

**CENTRAL ARIZONA WATER CONSERVATION DISTRICT
DIVISION 01 – GENERAL REQUIREMENTS**

TABLE OF CONTENTS

Section 012700 Payment Application Procedures.....	2
Section 012800 Measurement and Payment.....	5
Section 013100 Project Management and Coordination.....	9
Section 013200 Project Schedule.....	16
Section 013300 Submittal Procedures.....	20
Section 014000 Quality Requirements.....	25
Section 015000 Temporary Facilities and Controls.....	30
Section 016000 Product Requirements.....	43
Section 017700 Closeout Procedures.....	47
Section 017800 Project Record Documents.....	50
Section 017820 Operation and Maintenance Manuals.....	53
Section 019150 Safety.....	58

SECTION 012700 PAYMENT APPLICATION PROCEDURES

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Progress Payment Meetings
 - 2. Partial Payment of Unit Price Items
 - 3. Partial Payment of Lump Sum Items
 - 4. Documentation Required for Disputed Applications for Payment
 - 5. Additional Documentation to Accompany Application for Payment

1.2 PROGRESS PAYMENT MEETING

- A. Prior to submission of each payment application, the Contractor shall schedule and hold a meeting with CAWCD to discuss and agree to the project progress as it pertains to payment for each pay item. This discussion can take place in a stand-alone meeting, or it can be incorporated into the regularly scheduled progress meetings. The meeting shall cover the following items at a minimum:
 - 1. Review of the current progress towards completion on each pay item and how completed quantities were calculated for each unit priced item.
 - 2. Review of the scheduled payments for lump sum items in accordance with 00500.6.6.2.3 and these Specifications.
 - 3. Review of the updated version of the Contractor's Project Schedule in accordance with Sections 00500.6 and 013200.
 - 4. Where required, review of the mark-ups to the As-Built Plans to ensure accuracy and completeness in accordance with Section 017810.

1.3 PARTIAL PAYMENT OF UNIT PRICE ITEMS

- A. Measurement for payment of unit price items will be made only for the actual measured or computed quantity unless other provisions are made in the Contract Documents. Payment for unit price items will not be made for Work outside the finished dimensions shown in the Plans. Measurement will be as indicated in the Bidding Schedule for each unit price item.
 - 1. Record measurements and perform calculations to determine pay quantities for invoicing for work performed. The Contractor shall demonstrate the method utilized to determine the quantity of work completed and submit with the Application for Payment. Unless otherwise specified, measure when the work is in-place and complete according to the Contract. Measure the actual work performed, except do not measure work outside the design limits. Submit measurements for payment to CAWCD for review 5 days in advance of the project progress meeting.
 - 2. Remeasure quantities if it has been determined that a portion of the Work has not been completed according to the Plans.
 - 3. When work is not complete, identify the measurement as being interim. Submit the final measurement when the installation is complete.

4. The Contractor shall review the estimated quantities with CAWCD for concurrence prior to submission of the Application for Payment.

1.4 PARTIAL PAYMENT OF LUMP SUM ITEMS

- A. On bid items to be paid as lump sum that may extend beyond a single pay estimate, a Schedule of Values shall be submitted to CAWCD a minimum of 10 days prior to Work on that item. The Schedule of Values shall be submitted on a standard form that is widely accepted in the construction industry. Adequate detail shall be given to allow a value to be placed on Work completed during any given pay estimate period. Measurement for partial payment of lump sum items will be made based on the earned value for each item shown as a percentage of the cost for the lump sum item. Payment for Work will be based on the percent of completed work of each item in the Schedule of Values, including stored materials, as verified by CAWCD. Progress of work for each item of the Schedule of Values will be verified by CAWCD.
 1. Payment will be made for each individual lump sum item on a percentage of completion basis as estimated by the Contractor and approved by CAWCD.
 2. Payment at final completion will be equal to the total lump sum amount for that item.

1.5 DOCUMENTATION REQUIRED FOR DISPUTED APPLICATIONS FOR PAYMENT

- A. If agreement cannot be reached by CAWCD and the Contractor for partial payment of unit price or lump sum bid items, the Contractor must provide a detailed estimate of its proposed unit price or lump sum partial payment amount to perform the work. This detailed estimate must include the following:
 1. Estimate of labor effort by trade in manhours for each task.
 2. Estimate of base labor and burdened labor rate.
 3. Estimate of equipment cost including time requirements and rate.
 4. Estimated cost of materials.
 5. Estimated cost to be expended by subcontractors, prepared to the same level of detail as required in Items 1-4 above.
 6. Any other costs to which the Contractor feels it is entitled. Each such cost shall be presented in detail like items 1-5 above.
 7. Mark-up percentage if used for overhead, profit, or bond.

1.6 ADDITIONAL DOCUMENTATION TO ACCOMPANY APPLICATION FOR PAYMENT

- A. An updated version of the Construction Program, as required in Section 00500.6 must be included. Failure to include a satisfactorily updated Construction Program with the Application for Payment will constitute the basis for rejecting the Application for Payment.
- B. Where As-Built mark-ups are required under the Contract, the Contractor shall have CAWCD review and approve the status of the As-Built records as required by Section 017810.

END OF SECTION 012700

SECTION 012800 MEASUREMENT AND PAYMENT

1.1 SUMMARY

- A. This section includes the following:
 - 1. Scope of Measurement and Payment
 - 2. Mobilization/Demobilization
 - 3. General Conditions

1.2 SCOPE OF MEASUREMENT AND PAYMENT

- A. General: The pay items, units of measurement, and quantities are included in the Bidding Schedule in Section 00200.2. Measurement and payment for pay items in the Bidding Schedule will be as indicated in the applicable CAWCD Standard Specifications or in the Special Provisions. Where the units of measurement specified in the Special Provisions differ from the measurement and payment provisions of the CAWCD Standard Specifications, the Special Provisions shall have precedence.
- B. Measurement: All work completed under the contract will be measured according to United States standard measures. The methods of measurement and computation to be used in determination of quantities of materials furnished and of work performed under the contract will be those generally recognized as conforming to good engineering practice.
 - 1. The term lump sum, when used as measurement for a pay item, shall mean complete payment for the work described.
- C. Payment for Unit Price Items: Payment for the various items in the Bidding Schedule will be made at the unit price in the Bidding Schedule and shall be compensation in full for furnishing all labor, materials, equipment, and appurtenances necessary to complete the work in a satisfactory manner as shown on the Plans and as required in the Specifications, with all connections, testing, and related work completed. Each item, fixture, piece of equipment, etc., shall be complete with all necessary connections and appurtenances, for the satisfactory use and operation of said item. No additional payment will be made for work related to any item unless specifically called for in the Bidding Schedule. Work or materials not specifically identified by a bid item are considered as included in the unit price of related bid items. This compensation shall also cover all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof. Unless otherwise specified, payment will not be made for unused materials.
 - 1. Costs Included in Unit Prices: The unit prices shall include all costs for salaries and wages, and payroll additives to cover employee benefits, allowances for vacation and sick leave, company portion of employee insurance, social and retirement benefits, all payroll taxes, contributions, and benefits imposed by any applicable law or regulation and any other direct or

indirect payroll-related costs. The unit prices shall also include all costs for indirect charges, overhead, mileage, travel time, subsistence, materials, freight charges for materials to Contractor's facility or project site, equipment rental, consumables, tools, insurance costs, all applicable taxes and fees, as well as Contractor's overhead and profit. The unit prices shall further include all site clean-up costs, hauling of construction debris, and proper disposal in accordance with all laws and regulations and the project Plans and Specifications.

2. Taxes and Fees: Taxes are deemed to include all sales, use, consumer, and other taxes that are legally enacted at the time of submittal of the project bid proposal, whether they are yet effective or scheduled to go into effect. Any such taxes shall be paid by Contractor and shall be included in the unit prices. The Contractor shall also be responsible to contact all municipalities and other governmental agencies having jurisdictional authority over the project or the project area to determine if they will charge the Contractor other fees (e.g. permit fees) for the project work. Unless otherwise specified in the project documents or on the proposal form, the Contractor shall include the cost of such fees in the unit prices on the proposal form.

D. Payment for Lump Sum Items: Payment for lump sum items includes all costs for completing the item in accordance with the Contract lump sum pay items. Compensation shall be in full for furnishing all labor, materials, equipment, and appurtenances necessary to complete the Work in a satisfactory manner as shown on the Plans and as required in the Specifications with all connections, testing and related work completed for the satisfactory use and operation of said item. Such payment includes all direct costs for the work associated with that lump sum item and a proportionate amount for the indirect costs for each lump sum item. Include all costs not specifically set forth as an individual pay item but required to provide a complete and functional system in the lump sum price.

1. Partial payments for lump sum items will be made in accordance with Section 012700.

1.3 MOBILIZATION/DEMOBILIZATION

A. General: When Mobilization/Demobilization is included in the Bidding Schedule, the following shall apply: For the purposes of providing for expenses incident to the initiation and completion of construction, an item has been included in the Bidding Schedule to provide payment for Mobilization/Demobilization. This item is intended to compensate the Contractor for operations including, but not limited to those necessary for the movement of personnel, equipment, supplies, and incidentals to the Work site; for establishment of offices, building, plants, and other facilities at the Work site; for payment of premiums for Bonds; for the development of the Construction Program; for any necessary costs of acquisition of equipment, including purchase and mobilization expense; and for any other Work and operations that must be performed or costs that must be incurred incident to the initiation of meaningful Work at the site and for which payment is not otherwise provided for under this Contract.

1. All facilities, plants, and equipment that are established at or brought to the Work site shall be deemed to be subject to the provisions of this Section

unless CAWCD specifically provides otherwise, in writing, for a particular item or items. The Contractor shall be solely responsible for the adequacy, efficiency, use, protection, maintenance, repair and preservation of all facilities, plant, and equipment. The facilities, plant, and equipment covered by this Section shall not be dismantled or removed from the Work site prior to completion of the Work under the Contract without the written permission of CAWCD.

2. All facilities, plant, and equipment of the Work site shall also be subject to CAWCD's right to take possession of and utilize the same for the purposes of completion of the Work as provided by Section 00600.2.16, should the Contractor's right to proceed be terminated thereunder. In addition, any encumbrance, lien, or other security interest on any such facilities, plant, or equipment shall be subordinated to CAWCD's right under said default clause to utilize all facilities, plant, and equipment to complete the Work under the Contract, and the Contractor agrees to provide evidence of this, acceptable to CAWCD.

- B. **Payment for Mobilization/Demobilization:** Payment shall be made at the lump sum price in the Bidding Schedule. Progress payments for Mobilization and Demobilization shall be made in equal one-third portions. The first payment will be made along with the Contractor's initial payment request. The second payment will be made when the total payments to the Contractor for the pay items, exclusive of payments for Mobilization and Demobilization, equal ten percent of the initial contracted amount. The remaining one-third will be paid as part of the final payment due to the Contractor. The total amount of premiums paid by the Contractor to obtain Performance and Payment Bonds as referred to in Section 00600.2.18, and specified insurance shall be considered a portion of the Mobilization and Demobilization pay item and will not be eligible for additional compensation. All Progress Payments for Mobilization and Demobilization shall be subject to retainage as referred to in Section 00300.5. For contracts that do not list Mobilization and Demobilization as a pay item, full compensation for any costs associated with Mobilization and Demobilization will be considered as included in the prices for the various contract times, and no additional compensation will be made.

1.4 GENERAL CONDITIONS

- A. When an item is included in the Bidding Schedule for payments for General Conditions, this item is intended to compensate the Contractor for the following types of costs during the construction phase:
 1. Payroll costs for the project manager or construction manager, superintendent, full-time general foreman, and other management personnel working on the site.
 2. Workers not included as direct labor costs engaged in support (e.g., loading/unloading, clean-up, etc.)
 3. Administrative office personnel.
 4. Costs of offices and temporary facilities including office materials, office supplies, office equipment, minor expenses, utilities, and fuel.

5. Costs of liability insurance premiums not included in labor burdens for direct labor cost.
 6. Cost of consultants not in the direct employ of the Contractor or subcontractor.
 7. Fees for licenses.
- B. Payment: When included in the Bidding Schedule, payment for General Conditions shall be made in the unit of measurement listed in the Bidding Schedule. Progress payments for General Conditions shall be made in equal amounts over the duration of the Contract.

END OF SECTION 012800

SECTION 0113100 PROJECT MANAGEMENT AND COORDINATION

1.1 SUMMARY

- A. This section includes administrative provisions for coordinating fabrication and installation operations on the Project and includes the following:
 - 1. Definitions
 - 2. Coordination
 - 3. Submittals
 - 4. Administrative and Supervisory Personnel
 - 5. Project Meetings
 - 6. Request for Information (RFI)
 - 7. Change Order (CO)
 - 8. Field Order (FO)

1.2 DEFINITIONS

- A. Requests for Information (RFI): Request from Contractor seeking information or clarification of the Contract Documents.
- B. Change Order: A written order to the Contractor, approved by the Contracting Officer, authorizing a change in the work and/or an adjustment in the contract sum and/or the contract time.
 - 1. Refer to Section 00600.4.6 CHANGES of the Contract Clauses.
- C. Change Order Request: The document issued to obtain the necessary information regarding the changes to the Contract so the proposed request can be submitted for CAWCD review and approval.
- D. Field Order: Field Order is a written directive to the Contractor issued on or after the effective date of the Contract, signed by CAWCD ordering a clarification or modification in the Work that does not constitute a Change in the Contract Scope, Contract Amount or Contract Time.

1.3 COORDINATION

- A. Coordinate removal, fabrication, and installation operations included in the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate operations that depend on each other for proper installation, connection, and operation.
- B. Where applicable, coordinate operations with those of other Contractors and entities to ensure efficient and orderly installation of each part of the Work as required in the Special Provisions Section SP 02 Article 1.5. Coordinate operations that depend on each other for proper installation, connection, and operation.

1. Where applicable, schedule operations in sequence required to obtain the optimal results where installation of one part of the Work depends on installation of other components, before or after its own installation including the requirements of the Special Provisions Section SP 02 Article 1.5.
 2. Coordinate installation of various components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all civil, mechanical, and electrical components.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to the following:
1. Preparation of Contractor's Project Schedule in accordance with Section 013200.
 2. Installation and removal of temporary facilities and controls in accordance with Section 015000.
 3. Review, delivery, and processing of submittals in accordance with Section 013300.
 4. Progress meetings in accordance with Section 013200.
 5. Preinstallation conferences in accordance with Section 013100.
 6. Testing requirements in accordance with Section 014400.
 7. Project closeout activities in accordance with Section 017700.
 8. Submittal of Project As-Built Plans in accordance with Section 017800.

1.4 SUBMITTALS

- A. All Personnel Names: Within 7 days of receipt of the Notice to Proceed, submit a list of key personnel and their role.
- B. Contractual Authority Limitations: Within 7 days of receipt of the Notice to Proceed, submit a list of personnel with the authority to make agreements for the Contractor and their limits of authority.

1.5 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. In addition to Project Manager and Superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

1.6 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Meeting times shall be mutually agreed upon with CAWCD.
 2. Agenda: Prepare the meeting agenda and distribute to all invited attendees in advance of the meeting.
 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including the Contracting Officer, within 3 calendar days of the meeting.
- B. Preconstruction Conference: The Contracting Officer will administer the Contract and will schedule a Preconstruction Conference before Work commences, at a time convenient to the Contractor but no later than 30 days after the effective date of the Contract Award. The purpose of the meeting is to review responsibilities and personnel assignments.
1. Attendees: Authorized representatives of the Contracting Officer, Contractor and its project manager and superintendent, major subcontractors; suppliers; testing laboratory, inspection team, and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
 2. Agenda will be provided by CAWCD.
 3. Minutes: CAWCD will record and distribute meeting minutes.
- C. Preconstruction Safety Meeting: The Contractor shall refer to Section 019150 for information for the required Preconstruction Safety Meeting.
- D. Pre-installation Conferences: If required by the Project, conduct a pre-installation conference at Project site before each fabrication, installation, or removal activity that requires coordination with other activities or CAWCD operations or facilities.
1. Attendees: Contractor, subcontractors, inspectors, and any needed representatives of manufacturers and fabricators involved in or affected by the installation. Include coordination or integration with other materials and installations that have preceded or will follow. Advise the Contracting Officer of scheduled meeting dates.
 2. Agenda: Review progress of other project activities and preparations for the activity under consideration, including requirements for the following:
 - a. The Contract Documents (plans and specifications)
 - b. Related RFIs
 - c. Related Change Orders
 - d. Purchases
 - e. Deliveries
 - f. Submittals
 - g. Possible conflicts
 - h. Compatibility problems
 - i. Project Schedule
 - j. Weather limitations
 - k. Manufacturer's written recommendations
 - l. Warranty requirements
 - m. Compatibility of materials

- n. Temporary facilities and controls
 - o. Space and access limitations
 - p. Testing and inspection requirements
 - q. Installation procedures
 - r. Coordination with other work
 - s. Required performance results.
 - t. Protection of adjacent work
 - u. Protection of personnel
 - v. Review the hazards associated with the work and any Job Hazard Analysis needed or created.
3. Record significant conference discussions, agreements, and disagreements, including required measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present, the Contracting Officer, and to parties who should have been present.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at the earliest feasible date.
- E. Progress Meetings: Conduct progress meetings weekly unless CAWCD requests a different interval. If requested by the Contracting Officer, during periods of heightened installation or fabrication operations, the Contractor shall conduct meetings at a more frequent interval. Coordinate dates and locations of meetings with the Contracting Officer.
1. Attendees: In addition to representatives of CAWCD, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate regarding status of the Project.
 - a. Contractor's Project Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Project Schedule. Determine how activities behind schedule will be expedited; secure commitments from parties involved. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Review schedule for next three-week period: Provide a detailed daily schedule of work (including all subcontractor work) for the following three-week period reflecting the shifts, shift hours, and resources needed to accomplish each day's work. All information from the three-week look ahead schedule must be incorporated in, and match with, the overall Project Schedule.
 - c. At a minimum, the following items shall be discussed:

- 1) Status of As-built Plans
 - 2) Three-week look ahead schedule
 - 3) Sequence of operations
 - 4) Submittal log
 - 5) Deliveries
 - 6) Off-site fabrication and testing
 - 7) Access and egress considerations
 - 8) Site utilization and laydown area considerations
 - 9) Temporary facilities and controls
 - 10) Hazards, risks, and safety items
 - 11) Status of correction of deficient items
 - 12) Field observations
 - 13) RFI Log
 - 14) Status of proposal requests
 - 15) Status of Change Orders/Contract Modifications
 - 16) Documentation of information for payment requests
 - 17) Testing, Quality Control, and Quality Assurance
 - 18) QA/QC Testing Results
3. Minutes: Record the meeting minutes and provide draft copy of the minutes to participants for comment within 3 calendar days.
 4. Reporting: Distribute finalized minutes of meeting to each party present, the Contracting Officer, and to parties who should have been present within 15 calendar days from the date of the meeting.

1.7 REQUESTS FOR INFORMATION (RFIs)

- A. Procedure: Immediately on discovery of the need for information related to the Contract Documents, prepare and submit an RFI to the Contracting Officer.
 1. RFIs should originate with, or through, the Contractor. RFIs submitted to the Contracting Officer by entities other than the Contractor will be returned with no response.
 2. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information and include the following:
 1. Project name
 2. Date
 3. Name of Contractor
 4. RFI number, numbered sequentially.
 5. Specification section number and title and related paragraphs
 6. Drawing number and detail references
 7. Field dimensions and conditions
 8. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, state impact in the RFI.
 9. Contractor's signature.

10. Attachments: Include drawings, descriptions, measurements, photos, Product data, Shop Drawings, and other information necessary to fully describe items needing information.
- C. RFIs: CSI Form 13.2A or other form approved by CAWCD.
 1. Identify each page of attachments with the RFI number and sequential page number.
 - D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
 1. Provide attachments of electronic files in PDF format.
 - E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Include the following:
 1. Project name
 2. Name and address of Contractor.
 3. RFI number including RFIs that were dropped and not submitted.
 4. RFI description
 5. Date the RFI was submitted.
 6. Date CAWCD's response was received.
 7. Brief description of the response and/or resolution
 8. Identification of change order or contract modification, as appropriate.

1.8 CHANGE ORDERS (CO)

- A. General: Any requirement for change to the construction documents after contract award, or to approved construction schedules must be accomplished through the issuance of a Change Order to the Contract. This section establishes the administrative procedures for processing Change Orders to address changed conditions. Refer to Section 00600.4.4 through 00600.4.8 of the Contract Clauses for additional requirements for change orders.
 1. A Request for Information (RFI) or response to an RFI does not constitute a Change Order.
 2. The Contracting Officer will review and evaluate requests for Change Order, negotiate cost and schedule impacts, and make final recommendations for approval. The Contracting Officer will utilize time and material records maintained by the CAWCD Inspector on authorized Change Order Work performed on a time and material basis, or based on actual costs of labor and materials, or other work requiring daily records.
 3. Except in emergency situations, or as otherwise directed by CAWCD, the Contractor shall not proceed with Change Order Work until it has been approved by CAWCD.
- B. Procedure: The Contractor shall prepare a Change Order Request that clearly defines the requirements of the change, including any supplemental or revised plans or specifications. The request shall identify the reason for the Change Order and the time frame in which the Change Order Work must be

accomplished. A detailed estimate and associated backup information shall be submitted.

1. CAWCD will evaluate the cost and time impact of the Request for Change Order and provide a response within 10 days of receipt of the request. If cost and/or time submitted require negotiation, the Contracting Officer will negotiate the item with the Contractor. The final Change Order package shall include cost broken down with supporting documentation, labor worksheet and other pertinent backup information.
2. CAWCD is responsible for preparation of all Change Orders and reviews all Requests for Change Order, recommends approval or disapproval based on interpretation of the Contract Documents and Contractor's proposal.
3. Change Orders can be issued unilaterally by CAWCD if the Contractor does not agree to the value or the schedule impact.

1.9 FIELD ORDER (FO)

- A. Procedure: A FO shall originate with, or through CAWCD and may be issued without the request of the Contractor. Field orders are direction from CAWCD. If the Contractor feels the direction is a Change in the Scope of Work and constitutes a Change in the Contract, the Contractor may Request a Change (RFC) with all supporting documentation.

END OF SECTION 013100

SECTION 013200 PROJECT SCHEDULE

1.1 SUMMARY

- A. This section includes the development and submission of all project schedules, updates, recovery plans schedules, changes, and Schedule of Values and includes the following:
 - 1. Description
 - 2. Submittals
 - 3. Schedule Development
 - 4. CAWCD Review of Project Schedule
 - 5. Maintenance of Schedule
 - 6. Schedule Change Proposals

1.2 DESCRIPTION

- A. The Contractor shall develop, implement, and update a reasonable and achievable Schedule that supports project construction in accordance with the Contract Documents. This Schedule shall be the Contractor's baseline schedule that shall be used to plan, organize, and execute the entire Scope of Work. The Contractor shall maintain an up-to-date copy of the resource loaded baseline Schedule that shall be used to record the Contractor's actual performance and report the critical path to contract completion. The Contractor shall be extensively familiar with the Schedule and shall be able to discuss the development, progress, and logic in detail.
- B. The Contractor shall prepare a Schedule of Values containing budgeted costs for each activity in the resource loaded schedule which will be used for monthly payment applications. The Schedule of Values shall be developed, generated, and produced from the scheduling software.
- C. Contractor shall adhere to all requirements of Section 00500 related to Schedule and Schedule of Values.

1.3 SUBMITTALS

- A. The Contractor shall use Microsoft Project, latest version or as approved by CAWCD and submit the following in pdf format that includes the entire Contract time and is printable in a 11"x17" format.
 - 1. Project Schedule
 - 2. Schedule of Values

1.4 SCHEDULE DEVELOPMENT

- A. Provide a Baseline Bar Chart Schedule in PDF with columns for Activity Number, Description, Duration, Responsibility, and include a time scaled section from

Notice to Proceed to Substantial Completion, sorted by start date. The baseline Schedule must not extend beyond Substantial Completion."

- B. The Schedule shall identify and show all activities required to complete the project and their dependent relationships. All Schedule submittals shall have a well-defined and continuous critical path from inception to final completion. Any float shown in the Schedule shall belong to CAWCD. Contractor shall coordinate preparation and processing the Project Schedule and Progress Reports with performance of all construction activities including subordinate contractors and vendors. No direct payment shall be made to the Contractor for developing, maintaining, and implementing the Project Schedule. The cost of maintaining and implementing shall be included as an element of the Contractor's overhead. The Project Schedule includes administrative and procedural requirements for documenting the progress of work during performance of the Work, including a baseline schedule, updated schedule, and Time Impact Analysis (TIA).
- C. Progress Reports shall include the following information:
 - 1. Progress and scheduling
 - 2. Construction activities
 - 3. Material or equipment delivered to the site
 - 4. Summary of payments and accrued expenditures
 - 5. Change Orders and Change Order requests
 - 6. Request for information log
 - 7. Submittal status
 - 8. Inspection requests
 - 9. Safety and environmental issues
 - 10. Risk and mitigation measures
 - 11. General comments
- D. All schedules shall initiate with a milestone identified as "Contract Award" and terminate with a milestone "Contract Complete". Include the major and intermediate milestones necessary to track important events in each activity. Include estimated time frames for the following activities:
 - 1. Preparation and processing of submittals
 - 2. Mobilization and demobilization
 - 3. Purchase of materials
 - 4. Delivery of equipment and materials
 - 5. Fabrication
 - 6. Utility interruptions
 - 7. Installation
 - 8. Work by CAWCD that may affect or be affected by Contractor's activities.
 - 9. Testing and commissioning
- E. Include activities in the schedule that will be identified in the Schedule of Values and for monitoring purposes. The schedule shall identify General Conditions as a separate, individual activity by month for each work package. The activities shall meet the following criteria:
 - 1. Activities shall be broken out by subcontractor. No activity shall be co-owned by more than one Contractor. Activities shall be broken down through all

- subcontractor tier levels. General Contractor cannot be identified as a subcontractor unless they self-perform the work.
2. Each activity shall have a unique identification number and description.
 3. Failure to include any work item required for performance of the Contract shall not excuse Contractor from completing all work within applicable completion dates.

1.5 CAWCD REVIEW OF PROJECT SCHEDULE

- A. Review of the Contractor's Schedule is to confirm CAWCD staffing required, general compliance with the contract documents as it relates to completion of the work and to monitor and evaluate the construction status for purposes of approving progress payments. If the schedule does not contain sufficient information as determined by CAWCD to meet the above purpose, submit a new Schedule with the information required by CAWCD. The Schedule shall not be changed without the written consent of CAWCD. The orderly procedure of all the work shall be the full responsibility of the Contractor.
- B. Review of a submitted Schedule by CAWCD shall in no way be construed as an affirmation or admission that the Schedule is reasonable or workable. When the Schedule shows completion prior to the contract completion date, this extra time between the contract completion date and the scheduled completion date, may be used by CAWCD without additional compensation to the Contractor. CAWCD shall not be liable to the Contractor for any damages for delay if the Contractor completes the work prior to expiration of the original Contract completion date or as modified by approved change orders.

1.6 MAINTENANCE OF SCHEDULE

- A. Changes to the baseline Schedule shall only be made via approved Change Orders.
- B. Submit an updated Schedule monthly and 3-week look-ahead schedule for construction progress meetings and monthly as back up for pay applications.
- C. Revise Schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated Schedule concurrently with the report of each meeting.
- D. Distribute electronic copies of approved Schedule to CAWCD, separate contractors, testing and inspection agencies, and other parties identified by Contractor or CAWCD with a need-to-know Schedule responsibility.
- E. Coordinate the Project Schedule with the schedule of tests and inspections.
- F. If required, a recovery Schedule submittal and narrative recovery plan shall be submitted to CAWCD within 7 days of identification of a delay to the Contract completion date. The recovery plan shall provide a description of what the proposed changes will accomplish and their effect on the critical path. Identify subcontractors involved with the recovery plan and amount of overtime

anticipated as well as additional resources and changes in work time that are required for Schedule recovery.

- G. Contractor shall provide a TIA if a change impacts the Project Schedule. A TIA shows that incorporating the change modifies the critical path and scheduled Substantial Completion date of the accepted Schedule, the difference between scheduled Substantial Completion date and the TIA Substantial Completion date will be used for the adjustment of Contract time in a Change Order. A TIA is developed from incorporating the event into the latest accepted schedule by adding, deleting, or changing activities names, durations, or logic. All TIA must be submitted to CAWCD within 5 calendar days of receiving a written request for a TIA, or the actual occurrence of an event that impacts the Substantial Completion of the Project. Contractor shall allow 14 calendar days for review of the submitted TIA. All accepted TIA Schedule changes must be shown on the next monthly updated Schedule. If a TIA is rejected, the Contractor may request a meeting to discuss and resolve issues related to the TIA. If agreement is reached later, the authorized TIA Schedule changes must be shown on the next updated Schedule.
- H. CAWCD and the Contractor shall jointly review the Schedule status in the construction progress meeting. The Contractor shall provide copies of the Schedule to all attendees at the meeting.
- I. The monthly Schedule update shall be submitted to CAWCD following the invoice schedule in support of each Pay Application and shall contain the same information as the updates for the construction progress meetings.

1.7 SCHEDULE CHANGE PROPOSALS

- A. Any restructuring, original duration changes, re-logic or splitting of activities at any point in the progress of the project shall be accompanied by a written change proposal from the Contractor.
- B. For any Change Order request, the Contractor shall indicate if the requested change impacts the schedule. Changes to the schedule will not be accepted unless the Contractor has submitted the change to CAWCD for review.
- C. All time extension requests or changes that affect the contract end date shall be accompanied by a written time impact analysis illustrating the influence of each change or delay on the current Contract Schedule completion date.

END OF SECTION 013200 PROJECT SCHEDULE

SECTION 013300 SUBMITTAL PROCEDURES

1.1 SUMMARY

- A. This Section includes administrative and procedural requirement for submitting Shop Drawings, Product Data, Samples, and other submittals and includes the following:
 - 1. Submittal Procedures
 - 2. Submittals
 - 3. Contractor's Review
 - 4. Contracting Officer's Review/Action
 - 5. Address for Submittals
 - 6. Summary of Submittals

1.2 SUBMITTAL PROCEDURES

- A. CAWCD will accept electronic copies of submittals in PDF or another similar format. Electronic copies shall have information to indicate the specific product when multiple items are shown on a single sheet.
- B. All submittals shall be legible, of quality equal to the manufacturer's original catalog pages, photographs, documents, literature, etc.
- C. Electronic copies of PDF files of the Contract Drawings will be provided by CAWCD for Contractor's use in preparing submittals.
- D. Coordination: Coordinate preparation and processing of submittals with performance of project activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination. CAWCD reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- E. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on the Contracting Officer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow 21 calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. CAWCD will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Resubmittal Review: Allow 10 calendar days for review of each resubmittal.

- F. Identification: Indicate name of firm or entity that prepared each submittal on label or title block.
1. Include the following information on label for processing and recording action taken:
 - a. Project name
 - b. Date
 - c. Name and address of Contractor.
 - d. Name and address of subcontractor.
 - e. Name and address of supplier.
 - f. Name of manufacturer
 - g. Submittal number including revision identifier.
 - h. The first submittal shall contain the RSN.
 - i. Resubmittals shall include an alphabetic suffix after the submittal number (e.g., 3.B).
 - j. Number and title of appropriate Specification Section.
 - k. Drawing number and detail references, as appropriate.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Other necessary identification.
- G. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- H. Transmittal: Include RSN and Specification Numbers for each Submittal included on one transmittal.
1. Transmittal Form: Form that contains the following information:
 - a. Project name and contract number
 - b. Date
 - c. Required Submittal Number (RSN)
 - d. Destination (To:)
 - e. Source (From:)
 - f. Names of subcontractor, manufacturer, and supplier
 - g. Category and type of submittal
 - h. Submittal purpose and description
 - i. Specification Section number and title
 - j. Drawing number and detail references, as appropriate
 - k. Submittal and transmittal distribution record
 - l. Remarks
 - m. Signature of transmitter
 2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, and deviations from requirements in the Contract Documents, including minor variations and limitations. Unless deviations from the Contract requirements are specifically noted in this letter, any deviations shall be solely at the Contractor's risk. Include same label information as related submittal.
 3. CAWCD Secure Web Server: CAWCD maintains a Secure Web Server that can be utilized to exchange large files. At the Contractor's option, the

Contractor may utilize this web server to transmit submittals. Please contact the Contract Administrator for access and use of the Secure Web Server.

- I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked "Approved" or "Approved as Noted."

- J. Use for Fabrication or Installation: Use only final submittals with mark indicating "Approved" or "Approved as Noted".

1.3 SUBMITTALS

- A. General: Prepare and submit Submittals required by individual Specification Sections.

- B. Product Data: Collect information into a single submittal for each element of project and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable. Marks shall be in such a manner that a standard black and white copier or printer will carry the marks forward to subsequent copies.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations
 - b. Manufacturer's product specifications
 - c. Manufacturer's installation instructions
 - d. Standard color charts
 - e. Manufacturer's catalog cuts
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves
 - h. Operational range diagrams
 - i. Mill reports.
 - j. Standard product operation and maintenance manuals
 - k. Compliance with specified referenced standards
 - l. Testing by recognized testing agency
 - m. Application of testing agency labels and seals
 - n. Notation of coordination requirements
 - 4. Submit Product Data before or concurrent with Samples.

- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements of the Contract Documents. Include the following information, as applicable:
 - a. Dimensions
 - b. Identification of products
 - c. Fabrication and installation drawings
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions
 - g. Templates and patterns
 - h. Schedules
 - i. Design calculations.
 - j. Compliance with specified standards
 - k. Notation of coordination requirements
 - l. Notation of dimensions established by field measurement.
 - m. Relationship to adjoining project clearly indicated.
 - n. Seal and signature of professional engineer if specified.
 - o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.

- D. Informational Submittals: Prepare and submit Informational Submittals required by other Specification Sections.

- E. Quality Control Reports: Prepare written reports on standard or created forms, indicating and interpreting results of quality control tests performed for compliance with requirements in the Contract Documents. The standard or created form shall include all items listed in Section 014000 -Quality Requirements, under the Submittals Reports paragraph.

1.4 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to the Contracting Officer.

- B. For Approval Stamp: Stamp each submittal with a uniform, for approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 1. Failure to provide this review and apply the associated stamp may be grounds for return of the submittal to the Contractor without review.

- C. General: The Contracting Officer will not review submittals that do not bear Contractor's approval stamp and will return them without action. The Contracting Officer will review each submittal, make marks to indicate corrections or modifications required, and return it if necessary to communicate the corrections or modifications required. The Contracting Officer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
1. Rejected – the submittal does not meet the requirements of the contract.
 2. Revision and Resubmittal Required – the submittal needs to be revised and resubmitted to the Contracting Officer.
 3. Approved – the submittal meets the contract requirements.
 4. Approved as Noted – the submittal meets the contract requirements with notations or further requirements. The items noted shall be the Contractor's responsibility to address.
- D. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review.

1.5 ADDRESS FOR SUBMITTALS

- A. All electronic submittals shall be emailed to the Contracting Officer as indicated in the Special Provisions Section SP-02 Project Summary.

1.6 SUMMARY OF SUBMITTALS

- A. CAWCD to provide Required Submittal Table separately in XLS format.

END OF SECTION 013300

SECTION 014000 QUALITY REQUIREMENTS

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control and includes the following:
 - 1. Definitions
 - 2. General Requirements
 - 3. Testing by CAWCD
 - 4. Conflicting Requirements
 - 5. Submittals
 - 6. Quality Assurance
 - 7. Quality Control
 - 8. Access
 - 9. Test and Inspection Log
 - 10. Repair and Protection

1.2 DEFINITIONS

- A. Quality Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed fabrication, installation, or materials will comply with the contract requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed fabrication, installation, or materials comply with requirements.
- C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.3 GENERAL REQUIREMENTS

- A. All tests and inspections not explicitly assigned to CAWCD are the Contractor's responsibility and shall be conducted in conformance with this Section and Section 00600.3. Unless otherwise indicated, provide quality control services specified.
- B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Documents.
 - 1. Specific quality assurance and quality control requirements for individual project activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.

2. Specified tests, inspections, and related actions do not limit Contractor's other quality assurance and quality control procedures that facilitate compliance with the Contract Documents.
3. Requirements for Contractor to provide quality assurance and quality control services required by CAWCD or authorities having jurisdiction are not limited by provisions of this Section.

1.4 TESTING BY CAWCD

- A. CAWCD may perform certain Quality Control tests for their own benefit and use. Testing by CAWCD shall not relieve the Contractor from performing their own required testing.
- B. The Contractor shall allow CAWCD free and safe access to the work when requested including providing a safe work area to allow testing.
- C. If testing or inspection of the Work by CAWCD identifies deficiencies, Contractor shall be responsible for making corrections and providing further testing to demonstrate compliance has been reached.

1.5 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different to CAWCD for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to CAWCD for a decision before proceeding.

1.6 SUBMITTALS

- A. Testing Agency Qualifications: The Contractor shall submit qualification data to demonstrate the testing agency's capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Unless otherwise stipulated under the applicable individual technical specification Section, the Testing Agency shall be an NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated and as documented according to ASTM E 329. Testing Agency shall meet all additional qualifications specified in individual Sections and that is acceptable to CAWCD.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
1. Specification Section number and title
 2. Description of test and inspection
 3. Identification of applicable standards
 4. Identification of test and inspection methods
 5. Number of tests and inspections required.
 6. Time schedule or time span for tests and inspections
 7. Entity responsible for performing tests and inspections.
 8. Requirements for obtaining samples.
 9. Unique characteristics of each quality control service.
- D. Reports: Prepare and submit certified written reports that include the following:
1. Date of issue
 2. Project title and number
 3. Name, address, and telephone number of testing agency, if applicable
 4. Dates and locations of samples and tests or inspections
 5. Names of individuals making tests and inspections
 6. Description of the Work and test and inspection method
 7. Identification of product and Specification Section
 8. Complete test or inspection data
 9. Test and inspection results and an interpretation of test results, with comparisons of actual results or observations to those specified.
 10. Record of temperature and ambient air conditions at time of sample taking and testing and inspecting
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector or person taking the test.
 13. Recommendations on retesting and reinspecting, if applicable
- E. Permits, Licenses, and Certificates: For CAWCD's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.7 QUALITY ASSURANCE

- A. Contractor shall meet the requirements for quality assurance described in Section 00600.3. Quality assurance requirements in this Article establish the minimum required. Individual Specification Sections may specify additional requirements.

1.8 QUALITY CONTROL

- A. CAWCD's Responsibilities: CAWCD may engage their workforce or a qualified testing agency to perform tests for CAWCD's own benefit and use. The Contractor shall coordinate project work with the testing requirements of CAWCD.
- B. All tests and inspections not explicitly assigned to CAWCD are the Contractor's responsibility. Unless otherwise indicated, provide quality control services specified in the Standard Specifications and Special Provisions.
 - 1. Where testing is indicated as Contractor's responsibility the Contractor shall engage a qualified Testing Agency to perform these quality control services.
 - a. Prior to utilization of any Testing Agency, the qualifications of such agency shall be submitted for approval, in accordance with the Submittals paragraphs contained in this Section.
 - 2. Where quality control services are indicated as Contractor's responsibility, submit a certified written report of each quality control service.
 - 3. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 - 4. Submit additional copies of each written report directly to authorities having jurisdiction when they so direct.
 - 5. The Contractor shall submit certification of all equipment utilized for testing demonstrating recent calibration by a recognized agency.
- C. Retesting / Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality control services including retesting and reinspecting for items of work that failed to comply with the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with CAWCD and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify CAWCD and Contractor promptly of irregularities or deficiencies observed in the Work during performance of services.
 - 2. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 3. Submit a certified written report of each test, inspection, and similar quality-control service through Contractor.
 - 4. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - 5. Do not perform any duties of Contractor.
- E. Coordination: The Contractor shall coordinate sequence of activities to accommodate required quality assurance and control services with a minimum of delay and to avoid necessity of removing and replacing work to accommodate testing and inspecting. Schedule times for tests, inspections, obtaining samples, and similar activities.

- F. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality control services required by Section 013300. Submit schedule within 7 calendar days of Notice to Proceed.

1.9 ACCESS

- A. Contractor shall provide safe access to the work when requested to allow any inspection that is required. This shall include providing scaffolding or other needed access items.
- B. Contractor shall provide supervision of all work underway and confirm the status and correctness of any improvements prior to requesting inspections and testing.

1.10 TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to CAWCD.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Submit Test and Inspection log in accordance with Section 013300.

1.11 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged project work and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as undetectable as possible.
- B. Protect work exposed by or for quality control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality control services.

END OF SECTION 014000

SECTION 015000 TEMPORARY FACILITIES AND CONTROLS

1.1 SUMMARY

- A. This Section includes information on temporary facilities and controls and includes the following:
 - 1. Local Conditions
 - 2. Use of CAWCD Overhead Cranes
 - 3. Water Withdrawal Permit
 - 4. Work Permits Required
 - 5. Protection of Property
 - 6. Temporary Controls
 - 7. Cleanup and Disposal of Waste Materials

1.2 LOCAL CONDITIONS

- A. Access to the Work: All work within CAWCD right-of-way required for access to the site shall be performed by the Contractor.
 - 1. The Contractor shall make their own investigation of the condition of available public or private roads and of clearances, restrictions, bridge load limits, bond requirements, and other limitations that affect or may affect transportation and ingress and egress at the job sites. The unavailability of transportation facilities or limitations thereon shall not become a basis for claims for damages or extension of time for completion of work. It shall be the Contractor's responsibility to construct and maintain at their own expense and risk, any haul roads, access roads, bridges, or drainage structures required for project operations.
 - 2. The Contractor shall coordinate with the Contracting Officer to obtain key(s) to the CAWCD-owned locks on CAWCD gates to facilitate the execution of the Contractor's operations and work in the performance of this Contract. There is no charge for the issuance of Contractor canal gate keys. However, upon completion of the Contract, the Contractor will be assessed a \$500 fee for each key not returned to CAWCD.
 - 3. As required, daily access to all pumping plants, check structures, and turnout buildings will be provided to the Contractor by the Contracting Officer or CAWCD's authorized representative. While working in Pumping Plants, the Contractor must always be accompanied by the Contracting Officer's authorized representative.
- B. Existing roads are available for the Contractor 's use subject to existing restrictions. The Contractor shall meet all conditions properly imposed upon the use of existing roads by those having jurisdiction, including seasonal or other limitations or restrictions, the payment of excess size and weight fees, and the posting of bonds conditioned upon repair of road damage caused by the Contractor.

- C. The hauling of items over public highways, roads, or bridges shall follow the applicable local regulations and shall minimize interference with local traffic. Where haul routes cross public highways or roads, the Contractor shall provide barricades, flagmen, and other necessary precautions for safety of the public as provided in these Specifications and applicable Federal, State, and local laws and regulations.
- D. The Contractor shall comply with all laws and regulations regarding closing or restricting the use of public streets and highways. No public or private roads shall be closed except by written permission of the proper authority. Assure the least possible obstruction to traffic and normal commercial activities.
- E. The existing facility access road will be available for use by the Contractor for the project operations. Any road surfaces damaged by Contractor operations shall be repaired in a manner approved by the Contracting Officer at no additional cost to CAWCD.
- F. In areas shown on the Plans the Contractor shall be permitted to use land within the designated right-of-way, for field offices, plants and buildings, storage yards, shops, roads, and other project facilities required for fabrication or installation purposes upon approval by the Contracting Officer. Refueling and light maintenance of equipment shall be performed only in approved staging areas. Contractor shall comply with the requirements of Section 00600.2.8.
- G. If private land is used for project facilities, or other project purposes, the Contractor shall make all necessary arrangements and shall pay all rental and other associated costs. Contractor must demonstrate they have made satisfactory arrangements with the landowner by providing a lease agreement or a lien release signed by the landowner for use of the property.
- H. The Contractor's use of right of way land for project purposes shall be subject to the requirements in Section 00600.2, Performance. Such use shall not interfere with any part of the work under this Contract nor with the work of other contractors or the CAWCD in the vicinity.
- I. The Contractor's project facilities shall be arranged and operated in a manner to preserve and protect existing features, trees, and vegetation to the maximum extent practicable. The location, construction, operation, maintenance, and removal of project facilities on right-of-way land shall be subject to the approval of the Contracting Officer.
 - 1. Housing for Contractor personnel will not be permitted on CAWCD right-of-way.
 - 2. Upon completion of the work, removal of project facilities and cleanup, CAWCD land shall be regraded where necessary to restore the surface to its original condition.

1.3 USE OF CAWCD OVERHEAD CRANES

- A. The Pumping Plants have overhead cranes for movement or installation of large equipment. The Contractor shall not be allowed to operate the crane(s).

Coordinate with CAWCD when there is a need to utilize the facility crane(s). CAWCD will do the rigging for the load and operate the crane.

- B. The Contractor is responsible for providing original equipment information on lift points or recommendations for lifting to CAWCD. The Contractor shall witness the rigging and lift and concur on the rigging prior to the lift. At the Contractor's request, CAWCD will define the rigging available for the Contractor's use.

1.4 WATER WITHDRAWAL PERMIT

- A. The Contractor shall make all arrangements for obtaining water and shall provide all means of conveying water to points of use.
- B. The Contractor shall meet all CAWCD Temporary Water Users Installation Requirements to use the CAWCD aqueduct as a water source. Questions regarding the Application or required documents shall be addressed to the Contracting Officer.
 - 1. Begin planning for a water withdrawal permit upon notification of award to accommodate a 2-to-4-week processing time.
 - 2. The Contractor will not be assessed a fee for water obtained from CAWCD for construction or dust abatement purposes while conducting work under a signed contract with CAWCD.
 - 3. It may be acceptable to request one permit for multiple withdrawal locations.
 - 4. The Contractor shall submit a plan of anticipated water needed for dust abatement and construction work. The plan should be the Contractor's best estimate of water quantity needed from CAWCD.
 - 5. The Contractor shall maintain a log of metered volume of water withdrawn and submit to the Contracting Officer at the end of each month.
- C. Water Withdrawal Requirements:
 - 1. Code Requirements: All installations shall comply with the 2017 National Electric Code and the 2018 International Building Code.
 - 2. Water withdrawn shall be used exclusively for the benefit of this CAWCD project and shall not be sold or provided to others for any other intended use.
 - 3. CAWCD reserves the right to terminate the use of CAWCD water for reasons of Contractor non-compliance or lack of water availability.
 - 4. Pump Location Drawing: Provide a precise location of the pump installation, relative to the nearest CAWCD structure on the Canal. Identify the location of the proposed installation, including all necessary dimensions. CAWCD will provide upon request, the plan and profile for CAWCD facilities in the area.
 - 5. Permit Drawing Requirement – Submit a cross section drawing showing the physical installation of the withdrawal site. The CAWCD standard drawing titled Temporary Water Users Permit, Installation Requirements Detail (STD-C-C04928) will be provided to the Contractor upon award. This drawing is an example of the items required of the Contractor. At a minimum, the drawing shall include:

- a. The size of the suction and discharge pipe.
 - b. The depth of the installed suction pipe.
 - c. The location of the check valve and flow meter.
 - d. The location of the buried CAWCD communication / electrical cables in relation to the pump.
 - e. The location of the pump in relation to the Canal operation and maintenance road and the Canal chain link fence.
 - f. The size of the containment basin.
 - g. Location of any other items such as an overhead load rack or generator.
- D. Pump Requirements: CAWCD reserves the right to lower the Canal water level for maintenance and operational needs. At times, the water level could fluctuate by as much as 10 feet. Contractors shall size their pumps accordingly. CAWCD will not be liable for loss of water service due to an installation that cannot accommodate these specified water level fluctuations.
- E. Flow Meter: The flow meter shall be of good quality and suitable for the intended use. Provide meter specifications which include the name of the manufacturer, flow meter type, and accuracy of the proposed meter. CAWCD requires that all flow meters have an accuracy of plus or minus 2 percent. If problems with an installed flow meter arise, the Contractor shall notify the Contracting Officer and the flow meter shall be replaced as soon as possible.
- F. Back Flow Prevention: A backflow prevention device shall be installed on all suction lines to prevent drawn water from flowing back into the Canal or CAP pipeline.
- G. Digging and Underground Utilities: Obtain a CAWCD Dig Permit when any excavation is needed on the CAWCD right-of-way.
- H. Maintenance: The installation and surrounding area impacted by the Contractor's operations shall be kept clean and free of all objectionable debris.
- I. Leakage / Releases: Water, oil, or fuel leaks will not be tolerated. Any leakage shall be repaired and appropriate clean up measures taken as soon as possible at the expense of the Contractor. To prevent leakage from migrating into the soil or entering the Canal, an appropriately sized containment apparatus shall be erected around the installation. The containment area shall be sized to contain all the fuel and oil contained in the generator and/or pump and have enough storage to accommodate a 2-inch rainstorm. The containment area material shall not be degraded by the environmental conditions of the site.
- J. Security/Fencing: The security of the CAWCD canal system shall be always maintained. Access to the CAWCD canal system shall be through designated gates. Gates may never be left open or unlocked.
- K. CAWCD Access: Always maintain access through the site on the CAWCD Operations and Maintenance Road. Do not install any permanent or temporary items that could limit CAWCD's use of the CAWCD Operations and Maintenance Roads unless prior approval is provided in writing.

- L. Inspection: CAWCD will inspect the installation at various times before, during, and after completion to ensure all requirements are met.
- M. Notification to Remove: Notify the Contracting Officer at least 7 calendar days in advance of removal of any installation from the CAWCD right-of-way. Return all CAWCD property to its original condition.
- N. Modification of Plan: CAWCD must approve all modifications required before, during, or after the installation. Approval shall be obtained in writing before proceeding with any changes.

1.5 WORK PERMITS REQUIRED

- A. SPECIAL WORK PERMIT: Obtain a Special Work Permit from CAWCD at least 7 calendar days prior to any work that requires isolation of equipment from sources of hazardous energy in accordance with the Central Arizona Project Hazardous Energy Control Program. Allow 21 calendar days for CAWCD review. A copy of the permit shall be available at the site prior to beginning any of these operations.
 - 1. Central Arizona Project Hazardous Energy Control Program is available at [Contracting - Central Arizona Project \(cap-az.com\)](#).
 - 2. Special Work Permits are completed by the project CAWCD on-site representative, who is responsible to monitor the Contractor's work within a lockout/tagout procedure. The on-site representative will discuss the protection provided with the Contractor to assure its adequacy and define the perimeter and conditions of the safe working area. Additional information pertaining to Special Work Permit is available by contacting the CAWCD on-site representative.
 - 3. Provide the location of equipment that will need isolation, and the description of the work to be performed for each Permit needed on the project. Each Permit issued will apply to only the named CAP facility and the named Contractor. Comply with all local, state, and federal laws and regulations, including those laws and regulations regarding worker's safety for all aspects of work.
 - 4. Steps to obtain Permit:
 - a. Provide list of equipment needing isolation and panel numbers needing Lockout/Tagout to Contract Officer.
 - b. Work with CAWCD on-site representative to fill out Permit to cover all work and define the perimeter of Lockout /Tagout needed.
 - c. Receive copy of Permit from CAWCD on-site representative.
- B. DIG PERMIT: Obtain a dig permit from CAWCD at least 7 calendar days prior to any excavation, trenching, drilling, or other earth removal operation for CAWCD to locate buried utilities. Allow 21 calendar days for CAWCD review. A copy of the permit shall be available at the site prior to beginning any of these operations.
 - 1. Permit Forms are available at [Contracting - Central Arizona Project \(cap-az.com\)](#)

and are to be submitted via email to the Contracting Officer. Additional information pertaining to dig permits is available by contacting the CAWCD on-site representative.

2. Unless otherwise specifically approved by the Contracting Officer, only hand or vacuum excavate within 24 inches of existing buried utilities. Other non-destructive methods of excavation may be submitted for review and approval.
 3. Steps to obtain Permit:
 - a. Fill out online form and email to the Contracting Officer along with any photos or plans necessary to describe the work.
 - b. Receive copy of Permit from CAWCD on-site representative.
- C. CORE (CORE DRILLING) PERMIT: Obtain a core drilling permit from CAWCD at least 14 calendar days prior to cutting or coring existing concrete members. Allow 21 calendar days for CAWCD review. A copy of the permit shall be available at the site prior to beginning any of these operations.
1. Permit Forms are available at [Contracting - Central Arizona Project \(cap-az.com\)](http://Contracting - Central Arizona Project (cap-az.com)) and are to be submitted via email to the Contracting Officer. Additional information pertaining to coring permits is available by contacting the CAWCD on-site representative.
 2. Coring Permit is required for walls any time that a penetration core or cut is over one third of the wall thickness or 3", whichever is less. A Coring Permit is required for floors any time that a penetration is extending over 6" deep into the floor from the top, or over 3" deep from the bottom (into the ceiling), or one third of the floor thickness from either top or bottom, whichever is less.
 3. All cores or cuts require the use of a drill interrupter regardless of depth. Protek SRS or approved equal drill interrupter will be required for drilling.
 4. Steps to obtain Core Permit:
 - a. Fills out the permit and provide drawings clearly defining the core/cut location(s) with dimensions to fixed objects for each core or cut.
 - b. Ensure core/cut location(s) are clearly delineated on the drawings and that they are marked in the field at the location(s) with blue tape. Photos may be added to the package to supplement location.
 - c. Describe the type of equipment to be used to make core / cut and define the purpose of the penetration (type of utility or access required).
 - d. Provide the size and depth of the core/cut.
 - e. Deliver the permit package to the Contracting Officer.
 - f. CAWCD will assign an Engineering Permit Number.
 - g. CAWCD will review the location(s) and obtain the necessary approval signatures.
 5. Core/Cut location(s) will be relocated as necessary by CAWCD. Any relocation will be coordinated with the Contractor to assure that the new location(s) will be adequate.

6. After the appropriate approvals, CAWCD will note any utilities which need to be de-energized, sign, and date the coring permit as completed. The permit and any attached documents will be returned to the requestor and a copy will be placed in the CAWCD Engineering Services file.
 7. A copy of the approved permit shall be in the possession of the workers while the coring operation is being completed.
 8. After Core/Cut work has been executed, return permit package to the Contracting Officer along with as-built information describing any conditions found which are different than indicated on the plans or permit.
- D. HOT WORK PERMIT: Obtain a hot work permit from CAWCD at least 7 calendar days prior to torching, welding, grinding, or burning any materials. Allow 21 calendar days for CAWCD review. A copy of the permit shall be available at the site prior to beginning any of these operations.
1. Permit Forms are available [Contracting - Central Arizona Project \(cap-az.com\)](http://cap-az.com) and are to be submitted via email to the Contracting Officer. Additional information pertaining to hot work permits is available by contacting the CAWCD on-site representative.
 2. Hot Work Permit is required for any work involving welding, brazing, cutting, grinding, drilling, burning, or other work involving sparks, flames, or potential fire hazards.
 3. Steps to obtain Permit:
 - a. Fill out online form and email to the Contracting Officer along with any photos or plans necessary to describe the work.
 - b. Receive copy of Permit from CAWCD on-site representative.
- E. CONFINED SPACE PERMIT: Obtain a Confined Space Permit from CAWCD at least 7 calendar days prior to any work that requires entry into a confined space in accordance with the Central Arizona Project Safety Resource Manual. Allow 21 calendar days for CAWCD review. A copy of the permit shall be available at the site prior to beginning any of these operations.
1. Central Arizona Project Safety Resource Manual is available at [Contracting - Central Arizona Project \(cap-az.com\)](http://cap-az.com)
 2. Under no circumstances will a CAWCD employee or Contractor be allowed to enter any confined space that has not been tested and determined to be acceptable for continuous breathing. If entry is determined to be necessary, by CAWCD, prior approval must be obtained from CAWCD's Environmental, Health and Safety Department Manager.
 3. Steps to obtain Permit:
 - a. Request a CAWCD Environmental Health and Safety representative to evaluate all potential confined spaces within project by email to the Contracting Officer along with any photos or plans necessary to describe the work.
 - b. CAWCD Environmental Health and Safety representative performs onsite evaluation of spaces necessary to enter for work.
 - c. Conduct pre-job brief with CAWCD Environmental Health and Safety representative.
 - d. Receive copy of Permit from CAWCD on-site representative.

1.6 PROTECTION OF PROPERTY

A. Protection of Existing Installations: In performing the required work, take all necessary precautions to safeguard existing installations, which are to remain in place. Obtain the location of buried conduit, pipe, cable, ground mat, and other buried items prior to performing any excavations in the existing installations and use proper methods for their protection during excavating and backfilling operations. Protect adjacent installations when installing equipment and materials.

1. Buried Utilities:

- a. Obtain a dig permit from CAWCD at least 4 calendar days prior to any excavation, trenching, drilling, or other earth removal operation for CAWCD to locate buried utilities. A copy of the permit shall be available at the site prior to beginning any of these operations. Additional information pertaining to dig permits is available by contacting the CAWCD on-site representative.
- b. Unless otherwise specifically approved by the Contracting Officer, hand or vacuum excavate within 24 inches of existing buried utilities. Other non-destructive methods of excavation may be submitted to the Contracting Officer for review and approval.

2. Embedded Utilities:

- a. Obtain a core drilling permit from CAWCD at least 4 calendar days prior to cutting or coring existing concrete members. A copy of the permit shall be available at the site prior to beginning any of these operations. Additional information pertaining to core drilling permits is available in Article 1.5.C of this Specification and by contacting the CAWCD on-site representative.

3. Damages:

- a. The Contractor at his expense shall repair any damage to existing installations due to the Contractor's operations or his failure to provide proper protection. At the option of the Contracting Officer, any such damage may be repaired by CAWCD, and the Contractor back charged for the cost.

4. Existing Fences:

- a. Remove fences on the right-of-way of CAWCD property where necessary for the performance of the work and where required. Rebuild to the same condition as found. Where designated or required for security of the CAP Canal, CAWCD property, or construction site, maintain fences until the work is completed or their removal is authorized. Temporary fence protection shall always be provided during the continuation of the contract where the Contractor removes existing fences to facilitate the work. Such temporary fence protection shall be adequate to prevent public access and livestock from straying from or onto adjacent lands

and shall be constructed complete with gates and/or cattle guards. Any temporary fencing constructed by the Contractor on CAWCD's right-of-way or property shall be removed as part of the cleanup operations prior to final acceptance of the completed work.

- b. If the Contractor does not provide the necessary fences, gates, and cattle guards to adequately protect CAWCD's right-of-way or property the CAWCD will cause the work to be performed and back charge the Contractor for such work.

5. Utility Lines (non-CAWCD):

- a. Make all provisions and perform all work required by the Contractor's operations under this contract regarding any interference with the operation, maintenance, or service of utility lines that exist on the date bids are received.
- b. Perform all work in a manner satisfactory to the owners and operators of the utility and the Contracting Officer. This work includes providing and maintaining all necessary or required temporary structures and making any necessary repairs, replacements, or similar operations.

B. Construction at Existing Utilities:

1. Where the work to be performed under these specifications crosses or otherwise interferes with water, sewer, gas, or oil pipelines; buried cable; or other public or private utilities, protect such utilities, and perform construction so that no damage will result to either public or private utilities. Determine the actual locations and make provisions for all utilities. Conform to the requirements of Section 06000.2.7.
2. Before any utility is taken out of service, obtain permission from the owners. The Contractor shall be liable for all damage that may result from failure to provide for utilities during the progress of the work. The Contractor shall indemnify and hold harmless CAWCD from claims of any kind arising out of or connected with damage to utilities encountered during construction, damages resulting from disruption of service, and injury to persons or damage to property resulting from the negligent, accidental, or intentional damage of utilities. Restore irrigation systems disturbed by the work in the same location and condition as found, except as otherwise approved.
3. Failure to repair damage to existing utilities causing service interruption will invoke CAWCD to make the necessary repairs and back charge Contractor for the work.
4. Except as otherwise provided below, the cost of all work described in this paragraph shall be included in the prices bid in the schedule for other items of work.
5. Where construction of new structures or modifications of existing structures are required to continue a utility in operation beyond the period of the contract, the Contractor shall notify the Contracting Officer so that arrangements can be made with the owners for the construction, or modifications required. When it is determined that such work is to be performed by the Contractor, and such items of work are not provided for in

the Contract, the Contractor shall perform the necessary work in accordance with Section 00600.4.6., "Changes."

6. Where utilities are encountered but not shown on the drawings or otherwise provided for in these specifications, all additional work required to be performed by the Contractor because of encountering the utilities shall be performed in accordance with Section 00600.4.6, "Changes."

C. Protection of Wildlife:

1. Instruct all construction personnel not to collect, molest, or destroy wildlife during construction and advise all personnel of Federal, State, and local regulations pertaining to the protection of plants and wildlife. This paragraph shall be inserted in all subcontracts.
2. If, in the performance of the Work, evidence of the possible occurrence of any federally listed threatened or endangered plant or animal is discovered, notify the Contracting Officer immediately, giving the location and nature of the findings. Forward written confirmation within 2 calendar days and immediately cease all construction activities in the area.
3. Where appropriate by reason of a discovery, the Contracting Officer may order delays in the time of performance, or changes in the work, or both. If such delays, or changes, or both are ordered, an equitable adjustment will be made in accordance with the applicable clauses of the contract.

1.7 TEMPORARY CONTROLS

A. Abatement of Air Pollution:

1. Comply with applicable Federal, State, and local laws and regulations and with the requirements of this Article concerning the prevention and control of air pollution. Should a conflict exist in the requirements for abatement of air pollution, the most stringent requirement shall apply. The Contractor shall utilize such methods and devices as are reasonably available to prevent, control, and otherwise minimize atmospheric emissions or discharges of air contaminants.
2. Equipment and vehicles that show excessive emissions of exhaust gases shall not be operated until corrective repairs or adjustments reduce such emissions to acceptable levels.
3. Abatement of dust pollution shall be in accordance with the applicable requirements of Reclamation's publication "Reclamation Safety and Health Standards," all applicable County requirements, and these Specifications.
4. Burning of cleared materials, combustible construction materials, and rubbish is not allowed.

B. Abatement of Dust Pollution:

1. During the performance of work comply with applicable Federal, State, and local laws and regulations, with applicable requirements of Reclamation's publication "Reclamation Safety and Health Standards," and with the requirements of this Article regarding the prevention, control, and abatement of dust pollution. Should a conflict exist in the requirements for dust abatement, the most stringent requirement shall apply.

2. The Contractor shall be responsible for all damages resulting from dust originating from Contractor operations under these specifications in accordance with Section 00600.2.4., "Permits and Responsibilities."
3. Provide all labor, equipment, and materials, and use efficient methods whenever required to prevent dust nuisance or damage to persons, property, or activities, including, but not limited to, wildlife habitats, dwellings and residences, agricultural activities, recreational activities, traffic, and similar conditions. Methods of mixing, handling, and storing cement, pozzolan, and concrete aggregate shall include means of eliminating atmospheric discharges of dust.
4. Any CAWCD employee has the authority to stop any construction activity contributing to dust levels which are excessive or in violation of Federal, State, or local laws. All expenses resulting from such a work stoppage shall be the responsibility of the Contractor.

C. Noise Abatement:

1. Comply with the following:
 - a. Federal, State, and local laws and regulations
 - b. Requirements of Reclamation's publication "Reclamation Safety and Health Standards"
 - c. The requirements of this Article regarding the prevention, control, and abatement of harmful noise levels.
 - d. Arizona Revised Statute 13 2904 and other applicable statutes.
2. Should a conflict exist in the requirements for noise abatement, the most stringent requirement shall apply.
3. Noise levels of 75 decibels (nighttime) and 80 decibels (daytime), as measured from noise sensitive areas such as residences and schools, shall not be exceeded.
4. Unless otherwise approved, construction activities will only be allowed during the hours of 6 a.m. to 6 p.m.

D. Light Abatement:

1. Exercise special care to direct all stationary floodlights to shine downward at an angle less than horizontal. These floodlights shall also be shielded to not be a nuisance to surrounding areas. No lighting shall include a residence in its direct beam.
2. The Contractor shall be responsible for correcting lighting problems to the satisfaction of CAWCD.

E. Pesticides:

1. Pesticides include herbicides, insecticides, fungicides, rodenticides, pesticides, avicides, surface disinfectants, animal repellents, and insect repellents.
2. Pesticides of any type will not be permitted on the construction site.

F. Stormwater Control:

1. Comply with the requirements of the authorities having jurisdiction for the location of the construction site or sites. Provide barriers in and around excavations and subgrade construction to prevent flooding by stormwater runoff from heavy rains.
2. Under the Arizona Pollutant Discharge Elimination System (AZPDES) Permit Program, all facilities that discharge pollutants from any point source into waters of the United States (navigable waters) are required to obtain or seek coverage under an AZPDES permit. Pollutants can enter waters of the United States from a variety of pathways, including agricultural, domestic, and industrial sources. For regulatory purposes these sources are generally categorized as either point source or nonpoint sources. See Standard Specification CAP 203 Stormwater Pollution Prevention Plan in the CAWCD Supplement to the MAG Uniform Standard Specifications for Construction and the following website for more Arizona-specific information:
<http://www.azdeq.gov/environ/water/permits/azpdes.html>

1.8 CLEANUP AND DISPOSAL OF WASTE MATERIALS

A. General:

1. Cleanup and dispose of waste materials and rubbish in accordance with applicable Federal, State, and local laws and regulations, with applicable requirements of Reclamation's publication "Reclamation Safety and Health Standards," and with the requirements of this Article. Should a conflict exist in the requirements for cleanup and disposal of waste materials, the most stringent requirement shall apply.
2. Keep records of the types and amounts of waste materials produced, and of the disposal of all waste materials off the jobsite.
3. Failure to perform the work required by this paragraph, will invoke CAWCD to perform the work and back charging the Contractor for the work. The Contractor's surety or sureties shall be liable for such payment until received by CAWCD.

B. Cleanup:

1. Keep work and storage areas free from accumulations of waste materials and rubbish. Before completing the work remove all plant facilities, buildings, including concrete footings and slabs, rubbish, unused materials, concrete forms, and other like materials, which are not a part of the permanent work.
2. Upon completion of the work, and required cleanup, any chemical staining of soil or ground shall be properly cleaned up and work areas shall be re-graded and left in a neat manner conforming to the natural appearance of the landscape.
3. Conduct an environmental site assessment at the following Contractor use locations:
 - a. All hazardous waste accumulation areas
 - b. All hazardous material and petroleum dispensing and storage areas where the aggregate storage of hazardous materials or petroleum at the site is or has been over 110 gallons.

- c. This site assessment shall be performed by a qualified environmental consultant or equivalent and shall document through appropriate analytical sampling that the site is free of the effects of contamination (i.e., contaminant concentrations less than residential soil remediation standards).

C. Disposal of Hazardous Waste and Materials:

1. Materials or wastes defined as hazardous by 40 CFR 261.3; Federal Standard 313, as amended; or by other Federal, State, or local laws or regulations, used by the Contractor or discovered in work or storage areas shall be disposed of in accordance with these specifications and applicable Federal, State, and local laws and regulations. Test unknown waste materials that may be hazardous and submit the test results to the Contracting Officer for review.
2. Dispose of waste materials known or found to be hazardous in approved treatment or disposal facilities. Recycle hazardous wastes whenever possible. A copy of all hazardous waste manifests shall be sent to the Contracting Officer.
3. Immediately report the presence of existing waste materials discovered at the project site to CAWCD. If the waste may be hazardous, the Contracting Officer may order delays in the time of performance or changes in the work, or both. If such delays or changes are ordered, an equitable adjustment will be made in the contract.

D. Disposal of Non-hazardous Waste and Materials:

1. Dispose of waste materials including, but not limited to, refuse, garbage, sanitary wastes, industrial wastes, combustible material, oil and other petroleum products.
2. Disposal by burying. Disposal of non-hazardous waste materials by burying will not be permitted.
3. Disposal by burning. Disposal of non-hazardous waste materials by burning will not be permitted.
4. Disposal by removal. Waste materials to be disposed of by removal from the project area shall be removed prior to completion of the work under these Specifications. All materials removed shall become the property of the Contractor.
5. Waste materials shall be disposed of or recycled at a State approved disposal or recycling facility. Make any necessary arrangements with private parties and State and county officials related to locations and regulations of such disposal or recycling facilities, and pay any fees or charges required for such disposal.

E. Use of Existing Waste Collection Facilities:

1. The Contractor shall not be allowed to dispose of non-hazardous waste in the existing CAWCD waste collection facilities.

END OF SECTION 015000

SECTION 016000 PRODUCT REQUIREMENTS

1.1 SUMMARY

- A. This section provides the requirements for transportation, handling, storage, and protection of products and requirements for CAWCD-furnished products including the following:
 - 1. General Requirements
 - 2. Product Delivery Requirements
 - 3. Product Storage and Handling Requirements
 - 4. Requirements for CAWCD-furnished Products

1.2 GENERAL REQUIREMENTS

- A. Comply with specified requirements and reference standards.
- B. Specified products define standard of quality, type, function, dimension, appearance, and performance required.
- C. Do not use materials and equipment removed from existing premises except as specifically permitted by Contract Documents.
- D. Furnish interchangeable components from same manufacturer for components being replaced unless otherwise specified by CAWCD.

1.3 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products according to manufacturer's instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products; use methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products according to manufacturer's instructions.
- B. Store products with seals and labels intact and legible.
- C. Store sensitive products in weathertight, climate-controlled enclosures in an environment suitable to product.
- D. For exterior storage of fabricated products, place products on sloped supports aboveground.

- E. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store products; use methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 REQUIREMENTS FOR CAWCD-FURNISHED PRODUCTS

- A. CAWCD-furnished products, where applicable, are described in the Special Provisions. The following information is provided by CAWCD:
 - 1. Quantity of material or equipment to be supplied by CAWCD.
 - 2. Estimated weight of product. Additional information may be included as provided by the manufacturer. Handling and storage shall be in accordance with the product requirements and manufacturer's instructions.
 - 3. Shop drawings related to CAWCD-furnished products:
 - 4. Manufacturer's installation, operation, and maintenance instructions for CAWCD-furnished products.
- B. Transfer of CAWCD-furnished products
 - 1. Instructions for delivery of products, where applicable, are given in the Special Provisions.
 - 2. Contractor shall be responsible for unloading and moving the items to their final location.
 - 3. Prior to loading, Contractor shall conduct with CAWCD and Supplier a joint inspection for the purpose of identifying product, general verification of quantities, and observation of apparent condition.
 - 4. Do not load damaged or incomplete products.
 - 5. Indicate signed acceptance of delivery to CAWCD.
 - 6. Following transfer, provide insurance for the CAWCD-furnished products up to the time of Final Acceptance by CAWCD.
- C. Loading, Transporting, Unloading, Storage, and Maintenance
 - 1. Supplier will have hoisting equipment available at Supplier's facility to load products.
 - 2. Contractor shall secure equipment on the truck and transport to the appropriate site(s).
 - 3. After transfer, Contractor shall have complete responsibility for unloading CAWCD-furnished products at the job site. Unload product in accordance with manufacturers' instructions.

4. Store, protect, and maintain product to prevent damage until final acceptance of completed Work. Damage to or loss of products after date of transfer to Contractor shall be repaired to original condition, or replaced with new identical products, as required by CAWCD.
5. Maintain inventory of CAWCD-furnished products after transfer to Contractor.

D. Scheduling

1. CAWCD will keep Contractor informed of probable delivery dates to the Supplier's facility.
2. CAWCD will confirm transfer date with Contractor prior to scheduled transfer.
3. Provide a minimum notice to CAWCD that CAWCD-furnished equipment provided by CAWCD through its contract with Supplier is ready for all startup services.

E. Extra Materials

1. Unless otherwise specified, CAWCD will take acceptance of, and be responsible for storing associated extra materials and special tools upon delivery.

F. Work Sequencing Restraints for CAWCD-furnished Products

1. Prior to picking up and transporting CAWCD-furnished products to the job site, the Contractor shall have completed certain elements of the work at that site. The purpose of this sequencing restraint is to minimize the time equipment sits at the job site prior to its startup. The elements of the Work to be completed and other sequencing requirements, if applicable, are listed in the Special Provisions.

G. Installation for CAWCD-furnished Products

1. Install products in conformance with CAWCD-furnished product shop drawings and installation instructions provided.
2. Mechanical and electrical equipment shall be properly aligned, plumb and level, with no stresses on connecting piping or conduit and in accordance with manufacturer's instructions.
3. Verify operability and safety of electrical system needed to operate equipment. Check electrical system for continuity, phasing, grounding, and proper functions.

H. Field Finishing

1. For products delivered with prime and finish coat(s) applied:
 - a. Touchup or repair damage to coatings resulting from unloading, storage, installation, testing, and startup.
 - b. If finish coats are damaged extensively after transfer, completely repaint.

- c. Touchup, repair, or complete repainting shall match color of original paint, and shall be fully compatible with applied primers and finish.

I. Product Protection

1. Immediately after installation, lubricate components in accordance with manufacturer's instructions.
2. Follow manufacturer's instructions for protection and maintenance during storage, after installation, during testing and startup, and after startup but prior to acceptance.
3. Furnish incidental supplies including lubricants, cleaning fluids, and similar products as needed for protecting and maintaining the CAWCD-furnished products.

END OF SECTION 016000

SECTION 017700 CLOSEOUT PROCEDURES

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including the following:
 - 1. Submittals
 - 2. Final Completion
 - 3. Final Cleaning

1.2 SUBMITTALS

- A. Substantial Completion
 - 1. Inspection for Substantial Completion:
 - a. Submit a written request for inspection for Substantial Completion a minimum of 5 days prior to the desired inspection date.
 - b. On receipt of the request for inspection, the Contracting Officer will either proceed with the inspection or notify the Contractor of unfulfilled requirements that must be completed prior to proceeding with the inspection.
 - c. If the Contracting Officer notifies the Contractor of items that need to be addressed prior to proceeding with the inspection, the Contractor shall complete these items prior to a subsequent request for Inspection for Substantial Completion.
 - d. CAWCD and the Contractor shall collaboratively prepare or update, if already prepared, the Punch List.
 - e. Upon completion of the joint inspection and development of the Punch List, the Contracting Officer will prepare a Certificate or Notification of Substantial Completion or will notify the Contractor of items that must be completed or corrected before requesting a re-inspection to obtain Substantial Completion.
 - f. Re-inspection: If the Contracting Officer does not issue the Certificate or Notification of Substantial Completion, the Contractor shall request re-inspection when the work identified in previous inspections is completed or corrected.
 - g. Results of the completed joint inspection will form the basis of requirements for Final Completion and shall be documented in the Punch List.
 - h. Reference CAWCD provided Engineering Project Closeout Checklist for contractual closeout items.
- B. List of Incomplete Items – Punch List
 - 1. The Contractor and CAWCD shall create and update a list of all incomplete items and items needing to be corrected (Punch List). Once created, the Punch List shall be a living document that is modified as new items are

identified and existing ones are addressed. The Punch List can be created at or prior to the Inspection for Substantial Completion. CAWCD will manage and maintain the Punch List once it is created and will provide copy to the Contractor whenever changes are made.

2. CAWCD's Standard Punch List template shall be utilized to document and manage all incomplete items and items needing to be corrected.

1.3 FINAL COMPLETION

- A. Final Inspection: Prior to final inspection, the Contractor shall complete the following items:
 1. Deliver tools, spare parts, extra materials, and similar items to location(s) designated by CAWCD. Label all items with manufacturer's name and model number where applicable.
 2. Terminate and remove temporary facilities from Project site, along with mockups, project tools, and similar elements.
 3. Complete final cleaning requirements, including touchup painting.
 4. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 5. Submit a written request for final inspection for acceptance at least 5 calendar days prior to the requested inspection date. On receipt of request, the Contracting Officer will either proceed with inspection or notify the Contractor of unfulfilled requirements.
 6. Request re-inspection when the items identified in previous final inspections, as incomplete, are completed or corrected.

1.4 FINAL CLEANING

- A. General: Conduct cleaning and waste removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in a commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 1. As applicable, complete the following cleaning operations before requesting final inspection:
 - a. Clean Project site, yard, and grounds, in areas disturbed by project activities, including landscape areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Remove tools, project equipment, machinery, and surplus material from Project site.
 - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign

- substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
- e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - f. Sweep concrete floors broom clean in unoccupied spaces.
 - g. Remove labels that are not permanent.
 - h. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - i. Wipe surfaces of mechanical, electrical, and similar equipment. Remove excess lubricant, paint and mortar droppings, and other foreign substances.
 - j. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on CAWCD property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

SECTION 017800 PROJECT RECORD DOCUMENTS

1.1 SUMMARY

- A. This Section describes the requirements for Project Record Documents, and how to maintain and submit Project As-built Drawings and includes the following:
 - 1. Definitions
 - 2. Submittals
 - 3. As-Built Drawings
 - 4. Miscellaneous Record Submittals
 - 5. Recording and Maintenance
 - 6. As-Built Drawing Turnover and Coordination Meeting

1.2 DEFINITIONS

- A. As-built Drawings: As-built drawings are the drawings that are a part of the project contract documents that include Contractor provided mark-ups and content indicating items modified during construction/installation. This should include red and green marks to indicate as-built conditions.
- B. Record Submittals: Any additional approved contract product data and O&M manual submittals.
 - 1. Equipment O&M Manuals
 - 2. Combined pdf of all material submittals and shop drawings: a single PDF with bookmarks for each Product, including the Specification number and name.

1.3 SUBMITTALS

- A. As-built Drawings: After completing a site walk with CAWCD Project Engineer to approve the As-built Drawings with markups, submit the following:
 - 1. One paper full size set of As-built drawings indicating the as-built conditions.
 - 2. One scanned copy in PDF of the As-built drawings indicating the As-built conditions, scanned within 3 days of work completion and sent to CAWCD.
- B. Record Submittals: Submit a PDF copy of all approved contract product submittals.
 - 1. O&M Manuals
 - 2. Product Data
 - 3. Shop Drawings

1.4 AS-BUILT DRAWINGS

- A. As-built Drawings: Maintain one set of full sized (22x34) white prints (marked "AS-BUILT DRAWINGS") of the contract drawings and approved shop drawings. Mark up the as-built drawings to show the actual installation where the installation varies from that shown on the original.
1. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later. Record data as soon as possible after obtaining it. Record and check the markup against field conditions before enclosing concealed installations.
 2. Accurately record information in an understandable drawing technique.
 - a. Use green for deletions.
 - b. Use red for additions.
 - c. Use blue for comments.
- B. Content: Types of items requiring markup include, but are not limited to, the following:
1. Dimensional changes to Drawings.
 2. Revisions to details shown on Drawings.
 3. Depths of foundations.
 4. Locations and depths of underground utilities.
 5. Revisions to routing of piping and conduits.
 6. Revisions to electrical single line, schematic, and wiring.
 7. Actual equipment location.
 8. Duct size and routing.
 9. Locations of concealed internal utilities.
 10. Changes made to approved shop drawings.
 11. Changes made by Change Order.
 12. Changes made following Field Orders.
 13. Details not on the original As-built Drawings, including equipment manufacturer, model, and size.
 14. Field records for variable and concealed conditions.
 15. Record information on the Work that is shown only schematically.
 16. Mark the As-built Drawings completely and accurately.
 17. Mark important additional information that was either shown schematically or omitted from the original record drawings.
 18. Note Construction Modification numbers, alternate numbers, Change Order numbers, Request for Information (RFI) numbers, and other similar identification, where applicable
- C. Newly Prepared Drawings: Prepare new Drawings where the original Contract Drawings and Shop Drawings are not suitable to show actual installation.
1. New Drawings may be required when a Change Order is issued because of accepting an alternate, substitution, or other modification. Integrate newly prepared Drawings into As-built Drawing sets; comply with procedures for formatting, scale, organizing, copying, binding, and submitting.

1.5 MISCELLANEOUS RECORD SUBMITTALS

- A. At project completion, CAWCD will require thorough turnover of project record documents, including O&M Manuals, product data, shop drawings, and other miscellaneous records. Many of these records are submittal requirements in other specification sections.
 - 1. Assemble and submit any remaining miscellaneous records that are required for record keeping in connection with actual performance of the Work.

1.6 RECORDING AND MAINTENANCE

- A. Recording:
 - 1. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
 - 2. Maintain a As-built Drawing Change Log. Include the Project name and Contract number on the Change Log. The log should record as a minimum:
 - a. Date of the change
 - b. Drawing number
 - c. Description of the change(s)
 - d. Request for Information number (if applicable)
 - e. Change Order number (if applicable)
 - f. Name of the individual making the As-built Drawing change(s)
- B. Project records shall be reviewed at every team progress meeting with CAWCD Project Engineer and Inspector
- C. Maintenance of Record Documents: Do not use Project Record Documents in the field for construction purposes, where they may get lost or dirty. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for CAWCD's reference during normal working hours.

1.7 AS-BUILT DRAWING TURNOVER AND COORDINATION MEETING

- A. Meeting: Once the Contractor has marked up the As-built drawings, typically prior to project substantial completion, set up a coordination meeting to review the completeness of the drawings. Include all relevant CAWCD project team members: Project Engineer, Project Manager, Inspector, Area Supervisor, CAD Technician in the As-built drawing review for completion.
- B. The CAWCD Project Engineer will give the final approval for As-built Drawing submittal.

END OF SECTION 017800

SECTION 017820 OPERATION AND MAINTENANCE MANUALS

1.1 SUMMARY

- A. This Section includes the requirements for preparing operation and maintenance manuals, including the following:
 - 1. Definitions
 - 2. Submittals
 - 3. Coordination
 - 4. Manuals, General
 - 5. Operation and Maintenance Manuals
 - 6. Manual Preparation

1.2 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.3 SUBMITTALS

- A. Submit electronic copies of each manual in final form within 15 calendar days of the product data submittal for each product being approved. CAWCD will return copy with comments, if necessary, within 15 calendar days of each O&M submittal.
 - 1. Each submittal to comply with CAWCD's comments.
 - 2. Each manual shall be in PDF format with bookmarks labeling the major sections of the manual.
 - 3. Submit each required O&M Manual once product data is approved.

1.4 COORDINATION

- A. Where operation and maintenance documentation include information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by all representatives in preparing manuals.

1.5 MANUALS, GENERAL

- A. Prepare the manuals for use by CAWCD's personnel in the form of an instructional manual detailing the operation and maintenance of all systems, subsystems, and equipment.

- B. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following information in the order listed:
1. Title page.
 2. Table of contents.
 3. Manual contents: Operation and Maintenance Information.
- C. Title Page: Include the following information:
1. Subject matter included in the manual.
 2. Project name and contract number.
 3. Date of manual submittal.
 4. Name, address, and telephone number of the Contractor.
 5. Cross-reference to related systems in other operation and maintenance manuals or sections.
- D. Table of Contents: List each product included in the manual, identified by product name, indexed to the content of the manual, and cross-referenced to the Contract specification section number.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include a comprehensive table of contents for all volumes in each volume of the set.
- E. Electronic Submission:
1. The Contractor shall provide an electronic submission of the operation and maintenance manuals.
 2. The contents shall be arranged alphabetically by system, subsystem, and equipment. For each system, subsystem, and equipment both operational and maintenance information shall be provided.
 3. Drawings: All drawings shall be provided in 11" x 17" format, unless larger sizes are necessary to accommodate readability. All drawings shall be presented in a consistent orientation that allows them to be read without having to rotate the image.
 4. Consider other special requirements such as using photographs instead of drawings to demonstrate unusual installations.
 5. The electronic submission shall:
 - a. Be provided in PDF format and appropriately bookmarked to allow easy navigation of the document by links to each system, subsystem, and piece of equipment from the table of contents.
 - b. Contain information to indicate the specific product when multiple items are shown on a single sheet.
 - c. Be legible and of quality equal to the manufacturer's original catalog pages, photographs, documents, literature, etc.
 - d. Be in color when appropriate for the information / data being displayed.

1.6 OPERATION AND MAINTENANCE MANUALS

- A. Content: In addition to requirements in this Section, include operation and maintenance data required in the Special Provisions and in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions.
 2. Performance and design criteria if Contractor is delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.
 11. Name, address, and phone number of installing Contractor/Subcontractor.
 12. Name, address, and phone number of local manufacturer's representative.
- B. Descriptions: Include the following as applicable:
1. Product name and model number.
 2. Manufacturer's name.
 3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.
 7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
 10. Reordering information for specially manufactured parts.
 11. Material and chemical composition.
- C. Operating Procedures: Include the following as applicable:
1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.
 10. Describe the sequence of operation, and diagram controls as installed for systems and equipment controls.
 11. Diagram piping as installed and identify color-coding where required for identification for all piped systems.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Cleaning Procedures:
 - a. Types of cleaning agents to be used and methods of cleaning.
 - b. List of cleaning agents and methods of cleaning detrimental to product.
 - c. Schedule for routine cleaning.
3. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - a. Standard printed maintenance instructions and bulletins.
 - b. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - c. Identification and nomenclature of parts and components.
 - d. List of items recommended to be stocked as spare parts.
4. Maintenance Procedures: Include the following information as applicable and items that detail essential maintenance procedures:
 - a. Lock-Out / Tag-Out instruction or procedures.
 - b. Test and inspection instructions.
 - c. Troubleshooting guide.
 - d. Precautions against improper maintenance.
 - e. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - f. Aligning, adjusting, and checking instructions.
 - g. Demonstration and training videotape, if available.
5. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - a. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - b. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
6. Repair instructions.
 - a. Include lists of materials and local sources of materials and related services.
- E. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

1.7 MANUAL PREPARATION

- A. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system. It shall be the Contractor's responsibility to obtain all necessary information from all Subcontractors, suppliers, manufacturers, and others necessary to meet the full intent of this section.
- B. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- C. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
 2. Comply with requirements of newly prepared Record Drawings in Section 017810 Project Record Documents.

END OF SECTION 017820

SECTION 019150 SAFETY

1.1 SUMMARY

- A. This Section describes the requirements for job site health and safety and includes:
 - 1. Special Work Permit
 - 2. Safety and Health
 - 3. Accident Prevention
 - 4. Safety of the Public
 - 5. Submission of Safety Data Sheets for Chemical Products
 - 6. Job Hazard Analysis
 - 7. Safety Representative
 - 8. Submittals
 - 9. Participation in CAWCD's Safety Meetings

1.2 SPECIAL WORK PERMIT

- A. A Special Work Permit is required for the isolation of CAP equipment from sources of hazardous energy in accordance with CAP's Hazardous Energy Control Program and can be found at [Contracting - Central Arizona Project \(cap-az.com\)](http://www.cap-az.com) .
- B. When required by Section 015000, the Contractor shall have a Special Work Permit in effect to work on the subject project, and to participate in any associated lock/out tag/out procedures.
- C. When working at a CAP Pumping Plant the Contractor shall be required to attend regular safety meetings held by plant personnel.

1.3 SAFETY AND HEALTH

- A. The Contractor shall meet the requirements of the Occupational Safety and Health Administration (OSHA), the Bureau of Reclamation Safety and Health Standards (RSHS), and the Central Arizona Project (CAP) Safety Resource Manual (SRM).
- B. The Contractor shall not require any laborer or mechanic employed in the performance of this Contract, including subcontractors, to work under conditions which are unsanitary, hazardous, or dangerous to the employee's health or safety.
- C. The Contractor shall comply with the RSHS and the SRM and amendments or revisions thereto in effect through the duration of the Contract.
 - 1. The OSHA Standards referenced in Section 1.4 Accident Prevention may be obtained from the Arizona Division of Occupational Safety and Health (Industrial Commission of Arizona) on-line at the following website:
 - 2. <http://www.osha.gov/>

3. The RSHS are available on-line at the following website:
 4. <http://www.usbr.gov/ssle/safety/RSHS/rshs.html>
 5. The SRM can be obtained from the CAP website [Contracting - Central Arizona Project \(cap-az.com\)](http://www.cap-az.com)
- D. The Contractor shall submit a written proposed Safety Program. The program shall contain at least the following elements:
1. Hospital or urgent care to be used in case of emergency
 2. Contact list including emergency contacts and the CAP Control Center
 3. Any sections of the Contractor's company safety program that are applicable to this project
- E. In addition to any other provisions in this Contract, the Contractor shall comply with all safety submittal requirements contained in the RSHS, the SRM, and revisions thereto.
- F. The Contractor shall maintain an accurate record of all cases of death, occupational diseases, injury to employees or the public, and property damage occurring during performance of Work under this Contract. Report all cases to the Contracting Officer (or authorized representative) in the manner prescribed by the Contracting Officer.
- G. The Contractor shall provide training and supporting documentation, in accordance with the requirements of OSHA, RSHS, and SRM referenced in paragraph 1.3.B. This applies to all employees performing the Contract Work, and at a minimum shall include the following:
1. Training about hazards and hazard control methods specific to their job.
 2. The Contractor shall be responsible for providing these instructions, together with ensuring that it and its subcontractor's employees possess the necessary qualifications, licenses, and permits required to perform the Work.
 3. Contractor shall provide an orientation on provisions of the Safety and Health program as stated in paragraph 1.4 B. (1), (2) and (3). The orientation shall include applicable requirements of safety and health policies, reporting accidents and injuries, first aid and medical care, emergency response, applicable safety and health standards, and sources of information on safety and health questions.
 4. All training shall be documented in writing with, the title, date, length of training, instructor or provider, and names of Contractor's and Subcontractor's employees completing the training.
- H. In the event there is a conflict between the requirements contained in any of the safety documents referenced herein, the more stringent requirements shall prevail.

1.4 ACCIDENT PREVENTION

- A. The Contractor shall provide and maintain Work environments and procedures, which will (1) safeguard the public and CAWCD personnel, property, materials, supplies, and equipment exposed to Contractor operations and activities; (2)

avoid interruptions of CAWCD operations and delays in Project completion dates; and (3) control costs in the performance of this Contract.

- B. For these purposes when engaged in fabrication, installation, dismantling, demolition, or removal of improvements, the Contractor shall:
 - 1. Provide appropriate safety barricades, signs, and signal lights.
 - 2. Comply with the standards issued by the Secretary of Labor at 29 CFR Part 1926 and 29 CFR Part 1910.
 - 3. Ensure that any additional measures that the Contracting Officer determines to be reasonably necessary are taken.

- C. Whenever the Contracting Officer becomes aware of any noncompliance with these requirements or any condition which poses a serious or imminent danger to the health or safety of the public or CAWCD personnel, the Contracting Officer shall notify the Contractor orally, with written confirmation, and request immediate initiation of corrective action.
 - 1. This notice, when delivered to the Contractor or the Contractor's representative at the Work site, shall be deemed sufficient notice of the noncompliance and that corrective action is required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to promptly take corrective action, the Contracting Officer may issue an order stopping all or part of the Work until satisfactory corrective action has been taken. The Contractor shall not be entitled to any equitable adjustment of the Contract Price or extension of the performance schedule on any stop Work order issued under this Section.

- D. The Contractor shall insert Paragraph 1.3 with appropriate changes in the designation of the parties in all subcontracts.

- E. Before commencing the Work, the Contractor shall:
 - 1. Submit a written proposed plan for implementing Section 1.3. The plan shall include an analysis of the significant hazards inherent in Contract Work performance and a plan for controlling these hazards.
 - 2. Meet with representatives of the Contracting Officer to discuss and develop a mutual understanding relative to administration of the overall safety program.

1.5 SAFETY OF THE PUBLIC

- A. Roads subject to interference by the work shall be kept open or suitable temporary passages through the work shall be provided and maintained by the Contractor. The Contractor shall provide, erect, and maintain all necessary barricades, suitable and sufficient flasher lights, flagmen, danger signals, and signs, and shall take all necessary precautions for the protection of the work and the safety of the public.

- B. Roads closed to traffic shall be protected by effective barricades and acceptable warning and detour signs. All barricades and obstructions shall be illuminated at night, and all lights shall be kept burning from sunset until sunrise.
- C. No project work along public or private roads may proceed until the Contractor has proper barricades, flasher lights, flagmen, signals, and signs in place at the project site.
- D. Contractor shall be responsible for complying with permitting and traffic control requirements of the local jurisdiction on all public roads.
- E. Specific signs, signals, barricades, and flagmen requirements are detailed in sections 9 and 20 of RSHS and the "Manual on Uniform Traffic Control Devices for Streets and Highways" published by the US DOT, and accessible at the following web address: https://mutcd.fhwa.dot.gov/pdfs/2009r1r2r3/pdf_index.htm
- F. The cost of complying with this paragraph shall be included in the prices bid in the schedule for other items of work.

1.6 SUBMISSION OF SAFETY DATA SHEETS FOR CHEMICAL PRODUCTS

- A. After award of Contract, the Contractor shall submit and keep updated for the duration of the contract, a list of chemical products to be used on the project, and Safety Data Sheet (SDS) for each product. The list and SDS shall:
 - 1. Be provided before any such material is delivered or used on the contract.
 - 2. Have the data provided in accordance with Federal Standard 313 whether the Contractor is the actual manufacturer of the materials.
 - 3. Identify the estimated quantities for each product. If the project involves multiple job sites, the Contractor shall provide a separate list, with estimated quantities, specific for each job site.
- B. The Contractor shall submit the updated list of chemical products and the SDSs to the Contracting Officer, 23636 North Seventh Street, Phoenix Arizona 85024 or PO Box 43020, Phoenix, Arizona 85080 3020. Chemical products which were not included on the original list of products prior to acceptance of the Contractor's SDS's by the Contracting Officer shall not be delivered to the job site.

1.7 JOB HAZARD ANALYSIS

- A. A job hazard analysis (JHA) shall be created for each work activity during the project. The JHA shall be submitted and approved before applicable work is performed. After approval, the Contractor shall review the JHA with the workers and any subcontractors before the work takes place.
- B. JHAs shall contain the following items:
 - 1. The task to be performed
 - 2. The steps to complete the task
 - 3. The hazards associated with each step
 - 4. The controls for each hazard

5. PPE required for the task

1.8 SAFETY REPRESENTATIVE

- A. Prior to the start of project work, the Contractor shall have in his employ a competent safety representative who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees. Safety representative shall be present at the job site at least weekly during the project duration.
- B. In conjunction with the approval requirements of the Safety Program, the Contractor shall submit the qualifications of the individual proposed as the safety representative to the Contracting Officer for review and approval.
- C. Depending on the size and scope of the Project, the Contracting Officer will determine the amount of time the safety representative is required to spend on job site safety activities during the Contract. On larger projects, the safety representative's full-time job shall be accident prevention during the Project and not supervision or performing any other portion of the Contractor's work under this contract, unless specifically approved by the Contracting Officer.
- D. The requirements of this section can be met by engaging the full-time services of a safety consultant, who meets the criteria of this section.
- E. The safety representative must be fully qualified by possession of a recognized degree, certificate, or professional standing, or by extensive knowledge, training, and experience. They shall have successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project.
- F. The effectiveness of the safety representative in carrying out the Contractor's safety program will be subject to continued review and approval by the Contracting Officer. If the Contractor's safety effort is considered inadequate, the Contracting Officer has the option to require the Contractor to employ a full-time safety engineer in lieu of a safety representative.
- G. At least once each week during the progress of the work, after having attended the work site, the safety representative shall prepare a detailed safety inspection report, including a list of noted deficiencies, their abatement dates, and follow-up action for all jobsite activities.
- H. For long-term projects (2 months or longer), a monthly site safety meeting shall occur. A representative from CAWCD Safety Team will join the Contractor safety representative for a safety walk-through and review any inspections and reports from the previous month as well as follow-up on any deficiencies.

1.9 SUBMITTALS

- A. Safety Data Sheets (SDS)
- B. List of chemical products (LHM)

- C. Safety Program
- D. Job Hazard Analysis (JHAs)
- E. Safety Representative's Credentials

1.10 PARTICIPATION IN CAWCD's SAFETY MEETINGS

- A. If working at a CAP Pumping Plant, the Contractor shall participate in the CAWCD facility weekly Safety and Coordination meeting.

END OF SECTION 019150