENANCE TRAILER OFFICE
- 17A METAL STORAGE BUILDING
- 17B SHOP & WAREHOUSE BUILDING
- 18 RIVER WATER METERING STRUCTURE
- 19A CONSTRUCTION MANAGEMENT OFFICES
- 19B Old CONSTRUCTION MANAGEMENT OFFICES
- 20 DISSOLVED AIR FLOTATION (DF) BUILDING
- 21 TWAS BUILDING
- 22 PROCESS CONTROL TRALER
- 23 (1-8)-PRIMARY CLARFIERS
- 24A (A)-PRIMARY SLUDGE PUMP HOUSE #1 & #2
- 24B (B)-PRIMARY SLUDGE PUMP HOUSE #3 & #4
- 25 AREA DRAINAGE PUMP HOUSE
- 26 CHEMICAL STORAGE
- 27 PRIMARY ODOR CONTROL BUILDING
- 28 DIGESTER GAS FLARE
- 32 HEADWORKS
- 33 NOT USED
- 34 ELECTRICAL SUBSTATION
- 50 ENGINE GENERATORS
- 51 MIXED LIQUOR PUMP STATION (A-j)-SECONDARY

CLARIFIERS

- 52 (A-J)-SECONDARY CLARIFIERS
- 53A CLARIFIERS INLET BOX #1
- 53B CLARIFIER INLET BOX #2
- 54 FILTER BUILDING
- 55 FILTER BLOWER BUILDING
- 56 UV DISINFECTION
- 57 ELECTRICAL SUBSTATION BLDG & UV CONTROL
- 58 SONOCO PUMP STATION
- 59 TROOEY BARN
- 60 CONTACT CHAMBER
- 61 PLANT OUTFALL
- 62 DIFFUSER GAS CLEANING (HCL GAS) BNR#2
- 63 BNR #2
- 64 BLOWER BUILDING
- 65 CHEMICAL FACILITY
- 66 BNR #1
- 67 DIFFUSER GAS CLEANING (HCL GAS) BNR#1
- 68 ACETIC ACID TANK
- 69 UNDER PASS @ MARETTA BLVD.
- 70 (A-J) SLUDGE/SCUM STRUCTURES
- 70 GRIT BUILDING
- 71 NANCY CREEK PUMP STATION
- 71A NANCY CREEK WET WELL
- 72 DRUM SCREEN BUILDING
- 73 GRIT REMOVAL PUMP STATION
- 74 GRIT ELECTRICAL BUILDING
- 75 DETRITUS SEPARATOR
- 76 VORTES
- 77 CHEMICAL BUILDING
- 78 SEDIMINTATION BASIN
- 79 FILTER BUILDING
- 80 BLOWER BUILDING
- 81 OPERATIONS AND ELECTRIACAL BUILDING
- 82 CSO PUMPING STATION
- 83 BELL SOUTH PUMPING STATION
- 84 ENGINE GENERATOR
- 85 TUNNEL OVER FLOW

ABBREVIATIONS

- AFC - ABOVE FINISHED CEILING
- AFF - ABOVE FINISHED FLOOR
- AFG - ABOVE FINISHED GRADE
- AHJ - AUTHORITY HAVING JURISDICTION
- AL - ALUMINUM
- AP - ACCESS POINT
- AWG - AMERICAN WIRE GAUGE
- BFG - BELOW FINISH GRADE
- BMS - BUILDING MANAGEMENT SYSTEM
- C - CONDUIT
- CCTV - CLOSED CIRCUIT TELEVISION
- CKT - CIRCUIT
- CPU - CENTRAL PROCESSING UNIT
- CT - CURRENT TRANSFORMER
- DCS - DISTRIBUTED CONTROL SYSTEM
- EM - EMERGENCY
- (E) - EXISTING
- FA - FIRE ALARM
- FACP- FIRE ALARM CONTROL PANEL
- FBO - FURNISHED BY OTHERS
- GC - GENERAL CONTRACTOR
- GFI - GROUND FAULT CIRCUIT INTERRUPTER
- GRD - GROUND
- IC - INTERMEDIATE CROSS-CONNECT
- IDF - INTERMEDIATE DISTRIBUTION FRAME
- IG - ISOLATED GROUND
- IR - INFRARED
- LAN - LOCAL AREA NETWORK
- MDF - MAIN DISTRIBUTION FRAME
- NIC - NOT IN CONTRACT
- NTS - NOT TO SCALE
- OC - ON CENTER
- PLC - PROGRAMMABLE LOGIC CONTROLLER
- PP - PATCH PANEL
- TTB - TELEVISION TERMINAL BOARD
- TVSS - TRANSIENT VOLTAGE SURGE SUPPRESSOR
- UG - UNDERGROUND
- UNO - UNLESS NOTED OTHERWISE
- UPS - UNINTERRUPTIBLE POWER SUPPLY
- V - VOLT
- W - WATT
- WAN - WIDE AREA NETWORK
- WLAN- WIRELESS LOCAL AREA NETWORK
- WP - WEATHER PROOF
- XP - EXPLOSION PROOF

SHEET INDEX

SHEET #	TITLE	60% CD SET	90% CD SET	95% CD REVIEW SET	100% BID SET
EI-RM-0	E&IC COVER SHEET	x	x	x	x
EI-RM-1	E&IC OVERALL SITE PLAN AREA 'A'	x	x	x	x
EI-RM-2	E&IC OVERALL SITE PLAN AREA 'B'	x	x	x	x
EI-RM-3	E&IC OVERALL SITE PLAN AREA 'C'	x	x	x	x
EI-RM-4	E&IC ADMINISTRATION BUILDING FLOOR PLAN	x	x	x	x
EI-RM-5	E&IC BLOWER BUILDING FLOOR PLAN	x	x	x	x
EI-RM-6	E&IC FILTER BUILDING FLOOR PLAN	x	x	x	x
EI-RM-7	E&IC UV BUILDING FLOOR PLAN	x	x	x	x
EI-RM-8	E&IC MIXED LIQUOR BUILDING FLOOR PLAN	x	x	x	x
EI-RM-9	E&IC HEADWORKS BUILDING FLOOR PLAN	x	x	x	x
EI-RM-10	E&IC FIBER OPTIC NETWORK DIAGRAM	x	x	x	x
EI-RM-11	E&IC FOXBORO SYSTEM DIAGRAM	x	x	x	x
EI-RM-12	E&IC DETAILS	x	x	x	x
	DATE	8/29/14	10/21/14	12/3/14	9/24/15

ISSUE LOG

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

PROJECT NUMBER FC-4906-E

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
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jp2 value ▪ innovation ▪ results

RESURGENS 1847 ATLANTA, GA. 1865

GEORGIA REGISTERED PROFESSIONAL ENGINEER AARON D. WILBURN 9/24/15

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY:	ADW
DRAWN BY:	CO
CHECKED BY:	HD
APPROVED BY:	ADW
DATE:	09/24/15
SCALE:	AS NOTED

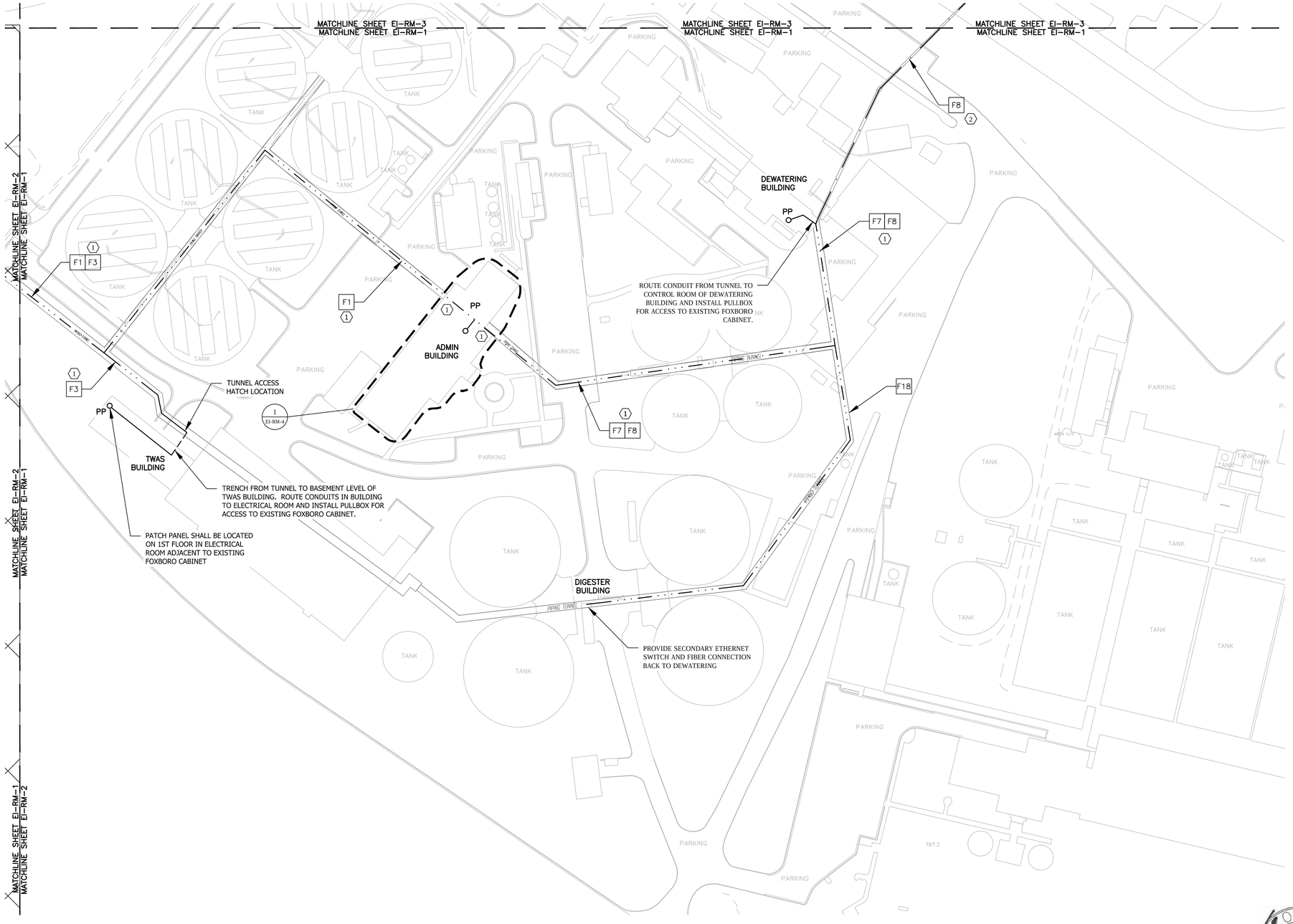
CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT

RM CLAYTON
E&IC COVER SHEET

DRAWING NUMBER
EI-RM-0

SHEET 37 OF 49

S:\2014 Projects\057-14 City of Atlanta RM Clayton WWTP I&C\RM Clayton Breakout Package\03 - ELECTRICAL\Working Dwgs\057-14 Electrical - Fiber.dwg



1 EI-RM-1 OVERALL PLAN
SCALE: 1/64" = 1'-0"

ELECTRICAL SHEET NOTES - UN-REFERENCED

a. DO NOT SCALE THESE DRAWING. INFORMATION IS DIAGRAMATIC AND INTENTED FOR REFERENCE ONLY.

b. COORDINATE AND VERIFY THE LOCATION OF ALL EXISTING, MANHOLES, DUCTBANKS, TUNNELS ETC.. LOCATION AND ROUTING FOR NEW DUCTBANKS, CONDUIT, ETC. ARE APPROXIMATE, COORDINATE ACTUAL LOCATION AND ROUTING IN FIELD.

c. REFER TO DRAWINGS EI-RM-4 TO EI-RM-13 FOR ADDITIONAL DETAILS INSIDE BUILDINGS AND THE FOXBORO NETWORK REQUIREMENTS.

d. THIS DRAWING IS INTENDED TO SHOW APPROXIMATE ROUTING OF NEW FIBER OPTIC CABLING FOR CONNECTION AT NEW AND EXISTING PATCH PANELS.

e. ALL FIBER CABLES SHALL BE SUPPLIED AND INSTALLED AS AN "END-TO-END" SOLUTION THIS INCLUDES ALL CONNECTORS, TERMINATION TOOLING, ADAPTERS, ADAPTER MODULES, ADAPTER PANELS, RACK MOUNT AND WALL MOUNT ENCLOSURES, SPLICE TRAYS, PRE-TERMINATED CASSETTES, PATCH CORDS, CABLE ASSEMBLIES AND FIBER ROUTING.

f. ALL FIBERS SHALL BE COMPLETELY TERMINATED AT PATCH PANELS AND TESTED PRIOR TO TURNING OVER TO OWNER.

g. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL CONDUIT, PULL BOXES AND OTHER PARTS NECESSARY FOR A COMPLETE SYSTEM.

h. CONTRACTOR SHALL PHYSICALLY SEPARATE CONDUITS WITHIN TUNNEL ON OPPOSITE SIDES, TO REDUCE RISK OF DAMAGE TO BOTH CONDUIT UPON INCIDENT. REFER TO DETAIL/DIAGRAM ON SHEET EI-RM-12 FOR REFERENCE.

i. ALL UNDERGROUND RACEWAYS SHALL BE BURIED A MINIMUM OF 24" DEEP. CONTRACTOR SHALL REVIEW PLANS WITH MAINTENANCE PERSONNEL AND CAREFULLY FIELD VERIFY EXISTING UTILITIES AND INFRASTRUCTURE PRIOR TO TRENCHING/EXCAVATING.

j. CONTRACTOR SHALL INSTALL COMMUNICATION MANHOLES WITH A 50' CABLE LOOP FOR EVERY RUN THAT EXCEEDS 1500' OR WHERE REQUIRED FOR PULLING PURPOSES.

k. CONTRACTOR SHALL ADHERE TO ANSI TIA STANDARDS WITH OWNER APPROVED NAMING IDENTIFIERS.

l. REFER TO SHEET EI-RM-10 FOR FIBER OPTIC CABLE SCHEDULE.

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1. UTILIZE EXISTING TUNNEL SYSTEM FOR FIBER OPTIC BACKBONE. ALL FIBER IN TUNNEL SHALL BE INSTALLED IN 3" PVC COATED RIGID CONDUIT. PROVIDE ACCESS/PULL POINTS AS REQUIRED TO ACCOMODATE PULLING DISTANCES. PHYSICALLY SEPARATE RACEWAYS ON OPPOSITE SIDES OF TUNNEL. CONTRACTOR SHALL PROVIDE ALL HARDWARE REQUIRED FOR MOUNTING AND SUPPORT.

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4. ROUTE FIBER OPTIC RACEWAYS ALONG EXISTING PIPE RACK /PEDESTRIAN BRIDGE.

EXPOSED CONDUIT

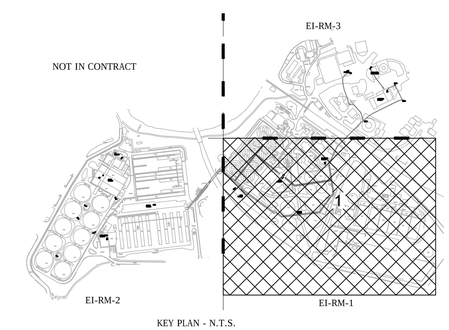
ROUTE IN EXISTING TUNNEL

ROUTE WITHIN BUILDING

NEW DUCT BANK

ROUTE IN EXISTING DUCT BANK

F# FIBER OPTIC TAG (REFER TO SCHEDULE ON SHEET EI-RM-12)



KEY PLAN - N.T.S.

REGISTERED PROFESSIONAL ENGINEER AARON D. WILBURN 9/24/15

CLEAN WATER ATLANTA
awaking water, stormwater, wastewater

PROJECT NUMBER FC-4906-E

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2 value ▪ innovation ▪ results

RESURGENS 1886 ATLANTA, GA

REVISIONS			REVISIONS		
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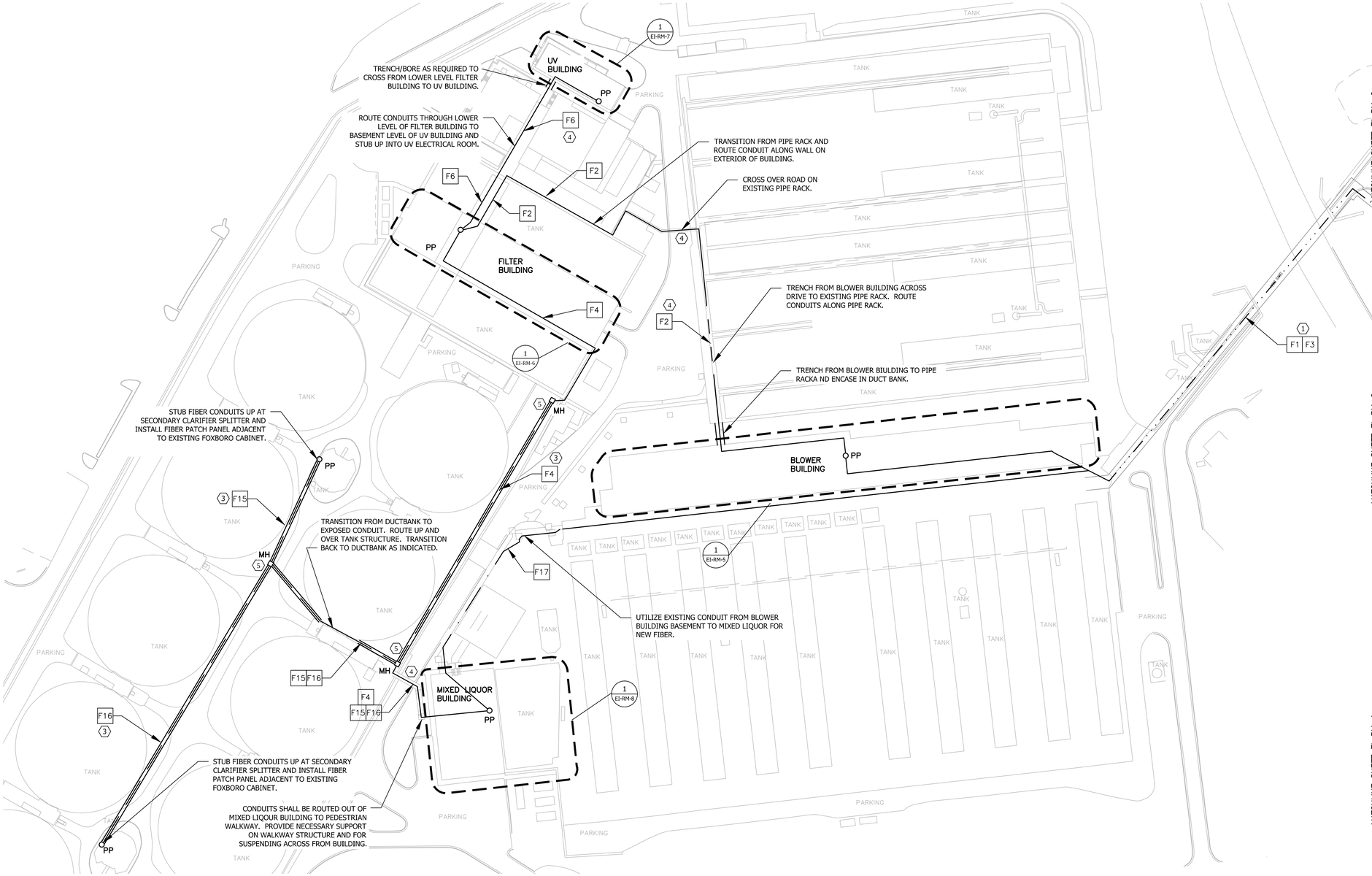
CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT

RM CLAYTON
E&IC OVERALL SITE PLAN
AREA A

DRAWING NUMBER
EI-RM-1

SHEET 38 OF 49

S:\2014 Projects\057-14 City of Atlanta RM Clayton WWTP I&C\RM Clayton Breakout Packages\03 - ELECTRICAL\Working Dwgs\057-14 Electrical - Fiber.dwg



1 EI-RM-2 OVERALL PLAN
SCALE: 1/64"= 1'-0"

ELECTRICAL SHEET NOTES - UN-REFERENCED

a. DO NOT SCALE THESE DRAWING. INFORMATION IS DIAGRAMATIC AND INTENTED FOR REFERENCE ONLY.

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c. REFER TO DRAWINGS EI-RM-4 TO EI-RM-13 FOR ADDITIONAL DETAILS INSIDE BUILDINGS AND THE FOXBORO NETWORK REQUIREMENTS.

d. THIS DRAWING IS INTENDED TO SHOW APPROXIMATE ROUTING OF NEW FIBER OPTIC CABLING FOR CONNECTION AT NEW AND EXISTING PATCH PANELS.

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f. ALL FIBERS SHALL BE COMPLETELY TERMINATED AT PATCH PANELS AND TESTED PRIOR TO TURNING OVER TO OWNER.

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j. CONTRACTOR SHALL INSTALL COMMUNICATION MANHOLES WITH A 50' CABLE LOOP FOR EVERY RUN THAT EXCEEDS 1500' OR WHERE REQUIRED FOR PULLING PURPOSES.

k. CONTRACTOR SHALL ADHERE TO ANSI TIA STANDARDS WITH OWNER APPROVED NAMING IDENTIFIERS.

l. REFER TO SHEET EI-RM-10 FOR FIBER OPTIC CABLE SCHEDULE.

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4. ROUTE FIBER OPTIC RACEWAYS ALONG EXISTING PIPE RACK /PEDESTRIAN BRIDGE.

5. PROVIDE 48" X 48" X 48" MANHOLE FOR FIBER OPTIC PULLING AND LOOP

EXPOSED CONDUIT

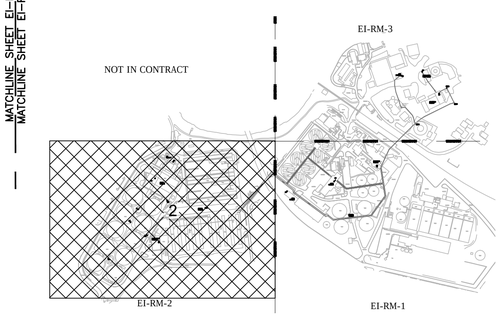
ROUTE IN EXISTING TUNNEL

ROUTE WITHIN BUILDING

NEW DUCT BANK

ROUTE IN EXISTING DUCT BANK

F# FIBER OPTIC TAG (REFER TO SCHEDULE ON SHEET EI-RM-12)



KEY PLAN - N.T.S.

REGISTERED PROFESSIONAL ENGINEER AARON D. WILLIAMS

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

PROJECT NUMBER FC-4906-E

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jp2 value ▪ innovation ▪ results

RESURGENS RE ATLANTA, GA. 2014

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△	DATE	DESCRIPTION

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DRAWN BY:	CO
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APPROVED BY:	ADW
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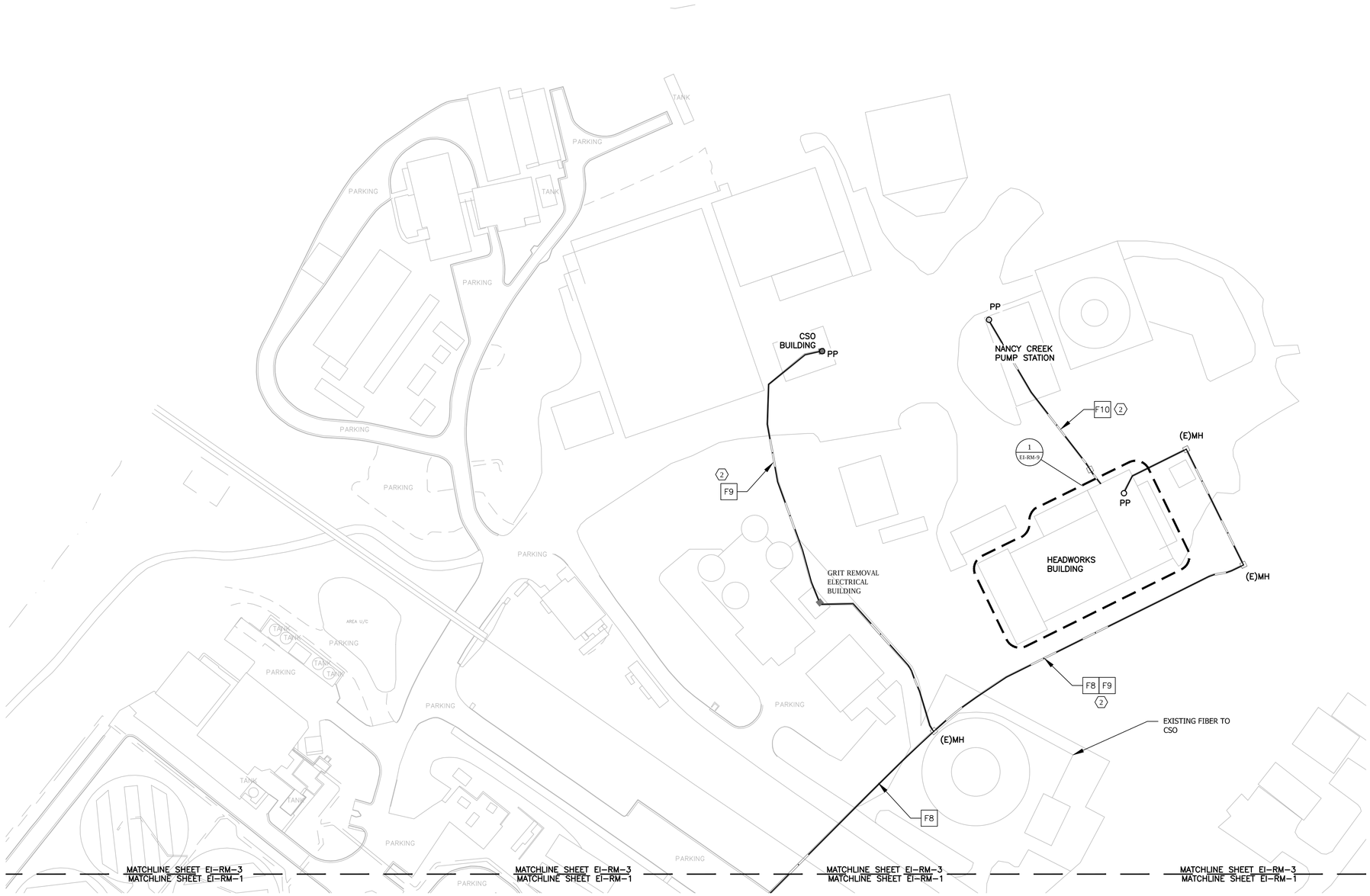
SCALE:	AS NOTED

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT

RM CLAYTON
E&IC OVERALL SITE PLAN
AREA B

DRAWING NUMBER
EI-RM-2

S:\2014 Projects\057-14 City of Atlanta RM Clayton WWTP IAC\RM Clayton Breakout Packages\03 - ELECTRICAL\Working Dwgs\057-14 Electrical - Fiber.dwg



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SCALE: 1/64"= 1'-0"

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2. UTILIZE EXISTING DUCTBANK FOR FIBER OPTIC BACKBONE. SPARE DUCTS SHOULD BE VERIFIED BY CONTRACTOR AND TWO DUCTS WITH FURTHEST PHYSICAL SEPERATION SHOULD BE USED.

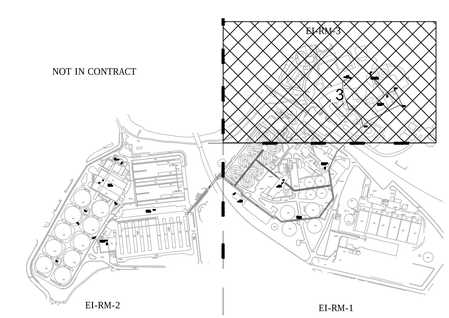
3. FIBER CABLES IN THIS AREA SHALL BE INSTALLED WITHIN CONCRETE ENCASED DUCTBANK.. TRANSITIONS FROM PVC DUCT BELOW GRADE TO ABOVE GRADE SHALL BE MADE WITH PVC COATED RIGID CONDUIT.

4. ROUTE FIBER OPTIC RACEWAYS ALONG EXISTING PIPE RACK /PEDESTRIAN BRIDGE.

EXPOSED CONDUIT
ROUTE IN EXISTING TUNNEL
ROUTE WITHIN BUILDING
NEW DUCT BANK
ROUTE IN EXISTING DUCT BANK

F# FIBER OPTIC TAG (REFER TO SCHEDULE ON SHEET EI-RM-12)

NOT IN CONTRACT



KEY PLAN - N.T.S.

REGISTERED PROFESSIONAL ENGINEER AARON D. WILBURN

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

PROJECT NUMBER FC-4906-E

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
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jp2 value ▪ innovation ▪ results

RESURGENS ATLANTA, GA. 1891

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY:	ADW
DRAWN BY:	CO
CHECKED BY:	HD
APPROVED BY:	ADW
DATE:	09/24/15
SCALE:	AS NOTED

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT

RM CLAYTON
E&IC OVERALL SITE PLAN
AREA C

DRAWING NUMBER
EI-RM-3

S:\2014 Projects\157-14 City of Atlanta RM Clayton WWTP IAC\RM Clayton Breakout Packaged\01 - ELECTRICAL\Working Dwgs\157-14 Electrical - Fiber.dwg

CABINET/DEVICE NAMING: 07 AB NC 01

BUILDING# — 07
BUILDING ABBREVIATION — AB
TYPE — NC
CABINET # — 01

"TYPE ABBREVIATION"
PP - PATCH PANEL
NS - NETWORK SWITCH
NC - NETWORK CABINET
FC - FOXBORO CABINET

ELECTRICAL SHEET NOTES - UN-REFERENCED

a. REFER TO EP (ELECTRICAL POWER) DRAWINGS FOR UPS POWER REQUIREMENTS LOCATIONS AND SPEC. CONTRACTOR SHALL PROVIDE POWER FROM UPS/BYPASS OUTPUTS TO FOXBORO CABINET POWER SUPPLIES.
b. REFER TO SHEET EI-RM-11 & EI-RM-12 FOR ADDITIONAL DETAILS ON SCOPE AND FIBER OPTIC CABLE SCHEDULE.
c. ROUTING IS SHOWN FOR INTENT ONLY. CONTRACTOR RESPONSIBLE FOR FIELD VERIFYING ROUTING AND ADJUSTMENTS AS REQUIRED.

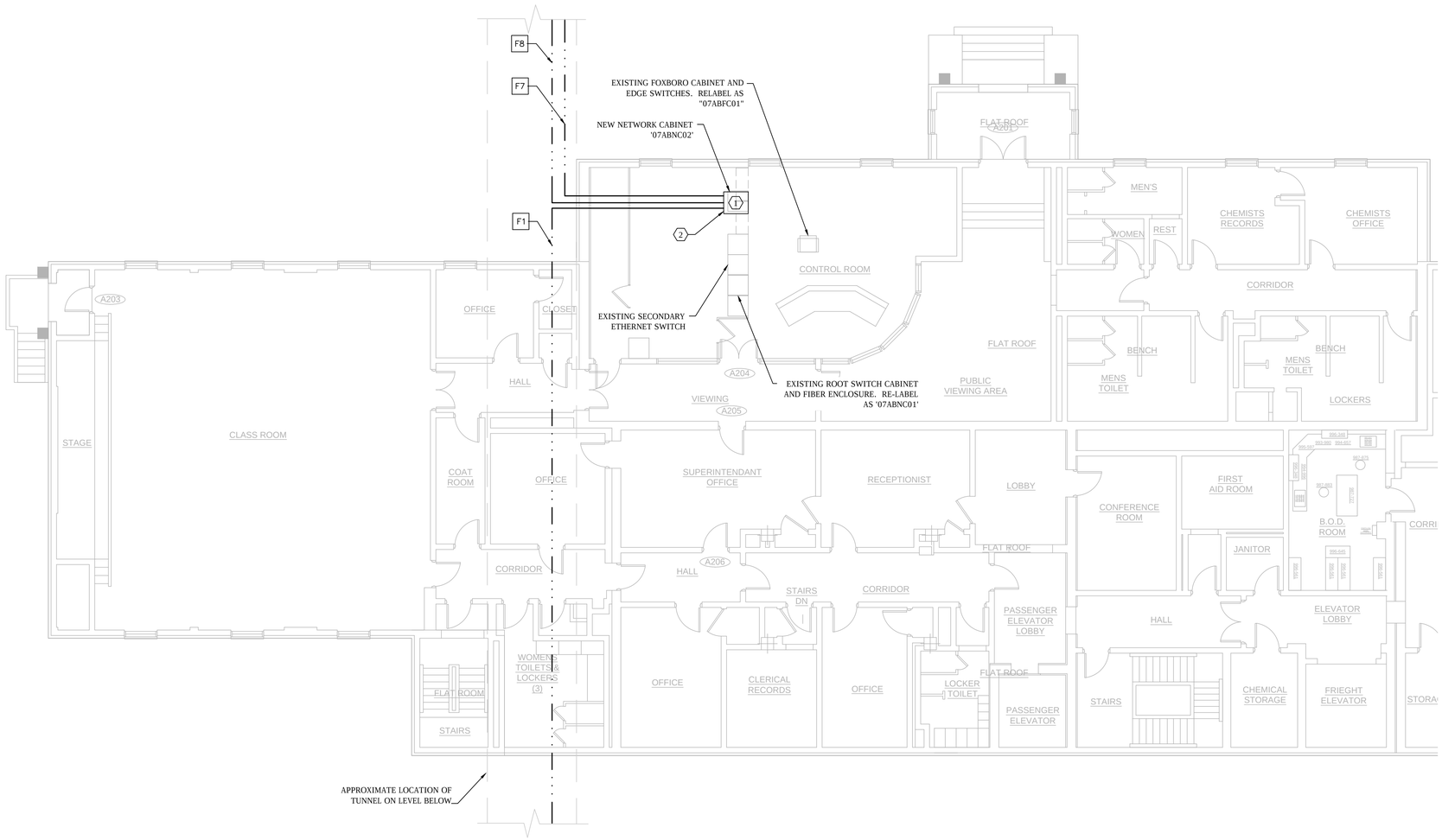
ELECTRICAL SHEET NOTES - REFERENCED

1. NETWORK CABINET SHALL BE CHATSWORTH TYPE XXX OR EQUAL. SHALL BE H"xW"xD" AND ACCOMODATE 19" EIA RACK MOUNTING WIDTHS.
2. CONTRACTOR SHALL ROUTE FIBER FROM TUNNEL/LEVEL BELOW AND STUB UP THROUGH FLOOR TO NEW CABINET FOR TERMINATION
3.

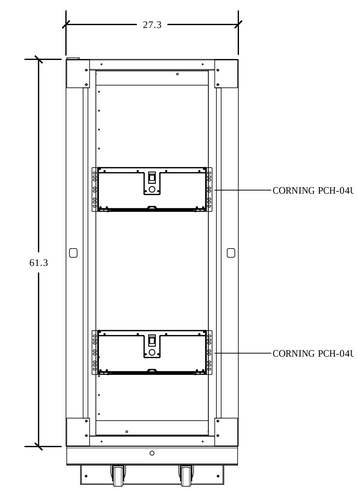
ADMINISTRATION BUILDING SCOPE SUMMARY

GENERAL SUMMARY OF SCOPE, THIS DOES NOT SERVE AS AN ALL INCLUSIVE LIST.

- INSTALLATION OF NEW FIBER BACKBONE RACEWAYS AND CABLES.
- INSTALLATION OF VARIOUS PATCH/CROSS CONNECT PANELS WITHIN NEW CABINET TO SUPPORT NEW FIBER BACKBONE.
- RELOCATION OF EXISTING ROOT SWITCH FROM ADMIN BUILDING TO FILTER BUILDING.
- INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK.
- INSTALLATION OF UPS SYSTEM WITH STATUS ALARMING TO DCS AND BYPASS CAPABILITY.



1 EI-RM-4 ADMINISTRATION BUILDING - PARTIAL LEVEL 1 FLOOR PLAN
SCALE: 1/8" = 1'-0"



2 EI-RM-4 07ABNC02 CABINET ELEVATION
SCALE: 1"= 1'-0"

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater
PROJECT NUMBER FC-4906-E

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△	DATE	DESCRIPTION

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△	DATE	DESCRIPTION

DESIGNED BY:	ADW
DRAWN BY:	CO
CHECKED BY:	HD
APPROVED BY:	ADW
DATE:	09/24/15
SCALE:	AS NOTED

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT

RM CLAYTON
ADMINISTRATION BUILDING
FLOOR PLAN

DRAWING NUMBER
EI-RM-4

S:\2014 Projects\057-14 City of Atlanta RM Clayton WWTP I&C\RM Clayton Breakout Packages\01 - ELECTRICAL\Working Dwgs\057-14 Electrical - I&C.dwg

BLOWER BUILDING SCOPE SUMMARY

GENERAL SUMMARY OF SCOPE, THIS DOES NOT SERVE AS AN ALL INCLUSIVE LIST.

- INSTALLATION OF NEW FIBER BACKBONE RACEWAYS AND CABLES.
- INSTALLATION OF VARIOUS PATCH/CROSS CONNECT PANELS IN A NEW NETWORK CABINET TO SUPPORT THE FIBER BACKBONE.
- INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK.
- INSTALLATION OF UPS SYSTEM WITH STATUS ALARMING TO DCS AND BYPASS CAPABILITY.
- REPLACEMENT OF BLOWER PLC'S AND INTEGRATION WITH FOXBORO DCS.
- FOXBORO ADVANTAGE UPGRADE TO EXISTING SYSTEM COMPONENTS.

CABINET/DEVICE NAMING: 07 AB NC 01

BUILDING# — 07
BUILDING ABBREVIATION — AB
TYPE — NC
CABINET # — 01

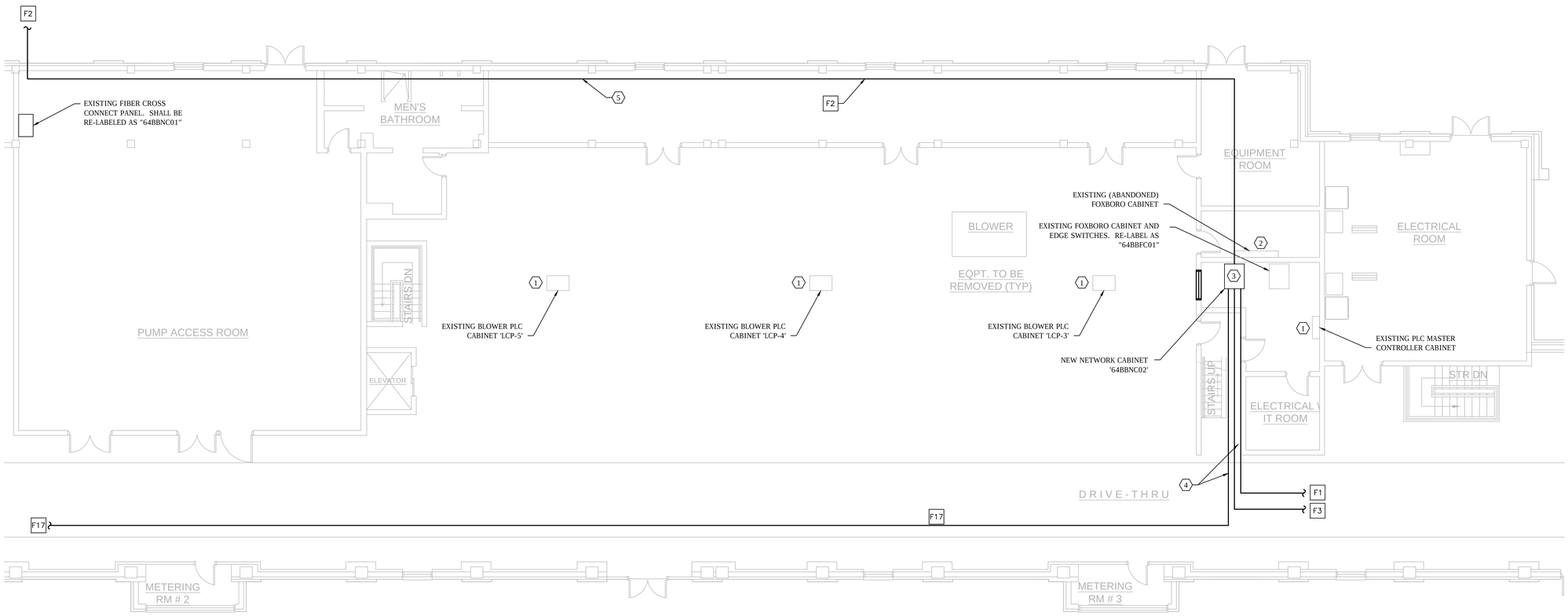
"TYPE ABBREVIATION"
PP - PATCH PANEL
NS - NETWORK SWITCH
NC - NETWORK CABINET
FC - FOXBORO CABINET

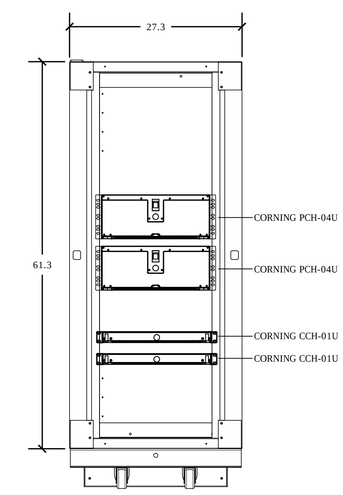
ELECTRICAL SHEET NOTES - UN-REFERENCED

a. REFER TO EP (ELECTRICAL POWER) DRAWINGS FOR UPS POWER REQUIREMENTS LOCATIONS AND SPEC. CONTRACTOR SHALL PROVIDE POWER FROM UPS/BYPASS OUTPUTS TO FOXBORO CABINET POWER SUPPLIES.
b. REFER TO SHEET EI-RM-11 & EI-RM-12 FOR ADDITIONAL DETAILS ON SCOPE AND FIBER OPTIC CABLE SCHEDULE.
c. ROUTING IS SHOWN FOR INTENT ONLY. CONTRACTOR RESPONSIBLE FOR FIELD VERIFYING ROUTING AND ADJUSTMENTS AS REQUIRED.

ELECTRICAL SHEET NOTES - REFERENCED

1. EXISTING ALLEN BRADLEY PLC SHALL BE REPLACED. EXISTING CPU IS A SLC5/05. FOXBORO AND PLC INTEGRATOR SHALL COORDINATE TRANSFER OF "TAGS/REGISTER BLOCKS", REQUIRED DRIVER UPDATES AND ANY OTHER REQUIREMENTS FOR A COMPLETE, FULLY FUNCTIONAL SYSTEM.
2. ABANDONED FOXBORO CABINET CONTAINING PATCH PANELS FOR FIBER OPTIC CABLE TO FILTER AND MIXED LIQUOR BUILDINGS.
3. NETWORK CABINET SHALL BE CHATSWORTH TYPE XXX OR EQUAL. SHALL BE H"xW"xD" AND ACCOMMODATE 19" EIA RACK MOUNTING WIDTHS.
4. CONTRACTOR SHALL ROUTE FIBER CABLES FROM TUNNEL THROUGH BASEMENT TO NEW CABINET.
5. ROUTE FIBER THROUGH BASEMENT LEVEL TO LOCATION INDICATED FOR PENETRATING BUILDING AND TRENCHING ACROSS TO PIPE RACK





CABINET: CHATSWORTH 11840-748

2 / EI-RM-5 — 64BBNC02 CABINET ELEVATION
SCALE: 1"= 1'-0"

NORTH

1 / E3 — BLOWER BUILDING - PARTIAL LEVEL 1 FLOOR PLAN
SCALE: 1/8"= 1'-0"

REGISTERED PROFESSIONAL ENGINEER — AARON D. WILLIAMS

CLEAN WATER ATLANTA — drinking water, stormwater, wastewater

PROJECT NUMBER FC-4906-E

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REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY:	ADW
DRAWN BY:	CO
CHECKED BY:	HD
APPROVED BY:	ADW
DATE:	09/24/15
SCALE:	AS NOTED

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT

RM CLAYTON
E&IC BLOWER BUILDING
FLOOR PLAN

DRAWING NUMBER
EI-RM-5

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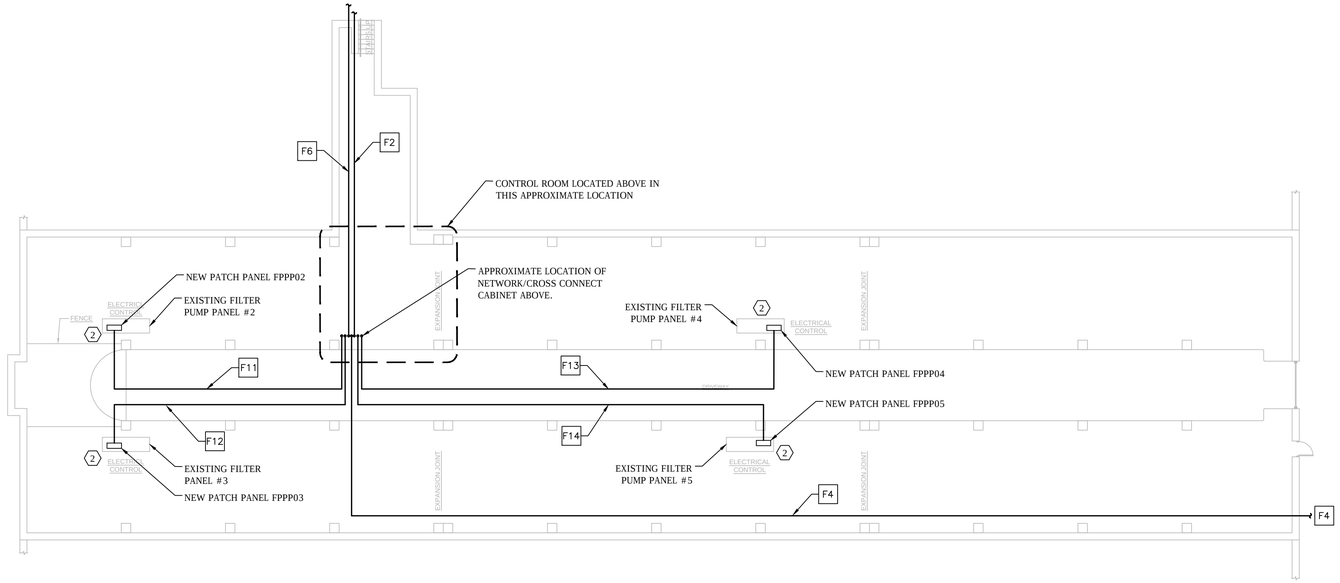
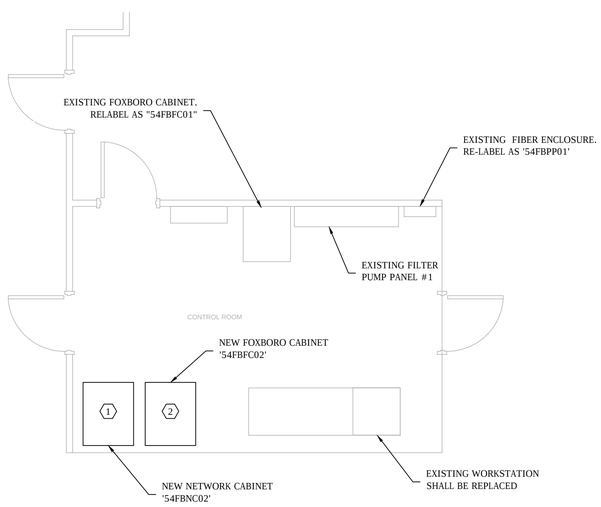


1 EI-RM-6 FILTER BUILDING - LOWER LEVEL FLOOR PLAN
SCALE: 1/16" = 1'-0"



2 EI-RM-6 FILTER BUILDING - UPPER LEVEL CONTROL ROOM FLOOR PLAN
SCALE: 1/4" = 1'-0"

CABINET/DEVICE NAMING: 07 AB NC 01
BUILDING#
BUILDING ABBREVIATION
TYPE
CABINET #

"TYPE ABBREVIATION"
PP - PATCH PANEL
NS - NETWORK SWITCH
NC - NETWORK CABINET
FC - FOXBORO CABINET

ELECTRICAL SHEET NOTES - UN-REFERENCED

a. REFER TO EP (ELECTRICAL POWER) DRAWINGS FOR UPS POWER REQUIREMENTS LOCATIONS AND SPEC. CONTRACTOR SHALL PROVIDE POWER FROM UPS/BYPASS OUTPUTS TO FOXBORO CABINET POWER SUPPLIES.
b. REFER TO SHEET EI-RM-11 & EI-RM-12 FOR ADDITIONAL DETAILS ON SCOPE AND FIBER OPTIC CABLE SCHEDULE.
c. ROUTING IS SHOWN FOR INTENT ONLY. CONTRACTOR RESPONSIBLE FOR FIELD VERIFYING ROUTING AND ADJUSTMENTS AS REQUIRED.

ELECTRICAL SHEET NOTES - REFERENCED

(1) NEW NETWORK CABINET TO ACCOMMODATE NEW SERVER EQUIPMENT. INSTALL NEW RACK MOUNTED CONNECTOR HOUSINGS/PATCH PANELS WITHIN NEW FOXBORO SERVER CABINET. PROVIDE ALL NECESSARY HARDWARE FOR A COMPLETE INSTALL. REFER TO FIBER OPTIC ONE-LINE FOR ADDITIONAL INFORMATION.

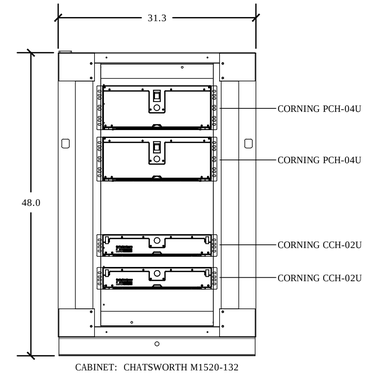
(2) NEW FOXBORO CABINET TO ACCOMMODATE NEW SERVER EQUIPMENT. NEW EDGE SWITCHES AND RELOCATED ROOT SWTICH SHALL BE INSTALLED IN THIS CABINET.

(3) WALL MOUNTED FIBER PATCH PANEL MOUNTED ABOVE FILTER PUMP CONTROL PANEL. PROVIDE NECESSARY SUPPORTS FOR MOUNTING ABOVE CABINET STRUCTURE. REFER TO FIBER ONE-LINE DRAWING FOR ADDITIONAL DETAILS.

FILTER BUILDING SCOPE SUMMARY

GENERAL SUMMARY OF SCOPE, THIS DOES NOT SERVE AS AN ALL INCLUSIVE LIST.

- INSTALLATION OF NEW FIBER BACKBONE RACEWAYS AND CABLES.
- INSTALLATION OF FIBER TO REMOTE I/O'S AT FILTER PUMP PANELS AND UV BUILDING.
- INSTALLATION OF VARIOUS PATCH/CROSS CONNECT PANELS IN A NEW NETWORK CABINET TO SUPPORT THE FIBER BACKBONE.
- INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK.
- INSTALLATION OF UPS SYSTEM WITH STATUS ALARMING TO DCS AND BYPASS CAPABILITY.
- INSTALLATION OF NEW ROOT SWITCH RELOCATED FROM ADMINISTRATION BUILDING.
- FOXBORO ADVANTAGE UPGRADE TO EXISTING SYSTEM COMPONENTS.



CABINET: CHATSWORTH M1520-132

3 EI-RM-6 54FBNC02 CABINET ELEVATION
SCALE: 1" = 1'-0"

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

PROJECT NUMBER FC-4906-E

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RESURGENS ATLANTA, GA

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY:	ADW
DRAWN BY:	CO
CHECKED BY:	HD
APPROVED BY:	ADW
DATE:	09/24/15
SCALE:	AS NOTED

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT

RM CLAYTON
E&IC FILTER BUILDING
FLOOR PLAN

DRAWING NUMBER
EI-RM-6

S:\2014 Projects\057-14 City of Atlanta RM Clayton WWTP I&C\RM Clayton Breakout Packages\01 - ELECTRICAL\Working Dwgs\057-14 Electrical - I&C.dwg

CABINET/DEVICE NAMING: 07 AB NC 01

BUILDING# — 07
BUILDING ABBREVIATION — AB
TYPE — NC
CABINET # — 01

"TYPE ABBREVIATION"
PP - PATCH PANEL
NS - NETWORK SWITCH
NC - NETWORK CABINET
FC - FOXBORO CABINET

ELECTRICAL SHEET NOTES - UN-REFERENCED

a. REFER TO EP (ELECTRICAL POWER) DRAWINGS FOR UPS POWER REQUIREMENTS LOCATIONS AND SPEC. CONTRACTOR SHALL PROVIDE POWER FROM UPS/BYPASS OUTPUTS TO FOXBORO CABINET POWER SUPPLIES.

ELECTRICAL SHEET NOTES - REFERENCED

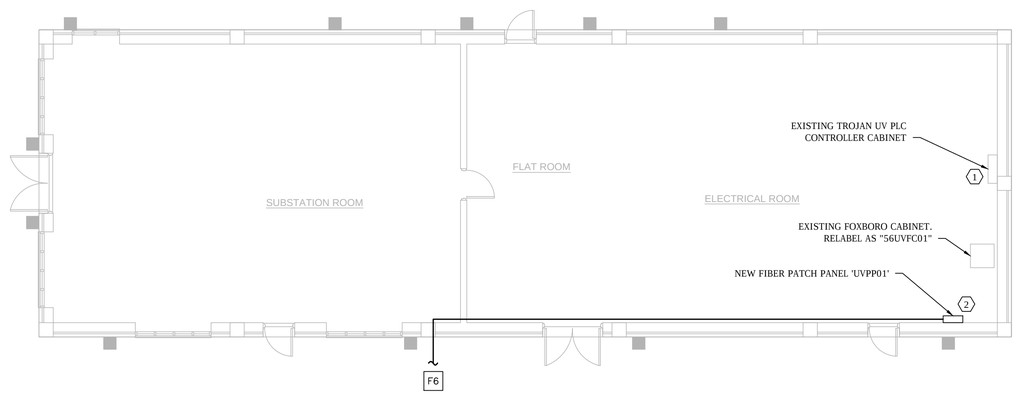
1. EXISTING ALLEN BRADLEY PLC SHALL BE REPLACED. EXISTING PLC IS ALLEN BRADLEY PLC5 SERIES. FOXBORO AND PLC INTEGRATOR SHALL COORDINATE TRANSFER OF "TAGS/REGISTER BLOCKS", REQUIRED DRIVER UPDATES AND ANY OTHER REQUIREMENTS FOR A COMPLETE, FUNCTIONAL SYSTEM.

2. WALL MOUNTED FIBER PATCH PANEL. REFER TO FIBER ONE-LINE DRAWING FOR ADDITIONAL DETAILS.

UV BUILDING SCOPE SUMMARY

GENERAL SUMMARY OF SCOPE, THIS DOES NOT SERVE AS AN ALL INCLUSIVE LIST.

- INSTALLATION OF FIBER TO REMOTE I/O'S FROM FILTER BUILDING.
- INSTALLATION OF VARIOUS PATCH/CROSS CONNECT PANELS IN TO SUPPORT NEW FIBER.
- INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK.
- INSTALLATION OF UPS SYSTEM WITH STATUS ALARMING TO DCS AND BYPASS CAPABILITY.
- REPLACEMENT OF UV SYSTEM PLC AND INTEGRATION WITH FOXBORO DCS.
- FOXBORO ADVANTAGE UPGRADE TO EXISTING SYSTEM COMPONENTS.



1 / EI-RM-7 UV BUILDING - LEVEL 1 FLOOR PLAN
SCALE: 1/8"= 1'-0"

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

PROJECT NUMBER FC-4906-E

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REBURGENS ATLANTA, GA 1906

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DRAWN BY:	CO
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APPROVED BY:	ADW
DATE:	09/24/15
SCALE:	AS NOTED

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT

RM CLAYTON
E&IC UV BUILDING
FLOOR PLAN

DRAWING NUMBER
EI-RM-7

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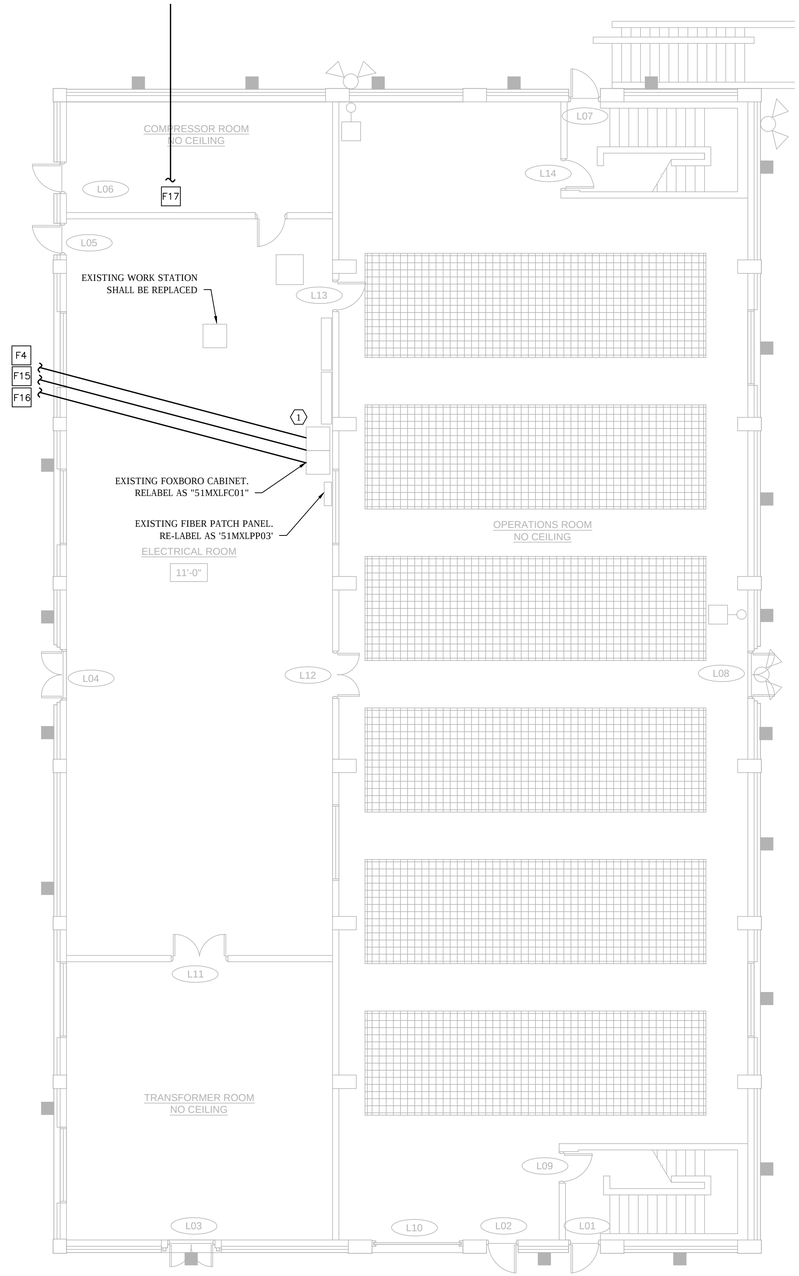

NORTH

1 / EI-RM-8 MIXED LIQUID BUILDING - LEVEL 1 FLOOR PLAN
SCALE: 1/8" = 1'-0"

CABINET/DEVICE NAMING: 07 AB NC 01

BUILDING#
BUILDING ABBREVIATION
TYPE
CABINET #

"TYPE ABBREVIATION"
PP - PATCH PANEL
NS - NETWORK SWITCH
NC - NETWORK CABINET
FC - FOXBORO CABINET

ELECTRICAL SHEET NOTES - UN-REFERENCED

a. REFER TO EP (ELECTRICAL POWER) DRAWINGS FOR UPS POWER REQUIREMENTS LOCATIONS AND SPEC. CONTRACTOR SHALL PROVIDE POWER FROM UPS/BYPASS OUTPUTS TO FOXBORO CABINET POWER SUPPLIES.

ELECTRICAL SHEET NOTES - REFERENCED

1. INSTALL NEW RACK MOUNTED CONNECTOR HOUSINGS/PATCH PANELS WITHIN EXISTING FOXBORO CABINET. PROVIDE ALL NECESSARY HARDWARE FOR A COMPLETE INSTALL. REFER TO FIBER OPTIC ONE-LINE FOR ADDITIONAL INFORMATION.

MIXED LIQUOR BUILDING SCOPE SUMMARY

GENERAL SUMMARY OF SCOPE, THIS DOES NOT SERVE AS AN ALL INCLUSIVE LIST.

- INSTALLATION OF NEW FIBER BACKBONE RACEWAYS AND CABLES.
- INSTALLATION OF FIBER TO REMOTE I/O'S AT SECONDARY CLARIFIERS.
- INSTALLATION OF VARIOUS PATCH/CROSS CONNECT PANELS TO SUPPORT THE FIBER BACKBONE.
- INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK.
- INSTALLATION OF UPS SYSTEM WITH STATUS ALARMING TO DCS AND BYPASS CAPABILITY.
- FOXBORO ADVANTAGE UPGRADE TO EXISTING SYSTEM COMPONENTS.

REGISTERED PROFESSIONAL ENGINEER
AARON D. WILLIAMS
9/24/15

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

PROJECT NUMBER FC-4906-E

5887 Glenridge DR.
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△	DATE	DESCRIPTION

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DRAWN BY:	CO
CHECKED BY:	HD
APPROVED BY:	ADW
DATE:	09/24/15
SCALE:	AS NOTED

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT

RM CLAYTON
E&IC MIXED LIQUOR BUILDING
FLOOR PLAN

DRAWING NUMBER
EI-RM-8

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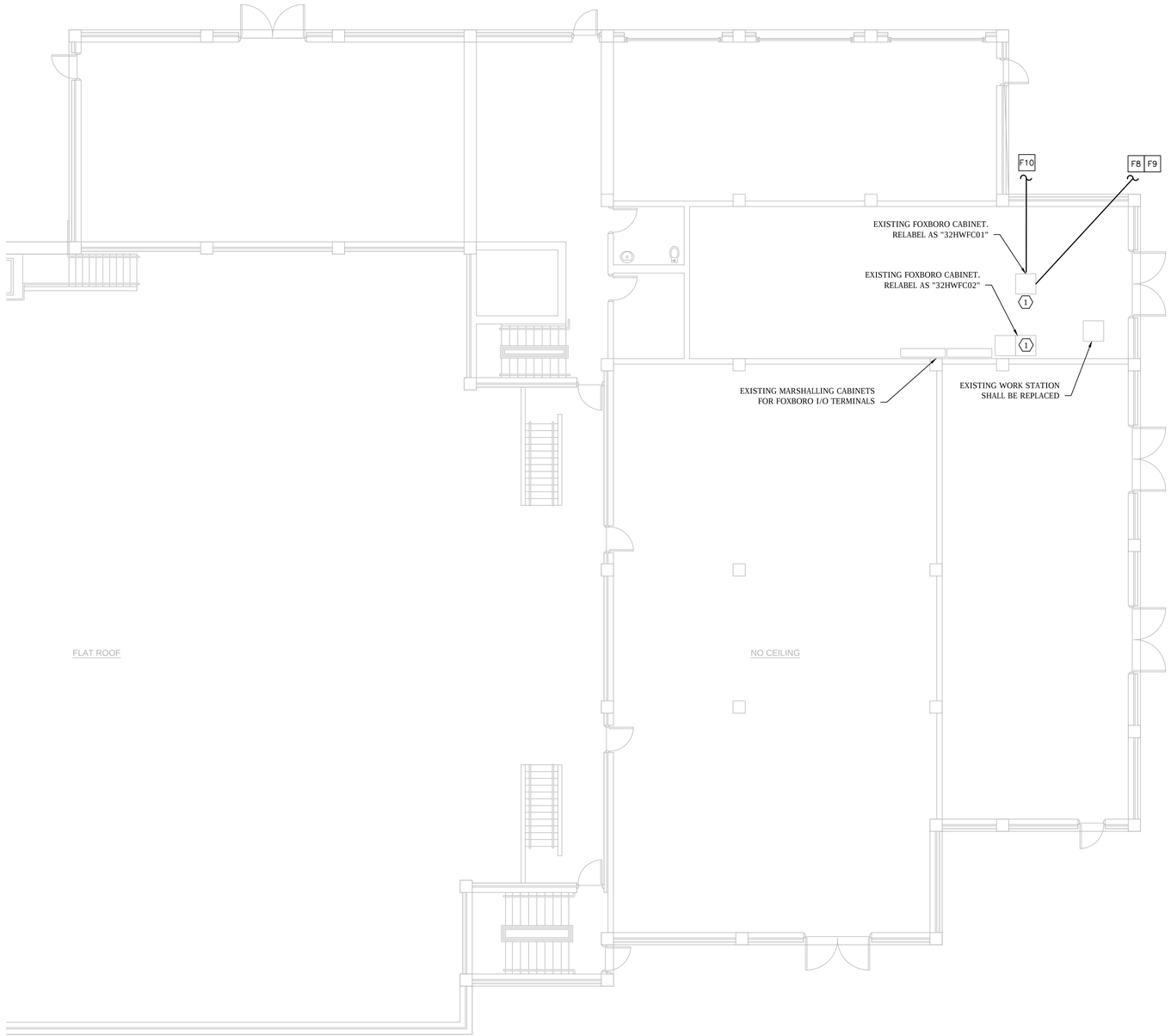

CABINET/DEVICE NAMING: 07 AB NC 01

BUILDING#
BUILDING ABBREVIATION
TYPE
CABINET #

"TYPE ABBREVIATION"
PP - PATCH PANEL
NS - NETWORK SWITCH
NC - NETWORK CABINET
FC - FOXBORO CABINET

ELECTRICAL SHEET NOTES - UN-REFERENCED

a. REFER TO EP (ELECTRICAL POWER) DRAWINGS FOR UPS POWER REQUIREMENTS LOCATIONS AND SPEC. CONTRACTOR SHALL PROVIDE POWER FROM UPS/BYPASS OUTPUTS TO FOXBORO CABINET POWER SUPPLIES.
b. REFER TO SHEET EI-RM-11 & EI-RM-12 FOR ADDITIONAL DETAILS ON SCOPE AND FIBER OPTIC CABLE SCHEDULE.
c. ROUTING IS SHOWN FOR INTENT ONLY. CONTRACTOR RESPONSIBLE FOR FIELD VERIFYING ROUTING AND ADJUSTMENTS AS REQUIRED.

ELECTRICAL SHEET NOTES - REFERENCED

1. INSTALL NEW RACK MOUNTED CONNECTOR HOUSINGS/PATCH PANELS WITHIN EXISTING FOXBORO CABINET. PROVIDE ALL NECESSARY HARDWARE FOR A COMPLETE INSTALL. REFER TO FIBER OPTIC ONE-LINE FOR ADDITIONAL INFORMATION.

HEADWORKS BUILDING SCOPE SUMMARY

GENERAL SUMMARY OF SCOPE, THIS DOES NOT SERVE AS AN ALL INCLUSIVE LIST.

- INSTALLATION OF NEW FIBER BACKBONE RACEWAYS AND CABLES.
- INSTALLATION OF VARIOUS PATCH/CROSS CONNECT PANELS TO SUPPORT THE FIBER BACKBONE.
- INSTALLATION OF NETWORK COMPONENTS FOR SECOND ETHERNET NETWORK.
- INSTALLATION OF UPS SYSTEM WITH STATUS ALARMING TO DCS AND BYPASS CAPABILITY.
- FOXBORO ADVANTAGE UPGRADE TO EXISTING SYSTEM COMPONENTS.

NORTH

1 HEADWORKS BUILDING - LEVEL 1 PARTIAL FLOOR PLAN
EI-RM-9 SCALE: 1/8" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER
AARON D. WILLIAMS
9/24/15

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

PROJECT NUMBER FC-4906-E

5887 Glenridge DR.
Suite 300
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△	DATE	DESCRIPTION

REVISIONS

△	DATE	DESCRIPTION

DESIGNED BY:	ADW
DRAWN BY:	CO
CHECKED BY:	HD
APPROVED BY:	ADW
DATE:	09/24/15
SCALE:	AS NOTED

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT

RM CLAYTON
E&IC HEADWORKS BUILDING
FLOOR PLAN

DRAWING NUMBER
EI-RM-9

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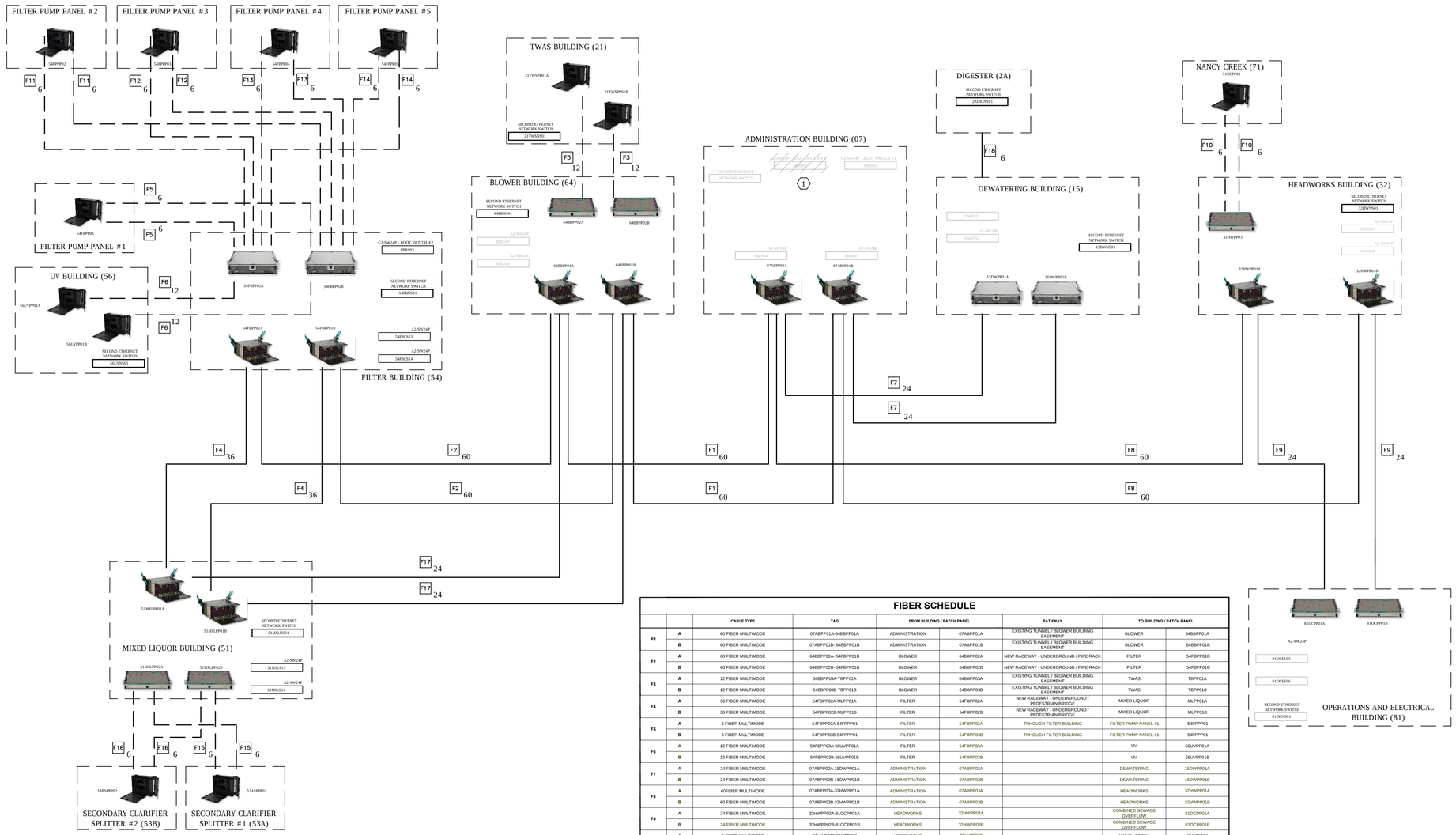


ELECTRICAL SHEET NOTES - UN-REFERENCED

a. ALL ARMORED CABLING SHALL BE GROUNDED AT ONE END. SHALL UTILIZE GROUND KIT COMPATIBLE WITH CABLE MANUFACTURER AND TIE TO NEAREST BUILDING STEEL OR ACCESSIBLE GROUND ELECTRODE.

b. ALL CONNECTORS FOR FIBER BACKBONE NETWORK SHALL BE LC TYPE.

c. CONTRACTOR IS RESPONSIBLE FOR ALL OUTSIDE PLANT FIBER, CONNECTORS, INSIDE PLANT FIBER AND PATCH CABLES FROM PATCH PANELS/FIBER OPTIC RACKS TO ROOT SWITCHES AND EDGE SWITCHES. PATCH CABLES FROM EDGE SWITCHES TO FOXBORO DEVICES ARE PROVIDED AND INSTALLED BY FOXBORO SYSTEM INTEGRATOR.

d. REFER TO SHEET EI-RM-11 FOR ROOT/EDGE SWITCH CONNECTIONS AND DOWN STREAM FOXBORO NETWORK.

ELECTRICAL SHEET NOTES - REFERENCED

1. EXISTING ROOT SWITCH SHALL BE REMOVED AND HANDED OVER TO OWNER. SWITCH SHALL NOT BE TAKEN OUT OF SERVICE UNTIL NEW ROOT SWITCH AT FILTER BUILDING IS INSTALLED AND COMMISSIONED.

SECOND ETHERNET NETWORK SWITCH — JUNIPER EX2200 OR EQUAL

PCH-02U PRETIUM CONNECTOR HOUSING, 4 CCH PANELS, 2U (48 F TOTAL)

PCH-01U PRETIUM CONNECTOR HOUSING, 2 CCH PANELS, 1U (24 F TOTAL)

WCH-02P WALL-MOUNTABLE CLOSET HOUSING (WCH), HOLDS 2 CCH CONNECTOR PANELS (24 F TOTAL)

CCH-04U PRETIUM® CONNECTOR HOUSING, 4 RACK UNITS, HOLDS 12 CCH CONNECTOR PANEL (144 F TOTAL)

CCH-CP12-E4 (CCH) PANEL, LC ADAPTERS, DUPLEX, 12 F, 50 MM MULTIMODE (OM3/4)

BACKBONE NETWORK CABLING

REMOTE/EXTENDED NODE CABLING

CABINET/DEVICE NAMING: 07 AB NC 01

BUILDING # — 07
BUILDING ABBREVIATION — AB
TYPE — NC
CABINET # — 01

"TYPE ABBREVIATION"
PP - PATCH PANEL
NS - NETWORK SWITCH
NC - NETWORK CABINET
FC - FOXBORO CABINET

FIBER SCHEDULE

		CABLE TYPE	TAG	FROM BUILDING / PATCH PANEL		PATHWAY	TO BUILDING / PATCH PANEL	
F1	A	60 FIBER MULTIMODE	07ABPP01A-64BBPP01A	ADMINISTRATION	07ABPP01A	EXISTING TUNNEL / BLOWER BUILDING BASEMENT	BLOWER	64BBPP01A
	B	60 FIBER MULTIMODE	07ABPP01B- 64BBPP01B	ADMINISTRATION	07ABPP01B	EXISTING TUNNEL / BLOWER BUILDING BASEMENT	BLOWER	64BBPP01B
F2	A	60 FIBER MULTIMODE	64BBPP02A- 54FBPP01B	BLOWER	64BBPP02A	NEW RACEWAY - UNDERGROUND / PIPE RACK	FILTER	54FBPP01B
	B	60 FIBER MULTIMODE	64BBPP02B- 54FBPP01B	BLOWER	64BBPP02B	NEW RACEWAY - UNDERGROUND / PIPE RACK	FILTER	54FBPP01B
F3	A	12 FIBER MULTIMODE	64BBPP03A-TBPP01A	BLOWER	64BBPP03A	EXISTING TUNNEL / BLOWER BUILDING BASEMENT	TWAS	TBPP01A
	B	12 FIBER MULTIMODE	64BBPP03B-TBPP01B	BLOWER	64BBPP03B	EXISTING TUNNEL / BLOWER BUILDING BASEMENT	TWAS	TBPP01B
F4	A	36 FIBER MULTIMODE	54FBPP02A-MLPP01A	FILTER	54FBPP02A	NEW RACEWAY - UNDERGROUND / PEDESTRIAN BRIDGE	MIXED LIQUOR	MLPP01A
	B	36 FIBER MULTIMODE	54FBPP02B-MLPP01B	FILTER	54FBPP02B	NEW RACEWAY - UNDERGROUND / PEDESTRIAN BRIDGE	MIXED LIQUOR	MLPP01B
F5	A	6 FIBER MULTIMODE	54FBPP03A-54FPPP01	FILTER	54FBPP03A	THROUGH FILTER BUILDING	FILTER PUMP PANEL #1	54FPPP01
	B	6 FIBER MULTIMODE	54FBPP03B-54FPPP01	FILTER	54FBPP03B	THROUGH FILTER BUILDING	FILTER PUMP PANEL #1	54FPPP01
F6	A	12 FIBER MULTIMODE	54FBPP03A-56UVPP01A	FILTER	54FBPP03A		UV	56UVPP01A
	B	12 FIBER MULTIMODE	54FBPP03B-56UVPP01B	FILTER	54FBPP03B		UV	56UVPP01B
F7	A	24 FIBER MULTIMODE	07ABPP02A-15DWPP01A	ADMINISTRATION	07ABPP02A		DEWATERING	15DWPP01A
	B	24 FIBER MULTIMODE	07ABPP02B-15DWPP01B	ADMINISTRATION	07ABPP02B		DEWATERING	15DWPP01B
F8	A	60FIBER MULTIMODE	07ABPP03A-32HWPP01A	ADMINISTRATION	07ABPP03A		HEADWORKS	32HWPP01A
	B	60 FIBER MULTIMODE	07ABPP03B-32HWPP01B	ADMINISTRATION	07ABPP03B		HEADWORKS	32HWPP01B
F9	A	24 FIBER MULTIMODE	32HWPP02A-81OCPP01A	HEADWORKS	32HWPP02A		COMBINED SEWAGE OVERFLOW	81OCPP01A
	B	24 FIBER MULTIMODE	32HWPP02B-81OCPP01B	HEADWORKS	32HWPP02B		COMBINED SEWAGE OVERFLOW	81OCPP01B
F10	A	6 FIBER MULTIMODE	32HWPP03-71NCPP01	HEADWORKS	32HWPP03		NANCY CREEK	71NCPP01
	B	6 FIBER MULTIMODE	32HWPP03-71NCPP01	HEADWORKS	32HWPP03		NANCY CREEK	71NCPP01
F11	A	6 FIBER MULTIMODE	54FBPP03A-54FPPP02	FILTER	54FBPP03A	THROUGH FILTER BUILDING	FILTER PUMP PANEL #2	54FPPP02
	B	6 FIBER MULTIMODE	54FBPP03B-54FPPP02	FILTER	54FBPP03B	THROUGH FILTER BUILDING	FILTER PUMP PANEL #2	54FPPP02
F12	A	6 FIBER MULTIMODE	54FBPP03A-54FPPP03	FILTER	54FBPP03A	THROUGH FILTER BUILDING	FILTER PUMP PANEL #3	54FPPP03
	B	6 FIBER MULTIMODE	54FBPP03B-54FPPP03	FILTER	54FBPP03B	THROUGH FILTER BUILDING	FILTER PUMP PANEL #3	54FPPP03
F13	A	6 FIBER MULTIMODE	54FBPP03A-54FPPP04	FILTER	54FBPP03A	THROUGH FILTER BUILDING	FILTER PUMP PANEL #4	54FPPP04
	B	6 FIBER MULTIMODE	54FBPP03B-54FPPP04	FILTER	54FBPP03B	THROUGH FILTER BUILDING	FILTER PUMP PANEL #4	54FPPP04
F14	A	6 FIBER MULTIMODE	54FBPP03A-54FPPP05	FILTER	54FBPP03A	THROUGH FILTER BUILDING	FILTER PUMP PANEL #5	54FPPP05
	B	6 FIBER MULTIMODE	54FBPP03B-54FPPP05	FILTER	54FBPP03B	THROUGH FILTER BUILDING	FILTER PUMP PANEL #5	54FPPP05
F15	A	6 FIBER MULTIMODE	51MXLPP01A-53ASPPP01	MIXED LIQUOR	51MXLPP01A	NEW RACEWAY - UNDERGROUND / PEDESTRIAN BRIDGE	SECONDARY CLARIFIER SPLITTER #1	53ASPPP01
	B	6 FIBER MULTIMODE	51MXLPP01B-53ASPPP01	MIXED LIQUOR	51MXLPP01B	NEW RACEWAY - UNDERGROUND / PEDESTRIAN BRIDGE	SECONDARY CLARIFIER SPLITTER #1	53ASPPP01
F16	A	6 FIBER MULTIMODE	51MXLPP01A-53BSPPP02	MIXED LIQUOR	51MXLPP01A	NEW RACEWAY - UNDERGROUND / PEDESTRIAN BRIDGE	SECONDARY CLARIFIER SPLITTER #2	53BSPPP02
	B	6 FIBER MULTIMODE	51MXLPP01B-53BSPPP02	MIXED LIQUOR	51MXLPP01B	NEW RACEWAY - UNDERGROUND / PEDESTRIAN BRIDGE	SECONDARY CLARIFIER SPLITTER #2	53BSPPP02
F17	A	24 FIBER MULTIMODE	64BBOO01A-51MXLPP02A	BLOWER	64BBOO01A		MIXED LIQUOR	51MXLPP02A
	B	24 FIBER MULTIMODE	64BBPP01B-51MXLPP02B	BLOWER	64BBPP01B		MIXED LIQUOR	51MXLPP02B
F18		6 FIBER MULTIMODE	15DWNS01-2ADIGNS01	DEWATERING	15DWNS01	TUNNEL	DIGESTER BLDG A	2ADIGNS01

CONTRACTOR SHALL DETERMINE FINAL LENGTH
ADJUSTMENT FACTORS ARE BASED ON 90° TEMPERATURE RATINGS PER NEC 110.14
CONDUIT SIZES ARE BASED ON NEC CH.9 TABLE 4 (RNC SCHED.80) FOR WORST CASE AND TABLE 5 (THIN INSULATION).

REGISTERED PROFESSIONAL ENGINEER — AARON D. WILBURN — 9/24/15

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater
PROJECT NUMBER FC-4906-E

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2 value ▪ innovation ▪ results

REVISIONS

△	DATE	DESCRIPTION

REVISIONS

△	DATE	DESCRIPTION

DESIGNED BY: ADW
DRAWN BY: CO
CHECKED BY: HD
APPROVED BY: ADW
DATE: 09/24/15
SCALE: AS NOTED

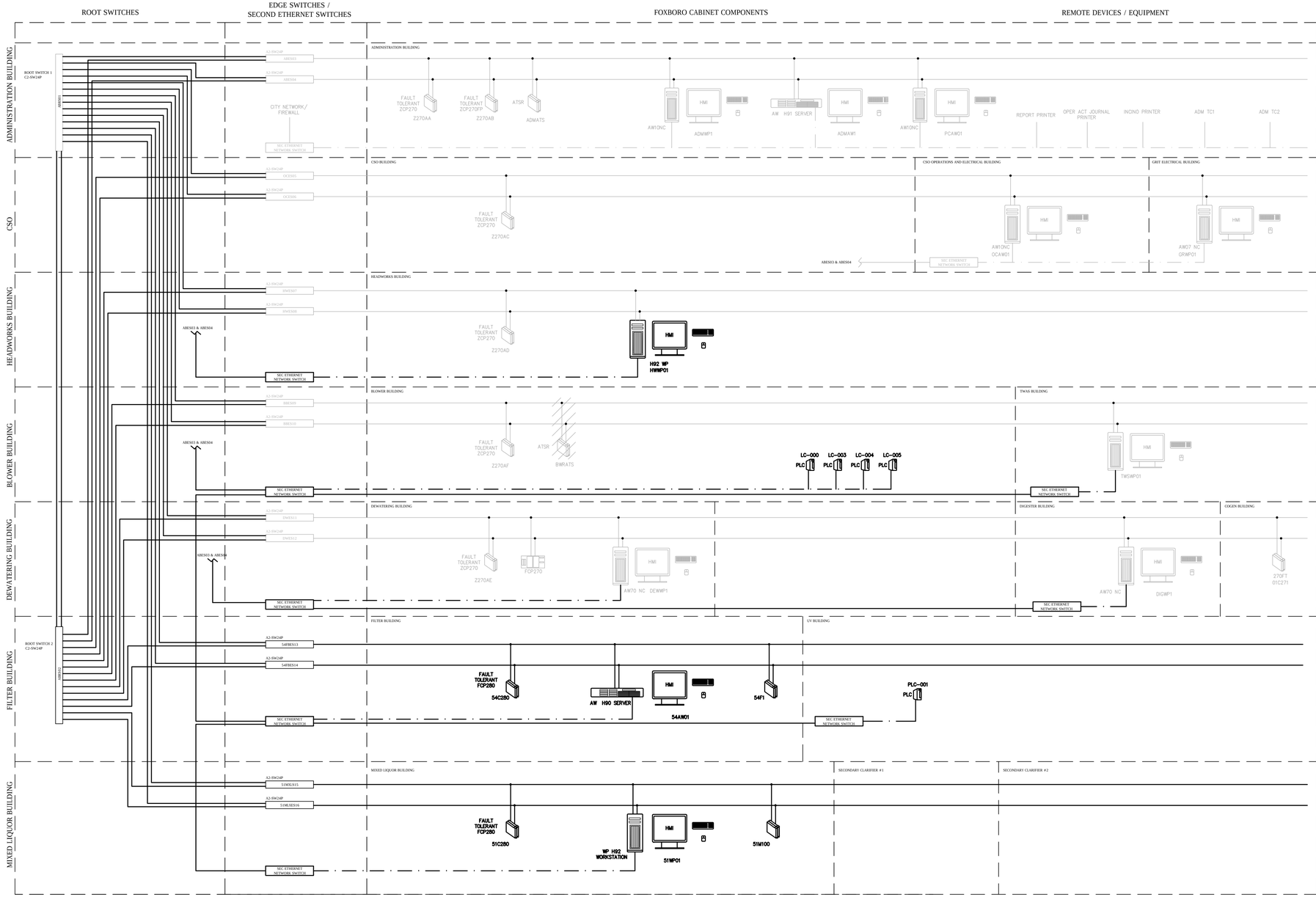
CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT

RM CLAYTON
E&IC FIBER OPTIC NETWORK DIAGRAM

DRAWING NUMBER
EI-RM-10

SHEET 47 OF 49

S:\2014 Projects\057-14 City of Atlanta RM Clayton WWTP IMC\RM Clayton Renbout Parkway\13 - ELECTRICAL\Working Dwgs\057-14 Electrical - Floor.dwg



NOTE: CONTRACTOR SHALL PROVIDE #18AWG TWISTED PAIR CABLE FROM UPS ALARM/RELAY OUTPUTS TO FOXBORO CABINET. FOXBORO INTEGRATOR SHALL TERMINATE AT NEAREST I/O AND PROGRAM ALARM STATUS FOR INDICATION ON WORKSTATION HMI'S. REFER TO SHEET EP SHEETS FOR ALL UPS LOCATIONS AND ADDITIONAL INFORMATION.

FIBER

CAT5E

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

PROJECT NUMBER FC-4906-E

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
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jp2 value ▪ innovation ▪ results

REVISIONS		
△	DATE	DESCRIPTION

REVISIONS		
△	DATE	DESCRIPTION

DESIGNED BY:	ADW
DRAWN BY:	CO
CHECKED BY:	HD
APPROVED BY:	ADW
DATE:	09/24/15
SCALE:	AS NOTED

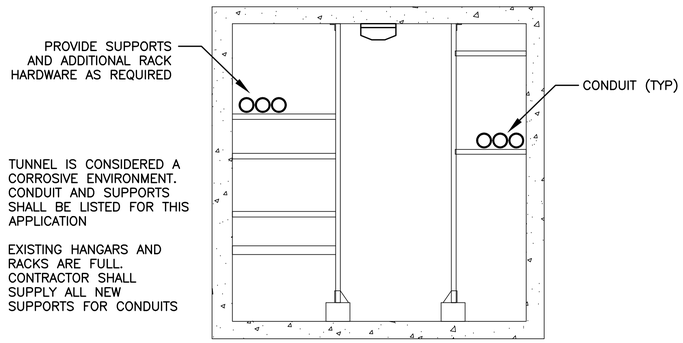
CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT

RM CLAYTON
E&IC FOXBORO
SYSTEM DIAGRAM

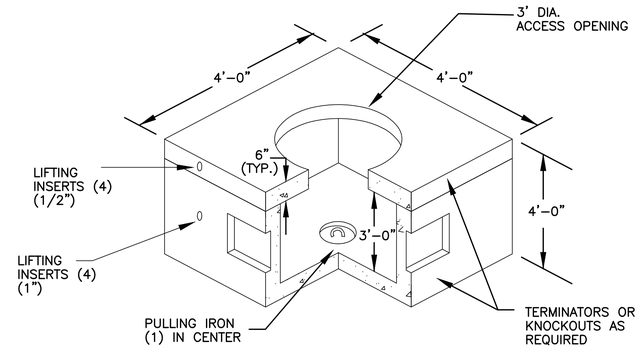
DRAWING NUMBER
EI-RM-11

SHEET 48 OF 49

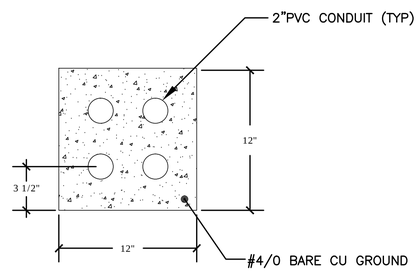
S:\2014 Projects\057-14 City of Atlanta RM Clayton WWTP IAC\RM Clayton Renaissance Packages\03 - ELECTRICAL\Working Dwgs\057-14 Electrical - Floor.dwg



3 TYPICAL TUNNEL CROSSECTION
EI-RM-12 SCALE: NTS



1 PRECAST COMMUNICATIONS MANHOLE
EI-RM-12 SCALE: NTS



2 COMMUNICATIONS DUCTBANK
EI-RM-12 SCALE: NTS

CLEAN WATER ATLANTA
drinking water, stormwater, wastewater

PROJECT NUMBER FC-4906-E

5887 Glenridge DR.
Suite 300
Atlanta, GA. 30328
P: 404.979.3300
F: 404.979.3310

jp2 value ▪ innovation ▪ results

REVISIONS			REVISIONS		
△	DATE	DESCRIPTION	△	DATE	DESCRIPTION

DESIGNED BY:	ADW
DRAWN BY:	CO
CHECKED BY:	HD
APPROVED BY:	ADW
DATE:	09/24/15
SCALE:	AS NOTED

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT

RM CLAYTON
E&IC
DETAILS

DRAWING NUMBER
EI-RM-12

SHEET 49 OF 49

S:\2014 Projects\057-14 City of Atlanta RM Clayton WWTP IAC\RM Clayton Breakout Packages\03 - ELECTRICAL\Working Dwgs\057-14 Electrical - Fiber.dwg

Exhibit F

Draft Services Agreement

DRAFT SERVICES AGREEMENT; CONTRACT NO. FC-8437

This Services Agreement ("Agreement") is entered into and effective as of _____ (the "Effective Date") between the City of Atlanta ("City") and the service provider ("Service Provider") set forth below.

Contract Name: RM Clayton WRC Instrumentation and Controls Reliability Restoration	**Contract No. FC-8437**
Service Provider	**City of Atlanta**
Name:	**Using Agency: Department of Watershed Management**
Address:	**Address: 72 Marietta Street, 7th Floor, Atlanta, GA 30303**
Phone:	**Phone: 404-350-4902**
Fax:	**Fax:**
Authorized Representative:	**Authorized Representative: Sandra Glenn**

1. Background.

1.1 City desires to obtain from Service Provider the services ("Services") described generally on **Exhibit A** attached.

1.2 The total not to exceed compensation amount payable by City during the initial term of this Agreement is $_____ ("Maximum Payment Amount"). More detailed terms concerning compensation payable under this Agreement are set forth on **Exhibit A.**

2. Term.

2.1 Initial Term. The initial term of this Agreement will be five (5) years. This Agreement shall commence on the Effective Date and end five (5) years later. The initial term of the Agreement and any renewal term(s) are collectively referred to as the "Term".

2.2 Renewal Terms. City shall have the right in its sole discretion to renew this Agreement for three (3) additional five (5) year terms according to the following procedure:

2.2.1 If City desires to exercise an option to renew, it will submit legislation authorizing such renewal for consideration by City's Council and Mayor prior to the expiration of the prior Term. The legislation will establish that the date of such renewal will be the day immediately following the expiration day of the prior Term;

3. If such legislation is enacted, within fifteen (15) days of such enactment, City will notify Service Provider of such renewal, at which time Service Provider shall be bound to provide Services during such renewal Term, without the need for the Parties to execute any further

documents evidencing such renewal, it being acknowledged by Service Provider that its initial execution of this Agreement is deemed its agreement to continue to provide Services during any renewal Term.

4. <u>Interpretation</u>.

4.1 All capitalized terms used in this Agreement shall have the meanings ascribed to them in the Contract Documents and on **Exhibit B** attached hereto.

4.2 If there is a conflict between any of the Contract Documents, precedence shall be given in the following order:[1]

1. Agreement
2. Exhibit A – Services and Additional Compensation Terms
3. Exhibit B - Definitions
4. Exhibit D - City Security Policies
5. Exhibit E - Dispute Resolution Procedures
6. Appendix A - Office of Contract Compliance Requirements
7. Appendix B - Insurance and Bonding Requirements
8. Additional Contract Documents

5. <u>Authorization</u>. If applicable, this Agreement is authorized by legislation adopted by City which is attached as **Exhibit C**.

5. <u>Services</u>.

5.1 <u>Description of Services</u>. Service Provider agrees to provide to City the Services per this Agreement. Exhibit A sets forth the following: (a) the period of time during which the Services will be provided; (b) a description of the Services to be provided; (c) the amounts payable and payment schedule for the Services; and (d) any additional provisions applicable to the Services. If any services to be performed are not specifically included on Exhibit A, but are reasonably necessary to accomplish the purpose of this Agreement, they will be deemed to be implied in the scope of the Services to the same extent as if specifically described on **Exhibit A**.

5.2 <u>Resources</u>. Unless otherwise expressly provided in this Agreement, all equipment, software, Facilities and Service Provider Personnel required for the proper performance of Services shall be furnished by and be under the control of Service Provider. Service Provider shall be responsible, at its sole cost, for procuring and using such resources in proper and qualified and high quality working and performing order.

5.3 Change Documents.

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[1] For purposes of this provision, authorized changes to an item listed in the order of precedence pursuant to a Change Document take precedence over the particular item changed.

DRAFT

5.3.1 This section will govern changes to the Agreement, whether such changes involve an increase in the Maximum Payment Amount or not. Changes in the Services or other aspects of this Agreement shall be made by written document ("Change Document" or "Unilateral Change Document").[2] All changes shall be implemented pursuant to this subsection (the "Change Document Procedures") and any Applicable Law.

5.3.2 Potential Change Documents that may be issued concerning this Agreement include, but are not limited to:

(a) Change Documents to the Agreement involving an increase to the Maximum Payment Amount executed between City and Service Provider which may or may not require legislative approval under Code Section 2-1292;

(b) Change Documents to the Agreement involving no increase to the Maximum Payment Amount, changes in the value of the Charges or changes in the terms or amounts of compensation under the Maximum Payment Amount executed between City and Service Provider pursuant to Code Section 2-1292(d); and

(c) Unilateral Change Documents to the Agreement issued by City pursuant to Code Section 2-1292(d) involving no increase to the Maximum Payment Amount, changes in the value of the Charges or changes in the terms or amounts of compensation under the Maximum Payment Amount.

Change Documents that do not involve an increase in the Maximum Payment Amount will be executed pursuant to Code Section 2-1292(d) either bilaterally or unilaterally by City.

5.3.3 City may propose a change in the Services or other aspects of this Agreement by delivering written notice to Service Provider describing the requested change ("Change Request"). Within ten (10) days of receipt of City's Change Request, Service Provider shall evaluate it and submit a written response ("Proposed Change Document"). A Change Request which involves the reduction of Services shall be effective upon written notice to Service Provider.

5.3.4 Service Provider may, without receiving any Change Request, on its own submit a Proposed Change Document describing its own proposed requested change to the Agreement.

5.3.5 Each Proposed Change Document shall include the applicable schedule for implementing the proposed change, any applicable changes to the Charges (either increased

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[2] Change Documents may assume numerous multiple forms and titles depending on the nature of the change involved (e.g. Change Order, Unilateral Change Order, Amendment, Contract Modification, Renewal, etc.).

or decreased) and all other information applicable to the proposed change. Each Proposed Change Document shall constitute an offer by Service Provider and shall be irrevocable for a period of sixty (60) days. City shall review and may provide Service Provider with comments regarding a Proposed Change Document, and Service Provider shall respond to such comments, if any. A Proposed Change Document from Service Provider will become effective only when executed by an authorized representative of City.

5.3.6 City may propose any changes to the Agreement, including, but not limited to, changes that it contends do not involve an increase to the Maximum Payment Amount, a change in the Charges or changes in the terms or amounts of compensation under the Maximum Payment Amount, and Service Provider shall, in good faith, evaluate such proposed Change Request. If City and Service Provider are able to reach agreement on such Change Request, each will execute a Change Document concerning such Change Request pursuant to Code Section 2-1292(d). Nothing in this Agreement shall, in the event of disagreement between City and Service Provider concerning a proposed Change Request, or otherwise, prohibit City from issuing a Unilateral Change Document to Service Provider, pursuant to Code Section 2-1292(d), and City and Service Provider agree to resolve their dispute pursuant to the Dispute Resolution Procedures set forth in **Exhibit E**. During the pendency of such dispute, Service Provider shall continue to perform the Services, as changed by such Unilateral Change Document.

5.4 Suspension of Services. City may, by written notice to Service Provider, suspend at any time the performance of any or all of the Services to be performed under this Agreement. Upon receipt of a suspension notice, Service Provider must, unless the notice requires otherwise, (a) immediately discontinue suspended Services on the date and to the extent specified in the notice; (b) place no further orders or subcontracts for materials, services or facilities with respect to suspended Services, other than to the extent required in the notice; and (c) take any other reasonable steps to minimize costs associated with the suspension.

6. Service Provider's Obligations.

6.1 Service Provider Personnel. Service Provider shall be responsible, at its own cost, for all recruiting, hiring, training, educating and orienting of all Service Provider Personnel, all of whom shall be fully qualified and shall be authorized under Applicable Law to perform the Services.

6.2 Service Provider Authorized Representative. Service Provider designates the Service Provider Authorized Representative named on page 1 of this Agreement ("Service Provider Authorized Representative") and, such Person shall: (a) be a project executive and employee within Service Provider's organization, with the information, authority and resources available to properly coordinate Service Provider's responsibilities under this Agreement; (b) serve as primary interface and the single-point of communication for the provision of Services by Service Provider; (c) have day-to-day responsibility and authority to address issues relating to the Services; and (d) devote adequate time and efforts to managing and coordinating the Services.

6.3 Qualifications. Upon City's reasonable request, Service Provider will make available to City all relevant records of the education, training, experience, qualifications, work history and performance of Service Provider Personnel.

6.4 Removal of Personnel Assigned to City Contract. Within a reasonable period, but not later that seven (7) days after Service Provider's receipt of notice from City that the continued assignment to the City Contract of any Service Provider Personnel is not in the best interests of City, Service Provider shall remove such Service Provider Personnel from City's Contract. Service Provider will not be required to terminate the employment of such individual. Service Provider will assume all costs associated with the replacement of any Service Provider Personnel. In addition, Service Provider agrees to remove from City's Contract any Service Provider Personnel who has engaged in willful misconduct or has committed a material breach of this Agreement immediately after Service Provider becomes aware of such misconduct or breach.

6.5 Subcontracting. Unless specifically authorized in this Agreement, Service Provider will not enter into any agreement with or delegate or subcontract any Services to any Third Party without the prior written approval of City, which City may withhold in its sole discretion. If Service Provider subcontracts any of the Services (after having first obtained City's prior written approval, in its sole discretion), Service Provider shall: (i) be responsible for the performance of Services by the subcontractors; (ii) remain City's sole point of contact for the Services; and (iii) be responsible for the payment to any subcontractors.

6.6 Key Service Provider Personnel and Key Subcontractors.

6.6.1 The following Persons are identified by Service Provider as Key Service Provider Personnel under this Agreement:

(a) _____;

(b) _____; and

(c) _____.

6.6.2 The following Persons are identified by Service Provider as Key Subcontractors under this Agreement:

(a) _____;

(b) _____; and

(c) _____.

6.6.3 Service Provider shall not transfer, reassign or replace any Service Provider Key Personnel or Key Subcontractor, except as a result of retirement, voluntary

resignation, involuntary termination for cause in Service Provider's sole discretion, illness, disability or death, during the term of this Agreement without prior written approval from City.

6.7 Conflicts of Interest. Service Provider shall immediately notify City in writing, specifically disclosing any and all potential or actual conflicts of interests, which arise or may arise during the execution of its work in the fulfillment of the requirements of the Agreement. City shall make a written determination as to whether a conflict of interest actually exists and the actions to be taken to resolve the conflict of interest.

6.8 Commercial Activities. Neither Service Provider nor any Service Provider Personnel shall establish any commercial activity, issue concessions, or permits of any kind to third Parties for establishing any activities on City property.

7. City's Authorized Representative.

7.1 Designation and Authority. City designates the City Authorized Representative named on page 1 of this Agreement (the "City Authorized Representative") who shall: (a) serve as primary interface and the single-point of communication for the provision of Services; (b) have day-to-day responsibility to address issues relating to this Agreement; and (c) to the extent provided under the Code, have the authority to execute any additional documents or changes on behalf of City.

7.2 City's Right to Review and Reject. Any Service or other document or item to be submitted or prepared by Service Provider hereunder shall be subject to the review of the City Authorized Representative. The City Authorized Representative may disapprove, if in the City Authorized Representative's sole opinion the Service, document or item is not in accordance with the requirements of this Agreement or sound professional service principles, or is impractical, uneconomical or unsuited in any way for the purposes for which the Service, document or item is intended. If any of the said items or any portion thereof are so disapproved, Service Provider shall revise the items until they meet the approval of the City Authorized Representative. However, Service Provider shall not be compensated under any provision of this Agreement for repeated performance of such disapproved items.

8. Payment Procedures.

8.1 General. City will not be obligated to pay Service Provider any amount in addition to the Charges for Service Provider's provision of the Services. Service Provider Personnel hourly rates, reimbursable expenses and other compensable items under this Agreement are set forth on **Exhibit A**.

8.2 Invoices. Service Provider shall prepare and submit to City invoices for payment of all Charges in accordance with **Exhibit A**. Each invoice shall be in such detail and in such format as City may reasonably require. To the extent not set forth on **Exhibit A**, Service Provider shall invoice City monthly for Services rendered.

8.3 Taxes. The Charges are inclusive of all taxes, levies, duties and assessments ("Taxes") of every nature due in connection with Service Provider's performance of the Services. Service Provider is responsible for payment of such Taxes to the appropriate governmental authority. If Service Provider is refunded any Tax payments made relating to the Services, Service Provider shall remit the amount of such refund to City within forty-five (45) days of receipt of the refund.

8.4 Payment. City shall endeavor to pay all undisputed Charges within thirty (30) days of the date of the receipt by City of a properly rendered and delivered invoice. Notwithstanding the forgoing, unless otherwise provided on **Exhibit A**, all undisputed Charges on an invoice properly rendered and delivered shall be payable within forty-five (45) days of the date of receipt by City.

8.5 Disputed Charges. If City in good faith disputes any portion of an invoice, City may withhold such disputed amount and notify Service Provider in writing of the basis for any dispute within thirty (30) days of the later of: (a) receipt of the invoice; or (b) discovery of the basis for any such dispute. City and Service Provider agree to use all reasonable commercial efforts to resolve any disputed amount in any invoice within thirty (30) days of the date City notifies Service Provider of the disputed amount.

8.6 No Acceptance of Nonconforming Work. No payment of any invoice or any partial or entire use of the Services by City constitutes acceptance of any Services.

8.7 Payment of Other Persons. Prior to the issuance of final payment from City, Service Provider shall certify to City in writing, in a form satisfactory to City, that all subcontractors, materialmen, suppliers and similar firms or persons engaged by Service Provider in connection with this Agreement have been paid in full or will be paid in full utilizing the monies constituting final payment to Service Provider.

9. Service Provider Representations and Warranties. As of the Effective Date and continuing throughout the Term, Service Provider warrants to City that:

9.1 Authority. Service Provider is duly incorporated or formed, validly existing and is in good standing under the laws of the state in which it is incorporated or formed, and is in good standing in each other jurisdiction where the failure to be in good standing would have a material adverse affect on its business or its ability to perform its obligations under this Agreement. Service Provider has all necessary power and authority to enter into and perform its obligations under this Agreement, and the execution and delivery of this Agreement and the consummation of the transactions contemplated by this Agreement have been duly authorized by all necessary actions on its part. This Agreement constitutes a legal, valid and binding obligation of Service Provider, enforceable against it in accordance with its terms. No action, suit or proceeding in which Service Provider is a party that may restrain or question this Agreement or the provision of Services by Service Provider is pending or threatened.

9.2 Standards. The Services will be performed in a workmanlike manner in accordance with the standards imposed by Applicable Law and the practices and standards used in well managed operations performing services similar to the Services.

9.3 Conformity. The development, creation, delivery, provision, implementation, testing, maintenance and support of all Services shall conform in all material respects to the description of such Services in the Contract Documents.

9.4 Materials and Equipment. Any equipment or materials provided by Service Provider shall be new, of clear title, not subject to any lien or encumbrance, of the most suitable grade of their respective kinds for their intended uses, shall be free of any defect in design or workmanship and shall be of merchantable quality and fit for the purposes for which they are intended.

10. Compliance with Laws.

10.1 General. Service Provider and its subcontractors will perform the Services in compliance with all Applicable Laws.

10.2 City's Socio-Economic Programs. Service Provider shall comply with Appendix A and any applicable City socio-economic programs, including, but not limited to, City's EBO and EEO Programs, and requirements set forth in the Code in the performance of the Services.

10.3 Consents, Licenses and Permits. Service Provider will be responsible for, and the Charges shall include the cost of, obtaining, maintaining and complying with, and paying all fees and taxes associated with, all applicable licenses, authorizations, consents, approvals and permits required of Service Provider in performing Services and complying with this Agreement.

11. Confidential Information.

11.1 General. Each Party agrees to preserve as strictly confidential all Confidential Information of the other Party for two (2) years following the expiration or termination of this Agreement; provided, however, that each Party's obligations for the other Party's Confidential Information that constitutes trade secrets pursuant to Applicable Laws will continue for so long as such Confidential Information continues to constitute a trade secret under Applicable Law. Any Confidential Information that may be deemed Sensitive Security Information by the Department of Homeland Security or any other similar Confidential Information related to security will be considered trade secrets. Upon request by City, Service Provider will return any trade secrets to City. Each Party agrees to hold the Confidential Information of the other in trust and confidence and will not disclose it to any Person, or use it (directly or indirectly) for its own benefit or the benefit of any other Person other than in the performance of its obligations under this Agreement.

11.2 Disclosure of Confidential Information or Information Other Party Deems to be Confidential Information. Each Party will be entitled to disclose any Confidential Information if compelled to do so pursuant to: (i) a subpoena; (ii) judicial or administrative order; or (iii) any

other requirement imposed upon it by Applicable Law. Prior to making such a disclosure, to the extent allowed pursuant to Applicable Law, each Party shall provide the other with thirty six (36) hours prior notice by facsimile of its intent to disclose, describing the content of the information to be disclosed and providing a copy of the pleading, instrument, document, communication or other written item compelling disclosure or, if not in writing, a detailed description of the nature of the communication compelling disclosure with the name, address, phone number and facsimile number of the Person requesting disclosure. Should the non-disclosing Party contest the disclosure, it must: a) seek a protective order preventing such disclosure; or b) intervene in such action compelling disclosure, as appropriate. This Section shall be applicable to information that one Party deems to be Confidential Information but the other Party does not.

12. Work Product.

12.1 Except as otherwise expressly provided in this Agreement, all reports, information, data, specifications, computer programs, technical reports, operating manuals and similar work or other documents, all deliverables, and other work product prepared or authored by Provider or any of its contractors exclusively for the City under this Agreement, and all intellectual property rights associated with the foregoing items (collectively, the "Work Product") shall be and remain the sole and exclusive property of the City. Any of Provider's or its contractors' works of authorship comprised within the Work Product (whether created alone or in concert with City or Third Party) shall be deemed to be "works made for hire" and made in the course of services rendered and, whether pursuant to the provisions of Section 101 of the U.S. Copyright Act or other Applicable Law, such Work Product shall belong exclusively to City. Provider and its contractors grant the City a non-exclusive, perpetual, worldwide, fully paid up, royalty-free license to all Work Product not exclusively developed for City under this Agreement.

12.2 If any of the Work Product is determined not to be a work made for hire, Service Provider assigns to City, worldwide and in perpetuity, all rights, including proprietary rights, copyrights, and related rights, and all extensions and renewals of those rights, in the Work Product. If Service Provider has any rights to the Work Product that cannot be assigned to City, Service Provider unconditionally and irrevocably waives the enforcement of such rights and irrevocably grants to City during the term of such rights an exclusive, irrevocable, perpetual, transferable, worldwide, fully paid and royalty-free license, with rights to sublicense through multiple levels of sublicensees, to reproduce, make, have made, create derivate works of, distribute, publicly perform and publicly display by all means, now known or later developed, such rights.

12.3 City shall have the sole and exclusive right to apply for, obtain, register, hold and renew, in its own name or for its own benefit, all patents, copyrights, applications and registrations, renewals and continuations and all other appropriate protection.

12.4 To the extent exclusive title or complete and exclusive ownership rights in any Work Product created by Service Provider Personnel may not originally vest in City by operation

of Applicable Law, Service Provider shall, immediately upon request, unconditionally and irrevocably assign, transfer and convey to City all rights, title and interest in the Work Product.

12.5 Without any additional cost to City, Service Provider Personnel shall promptly give City all reasonable assistance and execute all documents City may reasonably request to enable City to perfect, preserve, enforce, register and record its rights in all Work Product. Service Provider irrevocably designates City as Service Provider's agent and attorney-in-fact to execute, deliver and file, if necessary, any documents necessary to give effect to the provisions of this Section and to take all actions necessary, in Service Provider's name, with the same force and effect as if performed by Service Provider.

13. Audit and Inspection Rights.

13.1 General.

13.1.1 Service Provider will provide to City, and any Person designated by City, access to Service Provider Personnel and to Service Provider owned Facilities for the purpose of performing audits and inspections of Service Provider, Service Provider Personnel and/or any of the relevant information relating to the Services and this Agreement. Such audits, inspections and access may be conducted to: (a) verify the accuracy of Charges and invoices; (b) examine Service Provider's performance of the Services; (c) monitor compliance with the terms of this Agreement; and (d) any other matters reasonably requested by City. Service Provider shall provide full cooperation to City and its designated Persons in connection with audit functions and examinations by regulatory authorities.

13.1.2 All audits and inspections will be conducted during normal business hours (except with respect to Services that are performed during off-hours).

13.1.3 Service Provider shall promptly respond to and rectify the deficiencies identified in and implement changes suggested by any audit or inspection report.

13.1.4 If any audit or inspection of Charges or Services reveals that City has overpaid any amounts to Service Provider, Service Provider shall promptly refund such overpayment and Service Provider shall also pay to City interest on the overpayment amount at the rate of one-half percent (0.5%) per month (or such maximum rate permissible by Applicable Law, if lower) from the date the overpayment was made until the date the overpayment is refunded to City by Service Provider.

13.2 Records Retention. Until the later of: (a) six (6) years after expiration or termination of this Agreement; (b) the date that all pending matters relating to this Agreement (*e.g.*, disputes) are closed or resolved by the Parties; or (c) the date such retention is no longer required to meet City's records retention policy or any record retention policy imposed by Applicable Law, if more stringent than City's policy, Service Provider will maintain and provide access upon request to the records, data, documents and other information required to fully and completely enable City to enforce its audit rights under this Agreement.

14. Indemnification by Service Provider.

14.1 General Indemnity. Service Provider shall indemnify and hold City, its agencies and its and their respective officers, directors, employees, advisors, and agents, successors and permitted assigns, harmless from any losses, liabilities, damages, demands and claims, and all related costs (including reasonable legal fees and costs of investigation, litigation, settlement, judgment, interest and penalties) arising from claims or actions based upon:

(a) Service Provider's or Service Provider Personnel's performance, non-performance or breach of this Agreement;

(b) compensation or benefits of any kind, by or on behalf of Service Provider Personnel, or any subcontractor, claiming an employment or other relationship with Service Provider or such subcontractor (or claiming that this Agreement creates an inherent, statutory or implied employment relationship with City or arising in any other manner out of this Agreement or the provision of Services by such Service Provider Personnel or subcontractor);

(c) any actual, alleged, threatened or potential violation of any Applicable Laws by Service Provider or Service Provider Personnel, to the extent such claim is based on the act or omission of Service Provider or Service Provider Personnel, excluding acts or omissions by or at the direction of City;

(d) death of or injury to any individual caused, in whole or in part, by the tortious conduct of Service Provider or any Person acting for, in the name of, at the direction or supervision of or on behalf of Service Provider; and

(e) damage to, or loss or destruction of, any real or tangible personal property caused, in whole or in part, by the tortious conduct of Service Provider or any Person acting for, in the name of, at the direction or supervision of or on behalf of Service Provider.

14.2 Intellectual Property Indemnification by Service Provider. Service Provider shall indemnify and hold City Indemnitees, harmless from and against any losses, liabilities, damages, demands and claims, and all related costs (including reasonable legal fees and costs of investigation, litigation, settlement, judgment, interest and penalties) arising from claims or actions based upon any of the materials and methodologies used by Service Provider (or any Service Provider agent, contractor, subcontractor or representative), or City's use thereof (or access or other rights thereto) in connection with the Services infringes or misappropriates the Intellectual Property Rights of a Third Party. If any materials or methodologies provided by Service Provider hereunder is held to constitute, or in Service Provider's reasonable judgment is likely to constitute, an infringement or misappropriation, Service Provider will in addition to its indemnity obligations, at its expense and option, and after consultation with City regarding City's preference in such event, either: (A) procure the right for City Indemnitees to continue using such materials or methodologies; (B) replace such materials or methodologies with a non-infringing equivalent, provided that such replacement does not result in a degradation of the

functionality, performance or quality of the Services; (C) modify such materials or methodologies, or have such materials or methodologies modified, to make them non-infringing, provided that such modification does not result in a degradation of the functionality, performance or quality of the materials or methodologies; or (D) create a feasible workaround that would not have any adverse impact on City.

15. Limitation of Liability.

15.1 General. THE MAXIMUM AGGREGATE LIABILITY OF CITY HEREUNDER IS LIMITED TO THE TOTAL OF ALL CHARGES ACTUALLY PAID DURING THE CURRENT YEAR UNDER THE AGREEMENT. EXCEPT FOR PROVIDER'S INDEMNITY OBLIGATIONS SET FORTH IN THE **SECTION ENTITLED "INDEMNIFICATION BY SERVICE PROVIDER"** AND WILLFUL MISCONDUCT OR GROSS NEGLIGENCE BY PROVIDER, NEITHER PARTY SHALL BE LIABLE FOR ANY INDIRECT, CONSEQUENTIAL, OR PUNITIVE DAMAGES (OR ANY COMPARABLE CATEGORY OR FORM OF SUCH DAMAGES, HOWSOEVER CHARACTERIZED IN ANY JURISDICTION), ARISING OUT OF OR RESULTING FROM THE PERFORMANCE OR NONPERFORMANCE OF ITS OBLIGATIONS UNDER THIS AGREEMENT, REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY, PRODUCTS LIABILITY OR OTHERWISE, AND EVEN IF FORESEEABLE OR IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

15.2 Exceptions to Limitations. The limitations set forth in the immediate subsection shall not apply to: (a) personal injury, wrongful death or tangible property damage; or (b) any claim involving a violation of any Applicable Law concerning homeland security, terrorist activity or security sensitive information, regardless of the manner in which such damages are characterized.

16. Insurance and Bonding Requirements. Service Provider shall comply with the insurance and bonding requirements set forth on **Appendix B**.

17. Force Majeure. Neither Party will be liable for default or delay in the performance of its obligations under this Agreement to the extent such default or delay is caused by a Force Majeure Event. Upon the occurrence of a Force Majeure Event, the non-performing Party will be excused from performance or observance of affected obligations for as long as: (a) the Force Majeure Event continues; and (b) the Party continues to attempt to recommence performance or observance to the extent commercially reasonable without delay. If any Force Majeure Event continues for thirty (30) consecutive days, City may, at its option during such continuation, terminate this Agreement, in whole or in part, without penalty or further obligation or liability of City.

18. Termination.

18.1 Termination by City for Cause. City may at its option, by giving written notice to Service Provider, terminate this Agreement:

(a) for a material breach of the Contract Documents by Service Provider that is not cured by Service Provider within seven (7) days of the date on which City provides written notice of such breach;

(b) immediately for a material breach of the Contract Documents by Service Provider that is not reasonably curable within seven (7) days;

(c) immediately upon written notice for numerous breaches of the Contract Documents by Service Provider that collectively constitute a material breach or reasonable grounds for insecurity concerning Service Provider's performance; or

(d) immediately for engaging in behavior that is dishonest, fraudulent or constitutes a conflict of interest with Service Provider's obligations under this Agreement or is in violation of any City Ethics Ordinances.

18.2 Re-procurement Costs. In addition to all other rights and remedies City may have, if this Agreement is terminated by City pursuant to the above subsection entitled **"Termination by City for Cause"**, Service Provider will be liable for all costs in excess of the Charges for all terminated Services reasonably and necessarily incurred by City in the completion of the Services, including the cost of administration of any agreement awarded to other Persons for completion. If City improperly terminates this Agreement for cause, the termination for cause will be considered a termination for convenience in accordance with the provisions of the **Section entitled "Termination by City for Convenience"**.

18.3 Termination by City for Insolvency. City may terminate this Agreement immediately by delivering written notice of such termination to Service Provider if Service Provider: (a) becomes insolvent, as that term may be defined under Applicable Law, or is unable to meet its debts as they mature; (b) files a voluntary petition in bankruptcy or seeks reorganization or to effect a plan or other arrangement with creditors; (c) is adjudicated bankrupt or makes an assignment for the benefit of its creditors generally; (d) fails to deny or contest the material allegations of an involuntary petition filed against it pursuant to any Applicable Law relating to bankruptcy, arrangement or reorganization, which is not dismissed within sixty (60) days; or (e) applies for or consents to the appointment of any receiver for all or any portion of its property.

18.4 Termination by City for Convenience. At any time during the Term of this Agreement, City may terminate this Agreement for convenience upon fourteen (14) days written notice of such termination. Upon a termination for convenience, Service Provider waives any claims for damages, including loss of anticipated profits. As Service Provider's sole remedy and City's sole liability, City will pay Charges for the Services properly performed prior to the notice of termination, plus all reasonable costs for Services performed after the termination, as specified in such notice, and reasonable administrative costs of settling and paying claims arising out of the termination of Services under purchase orders or subcontracts except to the extent any products under such purchase orders or subcontracts can be used by Service Provider in its business within the thirty (30) days following termination. If requested, Service Provider shall substantiate such costs with proof satisfactory to City.

18.5 Termination for Lack of Appropriations. If, during the Term of this Agreement, legislation establishing a Maximum Payment Amount for the following year is not enacted, this Agreement will terminate in its entirety on the last day of the annual term for which a Maximum Payment Amount has been legislatively authorized.

18.6 Effect of Termination. Unless otherwise provided herein, termination of this Agreement, in whole or in part and for any reason, shall not affect: (a) any liabilities or obligations of either Party arising before such termination or out of the events causing such termination; or (b) any remedies to which a Party may be entitled under this Agreement, at law or in equity. Upon termination of this Agreement, Service Provider shall immediately: (i) discontinue Services on the date and to the extent specified in the notice and place no further purchase orders or subcontracts to the extent that they relate to the performance of the terminated Services; (ii) inventory, maintain and turn over to City all work product, licenses, equipment, materials, plant, tools, and property furnished by Service Provider or provided by City for performance of the terminated Services; (iii) promptly obtain cancellation, upon terms satisfactory to City, of all purchase orders, subcontracts, rentals or any other agreements existing for performance of the terminated Services, or assign those agreements, as directed by City; (iv) comply with all other reasonable requests from City regarding the terminated Services; and (v) continue to perform in accordance with all of the terms and conditions of this Agreement any portion of the Services that are not terminated.

19. Dispute Resolution.

19.1 All disputes under the Contract Documents or concerning Services shall be resolved under this **Section** and **Exhibit E**. Both Parties shall continue performing under this Agreement while the Parties are seeking to resolve any such dispute unless, during that time, this Agreement is terminated or expires. A dispute over payment will not be deemed to preclude performance by Service Provider.

19.2 Applicable Law. The Contract Documents shall be governed by and construed in accordance with the substantive laws of the State of Georgia without regard to its choice of law principles.

19.3 Jurisdiction and Venue. The Parties hereby submit and consent to the exclusive jurisdiction of the state courts of Fulton County, Georgia or in the United States District Court for the Northern District of Georgia and irrevocably agree that all actions or proceedings relating to this Agreement will be litigated in such courts, and each of the Parties waives any objection which it may have based on improper venue or forum non conveniens to the conduct of any such action or proceeding in such court.

20. General.

20.1 Notices. Any notice under this Agreement shall be in writing and sent to the respective Party at the address on page 1 of this Agreement, or, if applicable, to the City's Department of Procurement at 55 Trinity Avenue, Suite 1790, Atlanta, Georgia, 30303, and shall be deemed delivered: (a) when delivered by hand or courier or by overnight delivery with

signature receipt required; (b) when sent by confirmed facsimile with a copy sent by another means specified in this **Section**; or (c) three (3) days after the date of mailing by United States certified mail, return receipt requested, postage prepaid. Any Party may change its address for communications by notice in accordance with this Section.

20.2 Waiver. Any waiver by the Parties or failure to enforce their rights under this Agreement shall be deemed applicable only to the specific matter and shall not be deemed a waiver or failure to enforce any other rights under this Agreement, and this Agreement shall continue in full force and effect as though such previous waiver or failure to enforce any rights had not occurred. No supplement, modification, amendment or waiver of this Agreement will be binding on City unless executed in writing by the City Authorized Representative.

20.3 Assignment. Neither this Agreement, nor any rights or obligations under it, are assignable in any manner without the prior written consent of the other Party and any attempt to do so without such written consent shall be void ab initio.

20.4 Publicity. Service Provider shall not make any public announcement, communication to the media, take any photographs or release any information concerning City, the Services or this Agreement without the prior written consent of City.

20.5 Severability. In the event that any provision of this Agreement is declared invalid, unenforceable or unlawful, such provision shall be deemed omitted and shall not affect the validity of other provisions of this Agreement.

20.6 Further Assurances. Each Party shall provide such further documents or instruments required by the other Party as may be reasonably necessary to give effect to this Agreement.

20.7 No Drafting Presumption. No presumption of any Applicable Law relating to the interpretation of contracts against the drafter shall apply to this Agreement.

20.8 Survival. Any provision of this Agreement which contemplates performance subsequent to any termination or expiration of this Agreement or which must survive in order to give effect to its meaning, shall survive the expiration or termination of this Agreement.

20.9 Independent Contractor. Service Provider is an independent contractor of City and nothing in this Agreement shall be deemed to constitute Service Provider and City as partners, joint venturers, or principal and agent, or be construed as requiring or permitting the sharing of profits or losses. Neither Party has the authority to represent or bind or create any legal obligations for or on behalf of the other Party.

20.10 Third Party Beneficiaries. This Agreement is not intended, expressly or implicitly, to confer on any other Person any rights, benefits, remedies, obligations or liabilities.

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20.11 Cumulative Remedies. Except as otherwise provided herein, all rights and remedies under this Agreement are cumulative and are in addition to and not in lieu of any other remedies available under Applicable Law, in equity or otherwise.

20.12 Entire Agreement. The Contract Documents contain the entire Agreement of the Parties relating to their subject matter and supersede all previous communications, representations or agreements, oral or written, between the Parties with respect to such subject matter. This Agreement may only be amended or modified by a writing executed by each Party's authorized representative and each such writing shall be deemed to incorporate the Contract Documents, except to the extent that City is authorized under Applicable Law to issue Unilateral Change Documents. SERVICE PROVIDER MAY NOT UNILATERALLY AMEND OR MODIFY THIS AGREEMENT BY INCLUDING PROVISIONS IN ITS INVOICES, OR OTHER BUSINESS FORMS, WHICH SHALL BE DEEMED OBJECTED TO BY CITY AND OF NO FORCE OR EFFECT.

20.13 Unauthorized Goods or Services. Service Provider acknowledges that this Agreement and any changes to it by amendment, modification, change order or other similar document may have required or may require the legislative authorization of the City's Council and approval of the Mayor. Under Georgia law, Service Provider is deemed to possess knowledge concerning the City's ability to assume contractual obligations and the consequences of Service Provider's provision of goods or services to the City under an unauthorized contract, amendment, modification, change order or other similar document, including the possibility that the Service Provider may be precluded from recovering payment for such unauthorized goods or services. Accordingly, Service Provider agrees that if it provides goods or services to the City under a contract that has not received proper legislative authorization or if Service Provider provides goods or services to the City in excess of the any contractually authorized goods or services, as required by the City's Charter and Code, the City may withhold payment for any unauthorized goods or services provided by Service Provider. Service Provider assumes all risk of non-payment for the provision of any unauthorized goods or services to the City, and it waives all claims to payment or to other remedies for the provision of any unauthorized goods or services to the City, however characterized, including, without limitation, all remedies at law or equity.

[*Signatures on the following pages.*]

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The Parties hereto by authorized representatives have executed this Agreement as of the Effective Date.

City of Atlanta **[Service Provider]**

_____

Mayor

_____

Municipal Clerk (Seal)

Approved:

_____

[Using Agency]

_____

Chief Procurement Officer

Approved as to form:

_____

City Attorney

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Signature Block Options for Service Provider:

Corporate signature:

[Insert Corporate Name]

_____

By:_____

Name:_____

Title:_____

_____
Corporate Secretary/Assistant Secretary (Seal)

Limited Liability Company:

[Insert LLC Name]

_____

By:_____

Name:_____

Title:_____

_____
Notary Public (Seal)

My Commission Expires:_____

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EXHIBIT A
SERVICES AND ADDITIONAL COMPENSATION TERMS

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EXHIBIT B
DEFINITIONS

When used in the Contract Documents, the following capitalized terms have the following meanings:

"Applicable Law(s)" means all federal, state or local statutes, laws ordinances, codes, rules, regulations, policies, standards, executive orders, consent orders, orders and guidance from regulatory agencies, judicial decrees, decisions and judgments, permits, licenses, reporting or other governmental requirements or policies of any kind by which a Party may be bound, then in effect or which come into effect during the time the Services are being performed, and any present or future amendments to those Applicable Laws, including those which specifically relate to: (a) the business of City; (b) the business of Service Provider or Service Provider's subcontractors; (c) the Agreement and the Contract Documents; or (d) the performance of the Services under this Agreement.

"Charges" means the amounts payable by City to Service Provider under this Agreement.

"City Security Policies" means the policies set forth in **Exhibit D**.

"Code" means the Code of Ordinances for the City of Atlanta, Georgia, as amended.

"Contract Documents" include this Agreement and the exhibits and other documents attached or referenced herein as well as any authorized changes or addenda hereto.

"Facility" or "Facilities" means the physical premises, locations and operations owned or leased by a Party and from or through which Service Provider will provide any Services.

"Force Majeure Event(s)" means acts of war, domestic and/or international terrorism, civil riots or rebellions, quarantines, embargoes and other similar unusual governmental actions, extraordinary elements of nature or acts of God.

"Party" or "Parties" means City and/or Service Provider.

"Person" means individuals, partnerships, agents, associations, corporations, limited liability companies, firms or other forms of business enterprises, trustees, executors, administrators, successors, permitted assigns, legal representatives and/or other recognized legal entities.

"Service Provider Personnel" means and refers to Service Provider employees or subcontractors hired and maintained to perform Services hereunder.

"Third Party" means a Person other than the Parties.

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EXHIBIT C
AUTHORIZING LEGISLATION

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EXHIBIT D
CITY SECURITY POLICIES

Exhibit D

SECURITY AND SAFETY

PART 1 - GENERAL

1.01 COMPLIANCE WITH CITY'S SECURITY REQUIREMENTS

A. Contractor must comply with City's security requirements for all job sites and DWM facilities. The City shall provide copies to the Contractor.

B. Contractor must cooperate with City on all security matters and must promptly comply with any project security arrangements established by the City.

C. It is the Contractor's obligations to comply with all applicable governmental requirements and regulations and to undertake reasonable actions to establish and maintain secure conditions at any jobsite.

1.02 SECURITY PROGRAM

A. The Contractor shall comply with the site security program at all times on City facilities.

B. The Contractor shall maintain the security program throughout the Contract duration.

C. The Contractor and his subcontractors are wholly responsible for the security of their employees, work areas, and for all their material, equipment and tools at all times.

D. The Contractor shall provide the owner with a list of 24-hour emergency phone numbers including chain of command.

1.03 ENTRY CONTROL

A. The Contractor shall restrict entry of unauthorized personnel and employees and vehicles onto the Project site.

B. The Contractor shall allow entry only to authorized persons with proper City-approved identification. All Contractors/Subcontractors will be required to have their personnel working at these facilities photographed for an I.D. badge before they start work.

C. The Contractor shall maintain a current Employee Log of employees performing work on site and a Visitor Log and make the log available to the City upon

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request. This log shall be available to the Owner upon request and submitted to the Owner as necessary.

D. The Contractor shall require all employees performing activities on site to sign the Employee Acknowledgment of Project Site Rules Log included at the end of this Section. All employees, subcontractor employees and lower tier contractor employees will receive a new employee orientation. Signing the Employee Log by the employee is certifying that the orientation training has been received.

E. The City has the right to refuse access to the site or request that a person or vehicle be removed from the site if found violating any of the safety, security, or conduct rules as outlined.

1.04 BARRICADES, LIGHTS AND SIGNALS

A. The Contractor shall furnish and erect such barricades, fences, lights, danger signals and other precautionary measures for the protection of persons or property and of the work as necessary.

B. The Contractor will be held responsible for all damage to the work and any negligence resulting in injuries due to his failure of erecting adequate barricades, signs, lights and safety provisions as required. Whenever evidence is found of such damage, the Contractor shall immediately remove the damaged portion and replace it at the Contractor's cost and expense.

C. The Contractor's responsibility for the maintenance of barricades, signs and lights shall not cease until the City has been accepted in writing the Project.

1.05 RESTRICTIONS

The Contractor shall not allow cameras on site or photographs taken except with approval of the City.

1.06 CONTRACTOR SAFETY/HEALTH AND SECURITY PLAN

A. Prior to the performance of any work the Contractor will comply with the specified Safety/Health and Security Plan.

1. Basic pre-employment background checks for criminal convictions, veracity of previous employment and education statements, driving record and financial responsibility as applicable to the position. Record of satisfactory drug/alcohol testing for two years will be provided for those contractor employees with CDL. Proof of citizenship or work status will be provided for each contract employee.

2. Security Education and Awareness training applicable to the job.

3. SOPs for safeguarding City equipment, supplies and property.

4. Certification requested under the SAFETY Act, Homeland Security Act of 2002, if applicable. Provide date and result as requested.

5. Established process for identification of employees PFD including location. Emergency notification procedures.

6. If applicable, procedures for entry permits and badges. Procedures for returning badges upon termination of employment.

7. Anti-terrorism training provided to employees including the state of national alert with appropriate procedures.

8. Emergency evacuation procedures including accounting for employees at a safe haven.

9. Procedures for reporting post-contract criminal convictions and traffic accidents to the Contract Officer or DWM project manager.

10. SOPs for protecting employees when performing required duties off-site including training for reporting accidents, calling for immediate assistance, job reporting procedures and personal duress codes or alarms.

B. It is not the City's responsibility to verify the Contractor's safety plan for the adequacy and compliance of the plan. The plan shall provide:

1. Identify the person(s) responsible for implementation and enforcement of Safety/Health and Security rules and regulations for this contract.

2. Generally address safe work procedures for the activities within the Contractor's scope of work.

3. Included a new employee orientation program, which addresses job and site specific rules, regulations and hazards.

4. Include the Contractor's Drug Free Work Place Policy including substance abuse prevention and testing program.

5. Include provisions to protect all of the Contractor's employees, other persons and organizations that may be affected by the work from injury, damage or loss.

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6. Comply with current Fed/OSHA, Safety/Health and Security Plan, facility safety program (when applicable), and locally accepted safety codes, regulations and practices.

7. Include a site-specific emergency action and evacuation plan.

8. Include Hazard Communication/Right To Know Program.

9. Include security procedures for the Contractor's work, tools, and equipment.

10. Include the capability of providing the Engineer with documentation to show compliance with their plan, plus accidents and investigation reports.

11. Address any other contract specific requirement, including the requirements of Section 01011, Unique Requirements of these specifications (if applicable).

C. Provide a Job Safety Analysis (JSA) for the scope of work, prior to the start of work.

D. Review of the Contractor's Safety Plan by the City shall not impose any duty or responsibility upon the City for the Contractor's performance of the work in a safe manner.

E. The Contractor shall be fully responsible for the safety and health of its employees, its subcontractors and lower tier contractors during performance of its work.

F. The Contractor shall provide the City with all safety reports, training records, competent person list, and accident reports prepared in compliance with Fed/OSHA and the Project Safety/Health and Security Plan as requested.

1.07 PROJECT SAFETY COORDINATOR

A. The Contractor shall be responsible for the safety of the Contractor's and Engineer's employees, the City's personnel and all other personnel at the site of the work caused by their operations.

B. If applicable, the Contractor shall have a Project Safety Coordinator, as required under the General Conditions.

C. The Project Safety Coordinator shall ensure compliance with all applicable health and safety requirements of all governing legislation.

1.08 PROJECT SAFETY/SECURITY REQUIREMENTS OF THE CONTRACTOR

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A. It is the responsibility of the Contractor to ensure that all articles of possible personal or monetary value found by Contractor's employees are turned in to the appropriate Facilities Manager.

B. The Contractor shall be responsible for maintaining satisfactory standards of employees' competency, conduct, courtesy, appearance, honesty, and integrity, and shall be responsible for taking such disciplinary action with respect to any employee, as may be necessary.

C. Should the Contractor dismiss employees who have been given access to DWM facilities while the contract is in force, the Contractor will advise the DWM Security office.

D. The City may request the Contractor to immediately remove from the premises and/or dismiss any employee found unfit to perform duties due to one or more of the following reasons:

1. Neglect of duty, absenteeism, security or safety problems and sleeping on the job.

2. Disorderly conduct, use of abusive or offensive language, quarreling, intimidation by words or actions or fighting.

3. Theft, vandalism, immoral conduct of any other criminal action.

4. Selling, consuming, possessing, or being under the influence of intoxicants, alcohol, or illegal substances, which produce similar effects while on duty.

5. Vehicle accident while on City property or driving City equipment. No employee, Contractor, or Subcontractor will be extended privileges to drive City equipment on City property if driving privileges have been withdrawn by the State of residence.

E. All employees shall be required to sign in and out on a designated log sheet. All employees shall be required to sign in and out on a designated log sheet.

F. All employees shall be required to wear at all times in an observable location, above the waist, on outer clothing, appropriate photo I. D. badges to be furnished by the Contractor and approved by the City.

G. Prior to the beginning of each workday, the Contractor shall file with the Department Security representative a list of all employees to be used at the work site. Employee names will be checked using this list and a State or Contractor

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issued photo I. D. card at the entry gates. Employees not named on the list or without appropriate identification will not be allowed entry.

H. No one under age sixteen is permitted on the premises after normal working hours. Contractor's employees are allowed on premises only during the specified hours and only when working on this contract. No Contractor employee will be allowed on the premises when not specifically working on this contract at predetermined times and dates.

1.09 EMPLOYEE ACKNOWLEDGEMENT OF THE PROJECT SITE RULES

A. All employees and agents of the Contractor must adhere to and abide by the contract documents and project rules.

B. By Signing this Employee Log, I acknowledge that I understand and agree to abide by the project rules outlined below.

I further acknowledge that I have been briefed on specific hazards, hazardous substances that are on-site and the site emergency action procedure.

C. PROHIBITED ACTIVITIES:

1. Unauthorized removal or theft of CITY property
2. Violation of safety or security rules or procedures
3. Possession of firearms or lethal weapons on jobsite
4. Acts of sabotage
5. Destruction or defacing CITY property
6. Failure to use sanitary facilities
7. Failure to report accidents or job related injuries
8. Being under the apparent influence of drugs, alcohol or other intoxicants or in possession of drugs, alcohol or other intoxicants on the property
9. Wearing shorts or tennis shoes on the jobsite
10. Failure to wear a hardhat/safety glasses as required by law.
11. Gambling at any time on the project
12. Fighting, threatening behavior, or engaging in horseplay on the project
13. Smoking in unauthorized areas on the project
14. Open fire cooking or making unauthorized fires on project property
15. Selling items or raffles without authorization
16. Use of unauthorized cameras on the project
17. Use of radio or television in the construction area
18. Failure to park personal vehicle in authorized parking area
19. Failure to wear designated identification [Site Specific]
20. Failure to use designated gates
21. Use or storage of unauthorized chemicals or substances on site.

DRAFT

I have read, understand and agree to abide by the PROJECT SITE RULES. Furthermore, I understand failure to abide by these rules is grounds for being denied access to the project site. I have received a personal copy for my use and reference.

*****(END OF SECTION)*****

DRAFT

EMPLOYEE LOG

BY SIGNING THIS LOG I ACKNOWLEDG THAT I HAVE READ, UNDERSTAND AND AGREE TO ABIDE BY THE PROJECT RULES OUTLINED ABOVE AND ALL LOCAL, STATE, FEDERAL, AND/OR ANY OTHER CONTRACT OBLIGATIONS THAT MAY APPLY. I FURTHER ACKNOWLEDGE THAT I HAVE BEEN ORIENTATED BY A REPRESENTATIVE OF THE COMPANY AS TO THE SITE SPECIFIC HAZARDS, ANY HAZARDOUS SUBSTANCES THAT I MAY BE EXPOSED TO WHILE ON THE SITE AND THE SITE/COMPANY EMERGENCY ACTION PROCEDURES.

EMPLOYEES (PRINT)	SIGNATURE	COMPANY NAME	DATE
Signature of Company		Date Signed	

DRAFT

Representative			

(a)

(b) VISITOR LOG

BY THE SIGNING OF THIS LOG I ACKNOWLEDGE THAT I HAVE READ, UNDERSTAND AND AGREE TO ABIDE BY THE PROJECT RULES OUTLINE ABOVE. THIS IS NOT FOR A VEHICLE ACCESS PERMIT.

VISITOR'S NAME PRINT	SIGNATURE	COMPANY VISITED	DATE	IN	OUT

DRAFT

DRAFT

EXHIBIT E
DISPUTE RESOLUTION PROCEDURES

1. If Service Provider contends it is entitled to compensation or any other relief from City or if there are any disagreements over the scope of Services or proposed changes to the Services, Service Provider shall, without delay and within three (3) days of being aware of the circumstances giving rise to Service Provider's claim, provide written notice of its claim to City. If Service Provider fails to give timely notice as required by this subsection or if Service Provider commences any alleged additional work without first providing notice, Service Provider shall not be entitled to compensation or adjustment for any such work to the extent timely notice was not provided. Such notice shall include sufficient information to advise City of the circumstances giving rise to the claim, the specific contractual adjustment of relief requested and the basis for such request. Within ten (10) days of the date that Service Provider's written notice to City is required under this subsection, Service Provider shall submit a Proposed Change Document relating to the claim meeting the requirements of Subsection 5.3.2 of this Agreement.

2. The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, Service Provider and City each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Services.

3. If a dispute or disagreement cannot be resolved informally Service Provider Authorized Representative and Authorized City Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than thirty (30) days after such a request is made, to attempt to resolve such dispute or disagreement. Prior to any meetings between the Authorized Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute or disagreement.

4. If City and Service Provider are still unable to resolve their dispute, each agrees to consider submitting such dispute to mediation or other acceptable form of alternate dispute resolution.

DRAFT

APPENDIX A; OFFICE OF CONTRACT COMPLIANCE REQUIREMENTS

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APPENDIX B; INSURANCE AND BONDING REQUIREMENTS

DRAFT

Draft Services Agreement

F-1 Scope of Services – Customer FIRST Program Support

F-2 Appendix A – OCC Requirements for Services Agreement

F-3 Appendix B – Insurance/Bonding for Services Agreement

F-1

Scope of Services:

Customer FIRST Program Support

Customer FIRST Program

Support and Services Agreement

Premium

for

City of Atlanta - Department of Watershed Management

Atlanta, GA

CFA - Clayton

Contact:
Name: Van Young
Title: Client Sales Executive
Mobile: +1 865-567-6528
E-mail: Van.Young@schneider-electric.com

This proposal contains technical and business information that is confidential and proprietary to Invensys. It is provided to City of Atlanta - Department of Watershed Management solely for internal review and evaluation. The information contained herein may not be shown or disclosed in any form to third parties without the express consent of Invensys.

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Invensys and Schneider Electric

Schneider Electric, a global specialist in energy management, completed its acquisition of Invensys PLC on 17th January, 2014. The Invensys Group is now part of the Schneider Electric group of companies. This change does not affect the terms or commitments of this proposal in any way and Schneider Electric will continue to support and invest in Invensys products and solutions.

Combining the strengths of Schneider Electric and Invensys will offer greater value to your business. Through this integration, we are building a global, innovative, technology company with a strong position in integrated industrial automation, software and energy management. Our ability to offer more comprehensive solutions – along with our global execution capabilities will enable Schneider Electric to help you increase business performance and improve operational efficiency.

Note to City of Atlanta - Department of Watershed Management: We are still operating under "Invensys Systems Inc." and **all Contracts and Purchase Orders should be made out to "Invensys Systems, Inc."**

1. EXECUTIVE SUMMARY

The Customer FIRST Support and Services Program offers a broad portfolio of resources designed to help ensure high levels of asset availability, utilization and reliability from Foxboro and Triconex systems. It will help you manage your systems throughout their productive lifecycles, and protect your property and intellectual investments, maximize asset performance while helping you reduce total cost of ownership.

Customer FIRST membership facilitates fast, efficient response to requests for material, labor and technical expertise with flexible options designed to provide you with a wealth of resources through the largest partner ecosystem in the industry. From training and planning, to project implementation, operation and lifecycle support, Invensys and its network of partners are uniquely qualified to help Customer FIRST members effectively utilize our applications, systems, services and solutions.

Invensys' globally-situated Foxboro and Triconex support and service teams are uniquely qualified to deliver the high quality support and services that you require. Our support experts can provide fast and reliable support assistance, recommend risk mitigation strategies such as remote connectivity, automated back documentation, backup and restore services, and assist with maintenance tasks to help protect your Invensys systems from the potential of catastrophic loss.

The Customer FIRST Program offers an array of options such as cost-control incentives, access to technical information specific to your operation, inventory management support and training opportunities for your personnel.

As technology inevitably continues to evolve, we can assist you with planning and implementation of system upgrades to ensure that you are getting the most from the latest technology with minimum disruption to your business operations.

Invensys, now part of Schneider Electric, has earned a global reputation for support excellence with continuously improving levels of service and performance, and through recognition by prestigious organizations such as TSIA (Technology Services Industry Association) and Service Strategies (SCP – Service Capability & Performance).

2. PROPOSAL SCOPE

The Customer FIRST Support and Services Program offers a broad scope of support features encompassing technical support, onsite corrective support, product lifecycle assessment, and more. Discounts on value-add services are offered, and the opportunity to establish funded reserves to help cover any billable labor, material, and training requirements that you anticipate encountering during the coverage timeframe of your Agreement.

2.1 CUSTOMER FIRST PROGRAM – INTRODUCTION

The Customer FIRST Support and Services Program will help you accomplish your short- and long-range objectives at the lowest possible cost. Program enrollment gives you the support services and resources you need to help increase asset availability, utilization and performance.

2.2 CUSTOMER FIRST PROGRAM – PREMIUM LEVEL

Premium level membership in the Customer FIRST Support and Services program provides a high level of support availability and responsiveness augmented by additional services designed to empower your business. The Customer FIRST Support and Services program offers you the assurance of access to expert technical support, and priority en route response commitment for on-site corrective assistance. Your business will keep pace with the latest advancements in Invensys products and solutions with access to the latest software version upgrades and maintenance releases. If applicable to covered equipment, scheduled preventive maintenance visits and accelerated shipment of material are provided. Flexible payment options are available for purchase of labor-based services, material-based services and training.

3. CUSTOMER FIRST FEATURES SUMMARY

3.1 CUSTOMER FIRST PROGRAM – FOXBORO FEATURES SUMMARY

Customer FIRST Support and Services program features are summarized below.

Customer_FIRST_DEC_2014_Foxboro

Customer FIRST for Foxboro

Included Services	Premium
Core Support and Services	
Technical Support Phone Access	24/7
Web Support – Knowledgebase, Online Training*, Proactive Communications	Y
En route response commitment for Onsite Corrective Assistance	24hrs*
Preventive Maintenance site visits per year	2
Software maintenance releases, service packs, patches and updates	Y
Software Version upgrades and Revisions**	Y
Module Exchange/Reserve Program	Exchange
Access to Reports	
Annual Lifecycle Assessment Report	Y
Upgrade Planning Roadmap	Y
Support Usage and Summary Reports	Y
Contract Management/Performance reviews per year	2
RemoteWatch Exception Reports per year †	2
Tools	
Autodiag - Lifecycle Assessment Tool for Schneider Electric Products	Y
System Asset Viewer	Y
RemoteWatch Service †	Y
Services and Material Discounts	
Advantage Upgrade Program	50%
Site Support Services	10%
MEP/MRP Parts	43%
Consulting Services (when purchased with Service Agreement)	10%
Spares	10%
Test and Offline Development System Licenses	50%

Optional Services	Premium
Flexible Funding – Services Fund	**Included**
Flexible Funding – Material Fund	**Included**

* where available
** exclude labor and hardware, additional conditions apply.
† minimum purchase criteria applies. Your sales person can advise you.

4. AGREEMENT CONTENT

4.1 CUSTOMER FIRST PROGRAM – FEATURE DESCRIPTIONS

Customer FIRST Support and Services program features are described below.

4.1.1 Premium Level – Included Services

4.1.1.1 Core Support and Services

Technical Support Phone Access:
Invensys provides expert technical assistance and application support during normal business hours via regional support centers and locally-based service engineers. Each request is processed through a defined multi-level response model that assures skilled and timely attention appropriate to the urgency and complexity of the reported situation. Reported situations are assessed by support analysts according to the impact on the customer's production, safety or environment.

Premium level: 24 hours per day, 7 days per week (24/7)

Emergency 24 Hour Technical Support:
Invensys provides emergency technical support outside of normal business hours for situations that involve loss or potential loss of an essential function, such as a production line, system or plant down situation.

Web Support – Knowledgebase, Proactive Communications:
Invensys provides its extensive knowledgebase of technical user documentation, issue solutions, and software via the Customer Support website. The registration profile allows the website user to refine their access to only the product content of interest.

Invensys web tools provide online support case management. Customer personnel may submit service requests online; if qualified for handling as a support case, a tracking number will be issued. Cases may be reviewed online by the submitter.

In addition, website-registrants will receive pro-actively issued communications of two types:

1) Those that describe identified technical product problems and provide a solution
2) Notifications pertaining to lifecycle management topics such as hardware and software release notifications, and service program changes.

En Route Response Commitment for Onsite Corrective Assistance:
Invensys solutions are reliably supported through a remote connection (VPN or web conference). This approach provides fast, effective support, particularly in emergency situations. In the event that our Technical Support Engineers/Consultants are unable to resolve your support case via remote methods, Invensys will provide hands-on corrective assistance at your site.

A skilled Invensys service engineer/consultant will travel to your site to perform necessary remedial actions with the objective of returning your system or application to normal operation. These activities may include system troubleshooting, defective hardware replacement, and software restoration[3] or correction due to data corruption or necessity.

While this type of support is typically time sensitive in nature, actual en route response time commitment will be determined by the level of Customer FIRST support enrollment, situation urgency and availability of regional resources. Arrival time at site is dependent on transportation contingencies beyond Invensys' control.

Notes:

1) *Activities that are not covered by Onsite Corrective Assistance include application work, block configuration, display creation, historian creation, software installation, manual installation activity associated with "Patch Deployment to RemoteWatch Server", preventative maintenance work, startup support and upgrade labor.*
2) *Labor and materials, travel and living expenses are billable unless otherwise defined in the Agreement terms. Billable labor hours include travel time, time spent obtaining plant access, time spent onsite and offsite performing evaluations and preparing documentation necessary for the assigned tasks.*
3) *Software restoration may be accomplished using install discs or via download. If the customer's data is corrupt, there may be no recourse, in some cases, to restore corrupted user data.*

This Customer FIRST Support and Services Agreement includes:

Premium level: 24 Hours En Route Response Commitment for Corrective Assistance

Preventive Maintenance site visits per year:
The Customer FIRST Support and Services Agreement provides you with a number of Preventive Maintenance (PM) visits each year based on your selected program level. The general scope of work includes physical inspection of equipment, review of software maintenance releases and fixes, technical advisories, product alert notices (Triconex) and status of open cases. The service engineer will perform analysis of system conditions (counters, loading, etc.) to help ensure the system is operating within defined specifications. They will perform corrective actions that are within the scope of the PM visit, and schedule follow-up maintenance for additional issues if necessary. Invensys will help you determine the appropriate length of the PM visit per site.

Once per year, or more frequently if RemoteWatch Services V4.0 is enabled, Invensys will collect system configuration data via use of an Invensys tool known as FERRET. This data will be analyzed as a proactive aid in helping to identify any potential need for corrective or preventive activity.

The data files will be stored in the Global Support Center (GCS) Installed Base Repository and used to develop your Annual Lifecycle Assessment Report and Upgrade Planning Roadmap.

They are also available for System Asset Viewer application use. These Customer FIRST features are described in this proposal.

Notes:

1) *The delivery schedule and timing of Preventive Maintenance Site Visits will be determined in consultation with the customer.*
2) *Customer should review the full scope of work with the Service Engineer prior to their arrival at site.*
3) *The Preventive Maintenance Site Visit includes RemoteWatch Server maintenance support.*
4) *The Preventive Maintenance Site Visit does not include:*
    a. *Installation of version licenses, revision releases and maintenance releases, or any startup activities.*
    b. *Activities associated with the optional RemoteWatch Services: Remote Backup Service, Netsight Console, RemoteWatch Server with Data Diode, Patch Deployment to RemoteWatch Server.*

    These activities, and others that fall outside of PM scope of work, require the scheduling of a separate site visit for which the labor terms of this agreement will apply.

Premium level: Two (2) Preventive Maintenance site visits per year

Software Maintenance Releases, Service Packs, Patches and Updates:
With the Customer FIRST Support and Service program, Invensys provides maintenance releases and fixes for covered software related to your application that is released during the contract period. This applies to software that is in the Preferred (i.e., most current) lifecycle phase.

Maintenance releases provide corrections to software defects within a software revision level. Media will be made available upon release, in electronic or physical format as appropriate, during the program's coverage timeframe. Invensys makes no guarantee that maintenance releases will become available during the agreement period.

Installation labor for version licenses, revision releases, maintenance releases, service packs, patches and updates, and startup activities is not included in this program feature. These activities require the scheduling of a separate site visit for which the labor terms of this Agreement apply.

Software Version Upgrades and Revisions:
Invensys provides Software Version Upgrade and Revision releases with the Customer FIRST Support and Services program. This benefit provides you with the ability to upgrade and keep covered Foxboro and Triconex software continuously current at the Preferred (i.e., most current) lifecycle phase.

The Version release is the most significant software upgrade. It generally contains major new features and enhancements. The Revision release generally contains both software correction and minor enhancements.

License(s) and upgrade media will be made available upon release, in electronic or physical format as appropriate, during the program coverage timeframe. Invensys makes no guarantee that version and revision releases will become available during the agreement period.

Installation labor for version licenses, revision releases, maintenance releases, service packs, patches and updates, and startup activities is not included in this program feature. These activities require the scheduling of a separate site visit for which the labor terms of this Agreement apply.

Version Upgrade Eligibility:

- Software must be at the current version (Preferred lifecycle phase) to be eligible for future version upgrades. Software that is in the Preferred lifecycle phase when the client's first Customer FIRST agreement is executed, is eligible for version upgrade. When this criteria has been met, entitlement to Preferred versions of Foxboro or Triconex software begins and will continue for as long as an active Customer FIRST agreement (Standard, Premium or Elite tier level) is maintained with no lapse in support coverage.
- The Components and Software List provided in this proposal will identify Invensys software eligible for version upgrade.

Revision Upgrade Eligibility:

- For customers enrolled in Standard, Premium or Elite levels of the Customer FIRST Program, the eligibility for future revision upgrades will continue for as long as an active Customer FIRST agreement is maintained with no lapse in support coverage.

Notes:

1) *Upgrades to third-party operating system (OS) software, application software, and anti-virus software may be required to support new Invensys system and application version and revision releases. These are not part of the Software Version Upgrades and Revisions element of the Customer FIRST program.*
2) *New hardware may be required to support new Foxboro or Triconex systems and application version and revision releases. An incentive program may be offered as appropriate to support such requirements. (Refer to Advantage Upgrade Program.)*
3) *System shutdown may be required to support hardware and software version and revision releases.*

Module Exchange Program (MEP):

Invensys provides access to its materials inventory when rapid replacement of malfunctioning equipment is necessary. If you encounter an issue with a component on your Foxboro or Triconex system, you may arrange for exchange of the malfunctioning unit with another unit. The replacement material generally ships within one business day of request for service. Product provided under the Module Exchange Program is billable, and may be applied to the Module Exchange Program (MEP) - Material Cost-Inclusive feature or the Flexible Material Fund if appropriate. Pricing is contingent on receipt of the malfunctioning equipment at Invensys' designated facility, and Invensys' subsequent determination that the returned unit meets Module Exchange Program Policy qualifications.

4.1.1.2 Access to Reports

Annual Lifecycle Assessment Report:
Invensys understands that you have a need and a responsibility to maintain system equipment and software applications as critical parts of your business. The Lifecycle Assessment Report provides a top level view of the current lifecycle status of the products in use at your site and outlines key business objectives related to their maintenance and supportability. The report will be reviewed with you during the annual Customer FIRST Program renewal process.

Invensys will collect system configuration data either remotely or during a site visit. The data files are stored in the Global Customer Support (GCS) Installed Base Repository and used to develop the Annual Lifecycle Assessment Report.

Upgrade Planning Roadmap:
Building on the Lifecycle Assessment Report, the components of your system and applications, as appropriate, will be assessed for potential upgrade to preferred (current) phase products. This collaborative activity with customer staff focuses on identifying a logical progression for the potential upgrade of your equipment, software and files, and potentially, third party products. The deliverable is a high-level upgrade roadmap that will help facilitate effective short and long term upgrade planning decisions. It will be updated annually, and may be used as the foundation for the optional Upgrade and Migration Planning service.

Support Usage and Summary Report:
The Support Usage and Summary Report highlights all support case activity logged by Invensys' service management system, including technical telephone support, labor-based site visits and material exchange activity. The report is distributed via email on a monthly basis.

Contract Management/Performance Reviews per year:
Invensys will review the Customer FIRST Support and Services program performance periodically with you on a schedule determined by the selected program level. Discussion may include technical support, labor, material and remote services usage as applicable to the products covered by this agreement, plus lifecycle management and technical topics of value to your site.

Premium level: Two (2) reviews per year

4.1.1.3 Tools

Autodiag – Lifecycle Assessment Tool for Schneider Electric Products
The Autodiag self-service tool provides an initial assessment of the existing installed base of Automation and Electrical Distribution equipment, highlighting key actions to be taken to upgrade or maintain these systems and to minimize any risks. There are four sections to the report:

1) Criticality assessment
2) Summary of the existing equipment
3) Recommendations
4) Information on Schneider Electric Automation Services that can help you upgrade your systems and minimize risks

System Asset Viewer:
The System Asset Viewer is a stand-alone application that accesses the system configuration data maintained in the Global Customer Support (GCS) Installed Base Repository.

Its easy-to-use Windows-based graphical interface presents a wealth of system configuration data − grouped by node, station, monitor or switch and include component version and patch levels, site topology, and lifecycle stages − to provide a complete view of where equipment is in its lifecycle. In addition, System Asset Viewer can be an invaluable aid in troubleshooting and diagnosing system anomalies and may potentially prevent production downtime or poor performance.

If the System Asset Viewer application is installed on a personal computer or RemoteWatch server at your site, your staff can use it to access your system configuration data and lifecycle phase information on demand. System Asset Viewer can also be used by Invensys Field Service Representatives during site visits.

4.1.1.4 Services and Material Discounts

Advantage Program:
The Advantage Program provides cost-effective upgrade options that include substantial incentives for the exchange of existing Foxboro and Triconex systems equipment. A discount for Advantage Program upgrades is provided when the refurbishable decommissioned units are returned to Invensys. The Advantage discount is applicable only to Preferred hardware and software products that qualify for Advantage program pricing.

The Advantage Upgrade Program Policy applies.

Premium level: 50% discount on Advantage Program orders

Site Support Services:
A discount on the current Invensys labor rate at time of service is provided on labor hours dedicated to Site Support Services.

Site Support Services utilize the talents of Invensys Service Engineers to supplement your site resources with simple day to day activities or to help solve more complex engineering issues. Site Support Services are generally applicable to smaller scale projects. Invensys will help you define the scope of work to meet your specific requirements. If you are interested in having similar work performed on a larger scale, arrangements can be made with the appropriate resources within our organization.

For examples of applicable activities, refer to “Site Support Services” in the “Policies and Guidelines for Specific Customer FIRST Features” section of this document.

Premium level: 10% discount on labor rate for Site Support Services

Module Exchange Program (MEP) Parts:
The price of unit supplied to the customer will qualify for a discount contingent on material returned to Invensys meeting Module Exchange Program Policy qualifications.

Note: Not applicable to consumable products

MEP Parts: 43% discount on list price. Landed costs (duties, fees, etc.) may apply.

Consulting Services (when purchased with Service Agreement):
Consulting Services allow you to leverage skilled Invensys resources that can help optimize the performance of your existing assets, conduct routine performance assessments and assist with new product deployment. The Customer FIRST Program provides you with access to discounts on Consulting Services when purchased in conjunction with your support and services agreement.

Whether you are planning a new project and need help architecting a solution, or want recommendations to optimize the performance of your existing application for a single-site project or a global, enterprise-wide engagement, we will help you make arrangements with the appropriate resources within the Invensys organization. Consulting Services combine best-in-class software technologies with in-depth process, plant and IT expertise.

Premium level: 10% discount on list price

Spares:
The Customer FIRST Support and Services Agreement enables you to better manage and control the cost of equipment by providing a discount on the purchase of new material that will be stored as spare inventory at your site.

Premium level: 10% discount on list price

Test and Offline Development System Licenses:
For customers that use an offline system to mirror their online system for testing upgrades, development, etc., before moving those changes into production, a discount is applicable to all off-line test system, development or disaster recovery system licenses.

Premium level: 50% discount on list price

4.1.2 Premium Level – Optional Services

Invensys offers the following optional services with the Customer FIRST Support and Services program for your consideration.

Flexible Services Fund:
Customer FIRST Program coverage provides you with labor-based support and services that are billable at local Invensys labor rates at time of service. These include Onsite Corrective Assistance, Site Support Service, Consulting Services, training and time spent installing hardware or software associated with Customer FIRST Program features. In addition, the service engineer's travel time to and from your site and associated travel and living expenses are billable.

Provisioning the optional Flexible Services Fund with funds that accrue as part of your scheduled agreement payments allows you to spread payment of applicable labor-based services over the coverage period of your Customer FIRST Support and Services Agreement.

An appropriate amount can be established based on the number of anticipated labor hours for your company, site(s) and situation multiplied by the prevailing local Invensys service rate. Invensys can help you make this determination.

Flexible Services Fund Policy applies.

Flexible Material Fund:
Invensys provides fast, cost-effective replacement of major system components in the event of a module failure. If you encounter an issue with your Foxboro or Triconex system, you may arrange for shipment of factory-refurbished material from Invensys inventory in exchange for your malfunctioning unit. The equipment provided is billable.

Provisioning the optional Flexible Material Fund with funds that accrue as part of your scheduled agreement payments allows you to spread payment of applicable material-based services over the coverage period of your Customer FIRST Support and Services Agreement.

Invensys can help you determine an appropriate amount with which to provision the Flexible Material Fund based on an estimation of your site's material requirements during the Agreement's coverage period. You may order applicable material from Invensys at any time during the Agreement coverage period.

The Flexible Material Fund Policy applies.

5. POLICIES AND GUIDELINES FOR SPECIFIC CUSTOMER FIRST FEATURES

The policies and guidelines described in this section apply to the specifically ascribed service deliverables and programs.

5.1 SUPPORT HOURS AND RATES

Customer FIRST Support and Services shall be performed during the normal workday as defined by local practice or labor law, or as defined in this Agreement. Support, services, and travel hours in excess of the normal workday may be billable, subject to the specified Customer FIRST Program level, labor terms and provisions of this Agreement.

NO.	TITLE	DESCRIPTION
1	NORMAL WORKDAY HOURS	Normal workday hours: 8 AM to 5 PM Normal work week: Monday ~ Friday ☒ Invensys-designated holidays will be observed.
2	TRAVEL HOURS	Travel hours shall accrue from the point of origin and cover time traveling to and returning from the job site. The point of origin shall be: ☒ Home base of the Invensys engineer performing the work The following detail will apply as determined appropriate by Invensys and Customer. Travel hours will be billed for: ☒ Actual time incurred
3	SERVICE RATES	☒ Service Rates are defined in local Service Rate Schedule

5.2 ON-SITE SERVICES

(a) Services or travel in excess of normal workday, and any Services or travel on Saturdays, Sunday or nationally observed holidays shall be invoiced by Invensys as defined by local practice, or by labor law as applicable, or as defined in a written agreement between Invensys and Customer. The normal work day shall be defined by local practice, or by labor law as applicable, or as defined in a written agreement between Invensys and Customer.

(b) Unless otherwise agreed in writing by Invensys and Customer, all on-site Services will be billed to Customer at the then current Invensys service rates. There shall be a minimum charge of four (4) hours where hourly rates are applicable, or one (1) day where daily rates are applicable for service and travel time.

(c) When shift work other than the normal workday is required, a premium rate shall be added for Services during the other shifts and an additional premium shall be added for work in excess of normal workday during these other shifts, in accordance with local practice, or labor law as applicable, or as defined in a written agreement between Invensys and Customer.

(d) Service time committed in advance by Invensys on the basis of pre-specified number of days shall not be deemed to include overtime or shift work. If overtime or shift work is required on such commitments, the pre-specified time so committed in advance shall be appropriately reduced.

(e) Unless the Invensys representative has been released from the job site, or has completed his assignment, the Customer will pay Invensys charges computed as if the Invensys representative was working a normal work week, regardless of whether or not the representative is prevented from working due to delays beyond his control.

(f) Release from the job site shall entitle the representative to return to his point of origin, with travel time and expenses chargeable to Customer.

(g) Standby time is defined as that time during which an Invensys representative is requested to remain in readiness and available for Services commencing at the convenience of the Customer. Such time shall be considered as time worked, whether or not the representative is at the job site, and Customer will be billed accordingly. If standby time is outside normal working hours, overtime rates will be applicable. Standby time will be added to time actually worked for the computation of overtime charges, etc.

(h) The Invensys representatives reserve the right to refuse to work under hazardous conditions. All staging and rigging required for access to equipment to be serviced shall be erected by and at the expenses of Customer or third parties and shall comply with reasonable safety requirements. The Invensys representative shall comply with all plant safety regulations given to such representative in writing. However, any protective clothing or equipment, except the standard safety hat, required by Customer regulations shall be provided by Customer at Customer's sole cost.

(i) Invensys representatives are authorized to act only in a consulting capacity and are not authorized or licensed to operate equipment. All responsibility for operating equipment shall rest with Customer or third parties.

(j) Unless otherwise agreed in writing by Invensys, all parts identified as requiring replacement during a non-warranty related service call shall be invoiced at Invensys' current list prices.

5.3 LIFECYCLE SUPPORT POLICY

Invensys has established clear and predictable product support timelines to enable customers to plan product upgrades in advance of reaching obsolescence. This proactive approach provides a comprehensive view of product lifecycle phases, phase transition timing, and available support during each phase.

Information about the products currently supported in each lifecycle phase is posted on the respective Invensys brand support websites, and we provide periodic notification of all product transitions from one lifecycle phase to the next: http://iom.invensys.com/EN/Pages/Support.aspx

The Lifecycle Support Policy provides consistent and predictable guidelines for product support, compatibility, availability and repair. The policy establishes clear and predictable product support timelines to assist customers with managing end of life issues related to their installed Invensys system equipment. This proactive approach provides a comprehensive view of product lifecycle phases, phase transition timing, and available support during each phase. This information enables customers to plan product upgrades years in advance. Invensys system products move through five phases during their lifecycles:

- Preferred Products (PREF): These products are the most recent sales-released products available in their functional area.
- Available Products (AVAL): Products are available for sale primarily for expansion projects. They are no longer the Preferred Product offering.
- Mature Phase (MATR): Products withdrawn from sale. Comprehensive support services are provided.
- LifeTime Phase (LIFE): Invensys continues to support and maintain standard Invensys products based on an annual review of support capability.
- Obsolete (OBSL): Invensys will determine if a product is unrepairable due to age or obsolescence and will provide advance notice via email to client personnel that have registered on the Global Customer Support website http://support.ips.invensys.com . Once the product has entered the Obsolete Phase, Invensys can no longer provide a quality repair nor provide a module exchange. Products that are identified as Obsolete shall be excluded from coverage under this Service Agreement. If that product fails, Invensys will suggest purchase of an alternate replacement.

Note: Invensys may adjust Product List Value (PLV) throughout product lifecycle.

5.4 SUPPORT EXCLUSIONS

(a) Unless otherwise agreed in writing by Invensys, Invensys does NOT provide Services under the CFP for Third Party Products, including but not limited to Crystal Reports. If Invensys services Third Party Products at Customer's written request, Invensys' services shall be rendered "AS-IS" and without warranty of any kind and such services shall be for an additional fee at Invensys' then current service rates.

(b) Customer shall be responsible for payment for Invensys equipment and materials if Customer's employees, agents, consultants or contractors working on Invensys equipment or materials causes malfunction or failure of such equipment or materials. If such an event occurs, Invensys equipment and materials will be billed to Customer at the then current rates for such equipment and materials and Customer shall also pay Invensys for any associated services as a result of such malfunction or failure.

(c) Invensys and non-Invensys system goods and software not specifically listed in the Invensys Proposal as covered under the support level purchased by Customer are NOT covered under the Agreement. Technical assistance rendered via any means of personal communication (including but not limited to telephone, facsimile, postal mail, email, texting, and web-enabled chat), remote connection and diagnosis, material, labor or other support assistance provided by Invensys to resolve an issue involving non-listed equipment is chargeable to Customer at the then-current Invensys service rates.

(d) Invensys will NOT provide Services on Invensys software or goods from or repaired by a non-Invensys-authorized agent, distributor, reseller or other third party. If any issues occur that are attributable to third-party procured material or services, all work performed by Invensys will be subject to invoicing at the then-current Invensys service rates.

(e) Unless specifically purchased as an option under the Agreement and described in the Invensys Proposal, planning, installation, testing, and documentation of expansions, modifications and software upgrades of custom application or third party programs are NOT covered under the CFP.

(f) Unless otherwise agreed in writing by Invensys, Goods identified as obsolete phase or due to become obsolete under the Invensys lifecycle support policy during the Agreement term will be excluded and will NOT be supported.

(g) Goods identified as lifetime phase under the Invensys lifecycle support policy will be supported for a maximum of one year. The product lifecycle categorization will be reviewed during the annual installed product assessment to determine whether it is anticipated that the product(s) will move to the obsolete phase during the next 12 months.

(h) All decisions made by Customer relating to the implementation of Invensys' advice and recommendations are the sole responsibility of Customer. To the extent Services are of an advisory nature, no specific business result is assured or guaranteed.

5.5 FLEXIBLE SERVICES FUND POLICY

Flexible Services Fund can be used for:

- The following labor-based services associated with Customer FIRST Support and Services Agreement features:
  - After-hours Technical Assistance cases
  - Onsite Corrective Assistance
  - Consulting Services provisioned under the Customer FIRST Support and Services Agreement
  - Site Support Service
  - System File Maintenance Evaluations for Triconex systems
- Installation of maintenance releases, revision releases, version releases
- Installation of RemoteWatch Services Deployment-delivered Quick Fixes, patches and anti-virus software
- Installation of product and software associated with the Module Exchange/Reserve Program
- Installation of product and software associated with the Parts Management Program
- Invensys service personnel travel hours to/from the customer site
- Travel and living expenses related to Customer FIRST Support and Services Agreement features

Flexible Services Fund cannot be used for:

- Consulting Services not provisioned under the Customer FIRST Support and Services Agreement
- Labor hours for any activities, products, software, programs and solutions not related to Customer FIRST Support and Services Agreement features
- Travel and living expenses not related to Customer FIRST Support and Services Agreement features

The following terms and conditions apply to the Flexible Service Fund:

1) The Flexible Services Fund may be provisioned by the customer for a value that will accrue during the coverage period of the Customer FIRST Support and Services Agreement, in accordance with the terms of the Agreement. Allocation to the Flexible Services Fund may differ each year within a multi-year Agreement.

2) Customer's contribution to the Flexible Services Fund will be made together with Agreement payments in accordance with the agreement billing schedule. It may be increased or decreased at renewal of the Agreement. Customer's contribution cannot be cancelled during the annual term or multi-year coverage period.

3) The scope of services usage can be defined at any time prior to, or during, the Agreement coverage period. Delivery of services must be taken within the coverage period.

4) As applicable services are provided, the selling price will be deducted from the Flexible Services Fund. Once the Flexible Services Fund's value has been fully used, no further services can be applied. If desired, customer may replenish funding for use during the remainder of the coverage period.

5) During the Agreement coverage period, unused Flexible Services Fund balance may be moved to provision another Fund. (Exception; Additional funding will not be accepted into the Training Growth Fund.)

6) At Agreement expiration, unused Flexible Services Fund balance
   a) may be rolled forward, establishing a beginning balance in the Flexible Services Fund upon renewal of the Agreement for the next coverage period.
   b) may be moved to provision another Fund within the Agreement on renewal. (Exception: Additional funding will not be accepted into the Training Growth Fund.)
   c) cannot be applied to the Agreement itself on renewal
   d) will not be refunded to the customer.

7) If the Agreement is terminated prior to its expiration date, accrued unused Flexible Services Fund balance will not be refunded to the customer.

8) If the Agreement is terminated prior to its expiration date, a lump-sum invoice will be issued for Flexible Services Fund usage above the accrued customer contribution.

5.6 FLEXIBLE MATERIAL FUND POLICY

Flexible Material Fund can be used for:

- Purchase of replacement hardware provided by the Module Exchange Program
- Purchase of replacement hardware provided by the Module Reserve Program
- Purchase of new hardware designated as Spare material

Flexible Material Fund cannot be used for:

- Purchase of hardware or software associated with other Invensys programs and solutions not related to the Customer FIRST Support and Services Agreement.

The following terms and conditions apply to the Flexible Material Fund:

1) The Flexible Material Fund may be provisioned by the customer for a value that will accrue during the coverage period of the Customer FIRST Support and Services Agreement, in accordance with the terms of the Agreement. Allocation to the Flexible Material Fund may differ each year within a multi-year Agreement.

2) Customer's contribution to the Flexible Material Fund will be made together with Agreement payments in accordance with the agreement billing schedule. It may be increased or decreased at renewal of the Agreement. Customer's contribution cannot be cancelled during the annual term or multi-year coverage period.

3) The bill of material can be defined at any time prior to, or during, the coverage period. Delivery of products must be taken within the Agreement coverage period. As applicable products are shipped, the selling price will be deducted from the Flexible Material Fund.

4) Once the Flexible Material Fund's value has been fully used, no further products or services can be applied. If desired, customer may replenish funding for use during the remainder of the coverage period.

5) During the Agreement coverage period, unused Flexible Material Fund balance may be moved to provision another Fund. (Exception; Additional funding will not be accepted into the Training Growth Fund.)

6) At Agreement expiration, unused Flexible Material Fund balance:
   a) may be rolled forward, establishing a beginning balance in the Flexible Material Fund upon renewal of the agreement for the next coverage period
   b) may be moved to provision another Fund within the Agreement on renewal. (Exception; Additional funding will not be accepted into the Training Growth Fund.)
   c) cannot be applied to the Agreement itself on renewal
   d) will not be refunded to the customer.

7) If the Agreement is terminated prior to its expiration date, accrued unused Flexible Material Fund balance will not be refunded to the customer.

8) If the Agreement is terminated prior to its expiration date, a lump-sum invoice will be issued for Flexible Material Fund usage above the accrued customer contribution.

6. COMPONENTS AND SOFTWARE COVERED

The following system components and software are covered under the terms and conditions of this Customer FIRST Support and Services Agreement and the Lifecycle Support Policy. Components and software not listed are not covered by this Agreement.

Qty	Product	Short Description	Lifecycle Phase	Obsolete Date	Previous Contract Entitlement to SW Version Upgrade (Yes/No)
1	H90J99A00180	Workstation Server Model H90 For Windows®	Preferred		
2	P0923HX	P91-PE2900 Gen III Workstation Styles E & F	LifeTime	10/1/2015	
3	P0924TW	P92 Style M, Rev A, B, C, D WS - T3500 Gen II	LifeTime	10/1/2016	
1	P0928DA	H92 Style A, B Workstation - Z400	Mature		
2	J0173DA	Application Workstation 51 SW Lic	LifeTime		No
1	J0173DC	Workstation Processor 51 SW Lic	LifeTime		No
3	J0173DF	Device Monitor (51 Series) SW Lic	LifeTime		No
2	J0173DS	Int Ctl Configurator (51 Series) SW Lic	LifeTime		No
2	J0173DZ	System Monitor (51 Series) SW Lic	LifeTime		No
3	J0173EF	SMDH For WP/AW (51 Series) SW Lic	LifeTime		No
6	J0173EH	Additional DM/FoxView (51 Series) SW Lic	LifeTime		No
1	S10D45250010	Foxboro Evo & I/A Series W'kstation SW Lic	Available		No
1	S10D00220010	Foxboro Evo & I/A Series W'kstation SW Lic	Available		No
1	S10B00210010	Foxboro Evo & I/A Series W'kstation SW Lic	Available		No
1	S10B00210010	Foxboro Evo & I/A Series W'kstation SW Lic	Available		No

1	S10B00220010	Foxboro Evo & I/A Series W'kstation SW Lic	Available		No
1	S10D00210010	Foxboro Evo & I/A Series W'kstation SW Lic	Available		No
1	S10D00210010	Foxboro Evo & I/A Series W'kstation SW Lic	Available		No
1	S10D13220010	Foxboro Evo & I/A Series W'kstation SW Lic	Available		No
1	S10D00250010	Foxboro Evo & I/A Series W'kstation SW Lic	Available		No
1	S10D00220010	Foxboro Evo & I/A Series W'kstation SW Lic	Available		No
4	P0972VA	Address Translation Station;Mesh/Nodebus Connect	Preferred		
10	P0973BJ	Fiber E'net Switch w/24 MT-RJ Ports & Uplink Ports	Mature	4/1/2016	
2	P0973BL	24 SFP Port Switch superseded by P0973HA	LifeTime	2/1/2016	
12	P0926CP	ZCP270 Control Processor	Preferred		
3	P0961BC	Control Processor 40 Style B Module	LifeTime		
1	P0961EF	CP30B	LifeTime		
2	J0200NK	Control Processor 40 Style B SW Lic	LifeTime		No
1	J0200NL	Control Processor 30 Style B SW Lic	LifeTime		No
1	S61C10001000	I/A Series Function Block SW Lic (Certificate)	Available		No
1	S61C10001000	I/A Series Function Block SW Lic (Certificate)	Available		No
1	S61C21631000	I/A Series Function Block SW Lic (Certificate)	Available		No
1	S61C11321000	I/A Series Function Block SW Lic (Certificate)	Available		No
1	S61C21621000	I/A Series Function Block SW Lic (Certificate)	Available		No
1	S61C31721000	I/A Series Function Block SW Lic (Certificate)	Available		No
1	S61C31431000	I/A Series Function Block SW Lic (Certificate)	Available		No
1	S61C42941000	I/A Series Function Block SW Lic (Certificate)	Available		No
1	J0173DL	Historian 500 (51 Series) SW Lic	LifeTime		No
1	J0173DP	Historian 2000 (51 Series) SW Lic	LifeTime		No
1	J0173DX	Report Writer (51 Series) SW Lic	LifeTime		No
1	J0173EC	Spreadsheet (51 Series) SW	LifeTime		No

		Lic			
2	J0175HH	INFORMIX On-Line Development Env SW Lic	LifeTime		No
1	J0177AA	Additional DM/FoxView (51 Series) SW Lic (5 User)	LifeTime		No
9	J0200JN	FoxDraw Standalone Lic	Mature		No
9	J0200RV	App Station V6* SW For Windows Ethernet License	Mature		No
1	Q0300FW	AIM*DataLink Quantity 5	Available		No
1	Q0301AT	AIM*Historian SW Lic (5000 Points)	Available		No
1	Q0301RA	I/A Series Report Package	Available		No
1	Q0301YB	AIM*OLE DB Provider License - 1 User	Available		No
1	Q0300FW	AIM*DataLink Quantity 5	Available		No
1	Q0301RA	I/A Series Report Package	Available		No
1	Q0301YB	AIM*OLE DB Provider License - 1 User	Available		No
1	J0173BF	Communication Processor 10 SW Lic	LifeTime		No
1	J0173DE	Disk Mirroring/Concatenation (51 Series) SW Lic.	LifeTime		No
1	J0173HB	Integrator 30 For Allen-Bradley PLC's SW Lic	LifeTime		No
2	Q0300GB	FoxAPI V4.0 For I/A NT	LifeTime		No
2	P0903CV	Annunciator Keyboard	Mature		
2	P0904AK	50 Series GCIO Interface w/o TS (EC96)	Mature		
4	P0917YZ	FCP270 Control Processor	Available		

The following system components are in the OBSOLETE Phase and thus not covered under our Lifecycle Support Policy and terms and conditions of this Customer FIRST Support and Services Agreement:

Qty	Product	Short Description	Lifecycle Phase	Obsolete Date
1	P0923LY	P92-390 Workstation Style G, Rev A,B,C,D, E, F	Obsolete	6/1/2014
1	P0923VT	P92-T3400 Workstation Style J, Rev A,B,C	Obsolete	4/1/2015
1	P93001100100	Model P93 Workstation For Windows	Obsolete	6/1/2008
1	P55000111110	Workstation Processor 51 (WP51)	Obsolete	1/1/2004
2	P56000111130	Application Workstation 51 (AW51)	Obsolete	1/1/2005
3	P0970BC	Dual Nodebus Interface Module (DNBI)	Obsolete	12/1/2014
1	P0400VP	Communication Processor 10	Obsolete	10/1/2014
1	P0960HA	Communications Processor 30	Obsolete	1/1/2007

7. CONTACT INFORMATION

7.1 CUSTOMER CONTACT INFORMATION

Customer shall provide the following information to Invensys.

7.1.1 Customer Addresses

Customer shall provide the following addresses to Invensys.

Site Name:	R. M. Clayton WRC
Billing Address	City of Atlanta COA Department of Finance 68 Michell St., Suite 6100 Atlanta, GA 30303
Shipping Address	City of Atlanta R M Clayton WRC 2440 Bolton Rd. NW Atlanta, GA 30318
End User Address	City of Atlanta R M Clayton WRC 2440 Bolton Rd. NW Atlanta, GA 30318
Sold To Address	City of Atlanta 55 Trinity Ave Southeast – Suite 1 Atlanta, GA 30303 - 3549

7.1.2 Purchasing & Accounts Payable Contacts

Customer shall provide contact information for purchasing and accounts payable to Invensys.

NO.	CONTACT NAME	RESPONSIBILITY	CONTACT INFORMATION
1	Sandra Glenn	Plant Manager	Tel: +1 404-350-4902 Mobile: +1 678-300-5429 Email: sglenn@atlantaga.gov

7.1.3 Site Identification

This Customer FIRST Support and Services Agreement covers the identified system(s) located at the following site(s).

1.	Site Name and Location	City of Atlanta – R M Clayton WRC
2.	System(s)	Foxboro
3.	Other identifying detail	None

7.1.4 Site Operations Contacts

Customer shall provide personnel names and contact information for the individuals that Invensys may contact for support purposes.

Indicate whether the named individual(s) may be contacted by Invensys for remote services (RemoteWatch) purposes.

NO.	CONTACT NAME	RESPONSIBILITY	CONTACT INFORMATION	PROCESS UNIT ID, LOCATION	REMOTE LOG-ON AUTHORITY (YES/NO)
1	Joel Bentley	System Engineer	Tel: +1 706-988-2159 Email: jabentley@atlantaga.gov	Atlanta, GA	Yes
2			Tel: Mobile: Fax: Email:		
3			Tel: Mobile: Fax: Email:		

7.2 INVENSYS CONTACT INFORMATION

Invensys shall provide contact information to the customer.

7.2.1 Individual Invensys Contacts

The following individuals have assisted in preparing this Customer FIRST Support and Service Agreement.

NO.	CONTACT NAME	RESPONSIBILITY	CONTACT INFORMATION
1	Van Young	Client Sales Executive (CSE)	Mobile: +1 865-567-6528 Fax: Email: Van.Young@schneider-electric.com
2	Mike Bergin	Product Sales Executive (PSE)	Mobile: +1 678-296-6378 Email: mike.bergin@schneider-electric.com

7.2.2 Invensys Support Centers

The following authorized support centers are available to provide support to your site for the products covered by this Agreement:

Worldwide contact points:
Website: http://iom.invensys.com/EN/Pages/Support.aspx
Email: iom.support@invensys.com

Canada, United States:
Invensys Support Center
Foxboro, MA, USA
Telephone: + (00)1-866-746-6477 (toll-free Canada, USA)
Telephone: + (00)1-508-549-2424
Facsimile: + (00)1-508-549-4999
Email: iom.support@invensys.com

7.2.3 Material Return Instructions and Contact Information

It is essential to confirm the correct address, instructions, and authorization for material return claims and Advantage upgrade claims prior to shipping a package to Invensys.

For all material returns and exchanges, contact Invensys via the contact points listed above or one of the Invensys offices listed below to request a Return Material Authorization (RMA) number and the correct shipping address to which to return the material.

Note: Check the Office Locator (http://www.buyautomation.com/OfficeLocator/) for current contact information, as the information listed below will change over time.

CUSTOMER SITE LOCATION	INVENSYS LOCATION	CONTACT INFORMATION
USA: *NOTE: Always contact the telephone numbers provided here to request Return Material Authorization Number (RMA#) and shipping instructions prior to shipping unit.*	Invensys Systems, Inc. Dept. 910 Field Service Receiving 15 Pond Street Foxboro, MA 02035 USA Invensys Triconex 17146 FeatherCraft Lane Houston, TX 77598-4309 USA Invensys 26561 Rancho Parkway South Lake Forest, Ca 92630 USA	USA toll free: Telephone: +1 866-746-6477 Worldwide support: Telephone: +1 508-549-2424 Fax: +1 508-549-4999 Email: support@ips.invensys.com

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Appendix A:

OCC Requirements for Services Agreement

CITY OF ATLANTA

Kasim Reed
Mayor

SUITE 1700
55 TRINITY AVENUE, SW
ATLANTA, GA 30303
(404) 330-6010 Fax: (404) 658-7359
Internet Home Page: www.atlantaga.gov

OFFICE OF CONTRACT COMPLIANCE
Larry Scott
Director
lscott@atlantaga.gov

March 31, 2016

RE: Project No.: FC- 8437, R.M. Clayton WRC – Instrumentation and Controls Reliability

Dear Prospective City of Atlanta Bidder:

The Office of Contract Compliance (OCC) information is an integral part of every eligible City of Atlanta bid. All Bidders are required to make efforts to ensure that businesses are not discriminated against on the basis of their race, ethnicity or gender, and to demonstrate compliance with these program requirements at or prior to the time of Bid opening, or upon request by OCC. Bidders are required to ensure that prospective subcontractors, vendors, suppliers and other potential participants are not denied opportunities to compete for work on a City contract on the basis of their race, ethnicity, or gender, and must afford all firms, including those owned by racial or ethnic minorities and women, opportunities to participate in the performance of the business of the City to the extent of their availability, capacity and willingness to compete. Please read all of the information very carefully. Pay close attention to the specific goals for minority and female business enterprise participation for this project and the EBO program reminders listed on page 6.

If you have any questions about the information included in this section of the solicitation, please contact the City of Atlanta Office of Contract Compliance at (404) 330-6010.

The City of Atlanta looks forward to the opportunity to do business with your company.

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CITY OF ATLANTA

DISADVANTAGED BUSINESS ENTERPRISE

POLICY STATEMENT

It is the policy of the City of Atlanta to promote full and equal business opportunity for all persons doing business with the City. The City must ensure that firms seeking to participate in contracting and procurement activities with the City are not prevented from doing so on the basis of the race or gender of their owners. The City is committed to ensuring that it is not a passive participant in any private scheme of discrimination. To ensure that businesses are not discriminated against with regard to prime contracting, subcontracting or other partnering opportunities with the City, the City has developed an Equal Business Opportunity (EBO) Program. It is also the policy of the City of Atlanta to actively promote equal employment opportunities for minority and female workers and prohibit discrimination based upon race, religion, color, sex, national origin, marital status, physical handicap or sexual orientation through the City's Equal Employment Opportunity (EEO) Program. The purpose of the Equal Business Opportunity and Equal Employment Opportunity Programs is to mitigate the present and ongoing effects of the past and present discrimination against women and minority owned businesses and women and minority workers so that opportunity, regardless of race or gender, will become institutionalized in the Atlanta marketplace. It is important to note that all bidders, without exception, including minority and female owned business enterprises, must comply with the City of Atlanta's EBO and EEO Program requirements. Goals for minority and female business enterprises are set for this project on page 6.

Implementation of EBO Policy

The Office of Contract Compliance will review information submitted by Bidders pertaining to efforts to promote opportunities for diverse businesses, including M/FBEs, to compete for business as subcontractors and/or Suppliers. A Bidder is eligible to be further considered for award of a City contract upon a finding by OCC that the Bidder has engaged in, and provided with its bid submission documentation of efforts to ensure that its process of soliciting, evaluating and awarding subcontracts, placing orders, and partnering with other companies has been non-discriminatory. To assist prime contractors in this effort, the Office of Contract Compliance has set forth in this solicitation document the M/FBE goals within the relevant NAICS Codes, for this Project.

For subcontracting, the Subcontractor Project Plan must include **all** subcontractors (majority and minority owned) to be utilized on the project, detail the services to be performed, the dollar value of the work to be performed by each subcontractor, and the *City of Atlanta* M/FBE certification number and supplier id number as applicable.

For suppliers, the Subcontractor Project Plan must include **all** subcontractors (majority and minority owned), the supplies to be provided, including the dollar value of the supplies being provided and the *City of Atlanta* M/FBE certification number and supplier id number as applicable.

Determination of Non-discrimination During Bid Process

No Bidder shall be awarded a contract on an Eligible Project unless the Office of Contract Compliance determines that the Bidder has satisfied the non-discrimination requirements of section 2-1448 on such Eligible Project. Accordingly, each Bidder shall submit with each Bid the following

1. Covenant of Non Discrimination. Each Bidder shall submit with her/his Bid a Covenant of Non-Discrimination which is set forth herein as Exhibit EBO1.

2. Outreach efforts documentation. Each bidder shall submit with her/his bid written documentation demonstrating the bidder's outreach efforts to identify, contact, contract with, or utilize businesses, including certified M/FBEs as subcontractors or suppliers on the contract. This information shall be set forth on Exhibit EBO2, which is included herein.

3. Subcontractor project plan. Each bidder shall submit with her/his bid a completed and signed subcontractor project plan, in a form approved and provided by the office of contract compliance, which lists the name, address, telephone number and contact person of each subcontractor or other business to be used in the contract, the NAICS Code and the type of work or service each business will perform, the dollar value of the work and the scope of work, the ownership of each business by race and gender, if applicable the AABE, APABE, HABE, or FBE certification number of each business, and any other information requested by the office of contract compliance. In order for the office of contract compliance to officially consider a firm to be an M/FBE, the M/FBE firm must be certified by or have a certification application pending with the office of contract compliance prior to the bidder's submission of the bid. The subcontractor project plan shall not be changed or altered after approval of the plan and award of the contract without the written approval of the director of the office of contract compliance. A written letter to the director of the office of contract compliance requesting approval to change the subcontractor project plan must be submitted prior to any change in the plan or termination of an M/FBE's contract.

OCC Review of Bidder Submissions

The Office of Contract Compliance shall determine whether a Bidder has satisfied the non-discrimination requirements of section 2-1448 based on its review of the Covenant of Non Discrimination, the Outreach Efforts Documentation, the Subcontractor Project Plan, and its review of other relevant facts and circumstances, including complaints received as part of the bid process. In reviewing the documents submitted by a Bidder to determine whether the Bidder has satisfied the non-discriminatory practices requirement of this section, the Office of Contract Compliance will consider, among other things, the total project dollars subcontracted to or expended for services performed by other businesses, including certified M/FBEs, whether such businesses perform Commercially Useful Functions in the work of the contract based upon standard industry trade practices, whether any amounts paid to Supplier businesses are for goods customarily and ordinarily used based upon standard industry trade practices, and the availability of certified M/FBEs within the relevant NAICS Codes for such Eligible Project.

(a) Receipt of Complaint of Discrimination in the Bid Process

The office of contract compliance shall accept complaints of alleged discrimination during the bid process regarding any participant in the bid process. Where the complaint of discrimination is specific to the procurement which is under consideration by the city, the office of contract compliance may investigate said complaint, determine its validity, and determine whether the actions complained of impact the bidder's responsiveness on the specific procurement. Allegations of discrimination based on events, incidents or occurrences which are unrelated to the specific procurement will be placed in the bidder's file maintained in the vendor relations database and handled in accordance with the procedure established in the city's vendor relations subdivision, section 2-1465, et seq.

(b) Determination of Violation of EBO Process

Where the office of contract compliance investigates a complaint of discrimination that is related to the specific bid process, the details of that investigation, including findings, shall be recorded and maintained in the vendor relations database, pursuant to section 2-1471.

(c) Office of Contract Compliance Determination of Non-Compliance

When, based upon the totality of the circumstances, the office of contract compliance determines that a bidder fails to satisfy the requirements of section 2-1448(a) of a city bid solicitation, the director of the office of contract compliance shall present a written determination of non-compliance to the Chief Procurement Officer which states the determination and lists the reasons for the determination. A bid that does not comply with the requirements set forth in section 2-1448(a) shall be deemed non-responsive and rejected.

Equal Business Opportunity Program Bid/RFP Submittals

The Office of Contract Compliance will make any determination of non-responsiveness. The covenant of non-discrimination, the outreach efforts documentation, the subcontractor project plan, and any other information required by OCC in the solicitation document pursuant to section 2-1448 must be completed in their entirety by each bidder and submitted with the other required bid documents in order for the bid to be considered as a responsive bid. Failure to timely submit these forms, fully completed, will result in the bid being considered as a non-responsive bid, and therefore, excluded from consideration.

Monitoring Of EBO Policy

Upon execution of a contract with the City of Atlanta, the successful bidder's Subcontractor Project Plan will become a part of the contract between the bidder and the City of Atlanta. The Subcontractor Project Plan will be monitored by the City of Atlanta's Office of Contract Compliance for adherence with the plan. The successful bidder will be required to provide specific EBO information on a monthly basis that demonstrates the use of subcontractors and suppliers as indicated on the Subcontractor Project Plan. The failure of the successful bidder to provide the specific EBO information by the specified date each month shall be sufficient cause for the City to withhold approval of the successful bidder's invoices for progress payments, increase the amount of the successful bidder's retainage, require joint check issuance, or evoke any other penalties as set forth in the City of Atlanta Code of Ordinances, Sections 2-1452 and 2-1456.

Implementation of EEO Policy

The City effectuates its EEO policy by adopting racial and gender work force availability for every contractor performing work for the City of Atlanta. These percentages are derived from the work force demographics set forth in the 2010 Census EEO file prepared by the United States Department of Commerce for the applicable labor pool normally utilized for the contract.

Monitoring of EEO Policy

Upon award of a contract with the City of Atlanta, the successful bidder must submit a Contract Employment Report (CER), describing the racial and gender make-up of the firm's work force. If the CER indicates that the firm's demographic composition does not meet the adopted EEO goals, the firm will be required to submit an affirmative action plan setting forth the steps to be taken to reach the adopted goals. The CER and the affirmative action plan, if necessary, will become a part of the contract between the successful bidder and the City of Atlanta. Compliance with the EEO requirements will be monitored by the Office of Contract Compliance.

Joint Venture Participation on City of Atlanta Projects

The City of Atlanta encourages, where economically feasible, the establishment of joint ventures to ensure prime contracting opportunities for all businesses, including good faith outreach efforts to utilize certified minority and female business enterprises on Eligible Projects. On projects valued at five (5) million dollars or greater, the Office of Contract Compliance shall determine on a project-by-project basis whether non-discriminatory outreach efforts to enter into a joint venture shall be required. On such Eligible Projects, joint venture member businesses must have different race ownership, different gender ownership or both. The minority and female business enterprise members of the joint venture on projects on which a Joint Venture is required must be certified as such by the Office of Contract Compliance, and the joint venture team shall include in its bid submittal the MBE or FBE certification number of each MBE or FBE joint venture member. **OCC has made the determination non-discriminatory outreach efforts to enter into a joint venture are required for this solicitation.**

No bid on a City contract for an Eligible Project shall be accepted from a joint venture team unless each participant independently signs and submits a Covenant of non-discrimination (EBO-1)

A joint venture may submit its agreement to the Office of Contract Compliance for pre-approval no later than fourteen (14) calendar days prior to the date set for receipt of bids on an Eligible Project. Otherwise, agreements must be submitted on or before the date set for receipt of bids on an Eligible Project.

Components of a Joint Venture Agreement

The Joint Venture agreement should include at a minimum:

- The name of the Joint Venture
- Contact information of designated primary JV contact person
- Identification of all firms participating in the JV
- The initial capital investment of each venture partner
- Terms and conditions under which future contributions may be necessary
- The proportional allocation of profits and losses to each venture partner
- Description of proportion of work controlled by and management of the joint venture team members
- The method of, and responsibility for, accounting
- Frequency of JV meetings and method for minutes taking and storage
- The methods by which disputes are resolved.
- Provide the specific citation/section of your JV that speaks to the Contract's non-discrimination and assurance requirements
- All other pertinent factors of the joint venture.

Equal Business Opportunity M/FBE GOALS for this Project

Project No.: FC-8437, R.M. Clayton WRC – Instrumentation and Controls Reliability

Part 1: All proponents must ensure that non-discriminatory practices are utilized to enter into a Joint Venture Agreement in accordance with the City of Atlanta's EBO/SBO Ordinance. The Joint Venture Agreement, at the very least, should reflect details of the member company's/companies' involvement in the R.M. Clayton WRC – Instrumentation and Controls Reliability project throughout the life of the contract. (See Page 6)

Part 2: All proponents must ensure that non-discriminatory practices are utilized during efforts to engage minority and female subcontractors and suppliers throughout the life of the contract. All outreach efforts must be documented and included with this bid submittal.

The dominant NAICS code and trade to be engaged for the above referenced phase is:

238210 Electrical Contractors

The availability of certified M/FBE firms for the procurement categories in the various scopes associated with this project is:

17.5% MBE & 13% FBE

Please be reminded that no Bidder shall be awarded a contract on an Eligible Project unless the Office of Contract Compliance determines that the Bidder has satisfied the non-discrimination requirements of section 2-1448 on such Eligible Project. Details of the O.C.C. review process for determination of non-discrimination are outlined on page 3 of this document.

Note: This project may potentially contain a service agreement throughout the life of the contract.

OCC will count M/FBE participation in the form of a certified joint venture partner (self-performing a scope of work), and certified M/FBE subcontractor arrangements. The above referenced goal will be measured against **total contract value inclusive of any change orders and/or miscellaneous modifications** that may occur throughout the life of the project.

Equal Business Opportunity Program Reminders for This Solicitation

1. Certification. It is the prime contractor's responsibility to verify that MBEs and FBEs included on the Subcontractor Project Plan are certified by the City of Atlanta's Office of Contract Compliance, or have a certification application pending with the City of Atlanta's Office of Contract Compliance.

2. Joint Venture Agreements. The Joint Venture member businesses must have different race ownership, different gender ownership, or both. MFBE members of the Joint Venture must be certified as such by the Office of Contract Compliance. The Joint Venture team shall include in its submittal the MFBE certification number of each MFBE Joint Venture member.

3. Subcontractor Contact Form. It is required that bidders list and submit information on **all subcontractors** they solicit for quotes, all subcontractors who contact them with regard to the project, and all subcontractors they have discussions with regarding the project. Failure to provide complete information on this form will result in your bid being declared non-responsive.

4. Reporting. The successful bidder must submit monthly EBO participation reports to the Office of Contract Compliance in a manner as prescribed by the OCC contract monitor of record.

5. SBO/EBO Ordinance. The EBO Program is governed by the provisions of the SBO/EBO Ordinance set forth in the City of Atlanta Code Division 12, section 2 - 1356 through 2 - 1480. The ordinance can be obtained from the City of Atlanta Clerk's Office at (404) 330-6032.

6. Supplier Participation. In order to receive full M/FBE credit, suppliers must manufacture or warehouse the materials, supplies, or equipment being supplied for use on the Eligible Project.

7. OCC Registry of Certified Firms. To access OCC's real time registry of vendors (certified or non-certified), visit our PRISM Compliance Management portal at: https://pro.prismcompliance.com/default.aspx. Next, click the drop down arrow under "Visit a Jurisdiction", select "City of Atlanta", and click "go!" Once there, you may search by Industry or Certification to obtain your desired results. You may also go to the website: www.atlantaga.gov/contractcompliance and scroll down to the section heading "Registry of Certified Firms" Click OCC's quarterly list to access the current directory of certified firms.

COVENANT OF NON-DISCRIMINATION

The undersigned understands that it is the policy of the City of Atlanta to promote full and equal business opportunity for all persons doing business with the City of Atlanta. The undersigned covenants that we have not discriminated, on the basis of race, gender or ethnicity, with regard to prime contracting, subcontracting or partnering opportunities. The undersigned further covenants that we have completed truthfully and fully the required forms EBO-2 and EBO-3. Set forth below is the signature of an officer of the bidding entity with the authority to bind the entity.

_____

Signature of Attesting Party

_____

Title of Attesting Party

On this _____ day of _____, 20___, before me appeared _____, the person who signed the above covenant in my presence.

_____

Notary Public

Seal

FORM EBO-1

SUBCONTRACTOR CONTACT FORM

List ***all subcontractors or suppliers*** (Majority, EBO and Non-EBO Certified) that were contacted regarding this project.

Name of Sub-contractor/ Supplier/JV Partner	Contact Name, Address and Phone Number	City Of Atlanta Business License? (Yes or No)	Type of Work Solicited for	Solicited for JV? (Yes or No)	Business Ownership (see code below)	Certification No. and Expiration Date	Results of Contact

Name of Sub-contractor/ Supplier/JV Partner	Contact Name, Address and Phone Number	City Of Atlanta Business License? (Yes or No)	Type of Work Solicited for	Solicited for JV? (Yes or No)	Business Ownership (see code below)	Certification No. and Expiration Date	Results of Contact

Business Ownership Code: AABE - African American Business Enterprise, HABE – Hispanic Business Enterprise, FBE – Female Business Enterprise, APABE – Asian (Pacific Islander) American Business Enterprise

Company Name: _____ **Project Name:** _____ **FC#:** _____

Printed Signature: _____ **Date:** _____

EQUAL BUSINESS OPPORTUNITY SUBCONTRACTOR PROJECT PLAN SUBCONTRACTOR/SUPPLIER UTILIZATION

List all Majority, EBO Certified, and Non-EBO Certified subcontractors/suppliers, including lower tiers, to be used on this project.

Name of Sub-contractor/ Supplier	Contact Name, Address and Phone Number	City of Atlanta Business License? (yes or no)	Joint Venture Partner? (yes or no)	NIAC Code	Type of Work to be Performed	Ethnicity of M/FBE Ownership (see code below)	M/FBE Certification No. and Expiration Date	Dollar ($) Value of Work and Scope of Work	Percentage (%) of Total Bid Amount

Total MBE%_____ Total FBE%_____ Total EBO%_____

Code: AABE - African American Business Enterprise, HABE – Hispanic American Business Enterprise, FBE – Female Business Enterprise, **APABE – Asian (Pacific Islander) American Business Enterprise**

Proponent's Company Name: _____ **Project Name:** _____ **FC#:** _____

Proponent's Contact Number:_____ **Printed Signature:**_____ **Date:** _____

(THIS PAGE SHALL BE SUBMITTED FOR EACH M/FBE FIRM)

LETTER OF INTENT

Minority or Female Business Enterprise

Proponent Name:_____

Address:_____

City:_____ State:_____ Zip:_____

M/FBE Firm: M/FBE Firm:_____

Address:_____

City:_____ State:_____ Zip:_____

M/FBE Contact Person: Name:_____ Phone: (___)_____

Expiration Date of M/FBE Certification:_____

M/FBE is performing as: ☐Prime Contractor ☐Sub contractor ☐Joint Venture Member

Work item(s) to be performed by M/FBE	Description of Work Item	Dollar(s) Value of Work and Scope of Work	Percentage (%) of Total Bid Amount
	TOTAL M/FBE		

The bidder/offeror is committed to utilizing the above-named M/FBE firm for the work described above. The estimated participation is as follows:

M/FBE contract amount: $_____ Percent of total contract:_____%

AFFIRMATION:
The above-named M/FBE firm affirms that it will perform the portion of the contract for the estimated dollar value as stated above.

By: _____
(Print name) *(Title)*

_____
(signature) *(date)*

* **In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.**

(THIS PAGE SHALL BE SUBMITTED FOR EACH M/FBE FIRM)

LETTER OF INTENT

Minority or Female Business Enterprise

Proponent Name:_____

Address:_____

City:_____ State:_____ Zip:_____

M/FBE Firm: M/FBE Firm:_____

Address:_____

City:_____ State:_____ Zip:_____

M/FBE Contact Person: Name:_____ Phone: (___)_____

Expiration Date of M/FBE Certification:_____

M/FBE is performing as: ☐Prime Contractor ☐Sub contractor ☐Joint Venture Member

Work item(s) to be performed by M/FBE	Description of Work Item	Dollar(s) Value of Work and Scope of Work	Percentage (%) of Total Bid Amount
	TOTAL M/FBE		

The bidder/offeror is committed to utilizing the above-named M/FBE firm for the work described above. The estimated participation is as follows:

M/FBE contract amount: $_____ Percent of total contract:_____%

AFFIRMATION:
The above-named M/FBE firm affirms that it will perform the portion of the contract for the estimated dollar value as stated above.

By: _____
(Print name) *(Title)*

_____
(signature) *(date)*

* **In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.**

AWDA | ATLANTA WORKFORCE DEVELOPMENT AGENCY

First Source Jobs Program Policy Statement

It is the policy of the City of Atlanta to provide job opportunities to the residents of the City of Atlanta, whenever possible. Whereas every contract with the City of Atlanta creates a potential pool of new employment opportunities, the following program is applicable to **construction projects only** and is subject to review by AWDA on a case by case basis for applicability. Once AWDA has made the determination that the First Source Jobs Program is applicable, the successful prime contractor (and all subcontractors associated with the awarded project) is expected to work with the First Source Jobs Program to fill at least 50% of all new entry-level jobs, which arise from this project, with residents of the City of Atlanta. **AWDA has determined that the first source Jobs program is applicable for this project.** For more specific information about the First Source Jobs Program contact:

Michael Sterling
Executive Director
First Source Jobs Program
Atlanta Workforce Development Agency
818 Pollard Boulevard
Atlanta, GA 30315
(404) 546-3000

AGREEMENT

FC-_____

ATLANTA WORKFORCE DEVELOPMENT AGENCY
FIRST SOURCE JOB TRAINING AND EMPLOYMENT PLACEMENT PROGRAM

This Agreement is made on the _____ day of _____, _____ and entered into between the Atlanta Workforce Development Agency ("AWDA"), an agency implementing the City of Atlanta's First Source Job Training and Employment Placement Program ("Program"), having its principal office at 818 Pollard Boulevard, S.W. Atlanta, Georgia 30315, and **Name of General Contractor** ("Construction GC"), a Georgia for profit corporation, having its principal office at **Insert Construction GC Address**.

WHEREAS, Ordinance 10-O-0928, which created the City of Atlanta's First Source Job Training and Employment Placement Program, was adopted by the Atlanta City Council on February 4, 2013 and approved by the Mayor of Atlanta on February 13, 2013; and,

WHEREAS, according to the most recent U.S. Census Bureau statistics, some 25 percent of the City of Atlanta's residents live below the federal poverty level; and,

WHEREAS, the City of Atlanta, through implementation of the Program, desires to address the issues of poverty, unemployment, and underemployment by providing meaningful job and career opportunities to the city's residents; and,

WHEREAS, the City of Atlanta enters into numerous public works and improvement contracts that are funded by public tax dollars; and,

WHEREAS, various building and construction workers are required to fulfill and perform the work required under said contracts; and,

WHEREAS, in order to facilitate the successful implementation of the Program, AWDA and the Construction GC desire to enter into this Agreement to set forth the respective responsibilities and obligations of each party for the duration of the Construction Contract as entered into between the City of Atlanta and the Construction GC.

NOW, THEREFORE, in consideration of the mutual covenant herein contained, the AWDA and the Construction GC hereby agree as follows:

Section 1. Definitions. The following italicized terms shall have the following meanings. All definitions include both the singular and plural forms.

Construction Contract shall mean a contract entered into or funded by the City for the performance of work that requires construction or building trades skills and has a face value greater than the Threshold Amount.

Construction General Contractor ("Construction GC") shall mean any entity entering into a Construction Contract that exceeds the Threshold Amount.

Entry-level shall mean any non-managerial position that requires either no education above a high school diploma or certified equivalency, or less than two (2) years of training or specific preparation. This definition includes, but is not limited to apprentices.

First Source Register shall mean the register managed by AWDA providing theConstruction GC and its Sub-contractors with Workforce Innovation and Opportunity Act (WIOA) eligible residents of the City of Atlanta from which to fill Entry-level construction positions.

New Construction Position shall mean any non-executive, non-professional engineering, non-office, or non-clerical job, or any job not filled by full-time employees on the Construction GC's payroll for at least three months prior to the Notice to Proceed for the Construction Contract.

Sub-contractor shall mean any contractor performing construction work either directly or indirectly for the Construction GC, pursuant to any Construction Contract and that meets the Threshold Amount.

Threshold Amount shall mean any Construction Contract in which the prime contract is $500,000.00 or greater and the sub-contract(s) is $250,000.00 or greater.

Workforce Innovation and Opportunity Act ("WIOA") shall refer to Public Law 113-128, passed by the U.S. Congress and signed into law by President Barack Obama in July 2014. The Act reauthorized the Workforce Investment Act of 1998. WIOA is a federal grant program designed to help job seekers access employment, education, training, and support services to succeed in the labor market and to match employers with the skilled workers.

Section 2. General.

A. Construction GC shall, and shall cause the Construction GC's Sub-contractors to, use AWDA as its first source for the recruitment, referral, and placement of New Construction Positions through the First Source Register subject to the terms of this Agreement.

B. AWDA will provide recruitment, referral, and placement services through the First Source Register to the Construction GC and its Sub-contractors.

Section 3. Responsibilities of AWDA.

The AWDA shall:

A. Provide recruitment and referral to the Construction GC and Sub-contractor(s), subject to the limitations set out in this Agreement.

B. Screen applicants and provide Construction GC and Sub-contractor(s) with a list of applicants according to the terms of this Agreement.

Section 3. Responsibilities of the Construction GC.

The Construction GC shall, and shall cause its Sub-contractor(s) to:

A. Review and interview job applicants exclusively from the First Source Register – prior to reviewing job applicants from any other source – for all new entry-level Construction Positions.

B. Make good faith efforts to fill 50 percent of entry-level positions with City of Atlanta residents who are listed on the First Source Registry.

C. Provide signed letters of assent ("Exhibit C") indicating agreement to the terms of the First Source Job Training and Employment Placement Program with the submission of the proposal documents."

D. Provide AWDA with Employer Projection of Positions Form ("Exhibit A"), which shall contain a list of all New Construction Positions for which the Construction GC is hiring, as well as the job qualifications for those positions. This notification shall occur after the Construction Contract has been awarded and before the Notice to Proceed ("NTP") is issued.

E. After issuance of the NTP, provide a final Employer Projection of Positions Form ("Exhibit A") to AWDA.

F. Provide names and position titles of all Non-New Construction Positions ("Exhibit B"). Non-New Construction Positions include any executive, professional engineering, office, or clerical jobs, or any jobs filled by full-time salaried employees on the Construction GC's payroll for at least three months prior to the notice to proceed. This list shall be deemed exempted positions.

G. Include provisions in all Construction Contracts entered into with Sub-contractors to represent and warrant adherence to the terms of this Agreement.

H. Evaluate and interview all candidates provided by AWDA from the First Source Register and provide AWDA with the Post-Interview Evaluation Form ("Exhibit D"), within ten (10) days of the evaluation and interview.

I. Provide AWDA with a completed Requisition Progress Report ("Exhibit E") certifying compliance with this Agreement and detailing individuals who were hired, their address, start and end employment dates, and hours worked during that month.

J. Maintain daily sign-in sheet logs and payroll records for all of its employees and make said sign-in sheet logs and payroll records available to AWDA upon request. AWDA shall not use such records for any purpose other than monitoring of compliance with this Agreement.

K. Submit to AWDA with each payment application for the Construction Contract, the following items:

(i) A copy of all completed Employer Projection of Positions Forms ("Exhibit A") which have been completed since the last requisition submitted;

(ii) A copy of all completed Post-Interview Evaluation Forms ("Exhibit D") which have been completed since the last requisition submitted; and

(iii) The completed Requisition Progress Report ("Exhibit E") which have been completed since the last requisition submitted.

Section 4. Nondiscrimination. No party to this Agreement shall discriminate against First Source Register referrals in any terms and conditions of employment, including retention, promotions, job duties, shift assignments, and training opportunities.

Section 5. Events of Default. Subject to construction schedules and safety requirements, AWDA, the Office of Contract of Compliance ("OCC"), and awarding departments shall have the right to

engage in random inspections of job sites and have access to the employees of the Construction Contractor or Sub-contractor(s) and the records required under Ordinance 10-O-0928 (City of Atlanta Code of Ordinances, ARTICLE XI).

If AWDA, OCC, or an awarding department determine the Construction GC and/or Sub-contractor(s) are not in compliance with this Agreement, any or all of the following actions may be taken:

- Withhold progress payments of up to 10% of the Contract Amount;
- Refusal of all future bids on City projects until such time as the Construction GC and/or Sub-contractor come into compliance with this Agreement; or
- Termination of the Agreement.

Section 6. Notices. All notices, consents, approvals and other communications which may be or are required to be given by AWDA or the Construction GC under this Agreement shall be properly given only if made in writing and sent by (a) hand delivery, or (b) certified mail, return receipt requested, or (c) a nationally recognized overnight delivery service (such as Federal Express, UPS Next Day Air or Airborne Express), (d) by email to the email address listed below (provided that a copy of such notice is also delivered within 24 hours to the party by one of the methods listed in this Section 6(a), (b) or (c)), or (e) by facsimile to the facsimile number listed below (provided that a copy of such notice is also delivered within 24 hours to the party by one of the other methods listed in this Section 6(a), (b) or (c)), with all postage and delivery charges paid by the sender and addressed to the other parties as applicable as set forth below. Said notice addresses are as follows:

If notice is to City:

Atlanta Workforce Development Agency
818 Pollard Blvd., SW
Atlanta, GA 30315
ATTN: Business Relations Manager
akhanduri@atlantaga.gov

If notice is to Construction GC:

_____

_____

_____

_____

Each party may change its address by written notice in accordance with this Section (effective five (5) days after the delivery of written notice thereof). Any communication addressed and mailed in accordance with this Section will be deemed to be given when received, unless rejected or returned by the recipient, in which case when mailed, any notice so sent by electronic or facsimile transmission will be deemed to be given when receipt of such transmission is acknowledged, and any communication so delivered in person will be deemed to be given when receipted for, or actually received, by the party identified above.

Section 7. Amendments and Waivers. Any provision of this Agreement may be amended or waived if such amendment or waiver is in writing and is signed by the parties hereto. No course of dealing on the part of any party to this Agreement, nor any failure or delay by any party to this Agreement with respect to exercising any right, power, or privilege hereunder will operate as a waiver thereof.

Section 8. Invalidity. In the event that any provision of this Agreement is held unenforceable in any respect, such unenforceability will not affect any other provision of this Agreement.

Section 9. Successors and Assigns. This Agreement shall be binding upon the parties hereto and their respective successors and assigns and shall inure to the benefit of the parties hereto and their respective permitted successors and assigns. The Construction GC may not assign this Agreement or any of its rights hereunder or any interest herein without the prior written consent of AWDA, which consent may be withheld or conditioned in the sole discretion of AWDA; provided, however, that AWDA will not unreasonably withhold its consent to an assignment by the Construction GC of all or any of its rights under this Agreement.

Section 10. Exhibits; Titles of Articles and Sections. The exhibits attached to this Agreement are incorporated herein and will be considered a part of this Agreement for the purposes stated herein, except that in the event of any conflict between any of the provisions of such exhibits and the provisions of this Agreement, the provisions of this Agreement will prevail. All titles or headings are only for the convenience of the parties and may not be construed to have any effect or meaning as to the Agreement between the parties hereto. Any reference herein to a Section or subsection will be considered a reference to such Section or subsection of this Agreement unless otherwise stated. Any reference herein to an exhibit will be considered a reference to the applicable exhibit attached hereto unless otherwise stated.

Section 11. Applicable Law. This Agreement is made under and will be construed in accordance with and governed by the laws of the State of Georgia.

No provision of this agreement shall be interpreted so as to require the Construction GC and/or Sub-contractor(s) to employ a worker not qualified for a position, or to employ or retain any particular employee, or to hire any worker as a result of such worker's membership in a labor union.

Section 12. Entire Agreement. This Agreement represents the final agreement between the parties and may not be contradicted by evidence of prior, contemporaneous, or subsequent oral agreements of the parties. There are no unwritten oral agreements between the parties.

Section 13. Termination of Agreement. Without cause, AWDA may terminate this agreement at any time upon thirty (30) days' written notice to the Construction GC and AWDA.

IN WITNESS WHEREOF, this Agreement is executed by AWDA and the GC as of the date first written above.

Atlanta Workforce Development Agency

By: _____
Michael T. Sterling
Executive Director

Approved as to form:

By:_____
Susan Garrett, Esq.
Senior Assistant Attorney
City of Atlanta

Construction General Contractor:

By:_____
Name
Title

AWDA ATLANTA WORKFORCE DEVELOPMENT AGENCY

Exhibit A

EMPLOYER PROJECTION OF POSITIONS FORM

	Position Title	Qualifications	Number of Positions
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Exhibit B

NON-NEW CONSTRUCTION POSITIONS

Please provide a list of all full-time construction workers (names and position titles) that will work on the project site during the life of the project. Indicate the category of work for which they will be utilized. This list shall be deemed **exempted positions**.

AWDA will not need to be notified ten (10) days prior to their hiring or arrival on the project site as long as their names are reflected on this list.

A **Non-**New Construction Position is any executive, professional engineering, office, or clerical jobs, or any jobs filled by full-time salaried employees on the Construction GC's payroll for **at least three months prior to the notice to proceed** for the project.

	Name	Position Title
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

AWDA ATLANTA WORKFORCE DEVELOPMENT AGENCY

Exhibit C

CONSTRUCTION GC / SUB-CONTRACTOR LETTER OF ASSENT

I have read the First Source Job Training and Employment Placement Agreement and assent to the terms therein.

_____

Construction GC or Sub-Contractor

_____

Date

AWDA ATLANTA WORKFORCE DEVELOPMENT AGENCY

Exhibit D

POST-INTERVIEW EVALUATION FORM

Instructions

Construction GC and Sub-contractors must complete and submit this form to the Atlanta Workforce Development Agency within ten (10) days of interviewing a job candidate from the First Source Register.

Date of Interview:_____

Name of Candidate:_____

Did the candidate meet the qualifications of the position? Why or why not?

_____
_____
_____
_____

Was the candidate hired? _____

If not, please provide the reasons for your decision:_____
_____
_____
_____

If not, how could the candidate improve his/her employability?_____
_____
_____
_____

AWDA ATLANTA WORKFORCE DEVELOPMENT AGENCY

Exhibit E

REQUISITION PROGRESS REPORT

	Name	Start Date	End Date	Hours Worked
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

F-3

Appendix B:

Insurance/Bonding for Services Agreement

APPENDIX B

INSURANCE & BONDING REQUIREMENTS
FC-8437 RM Clayton WRC Instrumentation and Controls Reliability Restoration

A. Preamble

The following requirements apply to all work under the agreement. Compliance is required by all Contractors/Consultants. **To the extent permitted by applicable law, the City of Atlanta ("City") reserves the right to adjust or waive any insurance or bonding requirements contained in this Appendix B and applicable to the agreement.**

1. Evidence of Insurance Required Before Work Begins

No work under the agreement may be commenced until all insurance and bonding requirements contained in this Appendix B, or required by applicable law, have been complied with and evidence of such compliance satisfactory to City as to form and content has been filed with City. Contractor/Consultant must provide City with a Certificate of Insurance that clearly and unconditionally indicates that Contractor/Consultant has complied with all insurance and bonding requirements set forth in this Appendix B and applicable to the agreement. If the Contractor/Consultant is a joint venture, the insurance certificate should name the joint venture, rather than the joint venture partners individually, as the primary insured**.** In accordance with the solicitation documents applicable to the agreement at the time Contractor/Consultant submits to City its executed agreement, Contractor/Consultant must satisfy all insurance and bonding requirements required by this Appendix B and applicable by law, and provide the required written documentation to City evidencing such compliance. In the event that Contractor/Consultant does not comply with such submittal requirements within the time period established by the solicitation documents applicable to the agreement, City may, in addition to any other rights City may have under the solicitation documents applicable to the agreement or under applicable law, make a claim against any bid security provided by Contractor/Consultant.

2. Minimum Financial Security Requirements

All companies providing insurance required by this Appendix B must meet certain minimum financial security requirements. These requirements must conform to the ratings published by A.M. Best & Co. in the current Best's Key Rating Guide - Property-Casualty. The ratings for each company must be indicated on the documentation provided by Contractor/Consultant to City certifying that all insurance and bonding requirements set forth in this Appendix B and applicable to the agreement have been unconditionally satisfied.

For all agreements, regardless of size, companies providing insurance or bonds under the agreement must meet the following requirements:

i) Best's rating not less than A-,
ii) Best's Financial Size Category not less than Class VII, and

iii) Companies must be authorized to conduct and transact insurance contracts by the Insurance Commissioner, State of Georgia.

iv) All bid, performance and payment bonds must be underwritten by a U.S. Treasury Circular 570 listed company.

If the issuing company does not meet these minimum requirements, or for any other reason is or becomes unsatisfactory to City, City will notify Contractor/Consultant in writing. Contractor/Consultant must promptly obtain a new policy or bond issued by an insurer acceptable to City and submits to City evidence of its compliance with these conditions.

Contractor/Consultant's failure to comply with all insurance and bonding requirements set forth in this Appendix B and applicable to the agreement will not relieve Contractor/Consultant from any liability under the agreement. Contractor/Consultant's obligations to comply with all insurance and bonding requirements set forth in Appendix B and applicable to the agreement will not be construed to conflict with or limit Contractor/Consultant's/Consultant's indemnification obligations under the agreement.

3. Insurance Required for Duration of Contract

All insurance and bonds required by this Appendix B must be maintained during the entire term of the agreement, including any renewal or extension terms, and until all work has been completed to the satisfaction of City.

4. Notices of Cancellation & Renewal

Contractor/Consultant must, notify the City of Atlanta in writing at the address listed below by mail, hand-delivery or facsimile transmission, within 2 days of any notices received from any insurance carriers providing insurance coverage under this Agreement and Appendix B that concern the proposed cancellation, or termination of coverage.

Enterprise Risk Management
68 Mitchell St. Suite 9100
Atlanta, GA 30303
Facsimile No. (404) 658-7450

Confirmation of any mailed notices must be evidenced by return receipts of registered or certified mail.

Contractor/Consultant shall provide the City with evidence of required insurance prior to the commencement of this agreement, and, thereafter, with a certificate evidencing renewals or changes to required policies of insurance at least fifteen (15) days prior to the expiration of previously provided certificates.

5. Agent Acting as Authorized Representative

Each and every agent acting as Authorized Representative on behalf of a company affording coverage under this contract shall warrant when signing the Accord Certificate of Insurance that specific authorization has been granted by

the Companies for the Agent to bind coverage as required and to execute the Acord Certificates of Insurance as evidence of such coverage. City of Atlanta coverage requirements may be broader than the original policies; these requirements have been conveyed to the Companies for these terms and conditions.

In addition, each and every agent shall warrant when signing the Acord Certificate of Insurance that the Agent is licensed to do business in the State of Georgia and that the Company or Companies are currently in good standing in the State of Georgia.

6. Certificate Holder

The **City of Atlanta** must be named as certificate holder. All notices must be mailed to the attention of **Enterprise Risk Management** at **68 Mitchell Street, Suite, 9100, Atlanta, Georgia 30303.**

7. Project Number & Name

The project number and name must be referenced in the description section of the insurance certificate.

8. Additional Insured Endorsements Form CG 20 26 07 04 or equivalent

The City must be covered as Additional Insured under all insurance (except worker's compensation and professional liability) required by this Appendix B and such insurance must be primary with respect to the Additional Insured. **Contractor/Consultant must submit to City an Additional Insured Endorsement evidencing City's rights as an Additional Insured for each policy of insurance under which it is required to be an additional insured pursuant to this Appendix B. Endorsement must not exclude the Additional Insured from Products - Completed Operations coverage. The City shall not have liability for any premiums charged for such coverage.**

9. Mandatory Sub-Contractor/Consultant Compliance

Contractor/Consultant must require and ensure that all subContractor/Consultants/subconsultants at all tiers to be sufficiently insured/bonded based on the scope of work performed under this agreement.

10. Self Insured Retentions, Deductibles or Similar Obligations

Any self insured retention, deductible or similar obligation will be the sole responsibility of the contractor.

B. Workers' Compensation and Employer's Liability Insurance

Contractor/Consultant must procure and maintain Workers' Compensation and Employer's Liability Insurance in the following limits to cover each employee who is or may be engaged in work under the agreement. :

Workers' Compensation. . . . . **Statutory**
Employer's Liability:
Bodily Injury by Accident/Disease **$1,000,000 each accident**
Bodily Injury by Accident/Disease **$1,000,000 each employee**
Bodily Injury by Accident/Disease **$1,000,000 policy limit**

C. Commercial General Liability Insurance

Contractor/Consultant must procure and maintain Commercial General Liability Insurance on form (CG 00 00 01 or equivalent) in an amount not less than **$1,000,000 per occurrence subject to a $2,000,000 aggregate**. The following indicated extensions of coverage must be provided:

- ☒ Contractual Liability
- ☒ Broad Form Property Damage
- ☒ Premises Operations
- ☒ Personal Injury
- ☒ Fire Legal Liability
- ☒ Medical Expense
- ☒ Independent Contractor/Consultants/SubContractor/Consultants
- ☒ Products – Completed Operations
- ☒ Explosion, Collapse and Underground (XCU) Liability
- ☒ Additional Insured Endorsement* (primary& non-contributing in favor of the City of Atlanta)
- ☒ Waiver of Subrogation in favor of the City of Atlanta

D. Commercial Automobile Liability Insurance

Contractor/Consultant must procure and maintain Automobile Liability Insurance in an amount not less than **$1,000,000** Bodily Injury and Property Damage combined single limit. The following indicated extensions of coverage must be provided:

- ☒ Owned, Non-owned & Hired Vehicles
- ☒ Waiver of Subrogation in favor of the City of Atlanta

If Contractor/Consultant does not own any automobiles in the corporate name, non-owned vehicle coverage will apply and must be endorsed on either Contractor/Consultant's personal automobile policy or the Commercial General Liability coverage required under this Appendix B.

E. Excess or Umbrella Liability Insurance

Contractor/Consultant shall procure and maintain a policy providing Excess or Umbrella Liability Insurance which is at least as broad as the underlying policy. This insurance, which shall be maintained throughout the life of the contract, shall be in an amount of not less than **$5,000,000 per occurrence**.

☒ Coverage must follow form with primary policy
☒ May be used to achieve minimum liability limits
☒ Coverage must be as broad as primary policy

F. Builders Risk / Installation Floater

Contractor/Consultant shall procure and maintain policy for Builders Risk/ Installation Floater with all risk coverage to cover damage or destruction to renovations, repairs or equipment being installed or otherwise being handled or stored by the Contractor, including off-site storage, transit and installation. The following indicated extensions of coverage must be provided:

☒ All Risk Coverage
☒ Operational Testing Coverage included
☒ Loss Payee Endorsement

G. Property Coverage/Inland Marine

Contractor/Consultant shall procure and maintain all risk property coverage in an amount equal to replacement value for all equipment, furniture, fixtures, machinery and/ or personal property.

H. Performance Bond and Payment Bond

Contractor/Consultant shall furnish a Payment Bond and a Performance Bond to the City in an amount equal to **100 percent of the total contract value** and for the duration of the entire term.

The person executing the Bonds on behalf of the surety shall file with the Bonds a general power of attorney unlimited as to amount and type of bonds covered by such power of attorney, and certified by an official of said surety. **Be a U.S. Treasury Circular 570 listed company.**

Appendix A

Requirements of the Office of Contract Compliance

Appendix B

Insurance and Bonding Requirements

Appendix C

Additional Contract Documents **(N/A)**

Appendix D

Local Bidder Preference Program
(N/A)