



Milwaukee
Water Works

Safe, Abundant Drinking Water.

City of Milwaukee
Department of Public Works
Milwaukee Water Works

Specifications for

**WP-308: Linnwood Water Purification Plant
Backup Power Generation**



2013

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Technical Specifications
And
Drawings by
Black & Veatch, Inc.
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GENERAL REQUIREMENTS

PART 1 DEPARTMENT OF PUBLIC WORKS - GENERAL SPECIFICATIONS
(NOTE: The Department of Public Works General Specifications applies to all contracts. These specifications are in a separate booklet.)

PART 2 SPECIFIC OFFICIAL NOTICE AND GENERAL OFFICIAL NOTICE
The Specific Official Notice as it appears in The Daily Reporter and General Official Notice are a part of these contract documents.

PART 3 SPECIFICATIONS

WP-308: LINNWOOD BACKUP POWER GENERATION

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EXHIBIT "A"
Control Related
Technical Specifications
Black & Veatch

EXHIBIT "B"
Technical Specifications
Black & Veatch

EXHIBIT "C"
Geotechnical Engineering Report
GILES Engineering Associated, Inc.

EXHIBIT "D"
FABCO Generator Proposal & Details

The Milwaukee Water Works (MWW) agrees to allow the undersigned DOCUMENT REVIEWER access to certain confidential information pertaining to Riverside Backup Power Generation Project. The access to confidential documents is subject to the following mutually agreed upon terms and conditions:

1. DOCUMENT REVIEWER agrees to hold the above-described confidential material in trust and confidence and agrees that it shall be used only for improvements to MWW facilities or other mutually agreed upon purposes, and shall not be used for any other purpose or be disclosed to any third party.
2. By reviewing the above-described confidential materials, DOCUMENT REVIEWER expressly agrees to treat such documentation as confidential.
3. All recipients of documents must provide valid State driver's license or other form of US and /or State official picture identification card before viewing.
4. Copies, reproduction or alteration in any form, including but not limited to paper copies and electronically formatted copies, shall not be made or retained for distribution to any third party outside the approved use.
5. At the conclusion of the bidding process or the proposed work for which the above-described confidential information was reviewed or upon the demand of MWW at its sole discretion may demand that all written notes, photographs, sketches, models or memoranda which were developed or derived from or reflect information obtained from the above confidential referenced material be turned over to MWW.
6. MWW assumes no responsibility whatsoever with respect to the completeness, sufficiency, accuracy or interpretation set forth therein of any plan, documents or data that is provided pursuant to this agreement. In addition, there is no warranty or guarantee, either expressed or implied, that the condition indicated by such document are representative of the actual existing site conditions or future as-built conditions of the subject location.
7. In the event that a suit is necessary to enforce any of the provisions herein, MWW shall be entitled to reasonable attorney's fees in addition to costs.

Agreement

(PLEASE PRINT LEGIBLY)

I, _____, am
representing

(Please print)

Company/Agency:

Complete Mailing Address:

I HAVE READ THE ABOVE CONFIDENTIALITY AGREEMENT AND AGREE TO THE ABOVE STIPULATIONS.

COMPANY/AGENCY REPRESENTATIVE:

Signature

Date

Title

ACCEPTED BY:

MILWAUKEE WATER WORKS REPRESENTATIVE

Print name

Print Title

Signature

Date

JOB REQUIREMENTS

WP-308: LINNWOOD BACKUP POWER GENERATION

JR-1: FORM OF BID: Contractor shall submit a lump sum bid for furnishing the complete job in accordance with plans and specifications.

JR-2: JOB LOCATION: The Linnwood Water Purification Plant is located at 3000 North Lincoln Memorial Drive, Milwaukee, Wisconsin, 53211.

JR-3: GENERAL DESCRIPTION OF WORK: The work to be performed under the provisions of this contract and as set forth in these documents consists of the supply and installation of all materials, labor, supervision and rentals for all work involved and described below.

PROJECT #1: BACKUP POWER GENERATION

Supply and installation of all material and labor required for improvements to the Linnwood Water Purification Plant to accommodate the supply and installation of engine generators. Work shall include site, architectural, structural, mechanical and electrical work as shown on the drawings.

PROJECT #2: NEW GUARD HOUSE, GATE AND ENTRY SYSTEM:

Supply and installation of all material and labor required for improvements to the Linnwood Water Purification Plant to accommodate the supply and installation of all components for a new entry gate and guard house. Work shall include site, architectural, structural, mechanical and electrical work as shown on the drawings.

JR-4: CONTRACT DRAWINGS: The contract drawings upon which the proposal is to be based are listed hereunder:

<u>Drawing Number</u>	<u>Title</u>
WP-308-G01	Vicinity and Location Plan
WP-308-G02	Drawing Sheet List
WP-308-G03	Legends & Abbreviations (1 of 2)
WP-308-G04	Legends & Abbreviations (2 of 2)
WP-308-G05	Survey and Control Data
WP-308-G06	Survey control Data – Entry Way
WP-308-C01	Site Overview Plan
WP-308-C02	Site Overview Plan – Entry Way Area
WP-308-C03	Erosion Control and Demolition Plan
WP-308-C04	Erosion Control & Demolition Plan - Entry Way area
WP-308-C05	Entry Way Plan
WP-308-C06	Entry Way Details
WP-308-C07	Ozone Facility subsystem Detailed Site Plan
WP-308-C08	North Courtyard Detailed Site Plan
WP-308-C09	Sections And Notes

WP-308-C10	Site-work Details
WP-308-S01	Structural Notes
WP-308-S02	Standard Concrete Joint Details
WP-308-S03	Standard Concrete Reinforcement Details
WP-308-S04	Ozone Facility Subsystem Equipment Plan
WP-308-S05	North Courtyard Equipment Pad Plans
WP-308-S06	Guardhouse Building Elevations
WP-308-S07	Guardhouse Building Plans And Details
WP-308-S08	Section and Notes
WP-308-S09	Sections and Notes
WP-308-S10	Sections and Details
WP-308-M01	Norte courtyard Engine-Generator Plan
WP-308-M02	Ozone Facility Engine-Generator Plan
WP-308-M03	Entry Way Pneumatic Tube System
WP-308-E01	Legend and Abbreviations
WP-308-E02	Power Distribution Functional Diagram
WP-308-E03	Site Plan
WP-308-E04	Conventional Plant Paralleling Switchgear One-Line Diagram
WP-308-E05	Ozone Facility Paralleling Switchgear One-Line Diagram
WP-308-E06	Conventional Plant Paralleling Switchgear Elevation
WP-308-E07	Ozone Facility Paralleling Switchgear Elevation
WP-308-E08	Conventional Plant Switchgear One-Line
WP-308-E09	Ozone Facility Switchgear One-Line
WP-308-E10	Conventional Plant Miscellaneous One-Line
WP-308-E11	Ozone Facility Miscellaneous One-Line
WP-308-E12	PLC One-Lines
WP-308-E12A	ACS/CCTV Riser Diagram And Sequence Of Operation
WP-308-E13	Schematics
WP-308-E14	Panelboard Schedule
WP-308-E15	Ozone Facility Engine-Generator Power Plan
WP-308-E16	North Courtyard Power Plan
WP-308-E17	Pump Floor Power Plan
WP-308-E18	Ozone Building Power Plan
WP-308-E19	Duct Bank Sections
WP-308-E20	Miscellaneous Details
WP-308-E21	Enlarged Entry Way Plan
WP-308-E22	Guardhouse Enlarged Plan
WP-308-E23	Control And Security Equipment Enlarged Room Plans
WP-308-E24	ACS/CCTV Equipment List
WP-308-E25	ACS/CCTV Miscellaneous Details

WP-308-I01	P&ID Legend & Abbreviations Sheet 1 of 3
WP-308-I02	P&ID Legend & Abbreviations Sheet 2 of 3
WP-308-I03	P&ID Legend & Abbreviations Sheet 3 of 3
WP-308-I04	P&ID Diesel Engine Generator
WP-308-I05	P&ID Paralleling Switchgear
WP-308-I06	Network Control System Block Diagram

JR-4.1: REFERENCE DRAWINGS: The following reference drawings are the original construction drawings. These are included here for general information only. The drawings are assumed to be accurate; however, the contractor is responsible for field verification of any dimensions essential to the work.

<u>Reference Drawing No.</u>	<u>Title</u>
NONE	NONE

JR-5: PRE-BID MEETING: A "**MANDATORY**" Pre-Bid Meeting is scheduled for **TUESDAY, JANUARY 14, 2014, at 10:30 A.M. CST** in the Linnwood Purification Plant Lecture Room, 3000 North Lincoln Memorial Drive, Milwaukee, Wisconsin 53211. The City of Milwaukee will **ONLY** receive bids from prospective bidders who are in attendance at the **MANDATORY** Pre-Bid Meeting. The official envelope for submitting a bid will be available at the **MANDATORY** Pre-Bid Meeting.

JR-5A: SITE VISIT: THE SITE VISIT WILL BE AVAILABLE FOLLOWING THE CONCLUSION OF THE "**MANDATORY**" PRE-BID MEETING.

JR-6: PRE-CONSTRUCTION MEETING: Within ten (10) days after Notice to Proceed is issued, a pre-construction meeting will be held at the job site. Construction details of the project will be discussed in the meeting.

JR-7: JOB SCHEDULE: Within ten (10) days after Notice to Proceed is issued, the contractor shall submit a construction schedule for approval. The schedule shall be made in sufficient detail to indicate dates of each significant operation. The schedule shall be such that the entire job will be completed within the specified completion time. **Contractor shall submit the schedule in hard copy and electronic format using Microsoft Project 2000. However, if an electronic copy cannot be provided in this format, a copy shall be transmitted electronically in a .pdf format and a hard copy of any updated schedules must be provided at all progress meetings.**

The contractor shall place all orders for materials promptly after award of the contract. With submittal of the construction schedule, he shall include a schedule of delivery of all major material and equipment required for the job.

The contractor shall immediately notify the City, in writing, of any problems with meeting this schedule. If the construction schedule cannot be met because of materials or equipment deliveries, the contractor shall be required to submit purchase orders and confirmations of delivery, showing the date the order was placed and the promised date of delivery.

JR-8: COMPLETION DATE: All work on this project shall be completed according to the following schedule:

<u>OCTOBER 31, 2015:</u>	<u>SUBSTANTIAL COMPLETION</u>
<u>DECEMBER 31, 2015:</u>	<u>FINAL COMPLETION</u>

JR-9: CHARGE FOR INSPECTION: The Contractor will be charged \$350.00 per day per inspector for each and every day inspection is required on this Contract after the date allowed for completion or after such extension of time as may have been granted. This charge is further defined in Section 2.5.11 of the Department of Public Works (DPW) General Specifications.

JR-10: PROGRESS PAYMENTS: Within ten (10) days after the Notice to Proceed is issued, the contractor shall submit to the City for approval a schedule showing the breakdown of the contract with quantities and prices as a basis for checking and computing progress estimates. The values shown in the approved breakdown shall be used for pay purposes only and shall not be used as a basis for additions to or deductions from contract work.

Contractor shall take note of the two (2) wage scales included with this bid, The Prevailing Wage Rate issued by the State of Wisconsin, and the Davis-Bacon Wage documents as issued by the U.S. Department of Labor Wage and Hour Division. The contractor is required to pay the **HIGHER** of the two (2) wage scales

When the contractor proceeds properly and with diligence to perform and complete the work on this contract, the Commissioner of Public Works may, from time to time as the work progresses, grant to the contractor an estimate of the amount already earned. In making such progress estimates, there shall be retained 5.0% of each progress estimate until final completion and acceptance of the work; except that after 50% of the work has been completed and the Commissioner finds that satisfactory progress is being made and all conditions complied with, he may authorize any of the remaining progress payments to be paid in full to the contractor with no amount retained.

In accordance with Charter Ordinance 7.26 as amended 6-1-72, payment for materials delivered to the work or storage site may be authorized by the Commissioner of Public Works providing the following terms and conditions are met:

- A. The work is progressing properly and such materials as specified are properly stored and suitable for permanent incorporation in the work.

- B. Materials designated for pay in the next progress estimate after delivery shall be limited to fabricated or manufactured components that are assembled in final form ready for placement in the work.
- C. The following forms shall be submitted with requests for payment.
 - 1. Progress Estimate and Request for Payment for Fabricated Materials or Components Properly Stored.
 - 2. Certification of the Contractor or his duly authorized representative. Field Engineer shall verify that material is as specified and properly stored.
- D. The contractor shall be responsible for the safeguarding of any such materials against loss or damage whatsoever, and in the case of any loss or damage, the contractor shall replace such lost or damaged materials at no cost to the City. The Commissioner shall reserve the right to deduct from ensuing progress estimates the value of any lost or damaged materials until such loss or damage is restored by the contractor.
- E. The Commissioner may limit processing progress estimates to those cases where the amount earned in any pay period for work and materials is \$5,000 or more.
- F. Any materials for which payment has been made shall not be removed from the work or storage site without the specific written approval of the Commissioner of Public Works.

JR-11 WORK HOUR RESTRICTIONS

Work operations, including daily startup activities under this Contract shall be limited to the period from 7:00 am to 3:30 pm daily. Work operations shall be limited to Monday through Friday, excluding City holidays and City furlough days.

JR-12 FORMAL CORRESPONDENCE. Formal correspondence shall be addressed to: Carrie M. Lewis, Superintendent of Milwaukee Water Works, 841 North Broadway, Room 409, Zeidler Municipal Building, Milwaukee WI 53202. Formal correspondence shall include:

- 1) Progress Payments
- 2) Request for Change Order
- 3) Request for extension of Completion Date
- 4) Disputes concerning Payment or Field Issues
- 5) Project Submittals

END OF SECTION

SECTION 01010**SUMMARY OF WORK****PART 1 - SCOPE OF THE CONTRACT**

This contract includes the furnishing of all equipment, labor, supervision, materials and appurtenances for and in connection with improvements to existing facilities and construction of new facilities at the Linnwood Water Purification Plant.

1.2 PROJECT #1-A: BACKUP POWER GENERATION – OZONE FACILITIES:

The work covered by this part of the specification shall consist of, but not be limited to, the furnishing all material, labor, equipment, and supervision for the following:

1.2.1 Site Work

- Tree Removal
- General clearing & grubbing
- Excavation and backfill
- Erosion control measures
- Modular retaining wall
- Existing fence removal
- Drainage improvements
- Security bollards
- New fence installation
- Site restoration

1.2.3 Concrete & Structural Work

- Concrete equipment foundations
- Sidewalk for equipment access
- Retaining wall foundations

1.2.4 Mechanical & Electrical Work

- Installation of two (2) 750 kW engine generators
- Switchgear
- Piping work for generators
- One generator load bank
- Enclosed switchgear
- Electrical improvements in Ozone Facility
- Underground duct back to ozone building
- Wire & conduit
- Area lighting
- Instrumentation improvements

1.3 PROJECT #1-B: BACKUP POWER GENERATION –CONVENTIONAL PLANT NORTH COURTYARD:

The work covered by this part of the specification shall consist of, but not be limited to, the furnishing all material, labor, equipment, and supervision for the following:

1.3.1 Site Work

- Demolition of obsolete switchgear structure
- Removal of portions of existing piers
- General site & road improvements/repairs

1.3.2 Concrete & Structural Work

- Install drilled shaft foundations
- Equipment foundations
- Saw cuts for conduit banks
- Miscellaneous support steel

1.3.3 Mechanical & Electrical Work

- Two (2) 1,500 kW engine generators
- Switchgear
- One generator load bank
- Enclosed switchgear
- Electrical improvements & connections to plant 2,400 kV load center
- Underground duct back to pump room load center
- Piping work for generators
- Electrical improvements to existing pump room facilities
- Instrumentation improvements

1.4 PROJECT #2: NEW ENTRANCE GATE AND GUARD HOUSE FACILITY

The work covered by this part of the specification shall consist of, but not be limited to, the furnishing all material, labor, equipment, and supervision for the following:

1.3.1 Site Work

- Removal of existing gate & operators
- Installation of new vertical swing gate
- General site & road improvements/repairs

1.3.2 Concrete & Structural Work

- Guard building foundation
- Electrical and security equipment foundations
- Conduit banks for power and cable
- Modification of existing curb at parking area

1.3.3 Mechanical & Electrical Work

- Pneumatic tube system
- Security system

2.0 QUALIFICATIONS

The work, as specified, shall be performed by a contractor with no less than five (5) years experience. Upon request by the CITY, the contractor shall provide proof of such experience by providing installation lists, brochures, reference lists etc.

2.1 WORK HOUR RESTRICTIONS

Work operations, including daily startup activities under this Contract shall be limited to the period from 7:00 am to 3:30 pm daily. Work operations shall be limited to Monday through Friday, excluding City holidays and City furlough days.

3.0 SPECIFICATIONS AND STANDARDS

All materials, general design, design loads, allowable stresses, joint design, shop fabrication and field construction shall conform to the requirements of the following latest standard specifications of any technical society, organization, or association, or to codes of local or state authorities:

- A. ASTM, American Society for Testing and Material.
- B. United States Environmental Protection Agency (EPA)
- C. ANSI, American National Standards Institute.
- D. ASTM, American Society for Testing and Material.
- E. The Wisconsin Administrative Code.
- F. U.S. Department of Labor Occupational Safety and Health Act (OSHA).

The contractor shall be familiar with the requirements of the above agencies. Any conflict in the contract drawings, these specifications, the contractor's design or construction methods shall result in this contractor performing in a manner which conforms to the applicable requirements.

See Exhibit "B", Section 01611 for additional data and requirements.

PART 2 - SHOP DRAWINGS:

- A. Within four (4) weeks after "NOTICE TO PROCEED" is issued, the Contractor shall submit to the CITY for approval a minimum five (5) copies of all shop, fabrication, assembly, and other drawings required by the specifications; all drawings of equipment and devices offered by the

Contractor; all drawings showing essential details of any change in design or construction proposed by the Contractor; and all necessary wiring and piping layouts. Drawings of equipment and devices shall show sufficient detail to adequately depict the construction and operation of each item. Each shop drawing shall bear City of Milwaukee, the name and location of the structure, job number, the name of the Contractor, the date of the drawing, the date of each correction or revision, and the specification numbers and plan sheet numbers applicable thereto.

Three revised copies of each drawing shall be submitted each time a drawing is returned to the contractor for revision. Upon final approval of a drawing, eight (8) copies shall be submitted to the CITY for record and distribution to authorized persons.

After approval by the CITY, all such drawings shall become a part of the contract documents and the work or equipment shown thereby shall be furnished and installed as shown unless otherwise required by the CITY. No work shall be performed or equipment manufactured until drawings have been approved. The approval of drawings submitted by the Contractor will be for, and will cover only general conformity to the plans and specifications and will not constitute a blanket approval of all dimensions, quantities, or details of the material or equipment shown by such drawings, nor shall such approval relieve the Contractor of responsibility for errors contained therein.

- B. At the completion of work and prior to final payment, the Contractor shall provide the CITY with six (6) sets of "as-built" drawings for the completed job showing all new equipment and piping. All concealed piping, conduit or similar items shall be located by dimensions and elevations. The Contractor will be responsible for the accuracy of these drawings. Two (2) copies of the above "as-built" drawings shall be submitted in an electronic format compatible with the latest edition of MICROSTATION®.
- C. See Exhibit "B", Technical Specifications, Section 01300 "Submittals", Sub-Paragraph 2.03 for additional requirements.

PART 3 – BASE WARRANTY:

The contractor shall furnish a written two (2) years warranty from the date of acceptance against defective materials or workmanship before the final payment is made. During the period of two (2) years from and after the date of the acceptance by the CITY of the work embraced by this contract, the Contractor shall make all needed repairs arising out of defective workmanship or materials, or both, which in the judgment of the Commissioner of Public Works, shall become necessary during such period. If within ten days after mailing of a notice in writing to the Contractor, or his agent, the said Contractor shall neglect to

make, or undertake with due diligence to make, the aforesaid repairs, the CITY is hereby authorized to make such repair at the Contractor's expense; providing, however, that in case of an emergency where, in the judgment of the Commissioner, delay would cause serious loss or damage, repairs may be made without notice being sent to the Contractor, and the Contractor shall pay the cost thereof.

See Exhibit "B", Specification Section 11910, subpart 3.6 for Extended Warranty Details regarding the Engine Generators.

END OF SECTION

SECTION 01039**COORDINATION AND MEETINGS****PART 1 - GENERAL**

1.1 SECTION INCLUDES

- A. Coordination
- B. Alterations
- C. Cutting and patching
- D. Pre-construction conference
- E. Progress meetings
- F. Pre-installation conferences

1.2 COORDINATION

- A. Coordinate scheduling, submittals, and Work on the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify that the CITY requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Coordinate space requirements and installation of mechanical and electrical work. Follow routing shown for pipes, and conduit, as closely as practicable; place runs parallel with line of structure. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. Coordinate completion and clean up of Work of separate Sections in preparation for Substantial Completion.
- E. Coordinate correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of the City of Milwaukee's activities.
- F. As part of the contract requirements, the Prime Contractor is required to perform miscellaneous electrical work relative to the project security

requirements. The prime contractor shall furnish and install conduit, pull boxes, junction boxes, and power supply wiring for use by the City's Preferred Security Integrator; TOEPFER Security Corporation at 2711 S. Calhoun Road, New Berlin, WI 53146, phone 262-786-3600, contact Mr. Ron Lund. The Prime contractor shall sub-contract directly with the above named Preferred Security Integrator, no exceptions. This Preferred Security Integrator shall provide material for the backup up power generation and the new entrance gate. See Specification Section 16725 for the list of equipment for both projects to be procured by TOEPFER and installed.

1.3 ALTERATIONS

- A. Materials: As specified in product Sections, match existing products and work for patching and extending work.
- B. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.
- C. Remove, cut, and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to original condition.
- D. Refinish visible existing surfaces to original condition.
- E. Where new work abuts or aligns with existing, perform a smooth and even transition. Patched work to match existing adjacent work in texture and appearance.
- F. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to the CITY.
- G. Patch or replace portions of existing surfaces, which are damaged, lifted, or discolored, or showing other imperfections.
- H. Finish surfaces as specified in individual product Sections.

1.4 CUTTING AND PATCHING

- A. Employ skilled and experienced installer to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements which affects:
 - 1. Structural integrity of element.
 - 2. Integrity of weather-exposed or moisture resistant element.

3. Efficiency, maintenance, or safety of element.
4. Visual qualities of sight-exposed elements.
5. Work of City of Milwaukee or separate contractor.

C. Execute cutting, fitting, and patching to complete Work, and to:

1. Fit the several parts together, to integrate with other Work.
2. Uncover Work to install or correct ill-timed work.
3. Remove and replace defective and non-conforming Work.
4. Remove samples of installed Work for testing.
5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
6. Execute work by methods that will avoid damage to other Work, and provide proper surfaces to receive patching and finishing.
7. Cut rigid materials using masonry saw or core drill.
8. Restore Work with new products in accordance with requirements of Contract Documents.
9. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
10. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
11. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
12. Identify any hazardous substance or condition exposed during the Work to the CITY.

1.5 PROFESSIONAL LIABILITY INSURANCE

This insurance shall be required only in cases where the Contract Documents specifically require that Contractor provide for design services to be performed by a professional engineer with appropriate expertise in accordance with applicable laws and regulations, licensed or registered in the State of Wisconsin, and that the shop drawings or other evidence of design bear the seal and signature of that professional engineer. This insurance shall provide protection against claims arising out of performance of professional design services and caused by a negligent error, omission, or act for which the insured party is legally liable; such professional liability insurance shall provide coverage in the amount of \$3,000,000 which shall be maintained throughout the duration of the Project and for one year after Final Acceptance.

In the event that the professional design services are performed by an independent consultant or Subcontractor engaged by Contractor, this insurance shall be furnished and maintained by the independent consultant or Subcontractor. In the event that the professional design services are performed by a member of Contractor's organization, this insurance shall be furnished and maintained by Contractor.

A certificate of insurance for such professional liability insurance coverage, including the amount, duration, and name of the insured party, shall be delivered to City and Consulting Engineer.

1.6 PRECONSTRUCTION CONFERENCE

- A. City of Milwaukee will schedule a pre-construction conference after Notice of Award.
- B. Attendance Required: CITY and Prime Contractor.
- C. Sample Agenda (subject to change):
 1. Submission of executed bonds and insurance certificates (unless previously submitted to DPW).
 2. Submission of list of all Subcontractors, Schedule of Values, and project progress schedule.
 3. Designation of personnel representing the parties in Contract.
 4. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures.
 5. Scheduling and reports.
 6. Use of premises by City of Milwaukee and Contractor.
 7. Construction facilities and controls provided by City of Milwaukee if any.
 8. Temporary utilities and controls provided by City of Milwaukee, if any.
 9. Security procedures.
 10. Procedures for testing.
 11. Procedures for start-up of equipment.
 12. Requirements for maintaining record documents.
 13. Inspection and acceptance of equipment put into service during construction period.
 14. Conflicts.

1.7 PROGRESS MEETINGS

- A. The CITY will Schedule and administer meetings throughout progress of the Work as required.
- B. The CITY will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies within three days to the CITY, participants, and those affected by decisions made.
- C. Attendance Required: Contractor's general superintendent, major Subcontractors and suppliers, CITY, as appropriate to agenda topics for each meeting.

- D. Sample Agenda (subject to change):
 - 1. Review minutes of previous meetings.
 - 2. Review of Work
 - 3. Field observations, problems, and decisions.
 - 4. Field observations of problems to impede planned progress.
 - 5. Review of submittals schedule, and status of submittals.
 - 6. Review of off-site fabrication and delivery schedules.
 - 7. Maintenance of progress schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding Work period.
 - 10. Coordination of projected progress.
 - 11. Maintenance of quality and Work standards.
 - 12. Other business relating to Work.
- 1.8 PREINSTALLATION CONFERENCES
- A. When determined by the CITY, convene a pre-installation conference at work site prior to commencing work.
 - B. Require attendance of parties directly affecting, or affected by, work of the specific Section.
 - C. Notify all parties four days in advance of meeting date.

- D. Prepare agenda and preside at conferences, record minutes, and distributed copies within two days after conference to participants, with one copy to the CITY.
- E. Review conditions of installation, preparation and installation procedures, and coordination with related work.

END OF SECTION

SECTION 01500
JOB SITE SECURITY, UTILITIES AND FACILITIES

PART 1 - SCOPE

A. Index

1. Scope
2. Security and Safety
3. Occupancy during Construction
4. Electric Power
5. Water
6. Toilet Facilities

B. GENERAL CONDITIONS

1. All operations shall be carried on with a minimum of damage and disturbance. All damages shall be repaired to the original condition to the satisfaction of the Engineering Representative.
2. All removals become the property of the Contractor and shall be disposed of off the site unless otherwise specified.

C. TEMPORARY VENTILATION

Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

D. BARRIERS

1. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
2. Protect non-owned vehicular traffic stored materials, site and structures from damage.

E. PROGRESS CLEANING

1. Waste materials, debris, and rubbish shall be removed daily after work. Maintain site in a clean and orderly condition.
2. Clean and repair damage caused by removals or installations.
3. Restore existing facilities used during construction to original condition.

PART 2 – SECURITY AND SAFETY

A. GENERAL

The Milwaukee Water Works consists of a number of facilities to treat and deliver drinking water to the City and surrounding suburban communities. To insure the safety and security of drinking water, the Milwaukee Water Works has instituted protocols for visitors and contractors to control entry to these facilities. It is essential that contractors strictly comply with the security policy outlined in the specification section.

For this project, the Contractor shall continuously coordinate building and site security measures, including accessing the site, with the designated Water Engineering representative or the Water Security Manager, Mr. Michael Schaefer, who can be reached at **Telephone # (414) 286-3465 or Facsimile # (414) 286-2672.**

B. SCOPE

Any and all City agencies and contractors engaged for work at Milwaukee Water Works facilities shall be required to attend a "**Pre-Construction Security Briefing**" before any contracted work can be initiated. At this meeting, the contractor and sub-contractors shall have a detailed briefing with discussions regarding the following items:

1. Milwaukee Water Works site security policies and procedures
2. Contractor & Sub-Contractor Obligations
3. Permit System

C. POLICIES

During the "Security Briefing" portion of the "Pre-Construction Meeting", Milwaukee Water Works Security staff shall provide the Prime Contractor with site polices to be reviewed by the Prime and Sub Contractors. These documents may include:

1. Lock-out / Tag-out Policy
2. Confined Space Entry Procedures
3. Evacuation Procedure for Propane, Lox, & Ammonia Releases
4. Personal Protective Equipment Guidelines
5. No Smoking Policy
6. Prohibited Materials

Additionally, the contractor will be provided:

1. Contact Phone Numbers for MWW Staff.
2. On-Site Parking Location and designated construction entrance.
3. Site security policy and procedures.

The Prime Contractor shall be required to review these documents and is responsible for conveying the contents of these submittals to their employees, sub-contractors, and any other parties working directly or indirectly for them. These policies apply equally to all contractors. Failure to comply with established policies and procedures may result in access privileges being withdrawn.

MWW Staff shall provide a “walk-through” session with the contractor to review area layout and site plans as part of this orientation process and to establish the specific work areas necessary for the contractors to perform their scope of work. Topics covered in this session include: site overview with hazards, Material Safety Data Sheets (MSDS), fire extinguisher placement, and the storm water protection policy.

D. CONTRACTOR RESPONSIBILITIES

Contractors shall provide the following documents **no less than 7 business days prior** to the start of contracted work:

1. Scope of work to be performed;
2. Name of primary contractor’s onsite representative;
3. Names of all companies sub-contracted to do work on the project.
4. Completed “Contract Firm Registration Form” (see attachment ‘A’) for prime contract firm and every sub-contract firm;
5. A “Contractor Employee Registration Form” completed for the contractors and every employee who needs to be granted site access (see attachment ‘B’);
6. List of items to be stored on-site;
7. Material Safety data Sheets for all Chemicals to be used/stored on-site;

Note: It is the responsibility of the Prime Contractor to facilitate gathering and submittal of the “Contractor Employee Registration Form” for all sub-contractors working on the project. A sub-contractor is defined as an individual or firm hired by the primary contractor to perform a specific task as part of the overall project. This would not include

an organization making deliveries of supplies or equipment to the job site; procedures for these firms are covered under Part 8, "DELIVERIES".

In the event it is necessary for the Prime Contractor to add additional employees to the list of approved personnel, a minimum of 72 hours, or 3 business days, must be allowed for processing of the request. Site access will be denied to the additional personnel until processing is complete.

Additionally, Contract Firms are obligated to notify MWW in a timely manner of any site-authorized staff that leaves the employ of the Contractor.

At no time should anyone but the Prime Contractor be contacting Milwaukee Water Works employees with issues or access requests. If a request for site access does not come from the Prime Contractor, the request will not be processed.

During the time period that the Contractor is on-site, they must agree to:

1. Notify the Plant Manager immediately of any significant chemical spills or leaks
2. Maintain Normal Non-Toxic Breathable Air Quality, through Adequate Ventilation, at their work site
3. Perform no equipment isolations or tie-ins without the signed approval of Site Management.
4. Restrict movement to the specific work areas within the Site to perform Contractors Scope of Work.

E. CONTRACTOR SPECIAL WORK PERMITS

Contractors must notify Engineering / Site Management Staff of any welding, torching, or potentially hazardous or operational impact request prior to commencing such operations. Special Permits shall be issued to the contractor, and these must also be displayed at the work site.

Failure to comply with the terms of the Special Work Permits, or provisions that provide for MWW Employee Safety shall be cause for revocation of such Permits, and the contractor may be forced to discontinue activities at the Site.

F. CONTRACTOR IDENTIFICATION AND DAILY REGISTRATION

Every day, all contractors shall be required to show a valid picture ID card, to sign-in at the start of work, and sign out at the end of work. A MWW employee or designated security representative shall be on site to ensure compliance. Any identification tags or lanyards issued by MWW are to be worn while on site and returned to site management upon completion of contracted work.

G. CONTRACTOR GATE ACCESS & PARKING

Contractors must comply with the terms of entry for the site and park only in the areas designated for parking by the MWW site representative.

NOTE: Parking privileges may be rescinded at any time as Site Operational Requirements dictate.

PART 3 - CITY OF MILWAUKEE PERMITS

The Contractor shall obtain the necessary permits for this Project.

PART 4 - OCCUPANCY DURING CONSTRUCTION

The Water Works facility shall be in continuous operation during this contract. Contractor and Sub-Contractors are to take any and all necessary precautions to insure there is no interference with daily operations or security. MWW personnel shall be continuously occupying the facility. All hours of contractor's operations shall be coordinated with the MWW site or engineering representative.

PART 5 - ELECTRICAL POWER AND TELEPHONE SERVICE

On-site electrical service is available for Contractor use during project duration. Contractor shall provide and maintain all necessary power cords, electrical lighting, heat, ventilation, and telephone service and shall make all necessary connections in accordance with OSHA regulations. Contractor shall provide and pay for his own wireless telephone service.

PART 6 - WATER

Water is available for the Contractor at the site and may be obtained from the fixture(s) so designated by MWW staff or Engineering Representative. Contractor and Sub-Contractors must provide their own hoses, back flow preventer, and any other connection appurtenances required for the contract.

PART 7 - TOILET FACILITIES

On-site toilet facilities are available for Contractor use during project duration. The specific location of these facilities will be transmitted to the Contractor at the pre-construction meeting. However, if project requirements render the use of on-site facilities impractical, then Contractor shall furnish portable facilities. If portable facilities are required, Contractor shall maintain these toilet facilities in a sanitary condition throughout the duration of the project and shall remove them from site at the end of the project. The placement and location of the temporary portable toilets shall be coordinated with the Facility Manager and Engineering Representative.

PART 8 - DELIVERIES

Contractor shall coordinate the delivery of all equipment, material, Dumpsters, portable toilets (and their maintenance) and other required items required for the contract work with the MWW staff. A minimum of 24 hours prior notice in advance of the desired delivery date shall be transmitted to the designated Water Engineering Representative. Contractor shall provide the following information in the notification:

A. Trucking/Delivery Company

B. Driver Name

C. Truck License Plate Number

The driver of the delivery vehicle is required to display picture identification as a pre-requisite for entry to the MWW facility for the delivery. Failure to comply with the above will result in denial of project site access, requiring the contractor to re-schedule delivery.

END OF SECTION

Milwaukee Water Works

Safe, Abundant Drinking Water.

WP-308
Attachment "A"

FORM A

CONTRACT FIRM REGISTRATION FORM

CONTRACTOR: _____

PLANT/SITE: _____

CONTRACT/SERVICE ORDER No. _____

WATER ENGINEERING PROJECT No. _____

PRIMARY CONTACT PERSON: _____

OFFICE PHONE NUMBER: _____

CELL PHONE NUMBER: _____

REQUESTED WORK HOURS (00am – 00pm): _____

NUMBER OF EMPLOYEES TO BE WORKING ON-SITE: _____

**Signature certifies receipt of the materials outlined in
Contract Section 01500, Part 2 – Security and Safety, Section C, Policies.**

SIGNATURE: _____

PRIMARY CONTACT PERSON

DATE: _____

***Accompanying this form should be a complete listing of all
equipment to be stored on site for the duration of the project.***

Milwaukee Water Works

Safe, Abundant Drinking Water.

WP-308
Attachment "B"

FORM B

CONTRACTOR EMPLOYEE REGISTRATION FORM

Contract Firm: _____

Plant/Site/Project: _____

Employee Name (Printed): _____

This certifies that I have received the building site security and safety policies.

EMPLOYEE
SIGNATURE: _____

Required

DATE: _____

ONSITE PARKING

- I will always be driving a Company vehicle.
- I will always be a passenger in a vehicle.
- I will be driving my personal vehicle. If checked here complete and sign the next section.

Contractor Personal Vehicle Liability Waiver

EMPLOYEE VEHICLE

MAKE & MODEL: _____ LICENSE PLATE: _____

I, hereby agree to hold harmless the City of Milwaukee for any and all damage, loss or injury, which may occur as a result of utilizing the contractor onsite parking area.

EMPLOYEE
SIGNATURE: _____

Required

DATE: _____

SECTION 01600**MATERIAL AND EQUIPMENT****PART 1 - GENERAL****1.1 PRODUCTS**

- A. Products: Defined as new material, machinery, components, equipment, fixtures, and systems forming the work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted.
- C. Assure standardization and uniformity in all parts of the work by providing like items of equipment or certain materials as products of one manufacturer.
- D. Uniformity in equipment items is required in order to provide the CITY with interchangeability capabilities, simplified spare parts inventories and standardized maintenance programs and manufacturers services.

1.2 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.3 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
- B. Provide off-site storage and protection when site does not permit on-site storage or protection.
- C. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

- D. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- E. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.
- F. Spare parts and special tools shall be properly marked to identify the associated equipment by name, equipment and part number. Delivery of spare parts and special tools shall be made prior to the initial test run of the associated equipment.

END OF SECTION

SECTION 01640**MANUFACTURER SERVICES****PART 1 GENERAL**

1.1 DEFINITIONS

- A. Person-Day: One person for 8 hours within regular CONTRACTOR working hours.

1.2 SUBMITTALS

- A. Informational Submittals:
 - 1. Training Schedule: Submit not less than 14 days prior to start of equipment installation and revise as necessary for acceptance.
 - 2. Lesson Plan: Submit proposed lesson plan (as applicable) not less than 14 days prior to scheduled training and revise as necessary for acceptance.

1.3 QUALIFICATION OF MANUFACTURER'S REPRESENTATIVE

- A. Authorized representative of the manufacturer, factory trained, and experienced in the technical applications, installation, operation, and maintenance of respective equipment, subsystem, or system, with full authority by the equipment manufacturer to issue the certifications required of the manufacturer. Additional qualifications may be specified elsewhere.
- B. Representative subject to acceptance by CITY. No substitute representatives will be allowed unless prior written approval by such has been given.

PART 2 PRODUCTS (NOT USED)**PART 3 EXECUTION**

3.1 FULFILLMENT OF SPECIFIED MINIMUM SERVICES

- A. Furnish manufacturers' services when required by an individual specification section, to meet the requirements of this Section.
- B. Where time is necessary in excess of that stated in the Specifications for manufacturers' services, or when a minimum time is not specified, the time required to perform the specified services shall be considered incidental.
- C. Schedule manufacturers' services to avoid conflict with other onsite testing or other manufacturers' onsite services.
- D. Determine, before scheduling services, that all conditions necessary to allow successful testing have been met.

- E. Only those days of service approved by CITY will be credited to fulfill the specified minimum services.
- F. When specified in individual specification sections, manufacturer's onsite services shall include:
 1. Assistance during product (system, subsystem, or component) installation to include observation, guidance, instruction of CONTRACTOR's assembly, erection, installation or application procedures.
 2. Inspection, checking, and adjustment as required for product (system, subsystem, or component) to function as warranted by manufacturer and necessary to furnish Manufacturer's Certificate of Proper Installation.
 3. Providing, on a daily basis, copies of all manufacturers' representatives' field notes and data to CITY.
 4. Revisiting the site as required to correct problems and until installation and operation are acceptable to CITY.
 5. Resolution of assembly or installation problems attributable to, or associated with, respective manufacturer's products and systems.
 6. Assistance during functional and performance testing, and facility startup and evaluation.
 7. Training of CITY's personnel in the operation and maintenance of respective product as required.
 8. Additional requirements may be specified elsewhere.

3.2 MANUFACTURER'S CERTIFICATE OF COMPLIANCE

- A. When specified in individual Specification section, submit prior to shipment of product or material.
- B. CITY may permit use of certain materials or assemblies prior to sampling and testing if accompanied by accepted certification of compliance.
- C. Signed by product manufacturer certifying that product or material specified conforms to or exceeds specified. Attach supporting reference data, affidavits, and certifications as appropriate.
- D. May reflect recent or previous test results on material or product, if acceptable to CITY.

3.3 MANUFACTURER'S CERTIFICATE OF PROPER INSTALLATION

- A. When so specified, a Manufacturer's Certificate of Proper Installation shall be completed and signed by the equipment manufacturer's representative.
- B. Such certificate shall certify that the signing party is a duly authorized representative of the manufacturer, is empowered by the manufacturer to inspect, approve, and operate their equipment and is authorized to make

recommendations required to assure that the equipment is complete and operational.

3.4 TRAINING

A. General:

1. Furnish manufacturers' representatives for detailed classroom and hands-on training to CITY's personnel on operation and maintenance of specified product (system, subsystem, component) and as may be required in applicable Specifications.
2. Furnish trained, articulate personnel to coordinate and expedite training, to be present during training coordination meetings with CITY, and familiar with operation and maintenance manual information.
3. Manufacturer's representative shall be familiar with facility operation and maintenance requirements as well as with specified equipment.
4. Furnish complete training materials, to include operation and maintenance data, to be retained by each trainee.

B. Training Schedule:

1. List specified equipment and systems that require training services and show:
 - a. Respective manufacturer.
 - b. Estimated dates for installation completion.
 - c. Estimated training dates.
2. Allow for multiple sessions when several shifts are involved.
3. Adjust schedule to ensure training of appropriate personnel as deemed necessary by CITY, and to allow full participation by manufacturers' representatives. Adjust schedule for interruptions in operability of equipment.

C. Lesson Plan: When manufacturer or vendor training of CITY personnel is specified, prepare for each required course, containing the following minimum information:

1. Title and objectives.
2. Recommended types of attendees (e.g., managers, engineers, operators, maintenance).
3. Course description and outline of course content.
4. Format (e.g., lecture, self-study, demonstration, hands-on).
5. Instruction materials and equipment requirements.
6. Resumes of instructors providing the training.

D. Pre-startup Training:

1. Coordinate training sessions with CITY's operating personnel and manufacturers' representatives.

2. Complete at least 14 days (if feasible) prior to beginning of facility startup.
- E. Post-startup Training: If required in Specifications, furnish and coordinate training of CITY's operating personnel by respective manufacturer's representatives.

END OF SECTION

SECTION 01700**CONTRACT CLOSEOUT****PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Closeout Procedures
- B. Final Cleaning
- C. Adjusting
- D. Project Record Documents
- E. Operation and Maintenance Data
- F. Guarantee
- G. Spare Parts and Maintenance Materials

1.2 RELATED SECTIONS

- A. Section 01500 - Construction Facilities

1.3 CLOSEOUT PROCEDURES

- A. Submit written certification that contract has been reviewed, Work has been inspected, and Work is complete in accordance with Contract and is ready for CITY inspection.
- B. Provide submittals to CITY that are required by governing or other authorities.
- C. Submit Final Application for Payment identifying total adjusted Contract price, previous payments, and sum remaining due.

1.4 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean equipment and fixtures to a sanitary condition.
- C. Clean site, sweep paved areas, rake clean landscaped surfaces.

- D. Remove waste and surplus materials, rubbish, and construction facilities from the work site.
- 1.5 ADJUSTING
- A. Adjusting operating products and equipment to ensure smooth and unhindered operation.
- 1.6 PROJECT RECORD DOCUMENTS
- A. Maintain onsite, one set of the following record documents; record actual revisions to the work:
 - 1. Contract Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders
 - 5. Reviewed shop drawings, Product data, and samples.
 - B. Store Record Documents separate from documents used for construction.
 - C. Record information concurrent with construction progress. Electrical boxes and conduit location determined in the field and not specifically shown on the drawings shall be recorded and documented.
 - D. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
 - 1. Manufacturer's name and product model and number
 - 2. Product substitutions or alternate utilized.
 - 3. Changes made by Addenda or Change Orders.
 - E. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 2. Field changes of dimensions and details.
 - 3. Details not on original Contract Drawings.
 - F. Delete Consultant, City of Milwaukee title block and Engineer's seal from all documents.

- G. Submit six (6) sets of documents with one electronic copy of As Built Drawings in .pdf and .dgn file format to CITY prior to final Application for Payment.
1. Accompany submittal with transmittal letter containing the following:
 - a. Date
 - b. Project title and number
 - c. Contractor's name and address
 - d. Title and number of each record document
 - e. Certification that each document as submitted is complete and accurate.
 - f. Signature of Contractor, or his authorized representative.

1.7 OPERATION AND MAINTENANCE DATA

- A. Submit six (6) sets prior to final inspection, bound in 8 ½ x 11 - inch text pages, three ring D side binder capacity expansion binders with durable plastic covers.
- B. Prepare binder covers with printed title "OPERATION MAINTENANCE INSTRUCTIONS", title of project, and subject of binder when multiple binders are required.
- C. Internally subdivide the binder contents with permanent dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, type on 30-pound white paper.
- E. Special Requirements for Operation and Maintenance Data and Manuals. Adequate operation and maintenance information shall be supplied for all equipment requiring maintenance or other attention. The Contractor shall provide operation and maintenance manuals for each type of equipment supplied.
 1. Operation and Maintenance Manuals shall include the following:
 - a. All sets of manuals shall be originals. Copies will not be acceptable.
 - b. Equipment function, normal operating characteristics, and limiting conditions.
 - c. Assembly, installation, alignment, adjustment, and checking instructions.

- d. Operation instructions for start up, routine and normal operation, regulation and control, shutdown, and emergency conditions.
 - e. Lubrication and maintenance instructions, including lubrication cross references to a minimum of three locally available suppliers.
 - f. Guide to "troubleshooting".
 - g. Parts list and predicted life of parts subject to wear.
 - h. Outline, cross-section, and detailed assembly drawings; engineering data; wiring diagrams.
 - i. Test data and performance curves, where applicable.
2. The operation and maintenance manuals shall be in addition to any instructions or parts packed with or attached to the equipment when delivered, or instructions that may be required by the Contractor.
 3. Manuals and other data shall be printed on heavy, first quality paper, in an 8 ½ x 11-inch size with standard 3-hole punching. Drawings and diagrams shall be reduced to 8 ½ x 11-inches, or 11 x 17 inches. Where reduction is not practicable, larger drawings shall be folded separately and placed in an envelope that is bound into the manuals. Each envelope shall bear suitable identification on the outside.
 4. Material shall be assembled and bound in the same order as it appears in the Specifications, and each volume shall have a table of contents and suitable index tabs.
 5. All submittals shall be marked with Contract identification, and inapplicable information shall be erased or deleted.
 6. Shipment of equipment will not be considered complete until required data and manuals have been received.
- F. Part 1: Directory, listing names, addresses, and telephone numbers of CITY, Contractor, Subcontractors, and major equipment suppliers.
- G. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify name, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
1. Significant design criteria.
 2. List of equipment.
 3. Parts list for each component.
 4. Operating instructions.
 5. Maintenance instructions for equipment and systems.
 6. Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.

- H. Part 3: Project documents and certificates, including the following:
 - 1. Shop drawings and product data.
 - 2. Air and water balance reports.
 - 3. Certificates.
 - 4. Photocopies of warranties.
 - I. Copies will be returned after final inspection, with CITY'S comments. Revise content of documents as required prior to final submittal.
 - J. Submit final volumes within ten (10) days after receipt of CITY'S comments.
- 1.8 GUARANTEE
- A. Provide duplicate notarized copies.
 - B. Execute and assemble documents and Subcontractors, suppliers, and manufacturers.
 - C. Provide Table of Contents and assemble in three D side ring binder with durable plastic cover.
 - D. Submit prior to final Application for Payment.
- 1.9 SPARE PARTS AND MAINTENANCE MATERIALS
- A. Provide products, spare parts and equipment, maintenance and extra materials in quantities as noted in applicable Specification Sections.
 - B. Deliver to Project site and place in location as directed prior to final Application for Payment.

END OF SECTION