DIVISION 1 – GENERAL REQUIREMENTS

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RELATED DOCUMENTS: Other general provisions of the Contract apply to requirements of this Division 1 specification. This specification in turn applies to the Contract Drawings and Technical Specifications.

SECTION 011005 CONSTRUCTION EXECUTION AND COORDINATION

1.01 SUBMITTALS

- A. The Contractor shall submit, in accordance with Section 013305, *Construction Submittals*, the following:
 - 1. Organization Chart: Thirty (30) days prior to Site mobilization, submit Project organization charts to the Project Director/COR.
 - 2. Project Execution Schedule See Section 013205 Project Scheduling

1.02 ON-SITE STAFF REQUIREMENTS

- A. The Contractor shall assign an English speaking Project Manager to be onsite full time.
- B. The Contractor shall provide an adequate professional administrative and supervisory staff on-site for all aspects of the work. This key staff shall be fully coordinated and provide a professional level of Project execution management
- C. From the issuance of the Notice to Proceed for Construction through Substantial Completion, the Contractor shall always have the following personnel at the Site: the Project Manager, the Superintendent, the QC Manager and the Safety Manager. Subject to qualifications and satisfactory performance, some of these functions may be combined and performed by the Project Manager and the Superintendent.
- D. Project Organization Chart: The Contractor shall depict principal staff assignments and contact information on a Project Organization Chart. This chart shall include key administrative and supervisory staff and, as applicable; indicate where multiple functions will be performed by the same individual. The Contractor shall depict how management, supervisory, and administrative functions shall be performed, to include lines of communication and supervisory responsibility for sub-contractors.
- E. Each trades-person shall be skilled, experienced, and properly equipped to produce the required quality of work.

1.03 USE OF PROJECT SITE

- A. Project Site boundaries and any requirements/restrictions pertaining to the access and utilization of the site will be discussed with the potential contractors on site, prior to the submittal of Bid/Proposal. Minutes of these discussions will become part of the contract.
- B. The Contractor shall perform work in accordance with applicable security requirements specified by the Project Director/COR.

- C. The Contractor shall ensure that surplus, waste, and rejected material is promptly removed from the Project Site and disposed of according to local law.
- D. Protection of Adjacent Properties: The Contractor shall prevent and repair any damage to surrounding and adjacent properties arising from performance of the work.
- E. The Government reserves the right to place and install equipment as necessary in completed areas of the building and to occupy such completed areas prior to Substantial Completion.
- F. The Contractor shall become familiar with local ordinances and restrictions, if any, regarding site utilization and comply therewith.

1.04 PROJECT SITE HOURS OF OPERATIONS

- A. Unless otherwise agreed upon in writing, work shall be performed only during the days and hours specified below.
 - 1. The Contractor shall plan execution of the work based on a 5-day workweek excluding local holidays. Local ordinances restrict allowable hours for heavy construction between 8:00AM to 9:00PM. The contractor shall assure that these restrictions (and others if any) are not violated.
 - a. Unless otherwise modified in writing by local permit, the working hours for this Project are as specified above.
 - Deliveries Deliveries of materials to the project are restricted. The Contractor shall refer and abide by local regulations for delivery restrictions.
 - Local Holidays The Contractor shall observe, independently validate, and plan the work around local national holidays during the construction period. Should any of the holidays fall on a local non-workday, or local custom weekend day, the Contractor shall exercise due diligence to ensure local customs and appropriate compensation issues are addressed.
 - 4. U.S. Holidays Refer to Contract.
 - 5. In accordance with Paragraph 1.04 B.1 below, working on a U.S Holiday or a Local Holiday is considered Excepted Operations.

B. Excepted Operations:

 The only work permitted outside of work hours or days specified above will be due to special circumstances. The Contractor shall provide written request to the Project Director/COR at least one business day in advance of such operations and obtain the written acceptance of the Project Director/COR prior to scheduling any such work.

1.05 GENERAL

- A. The Contractor shall remove and replace workmanship that is found non-compliant at no additional cost to the Government.
- B. Except as otherwise indicated, the Contractor shall comply with the following general requirements for the installation and coordination of work:
 - 1. Require each installer to inspect substrates and report unsatisfactory installation conditions.
 - 2. Inspect delivered materials, fabrications, and equipment prior to installation and reject damaged or defective items.
 - 3. Comply with manufacturer's instructions for each installation.

1.06 COORDINATION MEETINGS

- A. Pre-Construction Conference: The Project Director/COR will conduct a preconstruction conference on or near the date of NTP Construction and thirty (30) calendar days prior to the Contractor's mobilization to the Project Site. Agenda items will include a review of the general plans, conditions, procedures, and requirements as necessary for the effective scheduling and prosecution of the construction work. Parties will review security and material delivery requirements, personnel assigned, and Contract communication procedures as established for the Project.
- B. Construction Coordination Meetings: The Contractor and Project Director/COR will hold frequent construction coordination meetings to discuss schedule and status of outstanding issues.
 - 1. The weekly construction coordination meeting shall have an agenda as follows:
 - a) Security
 - b) Safety
 - c) Quality Control
 - d) Project Execution Schedule
 - e) Submittal Register
 - f) Requests For Information (RFI)
 - g) Change Orders
 - h) Correspondence
 - i) Material Tracking Schedule and Procurement Log
 - j) Weekly 14 day look ahead schedule

1.07 GOVERNMENT-FURNISHED ITEMS

- A. As delineated in Contract Section C, the Government may provide equipment or material for either Government installation or Contractor installation, designated as Government Furnished Government Installed and Government Furnished Contractor Installed, respectively.
- B. The Contractor shall support the infrastructure for Government-furnished items. For example, prior to substantial completion, the Government will provide and install TSS and telecom systems. The Contractor shall provide and install

- conduits, raceways, cables, terminal boxes, and source power per the contract documents.
- C. Additionally, the Contractor shall coordinate and integrate with the Government for the effective installation, termination, overall testing, modification and adjustment to the telecom and TSS systems.
- D. The Contractor shall advise the USG in writing, a minimum of 45 days in advance of the installation start of all USG furnished items.

SECTION 013205 PROJECT SCHEDULING

1.01 PURPOSES of the Project Execution Schedule

- A. To provide a complete information and reference plan of execution for project administration, materials submittal preparation, USG submittal review, procurement, shipping, construction and close-out requirements.
- B. To assure coordination of the Contract Work between the Contractor and the subcontractors, material suppliers, and all other parties associated with the project.
- C. To record and report actual performance progress
- D. To be the basis for evaluation of the Work completed and the preparation of the Contractor's monthly payment application.

1.02 SUBMITTALS

- A. Submit the following as prescribed above:
 - 1. Baseline Project Execution Schedule Update (BPES)
 - a. To the Project Director/COR 15 days after contract award.
 - Acceptance of the BPES is a prerequisite to the CO issuing the NTP for construction.
 - 2. Project Execution Schedule (PES) Updates
 - a. Submit to the Project Director/COR weekly--with the Payment Request.
 - b. Weekly 14 day look ahead plan
- B. If the Contractor does not submit acceptable schedules within the times prescribed above, the CO may withhold funds from progress payments in accordance with FAR Section 52.232.

1.03 GOVERNMENT REVIEW PROCESS

- A. For all submittals identified in this section, the USG shall review the schedule and supporting documentation for contract compliance. Formal submittal disposition will be issued within 15 calendar days after receipt of all required information.
- B. The Project Director/COR will review the updated PES to verify the accuracy of the on-site work progress activities started, completed, and on-going and their respective completion percentages and process pay application accordingly.
- 1.04 SCHEDULE DEVELOPMENT

- A. The detailed Project Execution Schedule (PES) will include tasks and milestones representing the entire Contract Scope of Work.
- B. The PES shall be cost-loaded. The Total Baseline Cost of the PES shall coincide with the Total Contract Amount excluding VATs.
- C. Required Milestones those below must appear; additional milestones by Contractor or Project Director/COR may be added
 - 1. Contract Award
 - 2. NTP-Construction
 - 3. Required Dates for delivery of USG furnished items (GFCI).
 - 4. Project Substantial Completion
 - 5. Final Acceptance

1.06 PAYMENT APPLICATION

- A. Approval is dependent on
 - 1. Percent complete verification of all progressed activities

SECTION 013305 CONSTRUCTION SUBMITTALS

1.01 GENERAL

- A. The Contractor shall transmit in English all construction submittals to the Project Director/COR.
- B. The Contractor shall review all Contract documents and Project requirements and generate a complete list of deliverables for submittal. The Contractor shall ensure all deliverables are considered in the Project Execution Plan.
- C. Submittal Register: The Contractor shall develop a submittal register encompassing Division 1 and the Contract Technical Specifications and submit it within 21 days after the NTP. Submittals to include:
 - 1. Construction Submittals:
 - a. Product Data:
 - b. Shop Drawings:
 - c. Field Samples:
 - d. Administrative Submittals
 - e. Closeout Submittals
- D. Sample Transmittal Form. A sample Transmittal Form is provided as an attachment to this Section.

1.02 GOVERNMENT SUBMITTAL REVIEW

A. General:

- 1. The Government's review period for submittals is 30 calendar days following the Government's receipt of a submittal.
- 2. Submittals will be reviewed only for general compliance with intent of Contract Documents and with information given therein. Government acceptance will not:
 - a. Relieve the Contractor of the responsibility for patent or latent errors and omissions, including details, dimensions, material, etc.
 - b. Authorize a departure from the details appearing on accepted construction specifications and drawings.
- The Government will have unlimited rights to all drawings, specifications, notes and other work developed in the execution of the works, upon acceptance of each submittal, and upon receipt of "For Information Only" submittals.
- B. Submittal Disposition: Pursuant to the submittal review, Project Director/COR will mark submittals as follows:

- 7. ACCEPTED AS SUBMITTED (AS): Authorizes the contractor to proceed with the work covered.
- 8. ACCEPTED AS NOTED (AN): Authorizes the contractor to proceed with the work covered provided he takes no exception to the corrections noted.
- 9. FOR INFORMATION ONLY (IO): Indicates the submittal is for information only.
- 10. REJECTED: RESUBMIT (RR):
 - Indicates the submittal does not meet the Contract's intent or corrections are required of the proposed work's defects or deficiencies as represented by the submittal.
 - b. The Contractor shall not proceed with the purchase, fabrication, delivery, or other related execution of the work until acceptance is granted.
 - c. The Contractor shall not allow the use of rejected submittals and materials.
 - d. Correction of noted defects or deficiencies shall be resubmitted for the Government's acceptance.
 - e. The Contractor shall bear all risk in the submittal-rejection-resubmittal cycle. Submittal rejection will not justify extension of Contract duration.
- C. Failure of the USG to identify any deficiency does not relieve the contractor from fulfilling their contractual obligation.

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SUBMITTAL NUMBER	SECTION					SCHE					ON SITE	OTHER	RECEI REVIEW	RETUR PRO DIRE	RETUR	STATUS CODE
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			550	EXAMPLE												1
			DPS	Detailed Project Schedu												1
			SD4	Trenching, Backfilling a Utilities	. •											
			AD1	Hot-Mixed Asphalt Pavi	ng											
			AD3	Aggregate gradations												
			AD3	Asphalt cement												
			SA3	Exposed Aggregate Co	ncrete Paving											
			PD3	Mix Design												
			PD3	Material List and Source	е											
			SA1	Admixtures and Access	ories											
			SA1	Aggregate												
			SA5	Reinforcement												
			SA1	Joint Fillers												
			SD5	Concrete												

NOTE: Sample is provided as a suggested format only; generate actual using automated project execution control system and modify as needed to create the most effective management tool possible.

TYPE LEGEND SD = SHOP DRAWING, AD = ADMINISTRATIVE DATA, PD = PRODUCT DATA, AND SA = SAMPLE

OTTAWA, CANADA

	TRAN	ISMITT		DATE: 31 December 2099		NEW:		INFORMATION:		ORIGINAL SUBMITTAL DATE: (31 December 2099) (N/A)			
						RESUBMITTAL:		1					
	partment of seas Building			FROM: ABC Contractors, Inc. Field Address Line 1 Field Address Line 2		New Of	CONTRACT NUMBER: Office Building Compound ital Big City, XYZ Land XJ-AA1234 CONTRACT NUMBER: S-OBO AD 03 - G-12345 Modifications: 001 - ???						
ITEM NO.	SUBMITTAL NUMBER	SPECIFICATION		SUBMITTAL									
		SECTION NUMBER	PARAGRAPH NUMBER	DESCRIPTION		TYPE	NUMBER OF COPIES	DRAWING SHE NUMBER	SUBSTITUTION	STATUS CODE			
1													
2													
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6													
I certify that the submitted items listed in this transmittal have been prepared in strict conformance with the Contract Documents. When submitteds propose substitutions or deviations, these are identified on this transmittal form and clearly annotated in the material presented. Date Project Manager, Project													
	CONTRACTORS	S, INC.			ABC C		,						
ACCEPTANCE: NAME Date Project Director/COR				REMARKS: 1) Remarks 2) Remarks 3) Remarks 4) Remarks		TYPE COD ADX PDX SDX COX SAX	Admin Produ		AN A	ES: Accepted as submitted Accepted as noted Accepted for Information Only Rejected; Resubmission Required			

NOTE: Sample is suggested format; Contractor may modify to improve as management tool; see text for code explanation.

END OF SECTION

US MISSION, OTTAWA FY 17.00 DIVISION 1 OCT 2017 SS DBB wo CW 013305 - 4

SECTION 013525 CONSTRUCTION SAFETY AND OCCUPATIONAL HEALTH

1.01 RELATED DOCUMENTS

- A. Occupational Health and Safety Act.
- B. Environmental Protection Act
- C. NFPA Code 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations.
- D. ANSI A10 Series Standards for Safety Requirements for Construction and Demolition.
- E. NFPA Code 51B, Standard for Fire Prevention during Welding, Cutting, and Other Hot Work.
- F. NFPA 10, Standard for Portable Fire Extinguishers.
- G. NFPA 70. National Electrical Code
- H. The National Fire Code
- I. Department of State, Office of the Procurement Executive, PIB # 2015-05, Combating Trafficking in Persons.

1.02 SUBMITTALS

- A. The Contractor shall submit the following:
 - 1. A Construction Accident Prevention Plan (CAPP) prior to the beginning of any construction activity at the Project Site.
 - 2. Hazardous Work Permit Requests.
 - 3. Material Safety Data Sheets (MSDS).
 - 4. Accident Investigation Report: A report within 24 hours of each accident or mishap, except as otherwise indicated by requirements or governing regulations.

1.03 GENERAL

- A. The contractor shall have a Safety & Health Program Manager on-site when any construction activity is ongoing.
- B. For the duration of construction, the Contractor shall implement and manage a comprehensive safety and health program.
- C. The Project Director/COR, as the Government Contracting Officer's Representative, reserves the right to suspend work when and where the Contractor's safety and health program is operating in an inadequate manner, has severe shortcomings, or is not in compliance with contractual requirements.
- D. Acceptance by the Project Director/COR will not relieve the Contractor of overall responsibility for compliance with the strict interpretation of all safety and health requirements of the Contract.
- E. Accident Investigation:

- The Contractor shall investigate and prepare a separate accident report for each accident resulting in lost time, disabling or fatal injuries, or damage to vehicles, property, materials, supplies, furniture, fixtures, and equipment.
 In each report, the Contractor shall include a statement of Contractor actions taken to prevent recurrence of accident.
- F. Hazardous Materials: The Contractor shall test any material encountered suspected to contain hazardous substances and bring to the immediate attention of the Project Director/COR.
- G. Protective Clothing and Equipment: The Contractor shall issue personal protective clothing and equipment as required by local regulations.
- H. Welding Safety Plan: The contractor shall submit a Welding Safety Plan for all welding work to the Project Director/COR before the start of any welding activities.
- I. Safety and Health Training: Tool Box Meetings: The Contractor shall conduct weekly safety meetings. The Contractor shall require attendance by all tradespersons, laborers, foremen, and supervisors at the Project Site, including those of separate contractors. The Contractor shall discuss current construction operations, analyze hazards, and communicate solutions.
- J. Rolling Scaffolding: All rolling scaffolding needs to be part of a complete system from a single manufacturer.
- K. Ladders: All ladders used on the construction site shall be fiberglass. No metal, aluminum or wood ladders are permitted on this project.
- L. Signs shall be provided to give adequate warning and caution of hazards. All signs shall be visible at all times when the hazard or problem exists and shall be removed when the hazard or problem no longer exists. All employees shall be informed as to the meaning of the various signs used throughout the workplace and any special precautions that may be required.

1.04 CONSTRUCTION ACCIDENT PREVENTION PLAN (CAPP)

- A. Prior to beginning work at the Project Site, the Contractor shall prepare and submit to the Project Director/COR, a site-specific CAPP covering all activities for the Contractor and all subcontractors. The CAPP shall contain, at a minimum, the Contractor's understanding of:
 - Management and Corporate Commitment: The Contractor shall include a certified statement in the introduction, executed by a senior officer of the construction firm having broad corporate authority, indicating full commitment to the accepted CAPP and the level of authority in assignment of responsibilities at the Project Site.
 - 2. Name, qualifications, and duties of Safety & Health Program Manager.
 - 3. Submit the Fall Protection and Prevention Plan with the CAPP, and update every six (6) months
 - 4. Hazardous Work Permits: The procedure for preparation and approval prior to proceeding with work deemed hazardous.

- 5. Safety and Health Training: The procedures for implementing training and orientation.
- 6. Location of facilities and procedures for emergency medical situations.
- 7. Emergency Plan to include: Escape procedures and routes, method of accounting for employees following emergency evacuation, means of reporting emergencies, and persons to be contacted for information or clarification.
- 8. Emergency Resources--Establish jointly with the Government, a list of telephone numbers and locations of ambulance, physician, hospital, fire, police and other sources of emergency assistance. The list shall be posted in several locations on the Project site.

1.05 SITE MAINTENANCE, PROTECTION, AND SANITATION

- A. The Contractor shall maintain the site facilities in clean, sanitary, and safe operating conditions to the satisfaction of the Project Director/COR.
- B. The Project Director/COR will conduct periodic site inspections to verify that the Contractor is maintaining good housekeeping practices

C. Fire Protection:

- 1. The Contractor shall provide temporary portable fire extinguishers...
- 2. The Contractor shall prohibit smoking and betel nut chewing in the building.
- 3. During welding, cutting, and burning, the Contractor shall comply with NFPA 51B in areas of fire-hazard exposure. The Contractor shall provide stand-by fire-protection personnel and adequate supervision of operations.

D. First Aid Medical Facility Requirements:

1. The Contractor shall provide a first aid kit. A health care professional or competent first aid person shall evaluate and determine the fill contents of each kit.

E. Construction Site Sanitation and Health Facilities:

- Facilities for workers shall be completed and ready to use prior to the start of construction.
- 2. The Contractor is encouraged to utilize semi-permanent or portable facilities where possible in compliance with the requirements of this Section.
- 3. The Contractor shall provide temporary facilities for workers: toilets and lunch area.
- 4. Toilets Facilities and Restrooms:
 - a. Design the number of toilet fixtures around the anticipated maximum number of workers at the Project Site and allow accessibility to all employees.
 - b. The construction and installation of toilet facilities shall be acceptable to the Project Director/COR and shall be in compliance with applicable jurisdictional codes.
 - c. Provide hand-washing lavatories in close proximity to all toilet facilities
 - d. Maintain an adequate supply of toilet paper and paper towels at all times.
 - e. Comply with the requirements of the authority having jurisdiction for sewage disposal. Where non-sewer waste disposal systems are permitted, they shall be of a type accepted by the local health authorities having jurisdiction. Maintain all disposal systems in a sanitary condition.

SECTION 014010 CONTRACTOR QUALITY CONTROL

1.01 Quality Control

- A. The Quality Control system used during the project construction phase must ensure that the facility meets the contract design, quality and functional standards. To this end the Contractor is required to establish, implement and maintain an effective Construction Quality Control (CQC) Plan. The CQC Plan shall cover all constructions operations both onsite and offsite, and shall be keyed to the proposed construction sequence (definable features of work).
- B. The Construction Quality Control Plan shall include, as a minimum, all quality processes performed by the contractor, subcontractors, fabricators, suppliers, and purchasing agents.
- C. The Contractor is responsible for quality control and shall establish and maintain an effective quality control system. The quality control system shall be defined by the CQC Plan, which defines the Contractor's quality policy, lines of authority and responsibility, QC personnel qualifications, and the procedures and organization necessary to produce a finished product that complies with the contract requirements.
- D. The project manager and superintendents will be held accountable for the quality of work and are subject to removal at the direction of the Project Director/COR for failure to comply with quality requirements specified in the contract. The Contractor's project manager and superintendents in this context shall mean the individuals with responsibility for the overall supervision of field activities for the project.
- E. The Government will schedule performance audits during the construction phase to assess the Contractor's performance against contract requirements and CQC Plan implementation. The Project Director/COR shall use the audit results to evaluate the completed work and progress made against the contract documents and project schedule when reviewing Contractor requests for progress payments.
- 1.03 Submittals: The Contractor shall submit, in accordance with Section 013305, Construction Submittals the following:
 - A. Contractor's Quality Control Plan (CQC Plan): The CQC Plan shall be submitted within thirty (30) calendar days after Contract Award. No work shall be undertaken before CQC Plan acceptance.

- B. The name, qualifications (in resume format), duties, responsibilities and authorities of each person assigned to a Quality Control (QC) function shall be submitted to the Government for review. The Government will reject personnel who are not qualified for the positions for which they have been proposed. Changes to QC organization staffing shall only be made after acceptance by the Government of the proposed changes.
- C. The Contract shall submit a Quality Control Report (QCR) to the Government daily. Reporting shall begin on the first day the contractor's forces arrive on site and shall continue until the contractor's forces have completely demobilized. Daily reports shall be submitted by 8:00 the following morning and shall include, at a minimum, the information discussed in this section. The report format shall be accepted by the Government prior to use

SECTION 017705 CLOSEOUT PROCEDURES.

1.01 SUBMITTALS

- A. The Contractor shall submit, in accordance with Section 013305, *Construction Submittals*, the following:
 - 1. Request for Certification of Substantial Completion.
 - 2. Request for Final Inspection and Testing.
 - 3. Final Record Documents. The Contractor shall submit final documents marked "As-Built" to the Project Director/COR with a request for inspection and Substantial Completion.
 - 4. Warranty Management Plan

1.02 WARRANTY MANAGEMENT AGENT

A. The Contractor shall designate a qualified representative, knowledgeable in the operation and maintenance of the various building systems as installed in the works, for a period of one year.

1.03 GENERAL

A. The Contractor shall comply with the instructions of the Contracting Officer and the Project Director/COR for procedures, sequence, timing, and similar considerations regarding the turnover of facilities to Government personnel.

1.04 SUBSTANTIAL COMPLETION

- A. General: Before requesting the Certificate of Substantial Completion from the Project Director/COR for all work or a defined portion thereof, the Contractor shall complete the following, as applicable:
 - 1. Progress Payment Request: Submit no earlier than the date claimed for Substantial Completion.
 - 2. Reflect a 100 percent complete status or list non-substantial items that remain incomplete.
 - 3. Submit Operation and Maintenance Data.
 - 4. Submit Record Documents.
 - 5. Deliver extra materials in the manner requested by the Project Director/COR. to include:
 - a. Surplus Government-furnished materials.
 - b. Spare parts.
 - c. Extra stock of materials.
 - d. Keys to locks.
 - 6. Make physical adjustments, correct minor defects, touch-up finishes, and lubricate operating parts.

- B. Request for Certification of Substantial Completion:
 - Following the inspection, the Contractor's QC Manager shall provide the Project Director/COR with a schedule of defects. Defects deemed to be substantially out of compliance with contract quality or performance standards shall be corrected prior to issuance of the Certificate of Substantial Completion.

1.05 FINAL ACCEPTANCE

A. General:

- 1. The Contractor shall notify the Project Director/COR at least fifteen (15) calendar days prior to the time when the Contractor believes all work included in the contract will be ready for Final Acceptance.
- B. Request for Final Inspection:
 - The Contractor shall submit the following when requesting Final Acceptance of the work:
 - a. Schedule of Defects:
 - b. Final Application for Payment:
 - Upon the Contractor's satisfactory completion and correction of work items, the Project Director/COR will recommend issuing the Certificate of Final Acceptance by the Contracting Officer.

1.06 RECORD DOCUMENT SUBMITTALS

- A. The Contractor shall develop and maintain an original mark-up set of Contract Documents and Submittals.
 - 1. Indicate each change by change order number when related to a Contract Modification
- C. Final Record Documents:
 - Record As-Built Drawings
 - a. Indicate "As-Built" conditions as documented from actual installation.
 - b. Maintain the As-Built documents and make available for USG review at any time.
 - c. Provide two (2) sets of DVD-ROMs, one (1) set of full size drawings, and two
 (2) sets of half size drawings to the Project Director/COR at Final Acceptance.
 - 2. Record Contract Specifications
 - a. Maintain a full set, marked up to record minor changes.
 - b. Provide three (3) sets of DVD-ROMs and one (1) paper copy.
 - 3. Record Shop Drawings:
 - Maintain a full set of accepted shop drawing black-line prints, with marked changes.
 - 4. Operation and Maintenance Data:

a. The contractor shall provide O&M data In accordance with the requirements of Section 017825, *Operations and Maintenance Data*.

1.07 WARRANTY

MSGR

The General Contractor's Warranty Management commences early in the start-up phase and ends at a period normally one year (12 months) from the issuance of substantial completion, unless otherwise agreed upon.

SECTION 017825 OPERATION AND MAINTENANCE DATA

1.01 SUMMARY

A. Section includes administrative and procedural requirements for the preparation and submission of Maintenance (O & M) Data.

1.02 RELATED DOCUMENTS

A. Other general provisions of the Contract, including Division 1 sections of these Contract Specifications apply to requirements of this Section. This Section in turn applies to the Contract Drawings and Technical Specifications.

B. SUBMITTALS

- A. O&M Library:
 - The Contractor shall submit two (1) draft hard copy and two (2) DVD-ROM versions of the complete O&M Library (60) calendar days prior to Substantial Completion. All copies shall be clearly marked 'Draft'. The Government review period will be thirty (30) calendar days.
 - 2. Upon receipt of the Government's comments, the Contractor shall make corrections and resubmit, in final form, one (1) hard copy of the O&M Library and three (3) DVD versions with the request for inspection for Substantial Completion. All copies shall be clearly marked "Final Submission".

1.03 OPERATIONS AND MAINTENANCE LIBRARY

- A. Hardcopy Format:
 - 1. All documents shall be prepared in English.
 - 2. All documents shall be included within 3-ring binders:
 - 3. The Library shall be sub-divided using CSI numbers per project
 - 4. Specifications.

B. Electronic Format on CD/DVD

- An electronic copy of all submitted O&M library documents shall be created in PDF format.
 - Electronic copies must be readable by Adobe Acrobat Reader 8.0.
 - b. All PDF documents shall be word searchable.
 - c. The electronic format of the indices described above shall be hyperlinked to the O&M product data described below.
 - d. All sections and subsections shall be bookmarked to further facilitate the search functionality.
 - 1) Each CSI numbered section shall be bookmarked

- separately within the PDF file. Include the CSI number and the section title in the bookmark name.
- 2) Include additional bookmarks for critical documents including Maintenance Plan, etc. within each section.
- e. Labeling:
 - 1) Discs shall be labeled and include Post name, and month and year of Substantial Completion.
- f. CD/DVD Instructions:
 - A brief guide for installing and viewing the library documents shall be located in the CD/DVD root directory. This file shall be named "readme.txt."
 - 2) A hard copy of readme.txt shall be inserted as the back cover of the CD/DVD jewel case.

1.04 O&M LIBRARY REQUIRED DOCUMENTS

- A. A complete listing of all equipment and systems. Specify manufacturer, make, model, size, capacity, serial number, facility name and location on Project Site, and identifying labels consistent with contract documents.
- B. As-built Drawings. One complete set of drawings and one set of hard discs with all drawings in AutoCAD format.
- C. O&M Manuals
 - Manuals shall be subdivided by specification section. The first document in each section shall be the Specification text followed by a list of all equipment covered under that section.
 - 2. The Contractor shall locate documents for each piece of maintained equipment from the list above as follows:
 - a. Product Description to include:
 - 1) Manufacturer name.
 - 2) Model name and number.
 - 3) Component serial numbers.
 - 4) Name, Address, and contact information for Installation subcontractor.
 - b. Preventive Maintenance Schedule:
 - Maintenance tasks, inspections, and tests by required frequencies equally balanced throughout the calendar year
 - for each PM requirement identifying the designated skill trade, with estimated maintenance labor duration.
 - 2) Safety and emergency instructions.
 - 3) Detailed procedures for detecting faults during scheduled or unscheduled servicing.
 - 4) Information on seasonal adjustments, emergency or partial operating procedures, start-up and shut-down detail, and other operationally significant information.

- 5) Maintenance approach.
- 6) Precautions against improper use and maintenance.
- c. Manufacturer's Product Data and Technical Literature:
 - Detailed operating procedures, parameters, and tolerances.
 - 2) Troubleshooting guides..
- d. Manufacturer's Warranty information, (those extending more than one year) including copies of warranties, forms, and expiration dates.
- e. Shop drawings, wiring diagrams, flow charts, and equipment sequence of operations.
- f. Material Safety Data Sheets (MSDS), as required.
- g. List of Materials for Operation and Maintenance (Manufacturer's Spare Parts). Contractor shall provide a detailed list of materials and spare parts required to operate, maintain, and repair all building systems and installed equipment.

1.05 POSTED INSTRUCTIONS

- A. Operation and Maintenance Instructions:
 - Unless otherwise indicated the Contractor shall post O&M instructions at principal units of operational equipment, components, and building systems. They shall include instructions for safety, security, and mandatory protective devices. Instructions shall include, but not be limited to:
 - a. Start-up and shut-down procedures.
 - b. Control sequences.
 - c. Wiring diagrams and layouts.
 - d. System piping diagrams, valve locations, etc
 - 2. Emergency info. shall be posted in English and host country language.
 - 3. Instructions Mounting and Location:
 - a. Attach to or near each piece of equipment.
 - b. Frame in Plexiglas or similar material.
 - c. Illuminate, as necessary, to ensure readability.
 - d. Provide permanent, protected, tamper-resistant signage, appropriate to the exposure conditions.
 - Locate for convenience of O&M personnel, but concealed from others, except in the case of general-usage and emergency facilities.