SACRAMENTO AREA SEWER DISTRICT
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CONTRACT DOCUMENTS FOR THE CONSTRUCTION OF
ECHOWATER RESOURCE RECOVERY FACILITY

Secondary Sedimentation Tanks 10 & 16 Rehabilitation Project

BID SET

VOLUME 1 OF 2

PART A – CONTRACT SPECIFICATIONS

MARCH 2026

RFB #8529

CONTRACT NUMBER

SECTION 00 01 10

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GENERAL CONDITIONS

PART 1 -- GENERAL INFORMATION

1.01 DEFINITIONS AND TERMS

A. Whenever the following terms, titles, or abbreviations are used in these specifications or in any document or instrument where these specifications govern, the intent and meaning shall be as herein defined. The meanings shall be applicable to the singular, plural, masculine and feminine of the words and terms.

Accept	The receiving by either the District or the Contractor with the intent to retain. In so doing, the recipient may or may not acknowledge compliance with the requirements. Acceptance does not convey approval.
Acceptance of Work	Formal action of the Board in determining that the Contractor's work has been completed in accordance with the contract and in notifying the Contractor in writing of the acceptability of the work.
Act of God	Tidal waves and earthquakes above 3.5 on the Richter scale, in accordance with Section 7105 of the Public Contracts Code.
Addenda	Supplemental written specifications or drawings issued after the Notice to Contractors and prior to execution of the contract which modify or interpret the contract documents by addition, deletion, clarification, or corrections.
As-Built Documents	The information which is specified for submission to the Engineer in accordance with the PROJECT RECORD DOCUMENTS Section (01 78 39) of the Contract Documents.
As Shown, Etc.	Where "as shown," "as indicated," "as detailed," "as specified," or words of similar import are used, it shall be understood that reference is made to the contract documents unless specifically stated otherwise. Where "as directed," "as permitted," "approved," or words of similar import are used, it shall be understood that the direction, permission, requirements, or acceptance of the Engineer is intended unless stated otherwise.

Bid	When submitted on the prescribed bid form, properly signed and guaranteed, the Bid constitutes the offer of the Bidder to complete the Work at the price shown on the Bidder's bid form.
Bidder	Any individual, firm, partnership, corporation, or combination thereof, submitting a bid for the Work, acting directly or through a duly authorized representative.
Board	The Board of Directors of the Sacramento Area Sewer District, a sanitation district of the State of California.
Bypass	Discharge of untreated or partially treated wastewater to surface waters or drainage courses of the United States as further defined in the NPDES permit.
Calendar Day	Calendar day shall be defined as every day shown on the calendar, Sundays and holidays included.
Change Order	The authorization from the Board for additions, deletions or revisions to the Work which may have been directed by Field Instruction.
Conflict	A case where an item of work is shown or specified differently in two or more places in the contract documents. An item of work shown in one portion of the contract documents but not in another is not a conflict.
Conformed Set	The original contract documents revised to incorporate all supplement information issued by addenda.
Consultant	An individual, firm or organization retained by the District to provide professional services. The authority of the consultant will be designated by the Resident Engineer.
Contract	The written agreement covering the performance of the work and the furnishing of labor, materials, tools, and equipment in the construction of the work. The Contract shall include the Notice to Contractors, Bid Form, plans, specifications, addenda, and contract bonds; also any and all supplemental agreements amending or extending the work contemplated and which may be required to complete the work in a substantial and acceptable manner. Supplemental agreements are written agreements covering alterations, amendments, or extensions to the contract and include contract change orders.

Contract Documents	The plans, specifications, addenda, and change orders for a particular project for construction or installation at the EchoWater Resource Recovery Facility (formally known as the Sacramento Regional Wastewater Treatment Plant and commonly referred to as the Plant).
Contract Price	The Total Bid Amount as listed on the Bidding Schedule. Also known as the Bid Price.
Contract Time	Number of days stated in the contract for the completion of the work or portions thereof.
Contractor	The person or persons, firm, partnership, corporation, or combination thereof, private or municipal, who has entered into a contract with the District as party or parties of the second part or their legal representatives.
Contractor's Plant and Equipment	Equipment, material, supplies, and all other items, except labor, brought onto the site by the Contractor to carry out the work, but not to be incorporated in the work.
Controlling Operations or Critical Path	Any activity which, if delayed, would cause a postponement in the completion of the Work.
Day	Day shall mean calendar day unless preceded by the word "working" or “business”.
Design Consultant	The individual, firm or organization that prepared the plans and specifications for the Work. May also be referred to as the Design Engineer.
Direct	Instructions from the District, the Engineer, the Resident Engineer, or the District Representative to the Contractor for execution.
District	The Sacramento Area Sewer District (formally known as the Sacramento Regional County Sanitation District), a sanitation district of the State of California. May also be referred to as Owner.
District Representative	The individual designated to act as the agent of the District on specific matters related to the Contract. Also known as the Resident Engineer.
Diversion	The process or act of ceasing discharge of EchoWater Facility effluent to the Sacramento River and discharging instead to emergency storage Basin A. The liquid so diverted.

Drawings	The graphical representation of the Work which depicts design intent, measurements, and information for a project or portion thereof. Also referred to as the "plans."
Engineer	The Administrator of the Sanitation District Agency, who is the District Engineer for the District. This individual may act individually or through designated representatives (District Representative).
Equipment	Equipment shall be defined as meeting any of the following criteria: 1. Mechanical, electrical, instrumentation, or other device with one or more moving parts. 2. Devices requiring an electrical, pneumatic, electronic, or hydraulic connection. 3. Anything having an equipment tag number.
Field Instruction	The written directive from the Resident Engineer requiring an addition, deletion, or revision to the Work which may result in a change in the Total Contract Amount or the Contract Time.
Furnish	To provide and deliver to the work site or another location for incorporation into the Work.
Herein	Refers to information presented in the contract documents.
Inspector	The individual authorized to act as the agent for the Resident Engineer in the observation of the Work for conformance with the requirements of the Contract.
Install	Placing, erecting, or constructing complete in place including testing any item, equipment, or material.
Maintenance-Managed Item	A subset of the Master Equipment List, a Maintenance-Managed Item (MMI) is an item that the District determines a need for ongoing maintenance and uploads the data into the District Maintenance Management System.
Major Equipment	Specific items of equipment, materials or systems that have been designated in the Technical Specifications. These items typically are new to the EchoWater Facility, have long lead times, are critical to training and commissioning schedules, and are subject to special progress payment procedures in accordance with the PROGRESS PAYMENT PROCEDURES Section (01 29 76).

Master Equipment List	The EchoWater Facility maintains a plant-wide Master Equipment List (MEL) in a database format. The MEL contains specific information for each piece of mechanical, electrical, and instrumentation equipment (including all accessories), as well as, each manual valve, slide gate, process manhole, electrical manhole and handhole, control unit, and utility station. All existing equipment abandoned in-place, demolished, replaced, relocated, renumbered, or modified by the project, as well as all future equipment, is also included.
May	Refers to permissive actions.
New	An item which has never been used and has been manufactured, produced and supplied within the last 12 months.
Notice to Proceed	Direction from the District to the Contractor to begin the Work.
Operation and Maintenance (O&M) Information	The information which is specified for submission in accordance with the OPERATION AND MAINTENANCE DATA Section (01 78 23).
Outage	An unplanned and/or unintentional disabling of a process or equipment item which makes it unsuitable to perform its intended function.
Paragraph	For reference or citation purposes, paragraph shall refer to the paragraph, or paragraphs, called out by section number and alphanumeric designator. For example, this definition is found in paragraph 1.01 of the GENERAL CONDITIONS Section (00 72 00); Contractor equipment is discussed in paragraph 2.03B of the GENERAL CONDITIONS Section (00 72 00).
Person	The term, person, includes firms, companies, corporations, partnerships, and joint ventures.
Plans	The official project plans and standard drawings, profiles, typical cross sections, general cross sections, working drawings, and supplemental drawings, or reproductions thereof, approved by the District, which show the locations, character, dimensions, and details of the work to be performed. All such documents are to be considered as a part of the plans whether or not reproduced in the contract documents.

Process Area	The existing facilities, channels, tanks, basins, conduits, pipes, tunnels, galleries, buildings, structures, and systems at the EchoWater Resource Recovery Facility.
Project Plans	The project plans and specific details and dimensions peculiar to the work and are supplemented by the standard drawings insofar as the same may apply. When the term “drawings” is used herein, it shall also be deemed to mean “plans”.
Project	The undertaking to be performed under the provisions of the Contract.
Project Schedule	The organization and sequencing of activities to complete the Work within the Contract Time.
Provide	Furnish and install, modify, relocate, complete and in place including testing.
Punch List	A list of items or activities which must be accomplished in order to complete the Work and comply with the requirements of the Contract.
Resident Engineer	The on-site District Representative who is the authorized agent of the Engineer and who is responsible for the administration of the contract and inspection of the work to be performed under these specifications.
Shall	This term refers to the mandatory requirements of the Contract that must be accomplished by the Contractor.
Shop Drawings	All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for Contractor to illustrate some portion of the work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a supplier and submitted by the Contractor to illustrate material or equipment for some portion of the work.
Shutdown	A planned action which makes the existing process, system or equipment unable to perform its intended function.
Specifications	The directions, provisions, and requirements contained in the contract documents as supplemented by the Sacramento County Standard Specifications. When the term "specifications" or "these specifications" is used, it means the provisions as set forth in the contract documents.

Specify/Specified	Refers to information described, shown, noted or presented in any manner in any part of the contract.
SacSewer	Sacramento Area Sewer District. Also known as the District.
EchoWater Facility	EchoWater Resource Recovery Facility (formally known as the Sacramento Regional Wastewater Treatment Plant or SRWTP).
Subcontractor	An individual, firm or organization which has a contract to do a portion of the Work regardless of tier. A subcontractor may have a contract with the Contractor or with another subcontractor.
Submittal Approved	The marking of a submittal to indicate "No Exceptions Taken" or "Make Corrections Noted."
Supplier	An individual, firm or organization which provides materials, equipment, supplies, systems or specially fabricated items for the Work.
System	A set or arrangement of equipment and associated tanks, channels, piping, electrical, instrumentation and controls so related as to form a unit function.
Tag Number	A unique identification number assigned by the Engineer to each piece of equipment; manholes, handholes, device, or component including electrical raceways, enclosures, cables, and instrumentation loops and points.
Technical Specifications	Divisions 2 through 50 of the Contract.
Time Extension	An increase in the Contract Time.
Will	This term refers to actions by the District, the Engineer, or the Resident Engineer that are required during the course of the Contract.
Work	The activities and construction that are contemplated, required or designated by the plans, the specifications or other contract documents including changes directed by the District.

1.02 JOINT VENTURE CONTRACTOR

A. In the event the Contractor is a joint venture of two or more contractors, the grants, covenants, provisos and claims, rights, power, privileges and liabilities of the contract shall be construed and held to be several as well as joint. Any notice, order, direct request

or any communication required to be or that may be given by the District or the Engineer to the Contractor under this contract, shall be well and sufficiently given to all persons being the Contractor if given to any one or more of such persons. Any notice, request or other communication given by any one of such persons to the District or the Engineer under this contract shall be deemed to have been given by and shall bind all persons being the Contractor.

1.03 CONTRACT REQUIREMENTS

A. SUCCESSORS' OBLIGATIONS:

1. The grants, covenants, provisos and claims, rights, powers, privileges and liabilities contained in the contract documents shall be read and held as made by and with, and granted to and imposed upon, the Contractor and the District and their respective heirs, executors, administrators, successors and assigns.

B. SUBCONTRACTING AND ASSIGNMENT:

1. If any part of the Work to be done under this Contract is subcontracted, the subcontract shall be in writing and shall provide that all work to be performed thereunder shall be performed in accordance with the terms of the Contract Documents, and further that the terms and conditions of the Contract Documents, including those provisions relating to the resolution of disputes and claims, are expressly incorporated therein. The subcontracting of any or all of the Work to be done will in no way relieve the Contractor of any part of its responsibility under the Contract. Certified copies of subcontract agreements and purchase orders for materials and equipment will be provided by the Contractor to the District upon request.

2. The performance of the contract may not be subcontracted or assigned except upon written consent of the District, and no such subcontracting or assignment shall be permitted which would relieve the original Contractor or sureties of their responsibilities under the contract.

3. The Contractor shall not, without the written consent of the District, (a) substitute any party as subcontractor in place of the subcontractor designated in the original bid, or (b) permit any such subcontract to be assigned or transferred, or allow it to be performed by anyone other than the original subcontractor listed on the bid. Consent to such substitution or subletting shall only be given: (1) When the subcontractor listed in the bid after having had a reasonable opportunity to do so fails or refuses to execute a written contract, when such written contract, based upon the general terms, conditions, plans, and specifications for the project involved or the terms of such subcontractor's written bid, has been presented by the prime contractor; or (2) when the listed subcontractor becomes bankrupt or insolvent; or (3) when the listed subcontractor fails or refuses to perform the assigned subcontract; or (4) when the listed subcontractor fails or refuses to meet the bond requirements of the prime contractor as set forth in Section 4108 of the Public Contract Code; or (5) when the

prime contractor demonstrates to the Engineer, subject to the further provisions set forth in Section 4107.5 of the Public Contract Code that the name of the subcontractor was listed as a result of an inadvertent clerical error; or (6) when the listed subcontractor is not licensed pursuant to the Contractor License Law as set forth in the Business and Professions Code; or (7) when the Engineer determines that the work performed by the listed subcontractor is substantially unsatisfactory and not in substantial accordance with the plans and specification, or that the subcontractor is substantially delaying or disrupting the progress of the work.

4. In the event of such substitution, the District shall give at least three working days' notice in writing to the listed subcontractor unless the said subcontractor involved has advised the District in writing of having knowledge of the prime contractor's request for the substitution.

5. The Contractor may assign monies due under the contract, and such assignment will be recognized by the District, if given proper notice thereof, to the extent permitted by law, but any assignment of monies shall be subject to all deductions provided for in the contract, and all money withheld shall be subject to being used by the District for the completion of the work, in the event that the Contractor should be in default therein.

C. WAIVER OF RIGHTS:

1. Except as herein provided, no action or want of action on the part of the Contractor, District, or Engineer, at any time with respect to the exercise of any right or remedies conferred upon them under this contract shall be deemed to be a waiver on the part of the Contractor and District of any of their rights or remedies. No waiver shall be effective except in writing by the party to be charged. No waiver of one right or remedy shall act as a waiver of any other right or remedy or as a subsequent waiver of the same right or remedy.

D. AMENDMENT OF GENERAL CONDITIONS:

1. These general conditions may be amended after agreement has been signed only by mutual consent of the District and the Contractor in writing.

1.04 COMPLIANCE WITH LAWS AND REGULATIONS

A. The Contractor shall keep fully informed of, and shall observe and comply with, and shall cause any and all persons, firms, or corporations employed by the Contractor or under the Contractor, to observe and comply with all State and National laws and County and municipal ordinances, regulations, orders, and decrees which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any worker affect the conduct of the work. Particular attention is called to the following:

1. HOURS OF LABOR:

a. Eight (8) hours of labor shall constitute a legal day's work and the Contractor or any Subcontractor under the Contractor, in the execution of the Contract, shall not require more than eight (8) hours of labor in any Calendar Day, and forty (40) hours of labor in any calendar week, from any person employed by the Contractor in the performance of the Work under the Contract, except as permitted under the provisions of Labor Code Sections 1810 to 1815 of the Labor Code of the State of California. The Contractor shall forfeit, as penalty to the District, twenty-five dollars ($25) for each worker employed by the Contractor or any Subcontractor under the Contractor in the execution of the Contract for each Calendar Day during which any worker is required or permitted to labor more than eight (8) hours and for each calendar week during which any worker is required or permitted to labor more than forty (40) hours, in violation of the provisions of such Labor Code.

b. Overtime and shift work may be established by the Contractor with reasonable notice and the written permission of the District. No work other than overtime and shift work shall be done between the hours of 6:00 p.m. and 6:00 a.m., except such work is necessary for the proper care and protection of work already performed or except in case of an emergency.

c. The establishment of regular overtime and shift work does not alter the definition of a working day as specified in the CONTRACT TIME Section (01 14 20).

2. STATE PREVAILING WAGE:

a. Pursuant to Labor Code Section 1770, the Contractor and the Contractor's Subcontractors and all lower tier subcontractors must pay not less than the prevailing rate of per diem wages, including, but not limited to, overtime, Saturday, Sunday, and holiday work, travel and subsistence, as determined by the Director of the California Department of Industrial Relations pursuant to Labor Code Section 1773. Copies of such prevailing rate of per diem wages are available upon request at the office of the County of Sacramento Labor Compliance Program, 9700 Goethe Road, Suite D, Sacramento, CA 95827. The prevailing wage determinations are also available on the internet at http://www.dir.ca.gov/DLSR/PWD.

b. The wage rates determined by the Director of the California Department of Industrial Relations refer to the expirations dates. Prevailing wage determinations with a single asterisk (*) after the expiration date which are in effect on the date of Advertisement for Bids remain in effect for the duration of the project. Prevailing wage determinations with double asterisk (**) after the expiration date indicate that the basic hourly wage rate, overtime, and holiday wage rates, and employer payments be paid for work performed after this date, the new rate must be paid and should be incorporated in contracts entered into. The Contractor should contact the Prevailing Wage Unit, DSLR, (415) 703-4774 or the Sacramento County Labor Compliance Section, (916) 875-2711, to obtain

predetermined wage changes. All determinations that do not have double asterisk (**) after the expiration date remain in effect for the duration of the project.

c. The Contractor and all subcontractors shall forfeit, as penalty to the District, not more than two hundred dollars ($200) for each Calendar Day, or portion thereof, for each worker paid less than the stipulated prevailing wage rates for any work done under the Contract by the Contractor or by any Subcontractor, in violation of the provisions of such Labor Code. The Contractor and all subcontractors must comply with the provisions of Labor Code Section 1774 and 1775. In addition to the said penalty, the Contractor or Subcontractor shall pay each worker the difference between the prevailing wage and the amount paid for every hour the worker was paid less than the prevailing wage.

3. LABOR DISCRIMINATION:

a. Attention is directed to Section 1735 of the Labor Code of the State of California, which prohibits discrimination in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, or sexual orientation of such persons and provides for penalties therefore.

4. SACRAMENTO COUNTY RESIDENTS:

a. Attention is directed to the fact that, under the provisions of Article V, Section 15(i), of the Charter of the County of Sacramento, preference must be given to Sacramento County Residents.

5. APPRENTICES:

a. Attention is directed to Section 1777.5 of the Labor Code of the State of California, concerning the employment of apprentices, and the Contractor is required to comply with the provisions of said section including compliance by all subcontractors.

6. TRAVEL AND SUBSISTENCE PAYMENTS:

a. Attention is directed to the requirements of Section 1773.8 of the Labor Code of the State of California. The Contractor shall make travel and subsistence payments to each worker workman, needed to execute the work, in accordance with the requirements in said Section 1773.8.

7. WORKER'S COMPENSATION:

a. Pursuant to the requirements of Section 1860 of the Labor Code, the Contractor will be required to secure the payment of worker's compensation for employees in accordance with the provisions of Section 3700 of the Labor Code.

8. USE OF PESTICIDES:

   a. The Contractor shall comply with all rules and regulations of the Department of Food and Agriculture, the Department of Health, the Department of Industrial Relations, and all other agencies which govern the use of pesticides required in the performance of the work on the contract.

   b. Pesticides shall include but shall not be limited to herbicides, insecticides, fungicides, rodenticides, germicides, nematocides, bactericides, inhibitors, fumigants, defoliants, desiccants, soil sterilands, and repellents.

   c. Any substance or mixture of substances intended for preventing repelling, mitigating, or destroying weeds, insects, diseases, rodents, or nematodes and any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant shall be considered a pesticide.

9. PAYROLL RECORDS:

   a. Attention is directed to Section 1776 of the California Labor Code, a portion of which is quoted below. Regulations implementing said Section 1776 are located in Section 16000 and Sections 16401 through 16403 of Title 8, California Code of Regulations. The Contractor shall be responsible for compliance by subcontractors.

   b. "Each contractor and subcontractor shall keep an accurate payroll record, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed in conjunction with the public work."

   c. "The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the contractor on the following basis:

      A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or authorized representative on request.

      A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.

      A certified copy of all payroll records enumerated in subdivision (a) shall be made available upon request by the public for inspection and copies thereof made; provided, however, that a request by the public shall be made through

either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the contractor, subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of the contractor.

d. Each contractor shall file a certified copy of the records enumerated in subdivision (a) with the entity that requested the records within 10 days after receipt of a written request.

e. Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address and social security number. The name and address of the contractor awarded the contract or performing the contract shall not be marked or obliterated.

f. The contractor shall inform the body awarding the contract of the location of the records enumerated under subdivision (a), including the street address, city and county, and shall, within five working days, provide a notice of a change of location and address.

g. In the event of noncompliance with the requirements of this section, the contractor shall have 10 days in which to comply subsequent to receipt of written notice specifying in what respects the contractor must comply with this section. Should noncompliance still be evident after the 10-day period, the contractor shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit one hundred dollars ($100) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due."

The penalties specified in subdivision (h) of Labor Code Section 1776 for noncompliance with the provisions of said Section 1776 may be deducted from any moneys due or which may become due to the Contractor.

10. REPORTING REQUIREMENTS AND SANCTIONS:

a. Failure to provide specific information, records, reports, certifications, or any other documents required for compliance with these specifications shall be considered noncompliance. The minimum documents required include the following:

FORM SCLC-0001 - LIST OF SUBCONTRACTORS: Required from the prime contractor and each subcontractor with a lower tier subcontractor. Due within 10 days after the date of the pre-construction conference or within 10 days after the date of award of the subcontract. The later of the two dates will apply.

CERTIFIED PAYROLL REPORTS: Required from the prime contractor and each subcontractor, regardless of the subcontract amount or the type of procurement, for every payroll period in which work is performed. Due within 10 working days of the ending date of the payroll period. The payroll shall be accompanied by a "Statement of Compliance" signed by the employer or the employer's agent indicating that all of the information in the payroll is true, correct and complete, and the wage rates contained therein are not less than those required by the contract. The "Statement of Compliance" shall be on forms furnished by the Agency or on any form with identical wording. The Contractor shall be responsible for the submission of copies of payrolls of all subcontractors.

FRINGE BENEFIT STATEMENT: Required from the prime contractor and each subcontractor if fringe benefits are paid to an approved plan, fund, or program. Due with first certified payroll report and any time the fringe benefit amounts change. Not required if the fringe benefits are paid in cash to the employees.

CONTRACTOR'S DAILY REPORTS: The Contractor shall maintain daily job reports recording all significant activity on the Project, including number of workers on site, names and job classification of employees, active construction equipment used, notable deliveries, work activities, delays, interruptions or any problems encountered. Worker craft or classification must be identified with hours worked. Equipment make and model must be identified with active or idle determination.

i. The Contractor shall submit a Contractor's Daily Report form, for approval by the Construction Manager, to record this information and submit this form to the Construction Manager no later than the following morning for the previous work day.

ii. If there is no work performed on any given day, the Contractor shall note the reasons for no work and submit a daily report to the Construction Manager on those days also.

iii. Failure to stay current with daily reporting will be just cause for the District not processing a progress payment until reports are submitted.

iv. Other documentation may be required depending on the source of funding for the project.

b. Contractors found to be in noncompliance will be advised of the specific deficiencies and urged to make immediate corrections. They should also be advised that monetary deductions may be made for failure to effect corrections or delinquencies.

c. If the Contractor fails to correct a deficiency within fifteen (15) Calendar Days after notification, a deduction may be made. In such cases, the deduction shall be 10 percent (10%) of the estimated value of the work done during the month, except that the deduction will not exceed ten thousand dollars ($10,000), nor be less than one thousand dollars ($1,000), and shall be deducted from the next progress payment.

d. Deductions for noncompliance will be in addition to all other deductions provided for in the Contract and will apply irrespective of the number of instances of noncompliance. Deductions may be made separately and additively for each estimate period in which a new deficiency appears. When all deficiencies for a period have been corrected, the deduction covering that period will be released on the next progress payment. Otherwise, the deduction will be retained.

11. WEEKEND, HOLIDAYS, AND NIGHT WORK:

a. It is understood that to complete the Work within the Contract Time, it may be necessary to operate a two or three shift operation for portions of the work. Two or three shift operations may be established as a regular procedure by the Contractor upon notification of the Resident Engineer. Such notification shall be given at least 1 week in advance and shall include the anticipated duration of the additional shifts. Such permission may be revoked by the Resident Engineer if the Contractor fails to maintain adequate force and equipment for reasonable prosecution and to justify inspection of the work, or fails to provide sufficient artificial light to permit the work to be carried on properly and to permit proper inspection, or if the additional shifts create a public nuisance.

b. Unless established as part of the regular work shifts, request to work between 6 p.m. and 6 a.m. or on Sundays or legal holidays must be submitted in writing at least 2 working days in advance of the intended work. In case of an emergency, the Contractor will be allowed to work at night or on Sundays or legal holidays, but must notify the Resident Engineer and the EchoWater Facility Control Center at (916) 875-9400 immediately. An emergency shall be considered an unforeseen event that poses a danger to the public or to the uncompleted work.

c. The Contractor shall give the Resident Engineer one working day prior written notice of any work to be done on a Saturday, with the location and type of work to be done specified; and any work done without such notice and without the supervision of an inspector may be ordered removed and replaced at the Contractor's expense.

1.05 LAWS, REGULATIONS, AND PERMITS

A. GENERAL:

1. The Contractor shall give all notices and shall procure and pay for all permits and licenses of any kind that may be required to start, carry on, and complete the contract work. Refer to the PERMIT REQUIREMENTS Section (01 41 26) for permits to be obtained by the District. The Contractor shall comply with all laws, ordinances, rules and regulations pertaining to the conduct of the work. The Contractor shall be liable for violations of the law in connection with the Work. If the Contractor observes that the plans, specifications or other portions of the contract documents are at variance with any laws, ordinances, rules or regulations, the Engineer shall be promptly notified in writing of such variance. The Engineer shall promptly review the matter and, if necessary, shall issue a Field Instruction or take any other action necessary to bring about compliance with the law, ordinance, rule or regulation in question. Contractor agrees not to perform work known to be contrary to any laws, ordinances, rules or regulations.

2. Unless otherwise specified herein, permits and licenses from governmental agencies which are necessary only for and during the prosecution of the work and the subsequent guaranty period thereafter shall be secured by the Contractor and paid for by the District.

3. The District will reimburse the Contractor for filing fees required to secure such permits upon presentation of proof of payment of said fees, except that no reimbursement will be paid for the following permits:

   a. Overload, overwidth, and other hauling permits.

   b. Permits required by the California Occupational Safety and Health Act of 1973.

   c. Other permits obtained by the Contractor solely for convenience and are not essential for conduct of work.

4. Permits and licenses of regulatory agencies which are necessary to be maintained after the completion of the guaranty period of the contract will be secured and paid for by the District.

B. PROTECTION OF DISTRICT AGAINST PATENT CLAIMS:

1. The Contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnify and save harmless the District, its officers, employees, and agents from all suits at law or claims brought or made by the holder of any invention or patent for, or on account of, the use of any patented materials, equipment, devices, or processes in the construction of, or subsequent operation of, the project. If requested

by the Engineer, the Contractor shall furnish acceptable proof of a proper release from all such fees or claims before the final payment is made on this contract.

1.06 LANDS AND RIGHTS-OF-WAY

A. The District shall provide the lands, rights-of-way, and easements upon which the work under this contract is to be done, and such other lands as may be designated on the plans for the use by the Contractor, and the Contractor shall confine the operations to within these limits.

B. Any additional land and access thereto that may be required for temporary construction facilities or storage of materials shall be provided at the Contractor's expense.

1.07 HEADINGS

A. Headings to parts, divisions, sections, paragraphs, subparagraphs and forms are inserted for convenience of reference only and shall not affect the interpretation of the contract documents.

1.08 SURVEY LAND MONUMENTS

A. Survey land monuments and property marks shall not be moved or otherwise disturbed by the Contractor until an authorized agent, of the agency having jurisdiction over the land monuments or property marks setting, has witnessed or otherwise referenced their location, and only then in accordance with the requirements of the agency having jurisdiction.

PART 2 -- DISTRICT-CONTRACTOR RELATIONS

2.01 AUTHORITY OF DISTRICT

A. AUTHORITY OF ENGINEER:

1. GENERAL:

a. All claims of the Contractor or questions which may arise as to quality or acceptability of materials furnished and work performed, and as to the manner of performance and the rate of progress of the work; all questions as to the interpretation of the contract, plans and specifications; all questions as to the acceptable fulfillment of the Contract on the part of the Contractor; and all questions as to compensation shall be referred to the Engineer for decision.

2. CHANGES:

a. The District reserves the right to make such modifications or alterations, reductions or omissions, to the specifications and plans, including the right to increase or decrease the quantity of any item or portion of the work or to omit

any item or portion of the work, as may be deemed by the Engineer to be necessary or advisable, and to require such extra work as may be determined by the Engineer to be required for the proper completion or construction of the contemplated work.

b. No change or deviation from the plans or specifications shall be made by the Contractor without written authorization from the Engineer setting forth a complete description of the change.

3. ACCEPTABILITY OF WORK:

a. The Engineer has the authority to make the final determination of the acceptability of the work. The Engineer also has the authority to accept or reject the Resident Engineer's recommendations regarding retention of defective work.

B. AUTHORITY OF THE RESIDENT ENGINEER

1. GENERAL:

a. The Resident Engineer is the construction site representative of the District (or District Representative). The Engineer has delegated authority to the Resident Engineer to make decisions regarding questions which may arise as to the quality or acceptability of materials furnished and work performed and as to the manner of performance and rate of progress of the Work. The Resident Engineer interprets the intent and meaning of the Contract and makes initial decisions with respect to the Contractor's fulfillment of the Contract and the Contractor's entitlement to compensation.

2. INSPECTION:

a. Properly authorized Inspectors shall be considered to be representatives of the Engineer. An Inspector shall have the authority to order the Work stopped, if such action becomes necessary, until the Engineer is notified and has determined that the work may proceed.

b. The inspection of the work does not relieve the Contractor of any obligation to fulfill the contract as prescribed. Any work, materials or equipment not meeting the requirements and intent of the plans and specifications shall be rejected, and unsuitable work or materials shall be made good, notwithstanding the fact that such work or materials may have previously been inspected or accepted and payment therefore may have been made.

c. Re-examination of any work may be ordered by the Engineer, and such work must be uncovered by the Contractor. The Contractor shall pay the entire cost of such uncovering, re-examination and replacement if the work does not conform to the plans and specifications.

3. CHANGE ORDERS:

    a. The Resident Engineer has the authority to initiate change orders.

2.02 RESPONSIBILITIES OF DISTRICT

A. ATTENTION TO WORK:

1. The District shall notify the Contractor in writing of the name of the Engineer and of the Resident Engineer. The Resident Engineer normally will be at the site of the work. During absences, the Contractor may contact a previously designated representative of the Resident Engineer.

B. DISTRICT'S EMPLOYEES:

1. The District shall be responsible for the adequacy, efficiency, and sufficiency of employees and of any consultant, supplier or contractor employed by the District.

C. LIABILITY OF DISTRICT OFFICIALS:

1. Neither the Engineer, Resident Engineer, nor officers, employees, agents, nor representatives of the District, nor any of them shall be responsible for any liability arising under this contract, except such obligations as are specifically set forth herein.

2.03 AUTHORITY OF CONTRACTOR

A. CONTRACTOR'S REPRESENTATIVE:

1. The Contractor shall notify the District in writing of the name of the person who will act as the Contractor's representative and shall have the authority to act in matters relating to this contract. This person shall have authority to carry out the provisions of the contract and to supply materials, equipment, tools and labor without delay for the performance of the work.

B. CONTRACTOR'S EQUIPMENT:

1. The Contractor shall provide adequate and suitable equipment and means of construction to meet the requirements of the Contract, including completion within the time allotted. Only equipment suitable to produce the quality of work required will be permitted, and specific types of equipment may be requested on component parts of the work.

2. In any case where the use of a particular type or piece of equipment has been banned, or in cases where the Engineer has condemned for use on the work, any piece or pieces of equipment, the Contractor shall promptly remove such equipment from the site of the work. Failure to do so within a reasonable time shall be evidence of a breach of contract.

C. NONRECOGNITION OF SUBCONTRACTORS:

1. No subcontractor will be recognized as such, and all persons engaged in the Work will be considered employees of the Contractor, and their work shall be subject to all the provisions of the Contract.

2.04 RESPONSIBILITIES OF CONTRACTOR

A. RESPONSIBILITY OF THE CONTRACTOR:

1. The Contractor shall do all of the work and furnish all labor, materials, tools, equipment, and appliances, except as otherwise herein expressly stipulated, necessary or proper for performing and completing the work herein required, including any changes authorized by change order, in conformity with the meaning and intent of the plans, specifications, and all provisions of the contract, within the time specified.

2. The work shall be under the Contractor's responsible care and charge until its completion and final acceptance, bearing the entire risk of injury, loss, or damage to any part thereof by causes of any nature whatsoever. The Contractor shall rebuild, repair, restore, and make good all injuries, losses or damage to the Work or the materials occasioned by any cause, and shall bear the entire expense thereof.

3. If any discrepancies are discovered during the course of the work between the plans and conditions in the field, or any errors or omissions in the plans, the specifications, or in the layout given by stakes, points, or instructions, it shall be the duty of the Contractor to inform the Engineer immediately, and the Engineer shall promptly verify the same. Any work done after such discovery until authorized by the Engineer, will be done at the Contractor's risk.

4. In no case shall the use of subcontractors in any way alter the position of the Contractor or any sureties with relation to this contract. When a subcontractor is used, the responsibility for every portion of the work shall still remain with the Contractor.

5. The Contractor shall pay all valid claims of subcontractors, suppliers, and workers.

B. CONDUCT OF EMPLOYEES:

1. The District is committed to providing a safe, secure, and healthful working environment where individuals are free from the threat of violence, aggression, intimidation, harassment, or retaliation. The Contractor, subcontractors and employees shall conduct themselves in a proper and respectful manner. Any person who threatens, is abusive or harasses another individual shall be immediately removed from the site of the Work and shall not return.

2. Inappropriate behavior by District staff shall be immediately reported.

3. Any employee of the Contractor who fails to follow instructions from the District or is incompetent, unfaithful, intemperate, disorderly, or unsatisfactory behavior shall be immediately removed from the site of the Work and shall not return.

C. TERMINATION OF UNSATISFACTORY SUBCONTRACTS:

1. When any portion of the work which has been subcontracted by the Contractor is not being prosecuted in a satisfactory manner, the subcontract for such work shall be terminated immediately by the Contractor upon written notice from the Engineer, and the subcontractor shall not again be employed on the type of work in which such performance was unsatisfactory.

D. PAYMENT FOR LABOR AND MATERIALS:

1. The Contractor shall pay and require subcontractors to pay any and all accounts for labor including Workers Compensation premiums, State Unemployment and Federal Social Security payments and other wage and salary deductions required by law. The Contractor also shall pay and cause subcontractors to pay any and all accounts for services, equipment, and materials used during the performance of work under this contract. Such accounts shall be paid as they become due and payable. If requested by the District, the Contractor shall furnish proof of payment of such accounts to the District.

E. PERSONAL ATTENTION AND SUPERINTENDENCE:

1. The Contractor shall give personal attention to, and shall supervise the work to the end that it shall be faithfully prosecuted. A competent superintendent, who shall represent the Contractor during cases of absence, shall keep on the work throughout its progress and shall have complete authority to represent and act for the Contractor. Whenever the Contractor or the superintendent is not present on a particular part of the work where it may be desired to give direction, orders will be given by the Engineer, which shall be received and obeyed by the foreman or other representative who may have charge of the particular work in reference to which the orders are given, or the Engineer may stop the work until the Contractor or superintendent arrives.

2. The Contractor shall be liable for the faithful observation of any instructions. Any order given by the Engineer not otherwise required by the specifications to be in writing, will, on request of the Contractor, be given or confirmed by the Engineer in writing.

F. COOPERATION WITH ENGINEER:

1. The Contractor, when requested, shall assist the Engineer in obtaining access to work which is to be inspected. The Contractor shall provide the Engineer with information requested in connection with the inspection of the work.

G. CONTRACTOR NOT AN AGENT OF THE DISTRICT:

1. The right of general supervision shall not make the Contractor an agent of the District. The liability of the Contractor for all damages to persons or to public or private property, arising from the execution of the work, shall not be lessened because of such general supervision.

H. OVERLOADING:

1. The Contractor shall not overload any structure or roadway beyond its design load capacity during construction. In addition to assuming full responsibility for bodily injury resulting from any such overloading, the Contractor shall repair to the Engineer's satisfaction or reimburse the District for the costs of repairing damage resulting therefrom. The Contractor shall submit load data to the Engineer upon request.

I. THIRD PARTY CLAIMS:

1. The Contractor shall be responsible for all third party claims and for costs or injuries incurred by a third party which result from the operations of the Contractor.

J. RESPONSIBILITY FOR ACCURACY:

1. The Contractor shall obtain all necessary measurements for and from the work, and shall check dimensions, elevations, and grades for all layout and construction work and shall supervise such work, the accuracy for all of which the Contractor shall be responsible. The Contractor shall adjust, correct and coordinate work with that of subcontractors and others so that no discrepancies will result.

K. PROHIBITED ACTIVITIES:

1. Firearms, fireworks, explosives, or alcoholic beverages are not permitted on District facilities. Pets and animals are also prohibited. These items may not be kept in vehicles which are operated or parked on District property.

L. MOTOR VEHICLES:

1. Individuals and motor vehicles operated at the EchoWater Facility shall comply with the Vehicle Code of the State of California. All roadways shall be considered public thoroughfares and the posted signs shall be observed.

2.05 DISTRICT-CONTRACTOR COORDINATION

A. LEGAL ADDRESS OF THE CONTRACTOR:

1. Both the address given in the Bid and the Contractor's office in the vicinity of the work are hereby designated as places to which plans, letters, notices, or other articles or communications to the Contractor may be mailed or delivered. The mailing or

delivery at either of these places shall be deemed sufficient notice thereof, upon the Contractor. Nothing herein contained shall be deemed to preclude the service of any plan, letter, notice, article, or communication to or upon the Contractor or representative personally.

B. SUGGESTIONS TO CONTRACTOR:

1. Any plan or method suggested to the Contractor by the Engineer or an inspector, but not specified or required, if adopted or followed in whole or in part, shall be used at the risk and responsibility of the Contractor; and the District and the Engineer will assume no responsibility therefor.

C. COOPERATION WITH OTHERS:

1. It is likely that the District, utility companies, and other contractors will be working within or adjacent to the area of the Work. The Contractor shall cooperate and coordinate with these other forces to avoid or minimize delays and interferences. The Contractor does not have exclusive use of the work area. Conflicts shall be referred to the Resident Engineer for resolution.

2. The Contractor shall be responsible for any expenses, damages or delays to others as a result of failure to cooperate.

D. DIFFERING SITE CONDITIONS:

1. The Contractor shall promptly, and before such conditions are disturbed, notify the District in writing of:

   a. Subsurface or latent physical conditions at the site differing materially from those indicated in this contract.

   b. Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this contract.

2. The Engineer shall promptly investigate the conditions. If such conditions do materially differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performance of the Work whether or not changed as a result of such conditions, an equitable adjustment will be made and the contract modified in writing accordingly. The equitable adjustment will be made in accordance with the CONTRACT MODIFICATION PROCEDURES Section (01 26 00).

3. No claim of the Contractor under this clause shall be allowed unless the Contractor has given the notice required, except that the District may extend the prescribed time.

4. No claim by the Contractor for an equitable adjustment shall be allowed if asserted after final payment.

E. RECEIPT OF CONTRACTOR'S PLAN:

1. The receipt by the Engineer of any drawing or any method of work proposed by the Contractor shall not relieve the Contractor of responsibility for any errors therein, and shall not be regarded as any assumption of risk or liability by the District or any officers or employees thereof, and the Contractor shall have no claim under this contract on account of the failure or partial failure or inefficiency of any plan or method so received. Such receipt shall mean merely that the Engineer has no objections to the Contractor using the plan or method so proposed. The information requested below shall be submitted for information only in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

    a. EXCAVATION: The Contractor shall submit for information only to the Engineer 5 days in advance of any excavation of trenches and structural excavations with a depth greater than 5 feet an engineered system which is a detail plan of shoring, bracing, sloping, or other provisions to protect workers from the hazards of caving ground or flooding during the operations. All plans for excavation shall be prepared and signed by a California registered civil or structural engineer. A signed copy of the Engineered System must be on the site at the time of the work. In no case shall the protective system be less effective than that required by the Construction Safety Orders of the Division of Industrial Safety of the California Department of Industrial Relations.

    b. The above in no way relieves the Contractor from the requirements of the HEALTH AND SAFETY REQUIREMENTS Section (00 73 19).

2. EXISTING STRUCTURE ISOLATION:

    a. The Contractor shall submit to the Engineer 5 days in advance of any existing structure isolation that requires construction of bracing, bulkheads or cofferdams, an engineered system which is a detail plan of the bracing, bulkhead or cofferdam or other provisions to protect the workers from the hazards of flooding during the operations. All plans for construction of temporary bracing, bulkheads or cofferdams shall be prepared and signed by a California registered civil or structural engineer. A signed copy of the engineered system must be on the site at the time of the work. In no case shall the protective system be less effective than that required by the Construction Safety Orders of the Division of Industrial Safety.

PART 3 -- SPECIFICATIONS AND DRAWINGS

3.01 INTENT OF PLANS AND SPECIFICATIONS

A. GENERAL:

1. It is the intent of the Contract that the Work shall result in a complete, reliable and satisfactory operating system that functions as planned and designed. The plans and specifications are complementary and shall be used together to determine intent or objective.

2. No additional compensation will be provided for anything not shown but reasonably necessary or required for the proper functioning of the unit, facility or system.

3. The prices in the Bidding Schedule shall be considered full compensation for providing all labor, materials, equipment, tools and incidentals necessary to complete the Work as required by the Contract.

B. CLARIFICATION OF CONTRACT DOCUMENTS:

1. Should it appear that the work to be done, or any of the matters relative thereto, are not sufficiently detailed or explained on the drawings or in the specifications, or in the event of any doubt or question arising respecting the true meaning of the specifications, the Contractor shall apply to the Engineer for further explanations.

3.02 DIVISION OF SPECIFICATIONS AND DRAWINGS

A. Specifications and plans are divided into groups for the convenience of the District, Engineer, and Resident Engineer. These Sections are not for the purpose of apportioning work or responsibility among subcontractors, suppliers and manufacturers.

3.03 DISCREPANCIES IN SPECIFICATIONS AND PLANS

A. The specifications and the drawings are intended to be explanatory of each other. Any work shown on the contract drawings and not in the specifications, or vice versa, is to be executed as if indicated in both.

B. In case of conflict, Division 0 (Procurement and Contracting Requirements), including these General Conditions, shall govern over all. Division 1 shall govern over Divisions 2 through 50, which shall govern over the contract drawings. The contract drawings shall govern over the Sacramento County Standard Specifications. The Contractor shall comply with the provisions of the INSTRUCTIONS TO BIDDERS Section (00 21 13) prior to bid regarding any conflict during the bid period. Any conflict the Contractor becomes aware of during the conduct of the work shall be brought to the attention of the Engineer. All work shown on the drawings, the dimensions of which are not figured, shall be accurately followed to the scale to which the drawings are made; however, figured dimensions are in all cases to be followed, though they may differ from scaled measurements.

C. Any work for which there are no provisions in the specifications or on the drawings shall be performed in accordance with the provisions of the State Specifications.

3.04 PRESERVATION OF PROPERTY

A. Roadside trees and shrubbery that are not to be removed, and pole lines, fences, signs, traffic control devices, survey markers and monuments, buildings, and structures, conduits, under or above ground pipelines, and any other improvements and facilities adjacent to the work shall be protected from injury or damage, and if ordered by the Engineer, the Contractor shall provide and install suitable safeguards to protect such objects from injury or damage. If such objects are injured or damaged by reason of the Contractor's operations, they shall be replaced or restored to a condition as good as when the Contractor entered upon the work, and all expenses of whatever nature arising from such damage shall be borne by the Contractor. Before the Contractor removes any road sign or permanent traffic control device which interferes with the work, approval is required from the Engineer.

3.05 EXISTING UTILITIES

A. It is recognized by the District and the Contractor that the location of existing utility facilities as shown on contract drawings and specifications are approximate; their exact location is unknown.

B. Recognition is given to the fact there may be additional utilities existing on the property unknown to either party to the contract. Location of utilities as shown on the plans and specifications represent the best information obtainable from utility maps and other information furnished by the various agencies involved. The District warrants neither the accuracy nor the extent of actual installations as shown on the drawings and specifications.

C. The Contractor agrees and is required to coordinate and fully cooperate with the District and utility owners for the location, relocation, and protection of utilities. The Contractor shall submit an Access Request prior to excavating on the site. The contractor is responsible to pothole all utilities shown on the contract drawings at all excavations, trench crossings or other earth disturbing activities a minimum of 48 hours in advance of the performance of said work at no additional cost. Potholing of utilities not shown on the contract drawings will be compensated for in accordance with the CONTRACT MODIFICATION PROCEDURES Section (01 26 00) if so directed by the Engineer.

D. In accordance with Section 4215 of the Government Code of the State of California, the District shall make provisions to compensate the Contractor for the costs of locating, repairing damage not due to the failure of the Contractor to exercise reasonable care, and removing or relocating such main and trunk line utility facilities not indicated in the plans and specifications with reasonable accuracy, and for equipment on the project necessarily idled during such work. Compensation will be in accordance with the CONTRACT MODIFICATION PROCEDURES Section (01 26 00).

E. In the event the Contractor discovers utilities not identified in the plans or specifications, the Contractor shall immediately notify the Engineer and the utility owner by the most expeditious means available and later confirm in writing.

F. The County of Sacramento is a member of the Underground Service Alert (U.S.A.) one-call program. The Contractor or any subcontractor shall notify U.S.A. two (2) business days in advance of excavation work by calling 800-642-2444 or 811.

G. Each phase of the project must be called to U.S.A. and continuing excavation reported every 14 calendar days, as the markings are not permanent and will fade out. The U.S.A. will designate a U.S.A. number which must be available to the inspector at the job site along with the date it was called in. If the U.S.A. notifications are not kept up to date, the excavation may be stopped and a new U.S.A. notice required before continuing the excavation.

H. Contractor will be required to utilize white paint to outline known areas of excavation prior to calling U.S.A. This paint shall be white dots located inside the excavated area so that when construction is completed there will be no remnants of the paint. At those locations where the excavation is not known, the excavator shall make an attempt to identify the areas that will be excavated. All utility companies and contractors will be required to use the following color codes and symbols for the identification of facilities:

Color Codes and Symbols

Color	Symbol	Name
Blue	W	Water
Orange	R	Railroad
	TV	Television
	WU	Western Union
	FA	Fire Alarm
	Tel	Telephone
	Com	Communications
Green	S	Sewer
	D	Storm Drain
Red	E	Electrical
	T	Traffic Signals
	L	Street Lighting
Yellow	G	Gas
	Co. Name	Oil and Chemical

I. The utility shall have the sole discretion to perform repairs or relocation work, or permit the Contractor to do such repairs or relocation work.

J. Unless otherwise indicated on the drawings or in the specifications, the Contractor shall maintain in service all drainage, water, gas, and sewer lines, including house services,

power, lighting, and telephone conduits, and any other surface or subsurface structure of any nature that may be affected by the Work.

K. Unless otherwise indicated in the specifications, the Contractor shall be responsible for protecting all existing utilities. The utility owner in these cases may elect to provide the necessary protective measures and bill the Contractor for the cost. Existing utilities shall further include traffic control devices, conduits, street lights, and related appurtenances.

3.06 CONFORMANCE WITH CODES AND REGULATIONS

A. All work and materials shall be in full accordance with the latest adopted standards and regulations of the State Fire Marshal; the Uniform Building Code; Title 24 of the California Administrative Code; the National Electrical Code; the Uniform Plumbing Code; National Fire Protection Act; and other applicable codes, laws or regulations. Nothing in these plans or specifications is to be construed to permit work not conforming to these requirements. When the work detailed in the plans and specifications differs from governing codes, the Contractor shall furnish and install the higher standard. The Contractor shall notify the Engineer whenever a possible code violation is discovered in the Work. If the higher standard so required is more expensive than the work detailed in the plans and specifications, the Contractor will be compensated for the additional costs.

3.07 PLANS AND SPECIFICATIONS

A. A complete set of the contracts drawings and specifications revised to include all addenda issued during the contract bid period will be provided to the Contractor on electronic media. One complete hard copy set of drawings and specifications shall be available at the site of the Work at all times. Contractor and/or subcontractors are responsible for producing hard copy sets of drawings and specifications for their use if so desired.

3.08 WORKING DRAWINGS AND SUPPLEMENTAL DRAWINGS

A. In addition to the plans incorporated in the contract at the time of signing, the Engineer may furnish such working drawings and supplemental drawings from time to time as may be necessary to make clear, or to define in greater detail, the intent of the drawings and specifications. In furnishing such additional drawings and instructions, the Engineer shall have authority to make minor changes in the work, not involving extra cost, and not inconsistent with the nature of the work. These working drawings and supplemental drawings shall become a part of the contract documents.

PART 4 -- MATERIAL, EQUIPMENT AND WORKMANSHIP

4.01 MATERIALS AND TESTS

A. All materials shall be new and of a quality equal to that specified. Whenever the quality or kind of material or article is not particularly specified, the materials or articles shall be of the best grade in quality and workmanship. Materials to be used in the work will be subject to inspection and tests by the Engineer. The Contractor shall furnish without charge such samples as may be required. The Contractor shall furnish the Engineer a list of sources for materials and the locations at which such materials will be available for inspection. The list shall be submitted to the Engineer in sufficient time to permit inspecting and testing in advance of their use. The list shall include type of material, specification section, source of supply, address and phone number of supplies and purchase order number.

4.02 EQUIPMENT AND METHODS

A. Only equipment and methods suitable to produce the quality of work required will be permitted on the project. If any part of the Contractor's plant, equipment, or methods of execution of the work appear to the Engineer to be unsafe, inefficient, or inadequate to insure the required quality or rate of progress of the work, the Contractor may be ordered to increase or improve the facilities or methods. However, neither compliance with such orders nor failure of the Engineer to issue such orders shall relieve the Contractor from the obligation to secure the degree of safety, the quality of work, or rate of progress required.

4.03 MATERIAL AND EQUIPMENT SPECIFIED BY NAME AND INSTALLATION

A. GENERAL:

1. When any material or equipment is indicated or specified by patent or proprietary name or by the name and catalog number of two or more manufacturers, it shall be considered as used for convenience in describing the material or equipment desired. The use of an alternative material or equipment which is of equal quality, operability, maintenance history, and reliability, and of the required characteristics for the purpose intended may be permitted. Requests for such post bid substitutions shall be made in writing by the Contractor and submitted in accordance with the SUBMITTAL PROCEDURES Section (01 33 00) with ample time to permit approval without delaying the work. Until and unless such substitutions are approved by the District Representative, no deviations from the specifications shall be allowed. The burden of proof as to the quality and suitability of the alternative shall be upon the Contractor. The District Representative shall be the sole judge as to the quality and suitability of alternative materials or equipment.

2. Refer to the specific technical specifications for “or equal” submissions that must be made **prior to bid**, and are listed in the PROPOSED PRODUCTS FORM

Section (00 43 33). Request for such substitution shall be made in writing in accordance with the SUBSTITUTION REQUEST FORM Section (00 43 25).

B. SINGLE SOURCE PRODUCTS:

1. If material or equipment is specified by only one patent or proprietary name, or by the name of only one manufacturer, it is for the purpose of standardization or because the District knows of no equal. If standardization is the reason for using one name to specify any material or equipment, the specification will so state, and substitutions will not be considered. In other cases, the Contractor may offer substitutions of products considered to be equal to that specified in accordance with paragraph 4.03A above.

C. PREQUALIFIED VENDORS:

1. If material or equipment is specified by vendors or manufacturers, only the listed sources shall be used and substitutions will not be considered.

D. INSTALLATION TO SUIT SUPPLIED EQUIPMENT:

1. The arrangement of equipment shown on the drawings is based upon information available to the District at the time of design and is not intended to show exact dimensions peculiar to a specific manufacturer. The drawings are diagrammatic and some features of the illustrated equipment may require revision to meet actual equipment installation requirements. Structural supports, foundations, connected piping, valves, and electrical conduit specified may have to be altered to accommodate the equipment provided. As-built drawings and O&M submittals must reflect field-installed equipment, conditions, and related information. No additional payment will be made for revisions and alterations.

2. All mechanical, electrical, and instrumentation equipment shall be installed in conformity with the details specified and with the manufacturer's requirements. Should a manufacturer's installation recommendations conflict with requirements of the Contract, the Contractor shall bring the matter to the attention of the Engineer. Costs incurred to accommodate named manufacturer's installation recommendations will be reviewed for an equitable adjustment. Any additional costs incurred arising out of changes to accommodate substitution manufacturer's installation recommendations shall be the responsibility of the Contractor.

3. The Contractor shall notify the Engineer if change is needed to meet the requirements of named or substitution supplied equipment. This notification should occur as part of the equipment submittal process. The District will revise the contract documents at no additional cost to the Contractor. If the revision does not require a change order, the revised contract documents will be provided to the Contractor as part of the equipment submittal, normally within 45 days of notification. The Contractor shall notify the Engineer in writing within 20 days of receipt of the revised contract documents of the acceptance of the revision.

4.04 DEMONSTRATION OF COMPLIANCE WITH CONTRACT REQUIREMENTS

A. INSPECTION:

1. To demonstrate compliance with the contract requirements, the Contractor shall assist the Engineer with inspection. The Contractor shall grant the Engineer access to the work and to the places where work is being prepared, or where materials, equipment or machinery are being supplied. The Contractor shall provide information requested by the Engineer in connection with inspection work.

2. If the contract documents, laws, ordinances, or any public regulatory authority require parts of the work to be specially inspected, tested or approved, the Contractor shall give the Resident Engineer adequate prior written notice of the availability of the work for examination.

3. The Contractor shall provide written notification 48 hours ahead of work requiring inspection. If parts of the work are covered prior to the Resident Engineer getting adequate prior written notice of the availability of the subject work for examination, the cost of exposing the work for inspection and closing shall be borne by the Contractor regardless of whether or not the work is in compliance with the Contract.

4. If any work is covered in the absence of the Engineer's directive to the contrary, the Contractor shall, if directed by the Engineer, uncover, expose or otherwise make available for inspection, portions of covered work. If it is found that such work is defective, the Contractor shall bear the costs for uncovering and reconstructing. If the work is found to be in compliance with the Contract, the Contractor will be compensated.

5. If any equipment is installed or operated in the absence of the Engineer or the Engineer has reason to believe that damage has occurred, the Contractor shall remove and disassemble the equipment for inspection. If it is found that the work is defective or damaged, the Contractor shall bear the expense of removal, repair, and reinstallation. If no defective work or damage is found, the Contractor will be compensated.

B. PROOF OF COMPLIANCE WITH CONTRACT:

1. In order that the Engineer may determine compliance with requirements of the contract not readily enforceable through inspection and tests of materials or work, the Contractor shall, at any time when requested, submit to the Engineer documents or other proof of compliance with the requirements.

C. PLANT INSPECTION:

1. The Engineer may inspect the production of materials or manufacture of products at the source of supply. Plant inspection, however, will not be undertaken until the Engineer is assured of the cooperation and assistance of the Contractor and the

material producer. The Engineer shall have free entry at all times to such parts of the plant as concerns the manufacture or production of the materials. Adequate facilities shall be furnished free of charge to make the necessary inspection and tests.

2. The District assumes no obligation to inspect materials at the source of supply. The responsibility for providing satisfactory materials is the Contractor's.

3. Materials shall be furnished in ample quantities and at such times as to assure uninterrupted progress of the work. Materials, supplies, and equipment shall be properly stored and protected. The Contractor shall be responsible for damage or loss by weather or other causes.

D. EFFECT OF INSPECTION OR USE:

1. Neither the inspection, nor any measurement, approved modification, order or certificate, nor acceptance of any part or whole of the work or payment of money, nor any possession or use by the District or its agents, shall waiver any provisions of the contract or of any power or authority reserved therein, or to any right to damages thereunder; nor shall the waiver of any breach of this contract be held to be a waiver of any subsequent or other breach.

4.05 PROTECTION OF MATERIALS AND EQUIPMENT

A. Materials and equipment shall be protected in accordance with the PRODUCT DELIVERY REQUIREMENTS Section (01 65 00).

4.06 MANUFACTURER

A. Manufactured articles, material and equipment shall be stored, applied, installed, connected, erected, adjusted, tested, operated and maintained as recommended by the manufacturer, unless otherwise specified. Manufacturer's installation instructions and procedures shall be submitted in accordance with the SUBMITTAL PROCEDURES Section (01 33 00) prior to installation of the manufactured articles, material and equipment.

4.07 DEFECTIVE WORK

A. REMOVAL OF REJECTED MATERIALS OR WORK:

1. The Contractor shall, without delay, remove from the site of the work, all rejected or defective materials. No such rejected or defective materials shall be used in any work under this contract. All work which has been rejected shall be remedied, removed and replaced at the expense of the Contractor.

2. Upon failure of the Contractor to comply within 48 hours with any written order of the Engineer, or to make satisfactory progress, the District may cause the rejected materials to be removed, or the rejected work to be remedied, or removed and replaced, and deduct the costs from any sums due the Contractor.

B. RETENTION OF DEFECTIVE WORK:

1. Prior to acceptance of the project, the District may, at its option, retain work which is not in compliance with the contract if the District determines that such defective work is not of sufficient magnitude or importance to make the work dangerous or undesirable. The District also may retain defective work, if, in the opinion of the Engineer, removal of such work is impractical or will create conditions which are dangerous or undesirable. A just and reasonable value for such defective work shall be determined by the District and appropriate deductions shall be made in the payments due the Contractor. Final acceptance shall not act as a waiver of the District's right to recover from the Contractor an amount representing the deduction for retention of defective work.

4.08 GUARANTEE

A. Should failure of the work occur within a period of one year or longer, as required in the Contract documents, after acceptance of the project, or portions thereof by the District, which can be attributed to faulty materials, poor workmanship, or defective equipment, the needed repairs shall be performed promptly at the Contractor's expense including but not limited to disconnection, shipping, repair and reinstallation.

B. The Contractor shall provide guarantee statements in the form provided to guarantee various segments of the work for the length of time specified.

C. The Contractor is alerted that equipment and materials installed under this Contract will be used by the District during the testing periods. In addition to the one year guarantee, the Contractor shall provide an extended warranty during the District's use prior to acceptance.

D. If the Contractor fails to complete the aforesaid repairs within 10 days after receipt of written notice, the District will make repairs at the Contractor's expense without further notice and without any notice to the surety. However, in case of emergency where, in the opinion of the Engineer, delay would cause serious loss or damages, or a serious hazard to the public, the repairs may be made or lights, signs, and barricades erected, without prior notice to the Contractor or surety, and the Contractor shall pay the costs thereof.

4.09 PROPERTY RIGHTS IN MATERIALS

A. Nothing in this contract shall be construed as vesting in the Contractor any right of property in the materials used, after they have been installed, attached, or affixed to the work, but all such materials shall be the property of the Contractor and the District jointly as their interests may appear, and cannot be removed from the work without the consent of the Engineer.

4.10 QUALITY IN THE ABSENCE OF DETAILED SPECIFICATIONS

A. Where the contract requires that materials or equipment be provided or that construction work be performed, and detailed specifications of such materials, equipment or construction work are not set forth, the Contractor shall perform the work using materials and equipment of a quality comparable to the materials and workmanship specified for the other parts of the work and at least equal to the general standard of quality found within the existing work and shall follow best practices in the performance of construction work. The work performed shall be in conformity and harmony with the intent to secure the best documentation, standard of construction, and equipment of work as a whole and in part.

PART 5 -- PROGRESS AND COMPLETION

5.01 PRECONSTRUCTION CONFERENCE

A. Prior to start of construction, a conference will be held for the purpose of reviewing the construction program.

5.02 BEGINNING OF WORK

A. The return of the executed contract, together with the prescribed bonds and certifications of insurance, and when required, advance on incidental expenses and acquisitions, shall constitute authority for the Contractor to enter upon the site of the work and to begin operations. Should the Contractor start work in advance of receiving notice that the contract has been executed for the District, however, any work performed in advance of the date of approval shall be at the Contractor's own risk. Should the Contractor desire to begin work prior to the execution of the Contract, the Contractor shall furnish to the Engineer insurance certificates. When work has started, the Contractor shall diligently prosecute the work to completion within the Contract Time.

B. The Contractor shall give the Engineer at least 5 working days' notice of the intention to start work, indicating the intended beginning time, date, and location.

C. The counting of Contract Time shall begin the date of receipt of notification that the Contract has been executed for the District. Such notification will be sent by certified mail and shall be deemed to be the Notice to Proceed. In no event shall there be a period of time greater than 30 days (exclusive of such time as all completed documents are in the possession of the District) from the time the contract forms are received by the Contractor and the commencement of the Contract Time, regardless of the receipt of signed documents and/or completion of provisions regarding required bonds and certificates.

5.03 TIME OF COMPLETION AND DELAYS

A. TIME OF COMPLETION:

1. Time is of the essence on this contract. The Contractor shall complete all work called for under the contract within the times set forth in the CONTRACT TIME Section (01 14 20).

2. For the purposes of determining completion of the Work within the specified times, the Engineer will furnish the Contractor a weekly statement showing the number of working days charged to the contract for the preceding week and the number of working days charged to date for each Work Item with a completion time. The Contractor will be allowed 15 calendar days to file a written protest of the working day statement, otherwise the counting of working days shall be deemed accepted by the Contractor.

B. UNFAVORABLE WEATHER AND OTHER CONDITIONS:

1. During unfavorable weather and other conditions, the Contractor shall pursue only portions of the work that will not be damaged. No portions of the work whose satisfactory quality or efficiency will be affected by any unfavorable conditions shall be constructed while these conditions remain, unless, by special means or precautions approved by the Engineer, the Contractor shall be able to overcome them. Costs associated with implementation of any such special means or precautions shall be paid by the Contractor.

C. DELAYS:

1. NOTICE OF DELAYS:

a. Whenever the Contractor foresees any delay in the prosecution of the work, and in any event within 24 hours of the occurrence of any delay which is regarded as an unavoidable delay, the Contractor shall notify the Engineer in writing of the probability of the occurrence of such delay and its cause, in order that the Engineer may take steps to prevent the occurrence or continuance of the delay, and may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the work are to be delayed.

b. After the completion of any part or the whole of the work, the Engineer, in estimating the amount of time extensions and compensation, if any, due the Contractor, will assume that any and all delays which have occurred have been avoidable delays, except such delays as shall have been called to the attention of the Engineer at the time of their occurrence and found to have been unavoidable. The Contractor will make no claims that any delay not called to the attention of the Engineer at the time of its occurrence has been an unavoidable delay.

2. AVOIDABLE DELAYS:

   a. Avoidable delays in the prosecution of the work shall include delays which could have been avoided by the exercise of care, prudence, foresight and diligence on the part of the Contractor or subcontractors. Avoidable delays include, but are not limited to, the following:

      Delays which may in themselves be unavoidable but which affect only a portion of the work and do not necessarily prevent or delay the prosecution of controlling items of work nor the completion of the whole work within the Contract Time.

      Time associated with the reasonable interference of other contractors employed by the District which do not necessarily prevent the completion of the whole work within the Contract Time.

3. UNAVOIDABLE DELAYS:

   a. The Contractor will be granted an extension of time for delays which the Engineer has determined resulted from causes beyond the control of the Contractor and which could not have provided for by the exercise of care, prudence, foresight, and diligence.

   b. Unavoidable delays shall be those caused by acts or neglect of the District which could not have been reasonably anticipated by the Contractor; by acts of God or of the public enemy, fire, floods, epidemics, pandemics, or strikes. Material shortages and delays in utility company relocations may be classified as an unavoidable delay if the Contractor can produce satisfactory evidence of having acted in a timely manner. Any curtailment of the Contractor's operations due to the action of the Air Pollution Control Board not related to Contractor’s action or inaction shall be considered an unavoidable delay. Actions by the Air Pollution Control Board as a result of Contractor’s actions or inactions will be considered an avoidable delay.

   c. Delays in the prosecution of parts of the work which may in themselves be unavoidable but do not necessarily prevent or delay the prosecution of controlling items of work nor the completion of the whole work within the time specified will not be considered as unavoidable delays. Reasonable loss of time resulting from the necessity of submitting plans for approval of the Engineer, from the making of surveys, measurements, inspections by the Engineer or from interference by other contractors which does not necessarily prevent the completion of the whole work within the time herein specified, will not be considered as unavoidable delays.

D. EXTENSION OF TIME:

1. The Contractor shall be allowed an extension of time for unavoidable delays, plus any adjustments of Contract Time due to change orders. Applications for an extension of time must be made in writing before the expiration of the times fixed in the Contract for the completion of Work Items specified in the CONTRACT TIME Section (01 14 20), or of the time granted by extension.

2. Where the time for completion for a Work Item is specified as a date, rather than working days, the Contractor may not be allowed an extension of time to complete the Work Item. In such cases, the District will consider payment of costs associated with acceleration of the work.

   a. AVOIDABLE DELAYS:

      In case the work is not completed in the time specified, including extension of time as may have been granted for unavoidable delays, the Contractor will be assessed liquidated damages.

   b. UNAVOIDABLE DELAYS:

      For delays which the Contractor considers to be unavoidable, complete information demonstrating the effect of the delay on the controlling operation in the Construction Schedule shall be submitted to the Engineer. The submission shall be made within 30 calendar days of the occurrence which is the cause of the unavoidable delay. The Engineer shall review the Contractor's submission and determine the number of days of unavoidable delay and the effect of such unavoidable delay on controlling operations. The District agrees to grant an extension of time to the extent that unavoidable delays affect controlling operations. The Contractor will be granted a time extension as a result of inclement weather as provided for in Part 3 of the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16).

      It is understood and agreed by the Contractor and District that time extensions due to unavoidable delays will be granted only if such unavoidable delay involves controlling operations which would prevent completion of the Work Items within the Contract Times.

   c. EFFECT OF EXTENSION OF TIME:

      The granting of an extension of time for the completion of the Work on account of delays which are unavoidable delays, or which are granted for extra or additional work, shall in no way operate as a waiver on the part of the District of any of its rights under this contract.

E. COMPENSATION FOR DELAYS:

1. AVOIDABLE DELAYS--NO COMPENSATION: The Contractor shall not receive any additional compensation for avoidable delays.

2. UNAVOIDABLE DELAYS--NO COMPENSATION: The Contractor shall not receive any additional compensation due to inclement weather or conditions resulting therefrom; by acts of God or of the public enemy, fire, floods, epidemics, pandemics, strikes, material shortages or due to action of the Air Pollution Control Board not attributed to Contractor actions or inactions.

3. UNAVOIDABLE DELAYS--COMPENSATION: The Contractor shall be entitled to additional compensation for unavoidable delays which the Engineer has determined resulted from an act or neglect of the District, or as a result of the discovery of cultural resources as specified in the ARCHEOLOGICAL AND CULTURAL RESOURCES Section (01 35 91) except as modified below:

   a. Compensation for unavoidable delays shall not be granted when the delay could have been reasonably anticipated by the Contractor.

   b. When two or more concurrent delays occur with at least one or more being noncompensable, no compensation other than time extension shall be provided.

   c. Compensation for unavoidable delays shall be granted only if such unavoidable delay affects controlling operations which would prevent completion of the Work.

4. DAMAGES FOR DELAY: For the period of time that any portion of the work remains unfinished after the time fixed for completion of any Work Item or Contract Milestone as specified in the CONTRACT TIME Section (01 14 20), as modified by extensions of time, it is understood and agreed that liquidated damages are due.

5.04 TEMPORARY SUSPENSION OF WORK

A. The Engineer shall have the authority to suspend the work wholly or in part, for such period as deemed necessary due to unsuitable weather or for any other conditions considered unfavorable for the prosecution of the work; or for such time as deemed necessary due to the failure of the Contractor to carry out orders or to perform any provisions of the Contract. The Contractor shall immediately comply with written order of the Engineer. The suspended work shall be resumed only when conditions are favorable or methods are corrected as ordered or approved in writing by the Engineer.

B. If the Engineer orders a suspension of the work which is the current controlling operation due to unsuitable weather or to other conditions which are considered unfavorable to the prosecution of the work the days on which the suspension is in effect shall not be considered working days.

C. If a suspension of the work is ordered by the Engineer due to the failure of the Contractor to carry out orders or to perform any provisions of the Contract, the days on which the suspension order is in effect shall be considered working days. The Contractor shall not be entitled to damages or compensation due to suspension.

D. In case of suspension of work from any cause whatever, the Contractor shall be responsible for all materials and shall store them properly if necessary and shall provide suitable drainage and erect temporary structures where necessary.

5.05 TERMINATION OF CONTRACT

A. Whenever, in the opinion of the Board, the Contractor has failed to supply an adequate force of labor, equipment, or materials of proper quality, or has failed in any other respect to prosecute the work with diligence or should there be persistent or repeated refusal or failure to comply with laws, ordinances, or directions of the Engineer; or should there be consistent failure to make prompt payments to subcontractors, for labor or materials, the Board may give written notice of at least 5 calendar days to the Contractor and sureties that if the defaults are not remedied within a time specified in such notice, the Contractor's control over the work will be terminated.

B. If the Contractor should be adjudged bankrupt, or make an assignment for the benefit of creditors, or if a receiver should be appointed on account of insolvency, the Board may declare the Contractor's control over the work terminated, and so notify the Contractor and sureties.

C. Upon such termination, the Board may direct the Engineer to take possession of and use all or any part of the Contractor's materials, tools, equipment and appliances upon the premises to complete the work; the District assuming responsibility for the final relinquishment of such equipment at the conclusion of the work, or sooner, at its option, in as good condition as when it was taken over, reasonable wear and tear excepted, and the District agrees to pay for such materials and the use of said equipment a reasonable compensation to be mutually agreeable to the Board and the Contractor.

D. The Engineer may permit the surety to complete or cause the Work to be completed, or the Engineer may direct that all or any part of the work be completed by day labor, or by employment of other contractors. Such informal contracts may be awarded after a bid form has been prepared and a copy served upon the Contractor whose control has been terminated and upon the surety, and not less than 3 Calendar Days allowed thereafter, so that others may bid.

E. If the work is completed as provided above, the Contractor is not entitled to receive any portion of the amount to be paid under the Contract until it is fully completed. After completion, if the unpaid balance exceeds the sum of the amount expended by the District in finishing the work, plus all damages sustained or to be sustained by the District, plus any unpaid claims on account of labor, materials, tools, equipment, or supplies contracted for by the Contractor for the work herein contemplated, provided that sworn statements of said claims shall have been filed with the Board, the excess not

otherwise required by these specifications to be retained shall be paid the Contractor. If the sum so expended exceeds the unpaid balance, the Contractor and surety are liable to the District for the amount of such excess. If the surety completes the Work, such surety shall be subrogated to money due under the Contract and to money which shall become due in the course of completion of the surety.

F. The District may, without prejudice to any other remedy it may have under the provisions of the Contract, terminate this Contract, in whole or in part, at any time by giving written notice to Contractor or its representative by certified mail, return receipt requested. Termination shall be effective upon receipt of notice by Contractor. Contractor shall immediately discontinue work and take all reasonable steps with its suppliers and subcontractors to minimize cancellation charges and other costs.

G. In the event of termination for reasons other than default of Contractor, Contractor shall be entitled to recover all reasonable costs incurred in connection with performance of the Work, plus any cost and expense reasonably and necessarily incurred in connection with such termination, plus a percentage of the profit based on the percentage of completion of the Work.

H. If the work is stopped by order of a court, a public authority or the District for a period of 90 Calendar Days or more through no act or fault of the Contractor, then the Contractor may terminate the Contract 10 Working Days after written notice to the District. Upon receipt of the written notice, the District shall terminate the contract.

5.06 SUBSTANTIAL COMPLETION

A. When the Contractor considers the entire Work, or a specific portion of the Work as defined by Work Item in the WORK RESTRICTIONS Section (01 14 00) and Contract Milestone in the CONTRACT TIME Section (01 14 20), substantially complete, the Contractor shall certify in writing to the District that the Work is substantially complete and request that the District grant substantial completion. Within five (5) Working Days, the District and the Contractor shall inspect the Work to determine the status of completion. If the District does not consider the entire Work, or a specific portion of the Work, substantially complete, the District will notify the Contractor in writing, giving the District's reasons. If the District considers the entire Work, or a specific portion of the Work, substantially complete, the District will grant substantial completion. Unless otherwise specified in the Special Provisions, the entire Work, or a specific portion of the Work, will be considered substantially complete when all work depicted on the contract drawings and required by the Contract Documents has been performed. Only minor corrective work will be allowed to be considered as punch list work. The District will provide a list of items to be completed or corrected (punch list) before Field Inspection and Field Acceptance per paragraph 5.07 below. Within ten (10) Working Days of being provided a list of items to be completed or corrected, the Contractor shall proceed to correct or complete such items. The counting of time for liquidated damages will cease for the entire Work, or a specific portion of the Work, on the date substantial completion is granted, but shall not bind the District to Final Acceptance nor relieve the Contractor from the responsibility of completing or correcting any work. In order to

achieve the Contract Milestones as defined in the CONTRACT TIME Section (01 14 20), the Contractor shall allow sufficient time for the District to determine the status of completion as defined above. The Liquidated Damages defined in the CONTRACT TIME Section (01 14 20) will apply up to the date Substantial Completion is granted by the District.

5.07 FIELD ACCEPTANCE

A. The Contractor shall notify the District in writing of the completion of the punch list per paragraph 5.06 above, and the District shall promptly inspect the Work. The Contractor or the Contractor's representative shall be present at the final inspection. The Contractor will be notified in writing of any defects or deficiencies. The Contractor shall proceed to correct such defects or deficiencies within ten (10) Working Days of such notification. When notified that correction of the defective or deficient work is complete, the District will again inspect the Work to ascertain that the corrections are in accordance with the Contract. The District will issue a Field Acceptance letter and will record a notice of completion with the County Recorder within ten (10) Working Days. All retention not withheld due to stop notices or disputed work will be released within 60 Calendar Days of the recording of the notice of completion. Field Acceptance by the District shall cause the commencement of warranty periods, but shall not bind the Board to Final Acceptance nor relieve the Contractor from the responsibility of completing or correcting any work.

5.08 USE OF COMPLETED OR PARTIALLY COMPLETED PORTIONS OF THE WORK

A. The District shall have the right to take possession and use any completed or partially completed portions of the Work. Such possession and use shall not be deemed as substantial completion or acceptance. The District may exclude the Contractor from completing the work if construction activities might interfere with the operation or maintenance of the plant. The District may complete the work after giving the Contractor notice of intention to do so. If the District completes the work, the cost for such work will be charged to and deducted from amounts due to the Contractor. Division of responsibilities between District and Contractor, beginning of guarantee, and any other issues relating to field acceptance shall be as specified in this section.

5.09 DIGGING TRENCHES OR EXCAVATIONS; NOTICE ON DISCOVERY OF HAZARDOUS WASTE OR OTHER UNUSUAL CONDITIONS; INVESTIGATIONS; CHANGE ORDERS; EFFECT ON CONTRACT.

A. If this Contract involves digging trenches or other excavations that extend deeper than 4 feet below the surface, the following shall apply:

B. The Contractor shall promptly, and before the following conditions are disturbed, notify the District in writing of any:

1. Material that the Contractor believes may be hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a

Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

2. Subsurface or latent physical conditions at the site differing from those indicated.

3. Unknown physical conditions at the site of any unusual nature different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

C. The District shall promptly investigate the conditions, and if it finds that the conditions do materially differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the work shall issue a Field Instruction.

D. In the event that a dispute arises between the District and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of or time required for performance of the Work, the Contractor shall not be excused from any completion requirements, but shall proceed with all work. The Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the contracting parties.

E. The Contractor shall be responsible and liable for the handling, storage, testing, hauling, and disposal of hazardous waste generated as a result of the work. The Contractor shall not be considered the generator of pre-existing hazardous environmental substances that the Contractor did not introduce to the site. The District Representative shall sign any required manifests for such substances as the generator.

****END OF SECTION****

SECTION 00 73 19

HEALTH AND SAFETY REQUIREMENTS

1.01 GENERAL

A. All operations shall conform to applicable occupational safety and health standards, rules, regulations and orders which include, but are not limited to: Title 29 of the Code of Federal Regulations and the Electrical, Construction, Tunnel and General Industry Safety Orders issued by the Division of Industrial Safety (Cal/OSHA) of the State of California. In the event of a conflict between the requirements in the referenced standards, the most stringent standard shall prevail.

B. The Contractor shall submit their Injury and Illness Prevention Program (IIPP) for review.

C. All contractors, vendors and visitors will wear hardhats and safety vests at all times while in construction areas. In addition, if necessary, but not limited to: appropriate foot, eye and ear protection shall be worn.

D. Contractor shall have a Site Specific Safety Plan that has been specifically prepared for the contemplated work. Site Specific Safety Plan shall comply with section 3203 of Cal/OSHA and shall be applicable to all individuals engaged in the Work, including the Contractor's subcontractors, suppliers and others.

E. An Emergency Action Plan and a Fire Prevention Plan in accordance with sections 3220 and 3221 respectively of Cal/OSHA shall be included in Site Specific Safety Plan.

F. The responsibility for safety rests with the Contractor who must provide a safe work site for workers and other individuals entering the area.

G. District reserves the right to stop any work activity that creates a serious safety violation as defined by Cal/OSHA,

1.02 PROJECT SPECIFIC SAFETY PROGRAM

A. Project Specific Safety Program shall include:

1. Designation of Safety Manager. A resume shall be provided.

2. Detailed description of Project Specific Safety Plan.

3. Policies and procedures to ensure compliance with regulations.

4. Staffing plan and organization chart for implementation of the safety program.

5. Training program including new employee orientation.

6. List of equipment, supplies, materials and personal protective devices that will be available and utilized.

7. Description of accountability for foreman and supervisors.

8. Site Specific Emergency Response Plan for accidents/incidents and injuries.

9. Description of accident investigation and reporting procedures.

10. Description and frequency of tailgate and regular safety meetings.

11. Participation of subcontractors, suppliers and others in Project Safety Program.

12. Method of identifying, correcting, or remedying situations that are unsafe or not in compliance with Project Safety Program.

13. Plans and procedures for confined space entries.

14. Provisions for excavation safety.

15. Procedure for preparation of Work Permits.

16. Method to remedy nonconforming situations.

B. Project Specific Safety Program and revisions shall be reviewed by a full time Safety Professional. The full time Safety Professional shall state that the Project Specific Safety Program is adequate and complies with the regulations applicable to the Work. The Project Specific Safety Program shall be submitted to the District Representative, for review, prior to commencement of work and shall remain in effect until the Work has been completed. Project Specific Safety Plan shall be reviewed, updated, and changes submitted as they occur.

1.03 SAFETY MANAGER

A. A Safety Manager shall be designated who has responsibility for safety of the Work and who has the duty to implement and secure compliance with the Site Specific Safety Plan. This individual shall have the authority to act and affect all aspects of the Project Specific Safety Program. Safety Manager shall have the authority to remedy or correct any unsafe or noncompliance situations or problems.

B. Safety Manager or designated alternate individual shall be on site when Work is being pursued. Contractor will be permitted to designate an alternate individual to act on behalf of Safety Manager when Safety Manager is absent from the work site.

C. Safety Manager shall have 5 years of industrial and heavy construction experience on projects similar to the Work. Three years of this experience shall involve full-time, construction site safety responsibilities. Safety Manager shall be knowledgeable of occupational health and safety rules and regulations.

D. Safety Manager shall prepare Work Permits for each confined space entry and shall organize and observe each entry.

E. Safety Manager and a District Representative shall tour the site on a weekly basis to observe the Work.

1.04 PROTECTION OF WORKERS

A. The EchoWater Facility receives sewage and industrial wastes. There is a possibility that solvents, fuels and hazardous material may be in the wastewater. The wastewater and the associated facilities should be considered contaminated. Individuals who contact wastewater, debris or existing facilities should take appropriate safety and health precautions such as personal protective equipment and inoculations for disease.

B. Safety equipment and precautions shall be utilized to protect workers, District personnel, and the general public during the work.

C. NIGHTTIME LIGHTING CONTROL

1. If nighttime construction lighting is required, the construction contractor shall shield and orient lighting downward and directed away from any nearby biological receptors to minimize effects. Lighting shall be directed toward active construction areas only, and shall have the minimum brightness necessary to ensure worker safety.

1.05 WORK PERMITS

A. There are areas and operations at the EchoWater Facility which are potentially hazardous or dangerous if the appropriate precautions are not taken. The Work Permit process is utilized to review proposed work activities and to ensure good work practices and appropriate safety measures are followed. Contractor is required to prepare Work Permits and comply with the stipulated conditions. A Work Permit shall provide a detailed description of the proposed activities and sequencing.

B. The Work Permit procedure is described in the COORDINATION WITH OCCUPANTS Section (01 14 16). Examples of activities which require a Work Permit are:

1. Operations that have open flames, the potential for sparks or activities that may result in high temperatures. Examples include welding, cutting, grinding and electrical work.

2. The use of tools or electrical equipment in classified areas.

3. Work on equipment or piping which contains, or has contained, a flammable or hazardous material, chemical or gas. Work on or in proximity to chemical or gas storage facilities.

4. The use of hazardous materials.

5. Activities which involve electricity at greater than 500 volts.

6. Activities that involve pressures greater than 150 psi.

7. Activities that involve work in a confined space including the opening of vaults and manholes.

8. Activities that involve special precautions required by Cal/OSHA.

1.06 REPORTING

A. Monthly, Safety Manager shall prepare and submit a narrative report describing actions, incidents, near-misses and topics related to safety. The report shall indicate past events and proposed future activities. A summary of events of weekly job site tours shall be included.

B. All incidents that are reportable on OSHA Form 300 or that result in property damage in excess of $1,000 shall be promptly reported to District. A detailed description of the incident including names and statements of witnesses shall be provided within 5 days of the occurrence.

C. Contractor shall inform the District within 5 days of any claims, suits, or citations of violations that may arise from an incident or injury.

1.07 NON COMPLIANCE

A. When a serious hazard is identified, the Contractor will receive a verbal notification of the problem and a request to rectify the situation. If the situation is not corrected in the allotted time or reoccurs, a written notification will be issued to the Contractor that will clearly describe the condition, date Contractor initially was notified, the recommended action and the expected date of compliance. If the situation is not corrected, the Contractor's worker's compensation insurance carrier will be notified.

****END OF SECTION****

SECTION 01 14 00

WORK RESTRICTIONS

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. The work may be subdivided into one or more work items. A work item shall be completed as a unit or subproject in accordance with the Contract. The required completion of a work item by a certain deadline may be necessary due to other construction constraints.

B. The details of each work item are in the specifications and on the drawings. The completion of a work item shall provide an operating system or facility that is substantially complete and available for utilization. All work shown on the plans and in the specifications is required, whether or not it is specifically addressed in the table of work items in this section.

C. The work items listed below describe phases of work and their respective requirements. Substantial completion of a work item includes successful completion of all testing. The Work Items and the Contractor Requirements are listed below in Table 1 and Table 2, respectively. Table 1 is itemized numerically and Table 2 is cross-referenced alphabetically. Likewise, Table 2 is itemized alphabetically and Table 1 is cross-referenced numerically.

D. The Contractor shall observe the following general requirements:

1. The District will drain existing piping, equipment or structures to the level of the lowest existing drain line. The depth of water remaining in a given pipe, equipment, or structure will vary depending on the distance of the drain from the leakage source. The District will remove any large deposits of solids; however, there may be a solids residue remaining on any surface. Any subsequent cleaning or further draining and/or dewatering shall be provided by the Contractor.

2. The Contractor shall provide all necessary temporary pumps, piping, electrical wiring, controls and labor during and subsequent to all shutdown activities as required. Pumps and upstream water levels shall be continuously monitored by the Contractor during all temporary pumping operations to insure against process upsets, flooding, and bypassing.

3. The Contractor shall maintain adequate access to the plant facilities, utilities, and equipment during construction to allow continued operation and maintenance by plant personnel to take place.

4. Some shutdowns will have to take place during other than normal working hours, such as early mornings, nights, holidays, and weekends. Where these are foreseen, they have been identified in this section.

5. The Contractor shall limit shutdowns of existing substations, feeders, and motor control centers to periods when workers are actually performing work on the affected equipment. Only one of the two 12kV feeds to any area substation/double-ended switchgear may be shut down at any time, unless otherwise approved by the District. Entry into electrical manholes for cable work may be prohibited on weekends or restricted during wet weather depending on the criticality or redundancy of the affected system. All electrical shutdowns shall be returned to service on nights, weekends, and holidays, unless approved by the District.

6. The Contractor shall coordinate all crafts and subcontractors to minimize the number and duration of shutdowns. Non-coordinated shutdowns that result in a cost of manpower or materials to the District shall be back-charged to the Contractor and will be deducted from progress payments.

7. The Contractor shall note that all slide gates leak, and some sluice gates and valves leak. The Contractor is required to remove leakage of any liquids including wastewater and sludge from work areas and operating areas.

8. The discharge point and rate of drainage and/or dewatering operations is subject to District approval.

9. All existing equipment and processes shall remain under control of the District. New equipment which has been connected to existing processes may be operated by the Contractor only with prior approval of the District.

10. The Contractor shall design and provide all necessary bulkheads, cofferdams, and support structures to allow isolation from work areas of basins, tanks, and/or channels which are in service. Bulkheads, cofferdams, and support structures shall conform with applicable OSHA requirements and shall be submitted in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

11. To complete a Work Item, testing of partial systems will be required. The Contractor shall provide temporary power, isolation and testing fluid supply and disposal as necessary to test the partial systems. All testing shall be in conformance with the COMMISSIONING Section (01 91 00).

12. Access requests are required in accordance with the COORDINATION WITH OCCUPANTS Section (01 14 16) for all activity that affects an existing facility or operation including testing and the movement of personnel and vehicles at the plant.

1.02 WORK ITEMS

Table 1. Work Items

Item Number	Work Item Description	Contractor Requirement Cross Reference
1	Improvements To Secondary Sedimentation Tank (SST) 10	A
2	Improvements To Secondary Sedimentation Tank (SST) 16	A

Table 2. Contractor Requirements

Requirement Number	Requirement	Work Item Cross Reference
A	All work in this project requires entry into tanks and is considered confined space. Contractor is required to have a confined space program, create a project specific IIPP and provide continuous atmospheric monitoring when workers are in the tanks. Mobilization activities require and approved access request per Section 01 14 13 and am approved WPCP per Section 01 57 23. Contactor will be allowed to shutdown one tank at a time for the duration of the project construction. Shutdown request shall be done by submitting an Access Request per 01 14 13. **The contractor will be responsible to protect coating work from being impacted by wet weather.**	1, 2

**** END OF SECTION ****

SECTION 01 14 13

ACCESS TO SITE

1.01 PROJECT LOCATION

A. The work specified under this Contract will be performed at the EchoWater Resource Recovery Facility (EchoWater Facility). The EchoWater Facility is located south of the Sacramento City limits, west of Franklin Boulevard and north of Sims Road at 8521 Laguna Station Road, Elk Grove, California 95758.

1.02 SITE ACCESS AND ACCESS ROADS

A. Access to the Plant for construction related traffic shall be via either the Dwight Road Security Gate or the Laguna Station Road Security Gate. If special access is required coordinate with the District Representative.

B. Contractor is required to submit an Access Request (AR) for District approval prior to mobilizing any equipment or facilities onto the construction site in accordance with the COORDINATION WITH OCCUPANTS Section (01 14 16). Contractor's AR for mobilization shall include but not limited to a site plan showing access routes, office location, sanitary facilities location, storage yard, parking areas, temporary construction fencing, and temporary walkways around construction site. Contractor shall coordinate with the District Representative prior to submitting the AR.

C. Contractor shall be aware that Dwight Road and other roads within the site will be utilized by other contractors and EchoWater Facility personnel during the duration of this contract.

D. The Contractor's personnel will be required to park personal vehicles in the approved or designated areas. Each Contractor shall be responsible for policing the common parking area for cleanliness and efficient parking procedures to ensure use by all. Existing parking in the process area may not be used by the Contractor's workers.

E. The Contractor will maintain a visitor log to document the arrival and departure of all delivery personnel and periodic visitors. In the event that a staff member leaves the site before end of shift, this action will be recorded in the Contractor's visitor log.

F. In the event of an evacuation, the contractor and all staff, subcontractors, delivery personnel and visitors will report to the congregation area with copies of the attendance sheets and visitor log for roll call. All personnel will remain at the congregation area until released by authorized District Management.

1.03 CONTRACTOR IDENTIFICATION BADGE POLICY AND PROCEDURES

A. IDENTIFICATION:

1. All Contractor and subcontractor staff assigned to work at the EchoWater Facility shall obtain an identification badge after completion of safety training and shall carry their badges at all times while at the EchoWater Facility.

B. TRAINING:

1. All Contractor staff must attend EchoWater Facility Safety Orientation and badge use training at a minimum prior to issuance of badges. Training is anticipated to be 3 hours total in duration and will include the environmental and cultural education training as described in the TEMPORARY ENVIRONMENTAL CONTROLS Section (01 57 19).

C. BADGE SECURITY LEVELS:

1. Contractors and subcontractors will have different access authority levels through process security gates depending upon the time of day, and/or their assigned duties.

2. If access is denied, contact the District Representative.

D. FORGOTTEN BADGE:

1. If a person forgets their badge, they will have to enter the EchoWater Facility as a visitor. This requires checking in and out of the EchoWater Facility with the security guard at the gate.

    a. Use the inside entry lane (closest to the guard station).

    b. Guard will ask visitor's name and other information.

    a. Guard will require visitor to contact someone from their company or project to meet them at the gate and escort them onsite.

    b. Visitor will need to report to reception to get a visitor's badge for the day. The visitor badge must be picked up and dropped off every day at reception until a replacement badge is received.

    c. Leave facility using inside exit lane (closet to guard station).

E. LOST BADGE:

1. A badge categorized as forgotten will be considered lost after 72 hours. Lost badges shall be reported to the District Representative as soon as the loss is realized. A replacement badge will be issued and the lost badge will be deactivated and will no longer work in the security system. If found, the lost badge shall be turned into the District Representative.

1.04 MAIN GATE ENTRY/EXIT PROCEDURES

A. GENERAL:

1. Badges are required to enter or exit through the guard gate stations. Every vehicle must badge through the gates, no "piggy backing" of other vehicles is allowed.

2. There are three entrance and three exit lanes at the Dwight Road Security Gate:

   a. The outside lanes are exclusively for persons with badges.

   b. The **inner lanes** are to be used by

      1) Visitors;

      2) Deliveries; and

      3) Employees without badges

3. There are three “cell-phone pullout” areas outside of the Dwight Road Security Gate. For the ingress traffic, a single pullout area is provided on the east side of Dwight Road to allow visiting vehicles and trucks to park and obtain additional information from the receiving party, if needed prior to reaching the gate. Unexpected visitors who proceed to the gate without prior notification to receiving parties could be directed to use the reject route to turn around at the gate., They would then utilize either of the two pullout areas provided for the egress traffic on the west side of Dwight Road to contact a receiving party for permission to enter. If permission is granted, the receiving party shall notify the guard at the gate to allow entry of the visitor.

****END OF SECTION****

SECTION 01 14 16

COORDINATION WITH OCCUPANTS

1.01 GENERAL

A. Contractor work activities that impact existing District operations, property or facilities (such as pipelines, ductbanks, manholes, treatment processes, environmental resources, and access roads to District facilities) require an approved, signed Access Request (AR) prior to commencement of work. Interruption of flow or connection to an existing system or interceptor requires a Shutdown Plan and Location Map to be included with the Access Request. In addition to the Shutdown Plan, any activity that requires special safety precautions to be taken will require a Safety Work Plan to be included with the Access Request.

B. Access Request:

1. Allows District Operations time to review the proposed work and to schedule and coordinate necessary process or equipment shutdowns,

2. Allows District Safety office review of proposed work and contractors' safe work practices related to the specific work to be performed,

3. Informs the contractor of any special hazards or exposures related to the specific work.

C. The District maintains permits to collect, treat and discharge wastewater. These permits establish discharge limits for wastewater, storm water, and air emissions and establish spill reporting requirements and fines. Violation of District permits shall not result from the Contractor's work. Any unauthorized discharge or spill shall immediately be reported to the EchoWater Facility Plant Control Center (916-875-9400). The District will require the Contractor to stop or restrict any activity that has or could result in an unauthorized discharge or permit violation. The District will prevent or remedy the situation by the most expeditious means. The Contractor will be responsible for all costs incurred including fines.

1.02 REQUIREMENTS

A. COORDINATION AND ACCESS:

1. Activities that affect the operation of existing District equipment, including EchoWater Facility processes, Interceptor pipelines or facilities, or access to District property will require coordination between District and Contractor.

2. Access Requests are generally required based on impending work activities discussed at weekly construction coordination meetings, and approval is issued jointly by the District O&M Support office and District Safety Office.

3. Unrestricted access for District personnel and equipment shall be provided at all times to existing facilities, unless a reduced level of access is explicitly allowed in the approved Access Request.

1.03 SCOPE

A. An Access Request provides notification of a Work Item or other activity proposed by the Contractor. An Access Request describes the contemplated work including when, where and how it will be accomplished. An Access Request shall be submitted by a qualified representative of the Contractor who is familiar with all aspects of the work and pertinent safety requirements. An Access Request may be required whenever any of the following conditions are contained in or will be affected by Contractor's work:

1. General Project mobilization or District property access,

2. Work in, connection to, or removal of any pipeline, manhole, pump station, asset or wastewater process or equipment.

3. Any work that may impact environmental resources on District property,

4. Any work that may impact or disrupt other activities on District property such as leased agricultural operations, scientific studies, or concurrent construction projects,

5. Excavation on District property by location, dewatering of any excavation, structure, tank, vessel, or piping system

6. Installation or removal of bulkheads, cofferdams and isolation devices

B. Depending on the activities within the project, multiple Access Requests may be required.

C. A fully completed Access Request form shall be submitted in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26) at least

10 working days prior to the date proposed for commencement of work. An Access Request meeting may be required prior to the approval of the work or upon the District's request.

D. Contractors are required to describe the proposed work activity, indicate the property, system or equipment that will be affected, list the labor and equipment to be utilized, indicate the date, time and duration of the work, describe measures that will be implemented to reduce impacts to District property and facilities, and describe safety precautions to be observed. Drawing and section numbers shall be indicated where appropriate. A Shutdown plan shall be included with the Access Request when the work affects an existing system or process.

E. The Contractor shall plan and schedule Access Requests as early as possible. An Access Request will be reviewed and returned within 10 working days after submission of all necessary information. Sufficient information and detail shall be included with an Access Request to permit District to evaluate the proposed operation and the associated risks. Insufficient information on an Access Request may delay approval within 10 working days.

F. Contractor shall not be allowed to proceed with any work, or any portion of the work, described in an Access Request without complying with all the conditions, in their entirety, of the Access Request approval. All conditions of approval, including additional safety precautions added by the District Safety Office, shall be complied with and effectively communicated to Contractor's personnel and subcontractors. If the Contractor does not agree with the additional safety requirements, work shall not start until resolution is attained. Changes in the proposed activities or field conditions of an Access Request, or delay of the work, will require the submission of a new or revised Access Request.

1.04 SHUTDOWN PLAN

A. A Shutdown Plan shall be included with an Access Request whenever an existing operating system or facility such as a pipeline, basin, tank, channel, power supply, control circuit, instrumentation, equipment, pump, meter, or structure is affected. Shutdowns shall be planned and coordinated to minimize the number and duration of activities that affect existing operations.

B. The District will limit the duration of shutdowns for critical systems. Stated durations are the total time period between when the system is made available to Contractor and when it is ready for return to service. If the Contractor cannot complete the work within the allowed time, Contractor shall immediately request an extension from the District. If the District does not approve the requested extension, Contractor shall complete the

work or return the system to operable condition. The District will complete the work if Contractor does not return the system to operable condition as directed. Contractor is responsible for extra costs or damages incurred by the Contractor or the District to meet these requirements.

C. Requirements:

1. Designate the equipment or system that will be affected or removed from service. Describe the work to be undertaken. Identify the portion of the system that will be isolated, dewatered, decommissioned, de-energized, depressurized, or drained.

2. List the labor, equipment, materials, tools, utilities and incidental items to be used.

3. Indicate measures to prevent discharge of wastewater, stormwater pollution, odor or disruption of treatment processes.

4. Indicate dewatering method and means for disposal of leakage water.

5. Provide details for bulkheads, cofferdams and isolation devices.

6. Describe safety precautions and equipment.

7. Describe recovery plan if the shutdown cannot be completed as planned

8. List activities to be done by the District.

9. Indicate the time estimated to complete the shutdown.

**** END OF SECTION ****

SACRAMENTO AREA SEWER DISTRICT

ACCESS REQUEST

Prime Contractor	Contract #	Date
Sub-Contractor	AR #	Revision
Contact for Contractor	Work Item #	CPM Activity #
Phone	□ Work Plan Attached	□ Drawing Attached

PART 1 – CONTRACTOR WORK PERMIT

Start Date/Time	Completion Date/Time

Reference Contract Drawings/Specifications

Equipment or System to be Worked On

Location of Work

Provide RMP/MOC no. for work affecting EchoWater Facility Gas Mgmt. or Chemical Handling Areas:

Type of Work (check all that apply)	□ Civil	□ Mechanical	□ Electrical	□ Instrumentation
	□ Process	□ Coating	□ Hotwork	□ Other (specify)
	□ Mobilization	□ Traffic/Ped. Access	□ Shutdown	

Description of Work _____

_____

_____

Anticipated Hazards

_____

_____

Tools/Equipment to be Used	□ Cutting/Welding Torches	□ Arc Welders	□ Jack Hammers
	□ Power Saws	□ Grinders	□ Pneumatic Tools
	□ Backhoe	□ Crane	□ Radioactive Test Device

Access Request Instructions

1. Contractor fills out AR with sufficient information to define the work and anticipated safety hazards and signs at bottom of page 2.
2. If it is a CIP - R.E. reviews AR and signs on page 3 prior to delivering AR to District Representative.
3. District Representative(s) reviews and approves the AR with conditions, restrictions, or additional Safety items (all additional safety items on page 2 will be initialed).
4. District Rep/RE gives approved AR back to contractor prior to contractor performing the work.
5. Contractor reviews AR conditions and Safety page prior to beginning work.

Note: For ARs for utility or outside agency work, contractor interacts directly with District Representative

PART 2 – CONTRACTOR SAFETY PRECAUTIONS

All items checked will be complied with/used in accordance with applicable safety standards (CalOSHA, UFC, etc.) and the requesting contractor's safety program.

HOT WORK PLAN
- □ Isolate Combustibles
- □ Fire watch
- □ Fire Extinguishers
- □ Flash Protection

REVIEW EMERGENCY PROCEDURES/ALARMS
- □ Chlorine/Sulfur Dioxide Areas
- □ Oxygen Handling Areas
- □ Gas Management Areas
- □ Other _____

AIR MONITORING
- □ Continuous
- □ Periodic
- □ Frequency _____

HOUSEKEEPING
- □ Debris Removal
- □ Dust Control
- □ Maintain access to/through worksite

POTENTIAL ATMOSPHERIC HAZARDS TO BE MONITORED
- □ Oxygen Deficiency
- □ Oxygen Enrichment
- □ Combustible Gases
- □ Toxic Gases
- □ Other _____

EXCAVATION/TRENCHES
- □ Shoring
- □ Sloping
- □ Benching
- □ Barricades
- □ Excavation Plan Submittal Number _____

HAZARDOUS MATERIALS TRAINING
- □ Substance(s) _____

ELEVATED AREAS
- □ Fall Protection
- □ Guardrails

ENERGY CONTROL PROCEDURES
- □ Lockout
- □ Blockout
- □ Tagout

PIPING/EQUIPMENT OPENING AND/OR ENTRY(ensure prior to opening)
- □ Effectively Isolated
- □ Depressurized
- □ Drained
- □ Purged/Flushed of Hazardous Substance(s)

VENTILATION
- □ Natural only
- □ Auxiliary, continuous

ABATEMENT ACTIVITIES (Title 8, Construction Safety Orders)
- □ Asbestos (Article 4 § 1529)
- □ Lead (Article 4 § 1532.1)

CONFINED SPACE PROCEDURES
- □ Permit Required
- □ Non-permit
- □ C-5
- □ Entry Permit @ site
- □ Personnel Retrieval System
- □ Communication w/ Entrant
- □ Rescue Personnel @ site
- □ Supplied Air

OTHER SAFETY PRECAUTIONS
- □ _____
- □ _____
- □ _____
- □ _____

AR SUBMITTAL SIGNATURE BLOCK

Contractor signs below after page 1 and 2 are filled out with sufficient detail to allow AR to be reviewed. Contractor identifies all anticipated safety items prior to signing below. Safety Office staff will initial next to any additional safety items that have been checked off during the AR review process.

_____	_____
Contractor Representative	Date

RE Comments □ See Attachment

Reviewed by Resident Engineer (If Applicable) | Date

PART 3 – APPROVERS' REMARKS

Safety Office Comments □ See Attachment

Approved By: SacSewer Safety Office | Date

O&M Support Comments □ See Attachment

Approved By: SacSewer O&M Support/District Representative | Date

SIGNATURE BLOCK

The work described by this Access Request has been reviewed. The work methods described and identified in Parts 1 & 2, and the additional safety precautions identified in Parts 2 & 3 will be complied with and effectively communicated to personnel assigned this task. If the contractor does not agree with additional safety precautions, work shall not start until resolution is attained.

Contractor Representative | Date

Distribution:

□ Operation Support
□ Safety Office Representative
□ Resident Engineer
□ Contractor (supplied by RE)
□ O&M Manager 1 (2)
□ Process Team Leader
□ Other _____
□ Electrical Supervisor
□ Facility Maintenance
□ Project Engineer

***Note – Provide copies of approved ARs to applicable sections, always include O&M Manager I's in the distribution.**

Revised 11-2015

SECTION 01 14 19

USE OF SITE

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. The District's operating personnel will be responsible for operating the existing treatment plant throughout the execution of this contract. Do not adjust or operate serviceable or functioning equipment or systems.

B. Equipment presently installed in the treatment plant must be safely available to plant personnel at all times for use, maintenance, and repair.

C. If it is necessary in the course of operating the plant for the Contractor to move its equipment, materials, or any material included in the work, it shall be done promptly. The equipment or material shall be placed in an area which does not interfere with the plant operation.

D. Requirements of this section include, but are not limited to, requirements specified in the COORDINATION WITH OCCUPANTS Section (01 14 16) and the TEMPORARY UTILITIES Section (01 51 00).

E. The existing treatment plant will remain in operation throughout the execution of this contract. Schedule and conduct work to minimize necessary shutdowns and interference with normal plant operations and maintenance. An Access Request Form included and described in the COORDINATION WITH OCCUPANTS Section (01 14 16) shall be submitted to the District Representative each time access to existing facilities is necessary.

F. Comply with the safety requirements of the EchoWater Resource Recovery Facility (EchoWater Facility) Safety Manual as a minimum when working in the Plant process area. Provide additional safety considerations which are deemed necessary to protect Contractor and District employees during the conduct of the work.

G. Provide notice to the District Representative, in accordance with the COORDINATION WITH OCCUPANTS Section (01 14 16), 2 weeks prior to taking out of service any existing tank, pipeline, channel, electrical circuit, equipment or structure. Provide whatever temporary piping, pumping, power, and control facilities as required to maintain continuous plant operation and complete treatment except as otherwise specified. The integrity of existing plant utilities shall be maintained at all times.

H. Contractor laydown area within the project site is designated on the design drawings.

I. The Contractor's work force shall not use existing washrooms during the conduct of the work. Use of existing utilities shall be in accordance with the TEMPORARY UTILITIES Section (01 51 00). The Contractor shall be responsible for keeping areas in the existing treatment plant where work is done clean and safely accessible for the District's operating personnel.

****END OF SECTION****

SECTION 01 14 20

CONTRACT TIME

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. District will issue Notice to Proceed within 40 days of award. Contract Time commences at receipt by Contractor of Notice to Proceed in accordance with the GENERAL CONDITIONS Section (00 72 00).

B. The completion date for the Contract shall be the date of receipt by Contractor of Notice to Proceed plus the Contract Time in working days plus the non-working days listed below.

1.02 CONTRACT MILESTONES

A. The WORK RESTRICTIONS Section (01 14 00) describes Work Items. The following contract milestones must be included in the approved baseline schedule. All work necessary to meet these milestones must be completed to the satisfaction of the District or liquidated damages will be applied as described below. Contract Milestones shall meet the requirements of Substantial Completion by the date specified.

Contract Milestone	Completion Time	Liquidated Damages
Improvements to Secondary Sedimentation Tanks 10 & 16	140 working days After NTP	$1,500/Day

1.03 LIQUIDATED DAMAGES

A. Time is of the essence. Damages and expenses will be sustained by District if the Work is not completed within the Contract Time or by the Contract Milestone Completion Date listed in the table above. It is agreed that the liquidated damages are reasonable compensation to District if the Work or Work Items are not completed within the specified times. Liquidated damages are additive and cumulative for each day that the Work or Work Item is not completed.

B. Liquidated damages will be assessed against payments due under Contract.

1.04 WORKING DAYS

A. A working day is any day after Notice to Proceed except:

1. Saturday, Sunday and holidays listed below. However, weekends, holidays, and week nights may be worked as described in the GENERAL CONDITIONS Section (00 72 00).

2. Days specifically designated in Contract for cessation of Work.

3. Days that Work is suspended by District.

4. Inclement weather days as described in the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16).

1.05 HOLIDAYS

A. The following days are holidays (note that the District may observe the holiday on a preceding or subsequent business day):

DAY	DATE
New Year's Day	January First
Dr. Martin Luther King, Jr. Day	Third Monday in January
Lincoln's Birthday	February Twelfth
George Washington's Birthday Observance	Third Monday in February
Cesar Chavez Day	March Thirty-first
Memorial Day	Last Monday in May
Juneteenth	June Nineteenth
Independence Day	July Fourth
Labor Day	First Monday in September
Indigenous People's Day	Second Monday in October
Veterans Day	November Eleventh
Thanksgiving Day	Fourth Thursday in November
Thanksgiving Friday	Friday after Thanksgiving Day
Christmas	December Twenty-fifth

****END OF SECTION****

SECTION 01 26 00

CONTRACT MODIFICATIONS PROCEDURES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. The District may require changes to the Work. Changes will be directed by Field Orders (also known as Field Instructions) issued by the District Representative. A Field Instruction will describe:

1. The nature of the change,

2. The work to be done,

3. Changes in Contract Time, and

4. Adjustments to the Total Bid Amount.

B. Field Instructions will be incorporated into change orders to be executed by the Contractor and submitted to the Board for approval prior to payment.

C. Work required by Field Instruction shall be in accordance with the Contract except for the specific change delineated in the Field Instruction.

D. Whenever corrections, alterations, or modifications of the Work are required by the District Representative and increase the amount of work to be done, such additional work shall be extra work. When corrections, alterations, or modifications decrease the amount of work to be done, it shall be deleted work.

E. Following are the requirements for Field Instructions, preparing cost proposals and evaluating cost proposals for extra work and deleted work.

1.02 CHANGES IN CONTRACT PRICE

A. The District Representative may issue a Field Instruction at any time during the course of the Work. The Contractor shall comply with the requirements of the Field Instruction. Drawings which are included with Field Instructions shall be part of the Contract and shall be incorporated into the As-Built documents.

B. Field Instructions may require extra work or deleted work. Within 10 days of receipt of a Field Instruction, the Contractor shall provide a cost and time proposal. If a request for additional time to prepare a proposal is not received within 5 days, the Contractor shall perform the work in accordance with the Field Instruction with no additional compensation or time.

C. The Contractor shall delete work when required by Field Instruction.

D. An equitable adjustment will be provided for the cost of a change. The adjustment shall be determined by one of the following methods:

1. Unit prices listed in the Bid Form.

2. Agreed upon unit prices.

3. Lump sum.

4. Force account.

E. The Contractor shall submit an itemized breakdown with supporting data of the quantities of work and quantities of costs of direct craft labor, construction equipment and materials used in computing the cost of a change. This requirement pertains to extra work, deleted work or a combination of both. Deleted work shall be estimated and priced on the same basis as extra work.

F. The prices agreed upon and any agreed upon adjustment in Contract Time shall be incorporated in a Field Instruction which shall be written so as to indicate an acceptance by the Contractor as evidenced by signature. By signing the Field Instruction, the Contractor acknowledges that the adjustments to cost and time are full satisfaction and accord, payment in full, and so waives any right to claim any further cost and time impacts at any time during and after completion of the Contract.

G. Whenever the Contractor is requested to prepare an estimate for work and if the work is not performed, the Contractor shall be entitled to reasonable costs incurred in the preparation of the estimate.

H. In the event the District Representative and the Contractor fail to reach agreement on the price for work described in a Field Instruction, the District shall have the right to direct the Contractor to proceed with the work with payment by force account.

I. If the Contractor refuses to accept a change order, the District may unilaterally issue the change order and incorporate it into the Work without the concurrence of the Contractor. The Contractor shall comply with the change order. The District will provide an equitable adjustment to the Total Bid Amount. If the Contractor does not agree that the payment is equitable, a claim may be submitted in accordance with the DISPUTE RESOLUTION.

1.03 UNIT PRICE AND LUMP SUM PAYMENT

A. Under Methods 2 and 3 described above, the Contractor shall submit substantiating documentation with an itemized breakdown of Contractor and subcontractor direct costs, including direct craft labor, material, construction equipment, and approved services, pertaining to such ordered work in the form and detail acceptable to the District

Representative. The direct costs shall include only costs as described in this specification section.

1.04 FORCE ACCOUNT PAYMENT

A. GENERAL:

1. The Contractor shall keep an accurate account of the cost of work which is not part of the Contract. The Contractor will be paid for direct craft labor, materials and construction equipment actually used during the performance of the extra or directed work as described below. The Contractor shall use the District's Daily Work Report in preparing billings for force account work.

2. In order to facilitate agreement on direct craft labor hours, on construction equipment hours, and on material quantities, the Contractor shall notify the District Representative not less than 4 hours prior to starting force account work. The Contractor shall submit Daily Work Reports to the District Representative for signature not later than 9 am the day after the force account work is performed. Daily Work Report shall list names of all Contractor's staff, the craft or trade employed as, all craft or trade labor hours, all material, and all construction equipment used that day.

3. Daily Work Reports shall be fully priced-out and submitted to the District Representative.

B. DIRECT COST CATEGORIES:

1. The categories described below are defined to be direct costs. No other type of costs will be allowable as a direct cost. Direct costs shall not include any labor costs pertaining to the Contractor's and subcontractor's managers or superintendents, their office and engineering staffs and office facilities, or anyone not directly employed on such work, nor the cost of their offices, facilities, vehicles and small tools and supplies. All such items are considered indirect costs which form a part of the Contractor's and subcontractor's overhead expense.

2. DIRECT CRAFT LABOR: The Contractor will be paid the cost of direct craft labor including foremen, when authorized by the District Representative, used in the actual and direct performance of the work. Except as otherwise provided, the Contractor shall receive no additional compensation for wage premiums resulting from overtime work performed under force account without the prior written authorization from the District Representative.

   a. The cost of direct craft labor, whether the employer is the Contractor, subcontractor, or other forces, will be the sum of the following:

1) ACTUAL WAGES: The actual wages paid shall include any employer payments to or on behalf of the workers for health and welfare, pension, vacation, and similar purposes.

2) LABOR SURCHARGE: The actual labor surcharge costs for: state and federal taxes, workers compensation insurance, and other payments made on or on behalf of the worker shall be added to actual wages.

3) SUBSISTENCE AND TRAVEL ALLOWANCE: The actual subsistence and travel allowance paid to workers.

3. MATERIALS: The actual cost of the materials to the purchaser, whether the Contractor, a subcontractor, or other forces. If the Contractor does not furnish satisfactory evidence of the cost of such materials, it shall be deemed to be the lowest current price at which the materials are available in the quantities delivered. The District reserves the right to furnish such materials as it deems advisable, and the Contractor shall have no claims for costs or profit on such materials.

4. CONSTRUCTION EQUIPMENT: The use of construction equipment whether on site or moved on site exclusively for extra work shall be paid for at the rates listed in the current compilation of rental rates of the State of California, Department of Transportation applicable to Sacramento County. If the construction equipment is not shown on the above mentioned list, the Contractor shall be paid the reasonable hourly rental rates that are agreed upon by the Contractor and the District Representative prior to use of the equipment plus 33-1/3% for fuel, oil, lubrication, repairs and maintenance. In no case shall the agreed hourly rate exceed the rental rates of established distributors or equipment rental agencies serving the area or the reasonable invoice cost for the equipment rental from outside the Contractor's or subcontractor's organization. Individual items of construction equipment or small tools which cost $500 or less shall not be charged to force account work unless it can be demonstrated that the particular item is needed solely for the completion of the force account work.

   a. If the construction equipment is moved on to the site and used exclusively for extra work, the Contractor will be paid for the cost of transporting it to the site and returning it to its original location. The rental period shall begin when the equipment is unloaded at the site of the extra work, and shall include each day that the equipment is at the site of such extra work, excluding Saturdays, Sundays, and legal holidays, unless extra work is performed on such days, and shall terminate at the end of the day on which such extra work is completed or the District Representative directs the Contractor to discontinue the use of such equipment. Compensation for idle time for construction equipment moved on to the site exclusively for extra work shall be made in accordance with this specification section.

   b. The rental time for construction equipment already on the site, or which is used for other than such extra work shall be the actual time the construction equipment

is in operation on the extra work, plus the time required to move the construction equipment to the site of the extra work and return it to its original location.

1.05 MARKUPS

A. The Contractor shall be entitled to compensation for indirect and overhead costs, bond and insurance costs and profit for Field Instruction work. This compensation shall be in the form of markup percentages applied to the direct cost of the work as described below.

B. If a Field Instruction involves both extra and deleted work which is also referred to as net extra work, the markups shall be applied to the cost of the net extra work. The Contractor shall not be entitled to indirect and overhead costs or profits on the deleted work.

C. For Field Instructions involving forward priced extra work or net extra work, the following maximum percentage markups shall be applied to the total direct costs for each cost category. These markups provide for all indirect and overhead costs and profit:

Direct Craft Labor	20 percent
Materials - New Vendors/Suppliers	15 percent
Materials - Existing Vendors/Suppliers	5 percent
Construction Equipment	15 percent

D. For Field Instructions involving force account work, the following maximum percentage markups shall be applied to the total costs for each cost category. These markups provide for all indirect and overhead costs and profit.

Direct Craft Labor	15 percent
Materials - New Vendors/Suppliers	15 percent
Materials - Existing Vendors/Suppliers	5 percent
Construction Equipment	15 percent

E. Existing vendors and suppliers shall be defined as vendors and suppliers that have an existing contract, purchase order or other agreement for other Contract related work with the Contractor or existing subcontractors.

F. A maximum markup of 2 percent shall be added to the sum of direct craft labor, materials, construction equipment, profit, overhead and indirect cost markups for bond costs and insurance costs including any insurance which may be allocable as a direct cost within the Contractor's accounting system.

G. For Field Instruction work performed by a subcontractor, compensation for shall be based on all direct costs of the subcontractor plus the above direct craft labor, materials, construction equipment, and markup percentages. The Contractor may add a maximum

of 5 percent to the subcontractor's cost for profit, overhead and indirect costs and a maximum of 2 percent for bond and insurance.

H. The total indirect and overhead cost and profit markup for forward priced extra work or net extra work shall not exceed 20 percent of the direct cost of the work. The total indirect and overhead cost and profit markup for force account work shall not exceed 15 percent of the direct cost of the work. Direct cost is the summation of the Contractor's direct costs and all subcontractors' and suppliers direct costs prior to application of any markups. Distribution of the markup amount among the Contractor and subcontractors and suppliers shall be determined by the Contractor.

I. For deleted work a minimum of 8 percent shall be added to the sum of direct craft labor, materials and construction equipment as a deduction for indirect and overhead costs and profit. Reduced bond and insurance costs of 2 percent shall also be deducted from the sum of deleted work and deducted markup.

J. The allowances for profit, overhead and indirect costs shall include full compensation for any and all items of overhead and indirect items including but not limited to superintendence, consumable small tools and supplies, safety, insurance, as-built documentation, operation and maintenance manual documentation, cost proposal preparation, schedule analysis and preparation and all other office expenses.

1.06 COST PRICING DATA AND ACCESS TO RECORDS

A. All cost and pricing data submitted by the Contractor with respect to any change, prospective or executed, or any claim for extra compensation shall be a true, complete, accurate and current representation of actual cost and pricing of the work. The District Representative may require a certification as to cost and pricing data submitted by the Contractor.

B. The District Representative shall have access, upon reasonable notice during normal business hours, to any books, documents, accounting records, papers, project correspondence, project files, scheduling information and other relevant records of the Contractor and all subcontractors directly or indirectly pertinent to the Work and the Contract for the purpose of making audit, examination, excerpts and transcriptions and in order to verify or evaluate any change, prospective or executed, or any claim for which compensation has been requested or notice of potential claim has been submitted.

C. All books, documents, and other records mentioned above shall include, but are not limited to those necessary to determine the amount of direct and indirect costs, job site, area and home office overhead and delay and impact costs, however characterized, and shall include the original bid and all documents related to the bid and its preparation, as well as the schedule and related documents.

D. This access shall include the right to examine and audit records and make excerpts, transcriptions, and photocopies.

1.07 DISPUTE REGARDING CONTRACT REQUIREMENTS

A. If the Contractor and District fail to agree whether or not any work or other matter is within the scope of the Contract, the Contractor shall nevertheless immediately perform such work upon receipt of a written Field Instruction or other written directive. Within 10 working days after receipt of the Field Instruction or other written directive, the Contractor may submit a written protest detailing the Contract requirements exceeded and the appropriate cost and/or time change. Failure to submit a protest within the specified period constitutes a waiver of the Contractor's rights to adjustments in the Total Contract Price and/or Contract Time for the disputed Contract requirement.

B. The Contractor shall not stop performing the Work pending resolution of a dispute, unless ordered in writing by the District.

C. If the District agrees with the Contractor's written protest, the Total Contract Price and/or Contract Time will be adjusted through a Contract Change Order. Protests and claims denied by the District will be so stated in writing.

1.08 CONSTRUCTION INCENTIVE CHANGE PROPOSAL

A. GENERAL:

1. The Construction Incentive Change Proposal (CICP) program provides a mechanism by which the Contractor can be motivated to use construction expertise to improve contract performance and thereby create an overall reduction in the total cost of the contract. The Contractor and subcontractors may participate in the CICP program; however, participation of the subcontractors shall be through the Contractor. In addition, the sharing arrangement between the Contractor and subcontractor must be mutually agreed upon and written evidence of such agreement will be provided with the submittal of a CICP.

2. A CICP will not be considered for proposed changes that delete work or make modifications to work that are considered to be extra, net extra or deleted work. These types of deletions or modifications often occur and shall be administered in accordance with this section. The District Representative will determine if a proposed change qualifies as a CICP.

3. While a CICP is being considered or processed, the Contractor shall continue to pursue the Work.

B. DESCRIPTION:

1. A CICP is a formally written proposal for a change to the Contract. A CICP must be initiated, developed, and identified by the Contractor. A CICP must result in a net capital cost reduction while causing no increase in the total life cycle cost and shall comply with the following requirements:

a. Required function, reliability and safety will be maintained without detracting from the life expectancy and without increasing maintenance requirements.

b. The proposed change will not delay the Work, nor delay the completion of the project.

c. The proposed change shall be in compliance with all local permits and regulations and code requirements.

d. The proposed change shall not involve payment of royalties by the District.

2. A CICP must produce a net savings of at least $50,000 before it will be considered by the District. A CICP which produces a net savings less than $50,000 will be considered a deductive change in the Work.

C. SUBMITTALS:

1. Submittals shall be in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

2. A synopsis of the proposed CICP shall be submitted. The District will review the CICP and will request a detailed proposal if the CICP has merit and potential savings.

3. CICP submittal must contain the following information:

a. Name of individuals associated with the development and preparation of the CICP.

b. A description of the CICP with plans and specifications showing the present design and the proposed changes. All advantages and disadvantages shall be identified.

c. A detailed procedure and schedule for implementing the proposed change with all necessary contract amendments. Also indicated must be the latest date that the CICP can be approved for implementation.

d. A summary of estimated costs which shall include the following:

1) Project costs before and after the CICP. This shall be a detailed estimate identifying the following items for each craft involved in the CICP:
   a) Quantities of material and equipment.
   b) Unit prices of materials and equipment.
   c) Labor hours and rates for installation.
   d) Subcontractor and prime contractor markups.

2) Operation and maintenance costs before and after the CICP.

3) Cost for implementing the CICP not included in item above.

4) Contractor's share of the savings.

5) Other data required for permits, regulations and code requirements.

6) Time required for acceptance of the proposed change.

e. A copy of the current schedule showing all changes which would occur if the CICP was accepted.

4. District will not be responsible for the Contractor's cost to develop the CICP if it is rejected. If the CICP is not acted upon within the time frame indicated by the Contractor, the CICP shall be considered to have been rejected by the District.

D. ACCEPTANCE:

1. If a CICP is accepted by the District, a Field Instruction will be issued. If the CICP is rejected, the Contractor may not appeal the decision.

E. SHARING PROVISIONS:

1. CONSTRUCTION SAVINGS SHARING: Upon acceptance of the CICP, the Contractor will share the net capital savings pursuant to this contract based on the following formula:

Net Savings = Contract Cost Prior to CICP - (Revised Contract Cost after CICP + CICP Development Cost + CICP Implementation Cost)

2. The cost for developing the CICP is limited to the costs directly associated with the submittal and will be reimbursed to the Contractor.

3. The CICP implementation costs will include the District's costs for review and redesign. However, costs for processing the CICP by the District are excluded.

F. SHARING FORMULA:

1. The Contractor will receive 50 percent of the net savings based on the computation above. Payment will be made at the time that the original construction would have been completed.

1.09 VARIATION IN QUANTITIES FOR UNIT PRICE BID ITEMS

A. GENERAL:

1. Increases or decreases in the quantity of a unit price item will be determined by comparing the total pay quantity for the item with the quantity in the Bid Form.

2. If the total pay quantity of an item varies from the Bid Form quantity by 25 percent or less, payment will be made at the contract unit price.

3. If the total pay quantity of any item varies from the Bid Form quantity by more than 25 percent, in the absence of a Field Instruction specifying the compensation to be paid, the compensation payable to the Contractor will be determined in accordance with the following:

B. INCREASES GREATER THAN 25 PERCENT:

1. Payment for the quantity in excess of 125 percent will be paid at an adjusted unit price or by force account.

2. The adjusted unit price for quantities in excess of 125 percent will be the actual unit cost for the item up to 125 percent of the Bid Form quantity. Fixed costs for the item will be deducted from the actual unit costs.

3. The District may elect to pay for items in excess of 125 percent of the Bid Form quantity at the price in the Bid Form if the total amount is $5,000 or less.

4. An appropriate adjustment in contract time will also be provided if the increased quantity delays completion of the Work.

C. DECREASES GREATER 25 PERCENT:

1. An equitable adjustment of the unit price will be made if the quantity of an item is less than 75 percent of the Bid Form quantity and a price adjust is requested by the Contractor.

D. ELIMINATED ITEMS

1. Should any Work be eliminated in its entirety, in the absence of a Field Instruction covering such elimination, payment will be made to the Contractor for actual costs incurred in connection with such eliminated contract item if incurred prior to notification from the District Representative.

2. If acceptable material is ordered by the Contractor for the eliminated item prior to notification, and if orders for the material cannot be canceled, it will be paid for at the actual cost plus a 5 percent mark-up. The material shall become the property of the District.

3. If the material is returned to the vendor, the Contractor will be paid the actual costs including handling.

1.10 COMPENSATION FOR DELAYS

A. CONSTRUCTION EQUIPMENT:

1. Compensation for idle construction equipment shall be made for those allowable delay periods provided that the equipment remains on site for a duration beyond which is indicated on the schedule. Compensation may be provided for the idle

construction equipment used exclusively for Field Instruction work. Compensation shall be determined in accordance with the current rental rates of the Department of Transportation of the State of California which are applicable to the County of Sacramento with the following exceptions:

a. The right-of-way delay factor for each classification of equipment shown in the Department of Transportation publication entitled "Labor Surcharge Equipment Rental Rates" of the State of California will be applied to the rental rate.

b. Compensation will be provided for the actual time during which a delay exists, but not more than 8 hours per day.

c. Compensation will be provided for each day or portion of a day excluding Saturdays, Sundays and holidays for the duration of the delay. Weekly or monthly rates shall apply if the duration of the delay is extended.

B. JOBSITE INDIRECT AND OVERHEAD COSTS:

1. For allowable delays as described in the GENERAL CONDITIONS Section (00 72 00), compensation to the Contractor for indirect and overhead costs shall be limited to the following:

   a. Actual payroll costs for field office staff incurred as a result of the delay including: management, supervision, estimating, engineering, drafting, clerical, secretarial and accounting including all taxes, insurance, fringe benefits and any and all other payments made to or on the behalf of the employee, including workers compensation insurance, shall be added to the payroll costs.

   b. Actual cost for third-party services provided for the field office such as: management, supervision, estimating, engineering, drafting, clerical, secretarial and accounting utilized in lieu of employees.

   c. Field office expenses for rent and utilities which are applicable and substantiated by invoice.

2. Compensation for: on-site plant, incidentals, utilities, and facilities for non-field office personnel including branch office and home office personnel will not be provided. Compensation for these items and other incidental shall be considered to be included in the markups.

C. MARKUPS FOR DELAYS:

1. For idle equipment a maximum of 5 percent shall be added for profit, bond, and insurance costs.

2. For jobsite indirect and overhead costs a maximum of 10 percent shall be added for home office and branch office indirect and overhead costs.

3. To the total costs calculated above, a maximum of 5 percent shall be added for profit, bond, and insurance costs.

4. Distribution of the above markups among the Contractor and subcontractors and suppliers shall be determined by the Contractor.

D. DUPLICATED OVERHEAD COSTS:

1. In the event that the Contractor is compensated for delay periods as described above, and the delay was attributable to direct cost changes to which markups were added, equitable adjustments shall be made to eliminate the duplication of compensation for indirect and overhead costs and profit.

****END OF SECTION****

SECTION 01 26 13

REQUEST FOR INTERPRETATION

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Contractor shall prepare a Request for Interpretation (RFI) when additional information, clarification or interpretation of the Contract Documents is needed. RFIs may also be used for apparent conflicts, inconsistencies, ambiguities, or omissions. "Request for Interpretation" and "Request for Information" shall have the same meaning.

B. RFIs shall be submitted to the District Representative sufficiently in advance of the work to permit time for investigation and preparation of a response. Any work undertaken prior to receipt of a RFI response shall be at the risk of Contractor.

C. RFIs generated during submittal and shop drawing preparation must be submitted by the Contractor sufficiently in advance to not only allow for investigation and preparation of a response, but also for inclusion of the response into the submittal and shop drawing. Failure by the Contractor to provide sufficient time will not be cause for entitlement to a time extension.

D. RFIs shall not be used for submittals or for substitute of material, equipment or for waiving of requirements.

1.02 SUBMITTAL

A. RFIs shall be submitted via the District-furnished, web-based, document control system in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26). Each RFI shall deal with only one topic, item, issue or system.

B. RFIs shall clearly describe the problem and specifically state what is needed. Relevant portions of the Contract Documents shall be cited, marked-up and attached.

C. The Contractor shall review each RFI before submitting and compare it with the Contract Documents to verify that a response is required. RFIs will only be accepted from the Contractor and not from subcontractors or suppliers.

D. A recommendation or proposed solution may be included when appropriate or expedient.

E. Known schedule or cost impacts shall be noted in the RFI.

1.03 RESPONSE

A. The District Representative will normally respond within 10 days. The Contractor shall indicate a priority for responses if more than five (5) RFIs are pending at the same time.

B. The Contractor shall reply within 10 days if there is disagreement concerning the RFI response.

C. Subsequent resubmittals shall be identified with the same RFI number and a consecutive letter designation. Resubmittals shall clearly state the reason for resubmitting.

****END OF SECTION****

SECTION 01 29 76

PROGRESS PAYMENT PROCEDURES

PART 1 -- GENERAL

1.01 GENERAL

A. Progress payments will be made monthly in accordance with the Bidding Schedule, Approved Schedule of Values and instructions provided in this section.

B. Payment for items with a unit price will be based on the number of units completed.

C. Payment for lump sum items will be based on an estimate of the percent of work completed as indicated in the approved monthly update of the cost loaded CPM schedule.

D. Payment for other items will be based on the Schedule of Values as described below.

E. A portion of the progress payment will be retained until the Work is completed and accepted by the Board.

F. Progress Payment Requests shall be submitted electronically to the PCS in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26)

1.02 SCHEDULE OF VALUES

A. An initial Schedule of Values shall be submitted within 30 calendar days from Notice to Proceed. This Schedule of Values is intended to be a roll up of the cost loaded schedule described in the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16) and should be generated using the Cost ID activity code specified in the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16). The Contractor and District Representative shall work jointly to prepare the initial schedule of values such that when the full baseline schedule of values is submitted, the detail values sum up to the roll up values. If requested by the District Representative, the Contractor and the District Representative will review the escrow bid documents to reconcile the roll up schedule of values. This initial Schedule of Values will be used during the development of the 180 Day schedule.

B. A full Schedule of Values shall be generated from, and be consistent with, the latest accepted schedule. It shall be submitted with the Baseline Construction Schedule and submitted as in the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16). The total of the Schedule of Values, including the cost for Major Equipment, shall equal the Total Bid Amount. The Schedule of Values, as updated from the schedule, will be used as the basis for progress payments.

The baseline Schedule of Values shall be accepted along with the Baseline Schedule Submittal. It is understood that for most projects there will be an initial baseline schedule

submittal covering the first 120 to 180 days of work depending on the project and a second baseline submittal covering the remainder of the project. The initial Schedule of values submitted with the initial baseline schedule shall be updated and completed with the second baseline submittal covering the entire project. Payment will be based on the current approved Schedule of Values.

C. Unit Price Work: Reflect unit price quantity and price breakdown from conformed Bid Form.

D. The cost-loaded CPM schedule shall represent the Schedule of Values. Refer to the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16) for detailed requirements of cost loading. The schedule shall be utilized to generate the monthly progress payment request.

E. The process for approval of the monthly Schedule of Values leading to invoice payment is described in the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16).

F. LIMITATIONS:

1. The values of the activities listed below are limited as indicated. The limit is the percent of the Total Bid Amount.

ACTIVITY	LIMIT
Mobilization	3.0 Percent-maximum
Contractor Quality Control Program	2.0 Percent-minimum
Baseline Schedule Approval	0.5 Percent
O&M Data (Manuals)	0.7 Percent-minimum
Pre-Commissioning	2.0 Percent-minimum
Commissioning (Start-Up and testing)	1.5 Percent-minimum
As-Built Documents	1.3 Percent-minimum
Demobilization	0.5 Percent-minimum

2. MOBILIZATION:

a. Payment for mobilization will be prorated until all the following items have been completed. Mobilization includes:

1) Project manager on site full time.

2) Plant and construction equipment for activities for first month on site.

3) Field office setup with utilities.

4) Fire protection established.

5) Construction yard setup with storage and maintenance facilities and utilities setup.

6) Stormwater Best Management Practices (BMPs) installed.

7) Safety Plan submitted and required notices posted.

8) Initial Quality Control Plan submitted.

9) QC Manager on site full time.

10) Permits acquired.

11) Payment of premiums for all Bonds and Insurance required.

3. CONTRACTOR QUALITY CONTROL PROGRAM:

   a. Payment for Contractor Quality Control will be prorated based on progress towards project completion.

4. SCHEDULE APPROVAL:

   a. Payment will be made upon approval of the schedule as specified in the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16).

5. BASELINE SCHEDULE APPROVAL:

   a. Payment will be made upon approval of the Baseline schedule as specified in the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16).

6. O&M DATA (MANUALS):

   a. The Contractor and District Representative shall meet to determine the total number of O&M Data (Manuals) for the contract. The value of the O&M Data shall be distributed equally across the total number of O&M Data for the contract.

   b. The O&M data (manuals) shall have a value of not less than zero point seven percent (0.7%) of the Total Bid Amount. For additional work, the O&M data (manuals) value shall be determined by Field Instructions or Change Orders as outlined in the general conditions of this contract. O&M data additional work shall meet all conditions of this section.

   c. Separate Draft and Final submittals are required for each custom-prepared O&M Data (Manual). The Draft and Final submittals will be assigned 25% and 75%, respectively of the calculated value for each Manual. Payment will be made upon acceptance of each submittal. Standard off-the-shelf manuals will only require a Final submittal version.

d. Refer to the OPERATION AND MAINTENANCE DATA Section (01 78 23).

7. PRE-COMMISSIONING:

   a. Payment will be prorated based upon completion of Setting weir elevations.

8. COMMISSIONING:

   a. Payment will be prorated based upon completion hydraulic flow testing.

9. TESTING:

   a. Payment will be prorated based upon completion of the coating testing activities.

10. AS-BUILT DOCUMENTATION AND MAINTENANCE:

    a. Progress payments for project record (as-built) documentation will be made based on the quantity of documents submitted in accordance with weighting established in the PROJECT RECORD DOCUMENTS Section (01 78 39). The progress payment will be based on the number of documents submitted and accepted in proportion to the total number of project record documents.

11. DEMOBILIZATION:

    a. Submittal of warranties.

    b. Removal of plant and construction equipment.

    c. Removal of field office, construction yards and related facilities, utilities and project signs.

    d. Cleanup and disposal of materials, supplies, equipment and debris.

    e. Restoration of areas, roads and other facilities damaged or altered as a result of the Work.

G. PAYMENT FOR PROCURED EQUIPMENT:

1. Payment for Major Equipment that is identified in the Technical Specifications will be paid according to the following milestones:

   a. Purchase Order = 5%. An executed purchase order must accompany the payment request.

   b. Submittal Acceptance = 5%. Approval of the equipment submittal is required prior to payment of this amount.

c. Fabrication = 60%. Fabrication, including factory testing, may be paid in part provided adequate documentation is presented and accepted at the monthly Schedule Preview Meeting.

d. Delivery = 10%. Proof of onsite delivery (or proper handling of stored materials) must accompany the payment request.

e. Pre-Operational Checkouts/Installation Certification = 5%. Proof of Installation Certification by the Manufacturer must accompany the payment request.

f. Operational Checkouts/Performance Verification = 5%. Documentation of successful operational checkouts/performance verification must be provided.

g. Training complete = 10%

h. The sum of items listed above shall not exceed the documented quotation amount or invoice amount.

2. All other equipment (i.e., non-Major Equipment) will be paid upon submittal and acceptance of the required documents, including:

a. Paid invoices and proof of payment for materials on hand

b. Proof of proper storage or stored materials

c. Quantity verification (load tickets, etc.)

d. Any required certifications

H. An unbalanced of front-end loaded schedule will not be acceptable. Acceptable Schedule of Values will be required prior to submittal of first Application for Payment.

I. Summation of the complete Schedule of Values representing all the Work shall equal the Contract Price.

J. The Budgeted Total Cost and At Completion Total Cost in the Primavera P6 cost loaded Comprehensive Construction Schedule shall equal the Contract Price.

1.03 PAYMENT PROCEDURE

A. The Payment Request shall be submitted following the sequence of steps described in the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16). Supporting documentation shall be included. The District will review the request and make payment for those items in accordance with the requirements of the Contract and the Schedule of Values. Payment will not be made for deficient or defective work. Progress payment requests shall be submitted via the Project Control System in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26).

B. The Payment Request should be submitted in tabular form with the following columns:

1. Activity ID
2. Activity Name
3. Remaining Duration
4. Start
5. Finish
6. Cost Percent Complete
7. Previous Physical Percent Complete
8. Physical Percent Complete
9. Budgeted Total Cost
10. Actual Total Cost
11. Actual This Period Total Cost
12. Previous Applications Total Cost
13. Remaining Total Cost

C. Payment Request shall round values to nearest dollar.

D. Progress payments do not constitute acceptance of the Work or a waiver of any terms or conditions of the Contract.

1.04 RETENTION

A. Five percent of each progress payment will be retained until the Work has been completed and accepted by the Board. If the work is progressing in accordance with the Contract, the Contractor may request, after 50 percent of the Work has been completed, including change orders, that the withholding of additional retention cease. The District Representative will review the progress to date and the remaining work. If it appears that the work will be successfully completed, the District will waive the retention on the remaining work.

B. Contractor may deposit securities in lieu of retention pursuant to Section 22300 of the Public Contract Code.

C. At the request and expense of the Contractor, securities having a value equivalent to or greater than the withheld amount may be deposited with a state or federally chartered

bank as escrow agent payable in whole or in part to the District upon demand and certification by the District Representative that the Contractor has defaulted in the performance of the obligation under the contract and setting forth the amount of security needed to satisfy the completion of the obligation of the Contractor.

D. The Contractor shall be the beneficiary of any securities for monies withheld and shall receive any interest thereon.

1.05 WITHHOLDING

A. The District will withhold additional amount from progress payments for the following causes:

1. Claims against the Contractor for non-payment for labor, equipment or materials.
2. Defective work.
3. Failure to pursue the Work in accordance with the schedule.
4. Damage to District facilities or to other parties.
5. The cost to the District if the Work is not completed within the Contract Time.
6. Costs for replacement insurance due to cancellation or insufficient coverage.
7. Failure to pay prevalent wages or submit certified payroll records.
8. Failure to provide submittals, as-built documentation or operating and maintenance manuals
9. Payments due the District from the Contractor.
10. Provisions of law that enables or requires the District to withhold payments.

B. Withheld funds which are not a penalty will be paid to the Contractor when the reason for the withhold has been resolved.

C. The District may use withheld or retained funds to pay valid claims. In so doing, the District shall be considered an agent of the Contractor and shall not be liable for payments made in good faith. Such payments may be made without judicial determination of the claim. A complete and proper accounting will be provided.

1.06 FINAL PAYMENT

A. A final estimate will be prepared by the District upon completion of the Work and a request for final payment. All prior estimates, progress payments, retention, withholdings and change orders shall be considered. A copy of the final estimate will be provided to the Contractor.

B. The Contractor shall accept the final estimate or provide a written statement of exceptions with sufficient detail to ascertain the basis and amount within 15 days. Failure to provide a statement of exceptions within the allotted time shall indicate acceptance.

C. The District will release retention in accordance with the Field Acceptance subsection of the GENERAL CONDITIONS Section (00 72 00).

D. Acceptance of the final payment shall release the District, its agents and consultants from any and all claims or liability on account of the work under the Contract or any alterations thereof.

****END OF SECTION****

SECTION 01 31 19

PROJECT MEETINGS

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Meetings will be required throughout the duration of the Contract to facilitate communication, coordination and resolution of issues. District, Contractor, Design Consultant, subcontractors, and other parties involved in the Work shall attend, as appropriate.

B. There will be meetings to discuss particular aspects of the Work such as: scheduling, coordination, submittals, procedures, Access Requests, changes orders, testing, startup, punchlist, and other topics as needed.

C. District Representative will designate the purpose, date, time, and location for meetings. Contractor may request meetings as needed.

D. All meetings shall be documented in the District-furnished, web-based, document control system in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26).

1.02 PRECONSTRUCTION

A. A preconstruction meeting will be held prior to commencement of Work. This meeting will provide an opportunity for individuals to discuss initiation of the Work. Topics to be discussed include: mobilization, access, temporary facilities, utilities, subcontractors, schedules, procedures, correspondence, progress payments, payroll records, Access Requests, coordination, safety, quality control, personnel assignments and other topics as appropriate.

B. District, Contractor, Design Consultant, and major subcontractors shall attend.

C. Refer to the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16) for additional information.

1.03 PROGRESS

A. Weekly progress meetings will be conducted throughout the duration of the Contract. The purpose of these meetings is to inform, discuss and resolve issues related to the Work. Topics to be discussed include: progress, schedules, Access Requests, Requests for Information, Change Orders, Field Instructions, field coordination, submittals, quality control, testing, startup and other topics related to the Work.

B. These meetings will also discuss time impact evaluations for change orders and time extension requests, actual and anticipated schedule activity sequence/duration changes, and Contractor delays.

C. District, Contractor, Design Consultant, subcontractors and suppliers as appropriate shall attend.

1.04 PROGRESS BILLING

A. Each month the Contractor shall attend a progress schedule and progress payment meeting with the Construction Manager. At this meeting, the Construction Manager and Contractor are to review the percentage of the work completed and establish an amount to be requested in the Application for Payment. The meeting date shall be scheduled in accordance with the District's deadline for submittal of Progress Pay Estimates. Following review of the proposed billing, the Contractor will prepare an Application of Payment and submit to the Construction Manager for final review and processing.

B. The Construction Manager can also call for special progress schedule meetings should there be schedule revisions that necessitate such a meeting.

C. Refer to the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16) for additional information.

1.05 SUBMITTALS

A. When required in the individual technical specification, or if requested by the Contractor or the Construction Manager, a meeting regarding a required submittal will be held to facilitate the timeliness of the submittal preparation and review process. This meeting will convene at a mutually agreeable place. The party responsible for preparing the submittal shall be in attendance along with the Engineer.

B. Refer to the SUBMITTAL PROCEDURES Section (01 33 00) for additional information.

1.06 QUALITY CONTROL AND ASSURANCE

A. The Contractor or the Construction Manager may request a meeting prior to the start of a particular phase of the Work to discuss how the Work shall be accomplished in accordance with the quality requirements of the Contract Documents, codes, permits and industry standards. All required inspection and testing applicable to this phase of the Work will be discussed in detail. The Contractor shall require that all management and quality control personnel employed by the Contractor for this phase of the Work are in attendance. Quality assurance meetings might be requested for such phases of the Work as earthwork, paving, landscaping, concrete, masonry, piping, mechanical, specialty subtrades and electrical/instrumentation. Representatives of subcontractors

and major suppliers related to the phase of Work covered in the requested Quality Assurance Meeting shall also attend.

B. Refer to the QUALITY CONTROL Section (01 45 00) for additional QC/QA meeting requirements.

1.07 PRE-INSTALLATION

A. When required in the individual specification, or if requested by the Contractor or Construction Manager, a pre-installation meeting will be held to review conditions of the installation, installation procedures and coordination with related work. This meeting should take place at least fourteen (14) days in advance of installation or as required in the technical specifications. Meeting is to be attended by all parties involved in the installation.

1.08 SPECIAL MEETINGS

A. Any time during progress of the Work, the District and the Construction Manager shall have the authority to require the Contractor and any subcontractor, suppliers, or service providers to attend job-site conferences on matters which require immediate or special attention. Any notice of such conference shall be duly observed and complied with by the Contractor and subcontractors, suppliers, or service providers without extra cost to District.

****END OF SECTION****

SECTION 01 31 26

ELECTRONIC COMMUNICATION PROTOCOLS

PART 1 -- GENERAL

1.01 PROJECT CONTROL SYSTEM DESCRIPTION

A. Contractor shall have hardware and software to send and receive email correspondence from the District. The District will use Microsoft Office software and the internet as the primary means of communication related to the Contractor's Correspondence, Submittals, Requests for Information (RFI), Access Requests, Progress Payment Requests, Non-Compliance Issues, and Daily Attendance Sheets.

B. The Resident Engineer will maintain the official records of the communication, however all communication to and from the Contractor shall be in electronic format (email, shared folders, or external media) in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

1.02 SUBMITTALS

A. Provide a list of Contractor's key personnel during preconstruction. Include descriptions of key personnel's roles and responsibilities for this project.

1.03 EQUIPMENT

A. In order to process formal correspondence and other required documentation, the Contractor must have in place the required basic components outlined below:

1. HARDWARE: The Contractor shall use computer hardware that meets the requirements of large-file size editing and transmission. The Contractor will upgrade their system(s) to meet or exceed the recommendations. Upgrading of the Contractor's computer systems will not be justification for a cost or time modification to the Contract.

2. SOFTWARE: Adobe Acrobat Professional Version 2022 or Bluebeam Revu 2020 or later, Microsoft Edge or Google Chrome internet browsers, Microsoft Office 2021 or higher, or Microsoft Office 365. Other software may be utilized if compatible with the District's standards and approved by the District.

3. FACILITIES: The Contractor shall be responsible for providing all computers, printers, plotters, scanners or other hardware and software for his use. All networking equipment and associated cabling within the Contractor's office is the responsibility of the Contractor.

1.04 USER ACCESS LIMITATIONS (DELETED)

1.05 CONTRACTOR RESPONSIBILITY

A. Users shall be knowledgeable in the use of computers, including Internet Browsers, email programs, CAD drawing applications, and Adobe Portable Document Format (PDF) document distribution programs.

B. Adobe PDF documents will be created through electronic conversion rather than optically scanned whenever possible. The Contractor is responsible for the training of their own personnel in the use of other programs indicated above, as needed.

C. Entry of information exchanged and transferred between the Contractor and its subcontractors and suppliers shall be the responsibility of the Contractor.

1.06 TRAINING (DELETED)

****END OF SECTION****

SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULE

1.01 GENERAL

A. SUMMARY:

1. This section specifies the scheduling requirements for this project. In addition to being used by the Contractor, schedules are utilized to monitor the Contractor's progress, coordinate work with plant operations, coordinate work with other Contractors and coordinate future projects. The District considers the schedule requirements to be a benefit to both the District and the Contractor. The submittal and acceptance of realistic schedules shall be given high priority. Because of its importance to plant operations and the success of this project, failure to adhere to the scheduling requirements will result in a 10% withhold on monthly progress estimates, which can become a permanent deduction if the corrections aren't made by the second month's schedule update following notification. The schedule shall comply with commonly accepted CPM scheduling practices.

B. TYPES:

1. The following terms are used in this section:

   a. Baseline Schedule: The schedule delineating the original planned sequence of construction and procurement of Major Equipment.

   b. Monthly Updated Schedule: The monthly update of the schedule which depicts completed activities and remaining duration for incomplete activities.

   c. Rolling Schedule: A look ahead which presents what work the Contractor plans to pursue in the next two weeks.

   d. Revised Schedule: A schedule which incorporates accepted changes in sequence or scope of work.

   e. Final As-Built Schedule: A schedule that reflects the final as-built sequence of construction.

C. PRE-CONSTRUCTION SCHEDULING CONFERENCE:

1. Within five (5) calendar days following Notice to Proceed, the District shall schedule and conduct a pre-construction scheduling conference to commence development of the required construction schedule. Attendance by the Contractor's Senior Construction Scheduler is mandatory. At the meeting, the requirements of this section will be reviewed with the Contractor, the Contractor shall present their proposed methodology for the Baseline Schedule preparation. The Contractor shall submit to the District a written copy of its proposed WBS structure at this meeting. The District shall review the WBS structure within five (5) calendar days after submission by the Contractor. The Contractor shall make all modifications to the proposed WBS structure that are requested by the District Representative. The WBS shall be correlated with the Contractor's Schedule of Values and the cost loaded schedule. At this conference the District shall present to the Contractor the reporting layouts, any activity codes that need to be setup in the schedule and the P6 software settings necessary for processing the schedules into the District's master schedule. The Contractor shall bring to the Pre-Construction Scheduling Conference any schedules used in bid preparation.

D. FLOAT:

1. Float in any activity, milestone completion date or contract completion date shall be considered a resource available to both the District and the Contractor. Neither the District nor the Contractor has ownership of the float. Float is for the benefit of the project. Acceptance of the Baseline Schedule, Monthly Update or Revised Schedule, when based on less time than the maximum time allowed for milestone or contract completion does not serve to change any Contract duration, nor serve as a waiver of the Contractor's nor the District's right to utilize the full amount of time specified in the Contract.

E. ACCEPTANCE:

1. Review of the project schedule, up-dates or revisions is to determine conformance with the Contract Documents. Acceptance of a project schedule, updates or revisions does not relieve Contractor of responsibility for the feasibility of the project schedule or requirements for accomplishing milestones and completion within Contract Time. Acceptance of the project schedule, updates or revisions does not warrant or acknowledge the reasonableness of the schedule's logic, durations, labor estimates or equipment productivity.

1.02 SUBMITTALS

A. All schedules described below shall be submitted electronically in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26).

B. GENERAL – FORMAT:

1. Each of the types of submittal format shall conform to these requirements. All printed reports, tabular reports, bar charts and graphic plots shall be generated from and be consistent with the overall project schedule. The plot date, data date and projected project finish date shall be clearly shown. Unless noted otherwise, all print formats shall be 11 inches by 17 inches with a minimum font size of six points.

a. ACTIVITY BAR CHART REPORT: Shall include milestones and show relationships, activity ID numbers and activity descriptions grouped by WBS Item. Each activity shall indicate the appropriate Contractor or subcontractor responsibility and be sorted by start date. Activity Bar Chart Report shall be time-scaled and show continuous flow from left to right grouped by Work Item. The critical paths shall be readily identifiable through the use of red printing. Activity ID numbers and activity descriptions shall be listed in columns at the left of the sheet. Plots shall show early start and early finish dates and total float for each activity. The calendar being used should be identified.

b. CRITICAL PATH REPORT: Sorted by start date

c. MILESTONE REPORT: summarizing the planned and actual milestone dates compared against the approved baseline dates

d. The following information shall be furnished as a minimum for each activity:

1) Activity description and ID number.

2) Activity predecessors and successors

3) Original duration and remaining duration of each activity.

4) Early start date.

5) Early finish date.

6) Late start date.

7) Late finish date.

8) Total float.

9) Constrained dates.

10) Percentage of activity completed and actual number of working days remaining (for updates only).

11) An electronic copy of the native xer file along with a pdf copy shall be submitted for the Baseline and Monthly Update Schedules.

C. BASELINE SCHEDULE:

1. The sequence below describes the submittal and review process for the Baseline Schedule for all work:

   a. Within ten (10) calendar days after the Pre-Construction Scheduling Conference, and before work commences on any non-mobilization work activity, the Contractor shall submit a P6 CPM or MS Project schedule representing in detail, all planned submittal, procurement and on-site construction activities. A Narrative Report shall be included explaining the basis and assumptions of the planned sequence of work. A review meeting with the Contractor and appropriate subcontractors will be conducted within 10 days of the receipt of the CPM schedule. Comments will be provided within 7 days after the review meeting. This provision shall hold regardless of the commencement of counting of working days. This schedule shall be updated monthly with progress and will be used as the basis for payment. No payments beyond mobilization will be made until the Baseline Schedule is accepted.

   b. The Baseline Schedule shall be cost loaded as described in the Cost Loading Section of this specification.

   c. The District Representative shall be the judge of the acceptability of the proposed Baseline Schedule.

D. MONTHLY UPDATES:

1. Contractor’s monthly payment applications shall not be accepted and processed for payment by the District Representative without Master Baseline Schedule progress updates submitted in the time and manner required by this specification which accurately reflect the allowable costs due under the Contract Documents, and are accepted by the District Representative.

2. Following acceptance of the baseline schedule, on the last Friday of each month the Contractor shall submit a detailed Monthly Schedule of Values in pdf format from the Schedule Update generated in Oracle Primavera. This submittal is commonly known as a "pencil copy." The Data Date shall be set to the first Monday after the last Friday of the month. Two working days prior to the last Friday of the month, the Contractor will attend a Schedule Review Meeting with the District Representative to review the current schedule status, any changes or revised logic

and address any schedule issues. Contractor staff involved with the schedule are required to attend. Two working days after the last Friday of the month, the Contractor will meet and\or walk the project to finalize the schedule progress on the Monthly Schedule of Values. The Contractor will incorporate the District Representative's progress comments and resubmit the detailed Monthly Schedule Update and Schedule of Values for final acceptance by the Friday following the last Friday of the month. A narrative shall be provided describing the status of the project including major slippage or problems and if appropriate proposed corrective measures are needed.

3. The Schedule Update Submittal shall include:

   a. A detailed Gantt chart showing all activities organized by Preconstruction/Construction, Phase/Stage, Location/Area, then sorted by Actual Start then Early Start. The activity columns on the tabular data portion of the schedule shall include Activity ID, Activity Name, Original Duration, Remaining Duration in Full Work Days, Duration % Complete, Physical % Complete, Early Start, Early Finish, and Total Float. The critical path and relationship lines (logic) shall be clearly shown.

   b. A Critical Path Gantt chart showing critical activities organized by Preconstruction/Construction, Phase/Stage, Location/Area, then sorted by Early Start. The activity columns on the tabular data portion of the schedule shall include Activity ID, Activity Name, Original Duration, Remaining Duration in Full Work Days, Duration % Complete, Physical % Complete, Early Start, Early Finish, and Total Float. The critical path and relationship lines (logic) shall be clearly shown and based upon the critical and longest path

4. Revisions to durations, constraints, predecessors, successors or logic which have been accepted shall be included in the monthly update. Schedule revisions are not to be included in the monthly update until accepted by the District Representative.

E. SCHEDULE REVISIONS:

1. A Revised Schedule shall be prepared and submitted if any of the following conditions occur:

   a. A Revised Schedule shall be submitted within 10 days of the District Representative request when it is determined that the analysis and review of the schedule warrants a revision.

   b. A Revised Schedule shall be submitted within 10 days if requested by the District Representative when the completion of any milestone or Work Item is projected to be more than 10 working days later than the completion specified in the Contract plus approved time extensions.

2. If any of the above conditions occur, a revised P6 schedule showing how the lost time will be recovered to complete the project or Work Item within the specified time of completion shall be submitted for acceptance. A narrative report shall be provided with each Revised Schedule and shall detail any special problems or assumptions in the schedule and shall itemize all proposed new activities, changed durations, and changed activity constraints.

3. Upon acceptance of the revised pure logic diagram, the Contractor shall incorporate the accepted changes in the next monthly update schedule.

F. PERIODIC SCHEDULES:

1. 4-WEEK ROLLING SCHEDULE: 4-week rolling schedules shall be provided weekly which provides an accurate representation of the work performed the previous week, work planned for the current week, and work planned for the subsequent two weeks.

2. The schedule shall be produced using the latest version of Primavera P6 software and generated from the latest Monthly Schedule Update.

3. The schedule shall include activity ID number, activity description, and start and finish dates both scheduled and actual and the activity total float. Each activity shall be coded to note those activities on the critical path and which are behind schedule. The 4-week rolling schedule will be an agenda item at the Weekly Progress Meetings

4. FINAL AS-BUILT SCHEDULE: A final as-built schedule recording all activities and actual start and completion dates shall be submitted with the final progress pay estimate.

1.03 REQUIREMENTS

A. GENERAL REQUIREMENTS:

1. The following requirements shall hold for all schedule submittals and subsequent revisions.

a. SCHEDULE TYPE: The Contractor shall prepare a critical path method schedule (CPM) using either Primavera P6 version 8 or later.

b. LEVEL OF DETAIL: The schedule shall depict construction activities and sequence of work. In addition, mobilization, key submittals, key procurement, access requests, plant shutdowns, testing, demobilization, cleanup and punch list activities shall be included in the schedule. Milestone and Contract completion dates and other constraints or requirements described in the WORK RESTRICTIONS Section (01 14 00) and CONTRACT TIME Section (01 14 20) shall be shown.

c. The critical path shall be identified using both the Critical and Longest Path filters in P6.

d. Every activity, except the project start and finish milestones, shall have a minimum of one predecessor and one successor. All paths through the project schedule shall proceed in the direction representing the progression of time. Activity lags shall not have a negative value. The use of lags shall be kept to a minimum and shall be subject to acceptance by the District Representative. Lags on the critical path are not permitted. Redundant ties to preceding activities in a sequential series of activities will not be permitted.

e. ACTIVITY CONSTRAINTS: Date/time constraint(s), other than those required by the contract, will not be allowed unless accepted by the District Representative. Identify any constraints proposed and provide an explanation for the purpose of the constraint in the Narrative Report. The Contractor shall not use any manual date entries that override schedule driven dates based on duration and network logic.

f. The use of lags shall be kept to a minimum and shall be subject to acceptance by the District Representative. Lags on the critical path are not permitted. Redundant ties to preceding activities in a sequential series of activities will not be permitted.

g. Any calendar differing from the current District working day calendar and its holidays must be approved by the District Representative.

h. Any activity codes utilized must be global. The District will provide the required activity codes at the Pre-Construction Scheduling Conference along with the Activity ID prefix to be used and the file name structure being used by the District.

i. SOFTWARE SETTINGS: Schedule calculations and Out-of-Sequence progress (if applicable) shall be handled through Retained Logic, not Progress Override. All activity durations and float values will be shown in days. Activity progress will be shown using Remaining Duration. Default activity type set to "Task Dependent". User preference settings shall be set to hours with the show unit label box checked and zero decimal places. The “Durations Format” shall be set to days with the show durations label box checked, and zero decimal places

j. Activities unless otherwise approved will be “physical percent complete” type. Duration percent complete will only be used on District-related activities such as submittal reviews.

k. Duration Type shall be set to Fixed Duration and Units.

l. SUBNETS: The schedule shall be broken down into primary subnetworks equivalent to Work Items described in the WORK RESTRICTIONS Section (01 14 00).

m. ACTIVITY COST AND DURATION LIMITATION: No activity in the schedule shall have a duration greater than 10 working days. Construction activities with durations greater than 10 working days shall be subdivided.

1) Submittal, fabrication and delivery activities may have durations greater than 10 working days. Submittal review activities shall have, as a minimum, durations specified in the SUBMITTAL PROCEDURES Section (01 33 00) and requirements for acceptance of QC Plans as specified in the QUALITY CONTROL Section (01 45 00). Testing activities shall have, as a minimum, durations as specified in the COMMISSIONING Section (01 91 00). Submittal review and testing activity durations specified in calendar days shall be converted to working days before entry into the schedule.

n. Subcontractor and Vendor Involvement: The schedule shall show subcontractor work and vendor activities.

o. Non-working Days and Holidays: The schedule shall designate non-working days and holidays. Holidays are defined in the CONTRACT TIME Section (01 14 20).

B. DETAILED REQUIREMENTS:

1. All schedules shall show the sequence and inter-dependence of activities and shall indicate:

a. Milestone dates and the start and finish dates of all activity.

b. Activities for procurement, submittal review, delivery and installation of Major Equipment. Activities for products, equipment, materials and supplies which have a fabrication and delivery lead time greater than 20 working days.

c. Submission, review and approval of Access Requests involving coordination with plant operations and processes listed in the COORDINATION WITH OCCUPANTS Section (01 14 16).

d. Activities for testing described in the COMMISSIONING Section (01 91 00).

e. Days per week and shifts per day worked.

2. Every activity except the first and last activity shall have a predecessor and successor.

3. Out of sequence progress shall be resolved through retained logic not progress overrides.

C. COST LOADING:

1. The activities contained within the schedules shall be cost loaded using labor, non-labor and material resources, and they shall equal the Contract Total Price with Sub-Totals that match the Schedule of Values as described in the PROGRESS PAYMENT PROCEDURES Section (01 29 76). Contractor is required to cost load the construction schedule using price per unit. For example, the labor unit would be $ per hour; the material unit would be material cost per unit installed.
2. Procured items should be budgeted as part of separate procurement activities such that the installation activity is not statused as started when the procured material onsite and installation has begun. Refer to the PROGRESS PAYMENT PROCEDURES Section (01 29 76) for further details.

3. Overhead and profit shall be prorated evenly on all cost loaded activities.

4. Every construction activity that contains labor shall be cost loaded.

5. Fabricate and Deliver activities shall be cost loaded to cover the material costs. The Fabrication activities shall utilize a material resource.

6. Commissioning activities shall be cost loaded using a labor resource.

7. The cost loading and progress payments for any long lead procurement items will be discussed at the pre-construction scheduling conference.

8. At the Pre-Construction Scheduling Conference, the District Representative shall discuss the setup of monthly pay periods to correctly input the actual costs so they can be transferred correctly to the master schedule. This requirement has no impact on the actual ‘last Friday of the month” pay period date used by the Contractor. It’s a P6 reporting criteria. For example, the Financial Period in P6 for July must be stated as 01-Jul-14 to 31-Jul-14, regardless of the actual start and finish date of the July pay period.

9. Once the Schedule of Values is accepted with the Baseline Schedule, requests for changes to the Baseline Schedule of Values will not be approved unless approved in writing by the District Representative.

D. EVALUATION CRITERIA:

1. Schedules shall provide sufficient detail to assure adequate planning and execution of the work and to allow monitoring, inspection, evaluation and plant coordination of progress in the performance of the work. The Contractor is responsible for the

accuracy of the information contained in the schedules. The following criteria will be used to evaluate schedule submittals:

a. A schedule extending beyond the Contract Time or containing negative float will not be acceptable.

b. A schedule showing the work completed in less than the Contract Time may not be accepted.

c. A schedule which is inconsistent with the contract documents, or includes logic which is not practical or physically impossible, will not be accepted. A schedule with sequestered float will not be accepted.

d. Any schedule showing the Work completed in less time than the Contract Time or milestone durations shall be defined to have float.

1.04 ANTICIPATED WEATHER DAYS

A. "Inclement weather" is a lost workday, caused by inclement weather conditions, and is defined as a day in which the Contractor's planned workforce for a critical path activity cannot work 50 percent or more of the day on an activity on the critical path, thereby resulting in a delay to the critical path.

B. Time allowance for inclement weather:

1. Normal weather conditions shall be considered and included in the planning and scheduling of all-weather sensitive schedule activities.

2. Schedule activity duration(s) shall be formulated with allowance for normal weather conditions.

3. Any activity which could be impacted by normally anticipated inclement weather (precipitation, high or low temperature, wind, et.), or the effects thereof shall include an adjustment to include the anticipated weather impact from normal weather conditions.

4. The Contractor shall include an allowance for the average amount of inclement weather that would be expected to occur in the duration of their activities. The Contractor may use the table below as a minimum in developing the schedule.

Month	Allowance (Work Days)
January	5
February	5
March	5
April	3
May	3
June	1
July	0
August	0
September	0
October	3
November	3
December	4
Total:	32

1.05 WEATHER CALENDAR AND ACCOUNTING OF DAYS

A. The Contractor shall include a calendar for weather sensitive activities. This calendar shall be a working day calendar that includes the above stated Inclement Weather Allowance and all District holidays. The weather allowance for each month shall be shown as non-working days and spread throughout the corresponding month. The weather calendar shall be assigned to all weather sensitive activities in the schedule.

B. The accounting of weather days shall occur once monthly corresponding to the Monthly Schedule Update. The actual non-working days affecting the critical path attributable to weather shall be accounted for in the Weekly Statement of Contract Time, as prepared by the District, independent of the weather allowance. Actual weather days shall be added to the schedule monthly as a one work day schedule activities behind the data date with an actual date equal to the non-working day as reflected in the Weekly Statement of Contract Time. A monthly reconciliation will occur between the inclement weather allowance and actual weather impact, as reflected in the Weekly Statement of Contract Time. Should the Contractor meet all contract requirements for demonstrating unavoidable delay, the Contractor shall be granted a time extension for actual weather impact days, beyond the weather allowance days for the same time period, for activities on the critical path. Weather related delays shall not entitle Contractor to any additional compensation.

C. No contract time adjustment shall be made in the event that actual non-working days attributable to weather affecting the critical path DOES NOT exceed the allowance. Unused weather allowance shall become project float.

****END OF SECTION****

SECTION 01 32 33

PHOTOGRAPHIC DOCUMENTATION

PART 1 -- GENERAL

1.01 PRECONSTRUCTION PHOTOGRAPHS

A. Prior to the commencement of the work, the Contractor and the District Representative shall jointly survey the site, existing buildings and facilities, paving, and other items noting and photographing existing conditions and damage such as cracks, sags and other damage. All photographs shall be color, minimum 10 mega pixel, and taken with a camera which will automatically indicate on the front of each print the date, name of work, and the location where the photograph was taken. A minimum of 100 color photographs shall be taken by the Contractor prior to construction. Before construction may start, the photographs shall be delivered to the District's Representative in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26) and the SUBMITTAL PROCEDURES Section (01 33 00). The photographer shall be equipped to photograph either interior or exterior exposures. This record shall serve as a basis for determination of subsequent damage due to settlement, movement or due to the Contractor's operations.

1.02 CONSTRUCTION PHOTOGRAPHS

A. Starting at the date of the preconstruction photographs and continuing every month thereafter as long as the work is in progress, a minimum of 50 color photographs per month shall be taken of active work areas as directed by the District's Representative. The photographs shall be delivered within 10 days following the date taken in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

1. All USA markings shall be captured in the monthly photos as soon as marked, or prior to work in the area, and progress photos shall be labeled with the project stationing where appropriate.

2. Photograph USA markings prior to excavation as directed by the District Representative.

B. Upon acceptance of the Work, 100 color photographs shall be made of the work where directed by the District Representative. The photographer shall be equipped to take either interior or exterior exposures,

C. The photographs shall be delivered to the District's Representative within 10 days following the date taken in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

1.03 MONTHLY AERIAL PHOTOGRAPHS (DELETED)

****END OF SECTION****

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Submittals include, but are not limited to, product data, shop drawings, test procedures, test results, annotated PLC program listings, AutoCAD® generated drawings, samples, requests for substitutions, descriptive data, certificates, methods, schedules, marked contract drawings and specifications, manufacturer's installation and other instructions, and miscellaneous work related items. Submittals also include all other information as may reasonably be required, in the opinion of the District Representative, to demonstrate fully that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the contract documents. Additional submittal requirements are specified in each individual section of the specifications. Items to be submitted are specified in these individual technical specification sections.

B. All submittals will be submitted via the Project Controls System (PCS) as described in the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26). Minimum size lettering height on all submittals shall be 12 point font for text documents, 1/16 inch height for 8-1/2 by 11 inch and 11 by 17 inch documents and 1/8-inch height for documents larger than 11 by 17.

C. The review of the Contractor's drawings or other descriptive material shall not relieve the Contractor of responsibility for any error or of any obligation for accuracy of dimensions and details, for agreement and conformity with the contract drawings and specifications, or responsibility to fulfill the contract as prescribed and required by the GENERAL CONDITIONS Section (00 72 00). If errors or omissions exist in the Contractor's submittals which are not noted by the District during the District's review, it shall be the Contractor's responsibility, at no additional cost to the District, to correct the errors and omissions, to correct field conditions, and to repair any damage inflicted to new or existing equipment and other improvements as a result of the errors or omissions.

D. All submittals shall include all applicable District-assigned Equipment ID/Tag numbers on the transmittal cover.

E. Where specified, the Contractor shall furnish submittals to the District Representative for information only. An electronic version shall be transmitted to the District Representative. Designation "For Information Only" does not preclude the District

Representative from reviewing or commenting on the submittal contents as specified in this section.

F. All other submittals shall be submitted by the Contractor to the District Representative for review, comment, and approval. An electronic version shall be transmitted to the District Representative.

G. All submittal data including shop drawings will become part of the and O&M data and project records furnished under the PROJECT RECORD DOCUMENTS Section (01 78 39) and the OPERATION AND MAINTENANCE DATA Section (01 78 23). All changes or modifications during construction to original equipment submittals must be recorded and become part of the project record and O&M process as outlined in their respective sections.

1.02 DEFINITIONS

A. GENERAL:

1. The definitions of types of drawings, diagrams and other forms of submittal documents shall include the terms used in the following paragraphs. Whenever the following terms for drawings or other forms of submittal documents are used in submittal requirements, the definitions in the following paragraphs shall apply. The following set of definitions is not comprehensive. They are included to help clarify the meanings of certain terms applicable to mechanical, electrical, instrumentation and control system documents.

B. SINGLE-LINE DIAGRAMS: (DELETED)

C. ELEMENTARY OR SCHEMATIC DIAGRAM: (DELETED)

D. LOOP DIAGRAM: (DELETED)

E. CONNECTION DIAGRAM: (DELETED)

F. INTERCONNECTION DIAGRAM: (DELETED)

G. PANEL FABRICATION DRAWINGS: (DELETED)

H. ELECTRONIC ASSEMBLY DRAWINGS: (DELETED)

I. INSTRUMENT INSTALLATION DRAWINGS: (DELETED)

J. BILL OF MATERIALS:

1. Materials identified on the drawing and listed by item number, a brief description, manufacturer, model number (and/or page number), serial number (if available), and quantity used. Associated equipment numbers must be shown. The items must match the field installation and the drawing.

1.03 STANDARD COMPLIANCE

A. When materials or equipment are required to conform to the standards of organizations such as the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association (NEMA) and Underwriter's Laboratories (UL), documents showing or proving conformance shall be submitted.

B. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual sections. In lieu of the label or listing, the Contractor shall submit a certificate from an independent testing organization which is competent to perform acceptable tests and is approved by the District's Representative. The certificate shall state that the item has been tested and found to be in conformance with the specified organization's standard. For materials and equipment whose compliance with organizational standards or specifications is not regulated by an organization using its own listing or label as proof of compliance, a certificate of compliance from the manufacturer shall be submitted for approval. The certificate shall identify the manufacturer, the product and the referenced standard and shall state that the manufacturer certifies that the product conforms to all requirements of the project specification and of the referenced standards listed.

1.04 SUBMITTAL REVIEW

A. When review and comment is required of any drawing or information regarding materials and equipment, the Contractor shall post the submittal information to the Project Control System in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26). Within a reasonable time as specified in this section after receipt of said submittal, the District Representative will return electronically one copy of the submittal documents indicating one of the following four actions by item number:

1. If review and comment indicates no exceptions, copies will be returned marked "NO EXCEPTIONS TAKEN". Work may begin immediately on incorporating the material and equipment covered by the submittal into the work.

2. If review and comment indicates limited corrections are required, copies will be returned marked "MAKE CORRECTIONS NOTED". Work may begin immediately on incorporating the material and equipment covered by the submittal document into the work.

    a. If the District Representative determines that follow-up documentation needs to be submitted to demonstrate that the corrections have been incorporated, the District Representative will indicate as such in the submittal comments. The Contractor may submit the additional documentation at a later date and not delay the work.

3. If review and comment indicates insufficient or incorrect data has been submitted, copies will be returned marked "AMEND AND RESUBMIT." The Contractor is not authorized to begin incorporating the material and equipment covered by this submittal document into the work until the submittal document is revised, resubmitted and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED".

4. If review and comment indicates the material and equipment submittal is unacceptable, copies will be returned marked "REJECTED - SEE REMARKS". The Contractor is not authorized to begin incorporating the material and equipment covered by this submittal into the work until a new submittal is made, resubmitted, and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED".

B. When submittal documents are referred to in these specifications as "approved," "reviewed" or "accepted," this means that they are stamped as in case 1 or 2 above.

C. Designation of submittal documents "for information only," does not preclude the District's Representative from reviewing or commenting on the submittal contents. Information only submittals returned to the Contractor marked "AMEND AND RESUBMIT" or "REJECTED - SEE REMARKS" shall be revised and resubmitted by the Contractor.

PART 2 -- PRODUCTS

2.01 SHOP DRAWINGS

A. GENERAL:

1. Shop drawings shall include data of all forms which have been custom prepared for this project. This includes detail drawings for structural, architectural, mechanical, piping, HVAC, electrical, logic diagrams, software programs, electronic, instrumentation, control, and communication equipment, assemblies, and systems which are installed or fabricated as a part of this project. All shop drawings shall be drawn in CAD format, as specified in this section, at an approved drawing scale. Also included are drawings and data which show fabrication, layout, setting or erection details. This includes any data which is prepared by the Contractor, subcontractors, vendors, suppliers, manufacturers or their representatives, specifically for this project.

2. Shop drawings shall have drawing numbers, scale, revision date and number, Contractor name, subcontractor name, supplier name, name of detailer or engineer who prepared the document, relation to adjacent structures, materials, drawing cross references, standards references, Contractor's certification stamp, and registered engineer's stamp, if required, shown on them. Maximum sheet size shall be 22 inches

by 34 inches. Minimum sheet size for drawings shall be 11 inches by 17 inches, except as allowed by the District Representative.

B. CAD DRAWINGS:

1. All drawings shall be prepared in a CAD format, using the 2018 AutoCAD® software by Autodesk, Inc. The following drawings are specifically required in CAD format:

   a. Panel drawings including area control centers (ACC), panel fabrication, layout and point-to-point wiring (connection diagrams).

   b. Elementary diagrams (control and logic).

   c. Electronic assembly drawings.

   d. Terminal panels or terminal boxes.

   e. Interconnect drawings.

   f. Loop drawings (digital and discrete).

   g. Custom created concrete products specifically prepared for this project.

   h. Shop drawings which are specifically prepared for this project.

2. All CAD drawings shall comply with the United States National CAD Standard® (NCS). All Contractor submissions requiring CAD shall be in accordance with NCS Version 5.0, or the latest release, and the U.S. National BIM Standard (NBIMS). Additional information or clarification can be obtained from the United States National CAD Standard® (NCS) website at www.nationalcadstandard.org/ncs5. The National Institute of Building Sciences owns the copyright to the work known as the United States National CAD Standard® (NCS) and reserves all rights to said work under United States and international law.

   a. Exceptions to the NCS are as follows:

      1) All annotation shall be capitalized.

      2) All annotation shall be a minimum 1/8-inch Arial for full size drawings and a minimum 1/16-inch Arial for half size drawings.

      3) All arrowheads shall match the font size (1/8-inch) of the annotation in the drawing.

3. The Contractor shall require that the CAD drawings prepared by all subcontractors or vendors meet the requirements of these standards.

4. The Contractor shall upload the submittal drawing files (in both native and pdf format) to the Program Controls System in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26).

C. ELECTRICAL AND CONTROL DOCUMENT REQUIREMENTS:

1. GENERAL:

a. For each piece of mechanical equipment and for each process instrumentation and control loop, all applicable electrical and control documents specified herein shall be submitted as a package. If any of the electrical, control and instrumentation circuits of the subject mechanical equipment or process loop have an "interface" drawing on the "E" or "X" series contract drawings, the Contractor shall field verify the accuracy of the drawings and verify existing conditions. The "interface" drawings include the Interconnection Diagrams and Reconnection Diagrams on the "E" drawings, and the set of Interface and Demolition Diagrams on the "X" drawings. Demolition Interconnection Diagrams based on existing referenced drawings must be verified.

b. If the Contractor finds any errors or omissions on the interface drawings, they shall mark up two copies of the affected contract drawings and submit them to the District Representative for clarification. If the errors or omissions are confirmed by the District Representative, the affected contract drawings will be corrected and reissued through a contract change order.

c. The Contractor shall then prepare all detailed electrical and control documents required for the subject mechanical equipment or process loop or circuit and submit them for review. After successful completion of the review process, the Contractor shall then proceed with shop fabrication and field installation.

d. Additional electrical and control document requirements are specified in the technical specifications.

e. For each type of drawing specified in the following paragraphs, the Contractor shall submit at least two examples a minimum of 30 days prior to beginning the preparation of any additional electrical and control documents. The purpose of this sample submittal is to allow the District Representative to perform a detailed review of the Contractor's drawings for compliance with contract requirements for format, content, and level of detail. These examples shall receive a "MAKE CORRECTIONS NOTED" or "NO EXCEPTIONS TAKEN" review before the Contractor proceeds with shop drawings which include these types of drawings.

2. CUSTOM SOFTWARE DOCUMENTATION: Unless otherwise specified, custom software prepared for this project shall be specially documented in accordance with the latest edition of one of the following formats: ISA S5.1, Instrumentation Symbols and Identification; ISA S5.3, Graphic Symbols for Distributed Control/Shared Display Instrumentation, Logic, and Computer Systems; the format

and Symbols used in the contract drawings for Control and Logic Diagrams, "X-Series" drawings; or a format acceptable to and approved by the District Representative. Software documentation shall also include a complete listing of all application programs together with comments and annotations. Complete software documentation shall be submitted for all mechanical, electrical and control systems, subsystems, assemblies, parts, components, and equipment which incorporate programmable devices which are custom programmed/ configured for this project. In addition, complete annotated program listings clearly indicating logic produced by the applicable programmable device or device programming unit shall be provided along with all applicable functional diagrams. All instructions, hardware, and machine-readable media necessary to load, store, modify, and activate the associated custom software source codes and programs shall be provided. Contractor shall submit annotated program listing on electronic media as appropriate.

3. SINGLE-LINE DIAGRAMS: Single-line diagrams shall be drawn to a format similar to the single-line diagrams in the contract documents. Single-line diagrams shall be prepared for all new 480 volt switchgear. Single-line diagrams shall be submitted along with other drawings and data specified in Division 26.

4. ELEMENTARY DIAGRAMS: Unless otherwise specified, electrical elementary diagrams shall be drawn in accordance with the latest issue of Joint Industrial Council (JIC) Electrical Standards for Mass Production Equipment (EMP-1). All circuits and devices of a system shall be shown. A written description of the sequence of operation of the circuit shall be included. Elementary diagrams shall be prepared and submitted for all assemblies and systems for which elementary diagrams have not been included on the contract drawings, or where only partial elementary diagrams have been included in the contract documents. Elementary diagrams shall be prepared using the format shown in the Control and Logic Diagrams in the Example Wiring Diagrams located in the Contract Drawings following the "X-series" drawings.

5. LOOP DIAGRAMS: Loop diagrams shall be prepared in compliance with ISA-S5.4 and using the format shown in the loop diagrams in the Example Wiring Diagrams located in the Contract Drawings following the "X"-series drawings. In the event of conflict between ISA-S5.4 and the Example Wiring Diagrams, the Example Wiring Diagrams shall govern. Loop diagrams shall show circuits and devices of a system. These diagrams shall be arranged to emphasize device elements and their functions as an aid to understanding the operation of a system and maintaining or troubleshooting that system. Loop diagrams shall also show cable numbers, wire numbers, input and output signals (e.g., 4-20 mA DC, 10-50 mA DC, 1-5V DC, 3-15 psig, 6-30 psig, etc.), power and instrument air supplies to devices (e.g., 120V AC, 65V DC, 24V DC, 80 psig, etc.), signal polarity, all wire and shield terminations, and terminal block numbers in physical order. Loop diagrams shall also show all pneumatic components of instrumentation loops. Loop diagrams shall be printed on 11-inch by 17-inch sheets. Loop diagrams shall be prepared and submitted for all electric and pneumatic, analog and discrete, instrumentation monitoring, control, and

alarm circuits. Every 24 volt DC circuit shall be documented in a loop diagram. Only one circuit shall be shown on each drawing; multiple circuits on a single drawing with an application table are unacceptable. Loop diagrams will show references to the computer tie-in point with cabinet, row, column, and channel number. A list of existing tie-in points will be provided to the Contractor by the District.

6. CONNECTION DIAGRAMS: (DELETED)

7. INTERCONNECTION DIAGRAMS: (DELETED)

8. ELECTRONIC ASSEMBLY DIAGRAMS: (DELETED)

9. INSTRUMENT INSTALLATION DRAWINGS: (DELETED)

10. PANEL FABRICATION AND LAYOUT DRAWINGS: (DELETED)

2.02 MANUFACTURER'S PRODUCT DATA

A. Product data shall include data of all forms which define design, performance and function of manufactured products or materials. This includes all preprinted literature, performance specifications, drawings, instruction manuals, and data which are available from the original equipment manufacturer and/or supplier. Product data shall also include all software and firmware encoded on programmable device readable media. Specific Asset Attribute data related to the product data shall be submitted separately and is specified in the DESIGN DATA Section (01 33 16). Product data shall be

submitted for all manufactured products and material as specified in this section and in the Technical Specifications, Divisions 03 through 50.

2.03 TEST PROCEDURES AND RESULTS

A. Refer to the individual technical specifications for the submittal requirements of test procedures and results.

2.04 SAMPLES(DELETED)

2.05 MISCELLANEOUS SUBMITTALS

A. These include, but are not limited to, stormwater BMP plans and descriptions, warranties, guarantees, certifications, maintenance agreements, quality testing reports and similar information, devices and materials.

2.06 PROJECT RECORD DRAWINGS AND DATA

A. Refer to the PROJECT RECORD DOCUMENTS Section (01 78 39) for the submittal requirements of as-built drawings and data.

2.07 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Refer to the OPERATION AND MAINTENANCE DATA Section (01 78 23) for the submittal requirements of operation and maintenance instructions. Operation and maintenance instructions will not be submitted until approved equipment or material submittals are received.

2.08 BURIED UTILITIES

A. Plan and profile drawing shall be supplied for all outside underground utilities including, but not limited to, piping, electrical duct banks and cables. All plan and profile drawings

shall be submitted for as-built review in accordance with the PROJECT RECORD DOCUMENTS Section (01 78 39).

2.09 SCHEDULE

A. Refer to the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16) for submittal requirements for Schedules.

PART 3 -- EXECUTION

3.01 SUBMITTAL REQUIREMENTS

A. GENERAL:

1. Submittals shall be reviewed and coordinated by the Contractor before transmittal to the District Representative in accordance with the QUALITY CONTROL Section (01 45 00). Submittals shall be complete and fully identified by the Contractor.

B. PREPARATION:

1. Each submittal shall contain documents which are related to only one material, product or system. Normally, a separate transmittal form shall be used for each specific item or class of material, equipment or system. Exceptions may be allowed only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates checking or review of the group or "package" as a whole. The Contractor shall mark each submittal document with the submittal number, letter suffix and item number.

2. Prior to preparation of each "major submittal package," the Contractor shall arrange for an 8-hour pre-submittal meeting, to be attended by the Contractor, District's Representative, and vendor(s) of the major submittal package. The purposes of the pre-submittal meeting will be to discuss how the submittal package will be organized, content of the submittal package, anticipated schedule for submittal and review, major features of the equipment/materials and basic compliance with specified equipment/materials, and coordination needed with related equipment/material submittals. Pre-submittal meetings shall be held for the following major submittal packages:

C. TRANSMITTAL FORM:

1. The District Representative will define a submittal numbering scheme which the Contractor shall use. Items omitted, or incorrectly or ambiguously listed on the transmittal form will be deemed to be not included in the submittal. Where items listed in the transmittal by equipment number conflicts with other descriptions contained in the submittal, the listed equipment numbers shall be deemed to be the intended scope. The Contractor shall bear all costs and damages sustained to the District attributable to omitted, or incorrectly or ambiguously listed submitted items.

2. Submittals shall be transmitted by utilizing the District-furnished web based Project Controls System. Prior to the first submittal, the Contractor shall attend a submittal transmittal meeting to work out all compatibility requirements. Each transmittal shall contain the following information as a minimum:

    a. Date

    b. Submittal or re-submittal number

    c. Contract title and number

    d. Contractor's name and address

    e. List of documents being submitted, by preparer, number and version

    f. Contract documents references (including specific specification section and drawing numbers) for each submittal document

    g. EchoWater Facility system references for each submittal document

    h. Previous submittal number and item number for each submittal document

    i. Notification of deviation(s) from contract documents for each submittal document

    j. Complete list of equipment numbers and auxiliaries included with each submittal document

    k. Contractor's certification of having reviewed and coordinated the submittal

    l. Description of intended use in this contract

D. DOCUMENT IDENTIFICATION:

1. If multiple items are included within a single submittal, each separate document within the submittal shall contain the following information:

    a. Document (Item) number within this submittal

    b. Identification of product or material

    c. Manufacturer's name

    d. Equipment number

E. RESUBMITTALS:

1. Revise returned submittal documents as indicated and as required. Resubmit using the same submittal procedure as for an initial submittal. All resubmittals shall use

the previous submittal number with a letter suffix and shall refer to the previous item number.

2. Resubmittals shall address all comments from the District Representative. Partial re-submittals may be returned "REJECTED." The Contractor will be responsible for the District Representative's review costs for each re-submittal in excess of the first resubmittal. These costs will be back charged to the Contractor and will be deducted from progress payments.

3. Time extensions will not be granted for delays resulting from the necessity for the Contractor to provide resubmittals due to inaccurate, incomplete or rejected submittals.

F. COORDINATION AND SEQUENCING:

1. Review priority will be based on the schedule unless otherwise requested in writing by the Contractor. The Contractor in scheduling submittals shall submit no more than 10 per week. In the event the Contractor submits more than 10 per week, the District Representative's review time may exceed the review time outlined.

2. The Contractor shall coordinate submittals with the work so that work will not be delayed. Submittals shall be coordinated and scheduled into different categories, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed because of failure to properly schedule submittals. The Contractor shall not proceed with work related to a submittal until the submittal process is complete and the submittal document has been returned to the Contractor stamped "No Exceptions Taken" or "Make Corrections Noted."

3. All submittals, including shop drawings, shall be submitted in sufficient time to allow the District Representative not less than 30 days for review of such submittals.

4. These review periods do not include any time that the District Representative cannot proceed further with the review because of having to wait for further information of clarification from the Contractor.

5. Normally, initial submittals will be returned to the Contractor within 30 days, and resubmittals will be returned within 20 days, exclusive of any time awaiting clarification or further information, and exclusive of "major submittals" as described above. However, the time for return will necessarily vary and may exceed the time described above depending upon the complexity of the submittal, the number of submittals, and the express needs of the Contractor.

6. Submittals for material or equipment which are not specified by name, and which are being submitted as an "or equal" to that specified and submittals for material or equipment with arrangements or requirements that are different than that shown in the contract documents, will normally require 42 days for the review process.

G. CONTRACTOR'S RESPONSIBILITIES:

1. The Contractor shall review submittals before they are transmitted to the District Representative to ensure that there are no conflicts with other submittals. The Contractor shall coordinate submittals from subcontractors and suppliers to ensure that they are complete and that there are no conflicts.

2. The Contractor is responsible for errors and omissions in submittals even though the District's Representative reviews the submittal.

3. The District Representative shall be notified in writing at the time the submittal is transmitted of deviations from the requirements of the contract documents. The Contractor is responsible for correcting deviations from the contract documents even though the District Representative has reviewed the submittal, unless the deviations are clearly described in writing in the submittal transmittal form.

4. The Contractor shall be responsible for distributing submittals which have been returned with the District's Representative's action to subcontractors and suppliers. Installation shall not be started until the submittal data with the "No Exceptions Taken" or "Make Corrections Noted" stamp is in the possession of the installer.

5. No changes shall be made by the Contractor in any submittal after it has been approved. The equipment or materials provided shall not deviate from the submittal documents which are stamped with the "No Exceptions Taken" or "Make Corrections Noted" stamp in any way except with written approval by the District Representative.

6. The Contractor shall certify on each submittal document that the submittal has been reviewed, field conditions have been verified and contract documents have been complied with.

7. The Contractor may authorize a material or equipment supplier to deal directly with the District Representative with regard to such submittals; however, ultimate responsibility for the accuracy and completeness of the information contained in the submittal shall remain with the Contractor.

H. REQUESTS FOR SUBSTITUTION:

1. The Contractor may offer to substitute material or equipment if permitted by the technical specifications. The District will consider offers for substitution only from the Contractor unless the substitution/or equal submission is made pre-bid as described in the GENERAL CONDITIONS Section (00 72 00). Post-bid the District will not acknowledge or consider such offers from suppliers, distributors, manufacturers, or subcontractors.

2. The Contractor's offers of substitution shall be made in writing to the District Representative in ample time to permit review without delaying the work. Until and unless such substitutions are approved by the District Representative, no deviations

from the specifications shall be allowed. Time extensions will not be granted for requests for substitution which are subsequently denied by the District Representative. Time extensions will not be granted for substitutions which are not submitted in a timely manner. Any request for substitutions shall include sufficient data to enable the District Representative to assess the acceptability of the material or equipment for the particular application and requirements.

3. The Contractor shall submit a brief description of the proposed substitution prior to preparing a detailed submittal. The brief description shall be submitted on a Request for Substitution/Construction Incentive Change Proposal (CICP) form. Within 15 working days, the District Representative will review the proposal in concept and respond. If the District Representative accepts the concept of the substitution, the Contractor may prepare a detailed submittal conforming to the requirements of this section.

4. Any cost differential associated with a request for substitution must be negotiated with the District Representative. These costs or savings must be covered by a change order which modifies the contract documents.

I. DRAWINGS FOR MODIFIED PANELS AND OTHER CONTROL SYSTEM COMPONENTS:

1. GENERAL: Where work is in existing panels, or otherwise interfaces with existing control system components, the Contractor shall prepare new connection, interconnection, loop elementary, CSA schematic and other drawings as necessary in CAD format to show all work and shall provide required submittals. If existing drawings are available in CAD format, the District will provide CAD copies of existing drawings within 14 days of receipt of a written request, except that no more than 75 drawings per week will be provided by the District. The written request must include the drawing numbers of the drawings requested, request date, requestor's name, and any other necessary information.

2. FORMAT: Contractor's submittals of modified District provided drawings shall clearly delineate new work as shown in the Example Wiring Diagrams. New items shall be drawn with lines thicker than the existing lines, deletions shall be made by removing the item from the drawing (cross outs are not acceptable). All new work shall be outlined with a "cloud" of connected half circles. Clouds shall be drawn in pencil on the back of the drawings so that they may be easily erased by the District in the future. Entries shall be made in the revision blocks giving the date and a brief description of the revisions.

3. SIGNAL CIRCUITS: Modifications to all existing signal circuits shall be shown on existing loop drawings.

4. EQUIPMENT: For all equipment requiring modifications to existing control circuits and/or power circuits feeding the equipment, modifications shall be shown on existing interconnection drawings.

5. ACC PANELS: Modifications to existing ACC control panels shall be shown on existing panel layout drawings, connection diagrams, and CSA schematics.

6. OTHER PANELS: Modifications to all panels except ACC control panels shall be shown on existing panel layout drawings and connection diagrams.

3.02 PROPRIETARY INFORMATION

A. All of the information required herein shall be provided even though it may be considered to be proprietary. If any of the information required herein is considered to be proprietary, the District's standard proprietary agreement as found in the PROPRIETARY INFORMATION AGREEMENT Section (00 62 05) shall be executed between the District and the Contractor, prior to contract award, stipulating that all such information will be supplied by the Contractor and kept confidential by the District.

B. Not more than 90 percent of all work shall be paid for until all proprietary information has been submitted and approved. Proprietary information shall describe the final as-built work. No part of the work covered by the proprietary agreement shall be modified after proprietary submittal acceptance until after updated proprietary information has been submitted by the Contractor and accepted by the District. Updated proprietary information shall fully document all modifications to be implemented. All proprietary data shall be marked "PROPRIETARY" by the Contractor.

3.03 MANAGEMENT OF THE SUBMITTAL PROCESS

A. The Contractor shall develop with assistance of the District Representative and Design Engineer a comprehensive management plan for all submittals required for the project. The intent of the management plan shall be to provide an orderly and timely process for the submission and review of submittals. The submittal management plan shall be developed and implemented within 60 days following Notice to Proceed. The submittal management plan shall incorporate the following elements:

1. The Contractor shall submit a list of submittals which require review within the first 120 days of the project, within 10 days following the Notice to Proceed.

2. The Contractor shall develop a comprehensive Master Submittal List of all specified submittals. The list shall be serially numbered in accordance with the appropriate specification section. The list shall be developed and submitted to the District Representative for review within 21 days following the Notice to Proceed. The District Representative will conduct a meeting to review the Master Submittal List with the Contractor within 3 working days following receipt of the list.

3. The Contractor shall develop a schedule for the submission and review of all specified submittals for the project. The schedule shall be developed in accordance with the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16). The schedule shall include individual activities for submission and review (and fabrication and delivery for equipment and material) for each submittal. The

submittal schedule shall be a separate subnet of the master CPM construction schedule with each submittal activity linked to the appropriate construction activity. Every projected submittal shall be listed and incorporated into the schedule.

4. The Contractor shall meet at least once per month with the District Representative to review the status of all submittals. In addition, the Contractor shall develop and transmit monthly, a written list of the submittals which require review within the following 90 days. The list of projected submittals shall include the estimated date of submission for each submittal and a reference Master Submittal List for each item to be included in the submittal.

B. This section shall not supersede or modify any specific requirements for submittals or the submittal process described elsewhere in these specifications, but shall be a supplement to the existing requirements.

****END OF SECTION****

SECTION 01 41 26

PERMIT REQUIREMENTS

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Building, plumbing, heating, electrical and similar permits which the Contractor is required to obtain from the County or City Building Inspection Divisions for District-owned projects are fee exempt. These permits will be obtained by the District's Representative. Drainage fees, utility connection fees, and other permits and licenses unique to the project will be paid by District. The Contractor shall procure all permits and licenses necessary for the normal conduct of its business operations.

B. The California Environmental Quality Act of 1979 (CEQA) as amended may be applicable to permits, licenses and other authorizations which the Contractor must obtain from local agencies in connection with performing the Work of the Contract. The Contractor shall comply with the provisions of said statutes in obtaining such permits, licenses and other authorizations and they shall be obtained in sufficient time to prevent delays.

C. In the event the District has obtained permits, licenses or other authorizations applicable to the work in conformance with the requirements of CEQA, the Contractor shall comply with the provisions of said permits, licenses and other authorizations.

Permit	Regulatory Agency	Party Responsible for Obtaining Permit
NPDES	U.S. Environmental Protection Agency	District

D. Whenever an operation is required in which a hazardous condition exists, the Contractor shall be responsible for, and shall comply with, the Work Permit procedures specified in the EchoWater Facility Safety Manual.

1.01 PAYMENT

A. Full compensation for work involved in compliance with the requirements of this section shall be considered included in the contract unit prices paid for the various items of work involved and no additional compensation will be allowed therefore.

****END OF SECTION****

SECTION 01 51 00

TEMPORARY UTILITIES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Contractor shall be responsible for providing and maintaining the required utilities for construction facilities, such as telephone, electric, and water service necessary for use at Contractor's expense except as noted in this section.

B. Contractor shall provide temporary utilities which will enable construction processes and will accommodate other necessary activities at the site. Providing adequate temporary utilities is Contractor's responsibility, and is not limited to the minimums established by the requirements hereof.

C. The types of temporary utilities required for the project include (but are not necessarily limited to) the following:

1. Electric power;

2. Potable water;

3. Telephones;

4. Internet and computer network communications;

5. Non-potable water for construction activities.

D. The District has designated Contractor trailer, material storage laydown, and parking areas.

E. Contractor shall not use existing EchoWater Facility utilities such as air supplies (UA and SA), steam system, telephone, public address system, radio frequency, etc.

F. The following tabulation shows details of District's intent for responsibility of providing utilities:

Facility	Contractor-Supplied Utilities
Resident Engineer Office	None
Contractor and subcontractor field offices	All
Contractor and subcontractor on site storage facilities	District will supply power at existing 480 volt receptacles; Contractor to provide all others.
Construction utilities	District will supply non-potable water sources from utilities around SST's.
Contractor shop areas	All

1.02 QUALITY ASSURANCE

A. REGULATIONS:

1. Comply with governing regulations for the installation and use of general service facilities, including health and safety regulations.

B. STANDARDS:

1. Comply with Subchapter 4, CAC Title 8, Construction Safety Orders, and Subchapter 7, General Industrial Safety Orders, as applicable.

C. RESPONSIBILITIES:

1. Except as otherwise indicated, the assignment of responsibilities for installing utilities and for complying with trade regulations and union jurisdictions associated therewith, is Contractor's obligation.

1.03 SUBMITTALS

A. Submit to the District Representative for information only copies of inspection reports, certificates, permits and similar documentation required in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

1.04 SCHEDULED USES

A. Provide temporary utilities at the time first needed at the site; and maintain, expand and modify the facilities as needed throughout the construction period.

1.05 CONDITIONS OF USE

A. Operate, maintain, control and protect temporary utilities in a manner which will prevent fire, discomfort to users, flooding, interference with the construction work, and similar deleterious effects.

PART 2 -- PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. GENERAL:

1. Unless otherwise specified, Contractor may provide either new or used materials and equipment for general service facilities, which are in substantially undamaged condition and without significant deterioration and which are recognized in the construction industry by compliance with appropriate standards, as being suitable for the intended use in each application.

B. NONPOTABLE WATER:

1. Contractor may use the existing well located near the northwest corner of Sims Road and Echo Road. Use of this well will be shared with other contractors and District staff. The approximate capacity of the well pump is 1,100 gpm.

2. Contractor may also use the existing well located north of ESB-D Road and west of Sims Road. Use of this well will be shared with other contractors. The approximate capacity of the well pump is 900 gpm. Contractor shall use care when using these wells and shall follow all District operating procedures. Contractor shall notify the District’s Representative immediately if Contractor observes any issues with the wells.

PART 3 -- EXECUTION

3.01 INSTALLATION OF TEMPORARY UTILITIES

A. GENERAL:

1. Locate utilities where they will serve the total project construction work adequately, and result in minimum interference with performance of the work. Relocate, modify and extend utilities as required during the course of the work, to properly accommodate the entire work of the project. Provide a reasonably neat and uniform appearance in general service facilities, acceptable to the District Representative.

2. Except as otherwise indicated, do not plan to change over from use of temporary utilities to use of permanent facilities until time of substantial completion, or for longer periods of time as requested by District. However, it is recognized that certain utilities will need to be removed from the site at or near the time of field acceptance, and that Contractor's personnel remaining at the site beyond that time will be permitted to use certain permanent facilities, under restricted use conditions which are acceptable to the District Representative.

B. DRINKING WATER:

1. Supply drinking water for construction personnel by either water-system connected drinking fountains or by containerized tap-dispensers with paper cups, (or both), at Contractor's option.

C. ELECTRICAL POWER

1. District will provide a 480 volt power transformer. Contractor shall install a GFI breaker rated a maximum of 60 amps and install underground conduit from the manhole to each trailer provided by the Contractor.

D. SANITARY SEWER

1. No connection to sewer lines will be provided. Contractor to bring porta potties.

E. NETWORK AND TELEPHONE COMMUNICATIONS

1. Contractor will provide all necessary network and telephone communications. EchoWater Facility network or telephones shall not be used by Contractor or subcontractor personnel.

2. Post a listing of telephone numbers at each telephone location, including local police, fire department, doctor, ambulance service and similar emergency numbers as well as temporary and home offices of contractors, principal subcontractors, architects, engineers, representatives of District, and others involved with the performance of the work.

3.02 MAINTENANCE AND TERMINATIONS

A. MAINTENANCE:

1. Operate and maintain temporary utilities in good operating condition through the time of use, and until removal is authorized. Protect from damage by weather.

B. TERMINATION AND REMOVAL:

1. When the need has ended for each temporary utility, or at the time of substantial completion, promptly remove the utility unless requested by the District Representative to retain it. Complete or restore permanent work which may have been delayed or otherwise affected by the temporary utility. Replace work which cannot be satisfactorily restored.

****END OF SECTION****

SECTION 01 52 00

CONSTRUCTION FACILITIES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Contractor shall be responsible for providing and maintaining the necessary field offices, material storage and sanitary facilities necessary for use at Contractor's expense except as noted in this section. Temporary utilities for construction facilities are described in the TEMPORARY UTILITIES Section (01 51 00).

B. Contractor shall provide temporary facilities which will enable construction processes, and will accommodate other necessary activities at the site. Providing adequate general services is Contractor's responsibility, and is not limited to the minimums established by the requirements hereof. Except as otherwise indicated, the use of alternative general services equivalent to those specified is Contractor's option, subject to acceptance by the District Representative. Temporary general services exclude inspection and testing services, surveys, photographs, security provisions, protection, safety, final cleaning, start-up of systems, instructions to District personnel and other services which are recognized to be similar to the work of this section but are specified in other sections hereof, if required.

C. The types of temporary facilities and general services required for the project include (but are not necessarily limited to) the following:

1. Field offices for Contractor and subcontractor;

2. On-site storage facilities for Contractor and subcontractor;

3. Sanitary facilities;

4. Collection/disposal of waste materials; and

5. Miscellaneous general services.

D. Contractor shall not use existing plant facilities such as restrooms, lunchrooms, etc.

1.02 QUALITY ASSURANCE

A. REGULATIONS:

1. Comply with governing regulations for the installation and use of general service facilities, including health and safety regulations.

B. STANDARDS:

1. Comply with Subchapter 4, CAC Title 8, Construction Safety Orders, and Subchapter 7, General Industrial Safety Orders, as applicable.

C. RESPONSIBILITIES:

1. Except as otherwise indicated, the assignment of responsibilities for installing facilities and performing general services, and for complying with trade regulations and union jurisdictions associated therewith, is Contractor's obligation.

1.03 SUBMITTALS

A. Submit to the District Representative for information only copies of inspection reports, certificates, permits and similar documentation required or issued in connection with general services in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

1.04 SCHEDULED USES

A. Provide temporary general services at the time first needed at the site; and maintain, expand and modify the facilities as needed throughout the construction period.

1.05 CONDITIONS OF USE

A. Operate, maintain, control and protect general service facilities in a manner which will prevent fire, hazardous exposures, health problems, unsanitary conditions, pollution, contamination, discomfort to users, flooding, interference with the construction work, public nuisances and similar deleterious effects.

PART 2 -- PRODUCTS

2.01 MATERIALS AND EQUIPMENT OF GENERAL SERVICES

A. GENERAL:

1. Unless otherwise specified, Contractor may provide either new or used materials and equipment for general service facilities, which are in substantially undamaged condition and without significant deterioration and which are recognized in the

construction industry by compliance with appropriate standards, as being suitable for the intended use in each application.

B. CONSTRUCTION MATERIALS:

1. For offices, fabrication shops, storage sheds and similar construction, provide standard-manufactured prefabricated or mobile home construction insulated and weather-tight where indicated to be heated or air conditioned, or provide equivalent job-built construction. Equip each unit with locked entrances, operable windows, roofing, adequate foundations for usual loading including wind loads, serviceable finishes of the types indicated, and mechanical/electrical equipment as needed to achieve the ambient conditions indicated.

C. SELF-CONTAINED TOILET UNITS:

1. Single-occupant, self-contained units of the chemical aerated recirculation type fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material, properly vented and maintained in operation.

PART 3 -- EXECUTION

3.01 INSTALLATION OF GENERAL SERVICE FACILITIES

A. GENERAL:

1. The District has designated Contractor trailer, material storage laydown, and parking areas toas shown in the contract drawings. Parking on existing road shoulders, in District parking areas, or parking in any way that affects the District's ingress/egress shall not be acceptable. Any single Contractor trailer must not exceed 3,600 square feet.

2. Locate facilities within the designated Contractor area where they will serve the total project construction work adequately, and result in minimum interference with performance of the work. Relocate, modify and extend facilities as required within the designated area during the course of the work, to properly accommodate the entire work of the project. Provide a reasonably neat and uniform appearance in general service facilities, acceptable to the District Representative.

3. Except as otherwise indicated, do not plan to change over the use of permanent facilities of the project to replace the use of temporary general service facilities. However, it is recognized that certain general service facilities will need to be removed from the site at or near the time of field acceptance, and that Contractor's personnel remaining at the site beyond that time will be permitted to use certain permanent facilities, under restricted use conditions which are acceptable to the District Representative.

B. SANITARY FACILITIES:

1. GENERAL:

    a. Sanitary facilities include toilets, wash facilities, drinking water fixtures and food/beverage service facilities (if any). Comply with governing regulations including safety and health codes for the type, number, location, operation, and maintenance of fixtures and facilities, but provide not less than the specified requirements. Install sanitary facilities in available locations which will best serve the needs of personnel at the project site.

    b. Distribute toilets and drinking water fixtures as necessary. Plant washroom, toilet, and drinking water facilities shall not be used by Contractor or subcontractor personnel.

    c. Supply and maintain toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each sanitary facility, and provide and empty waste paper containers for used materials.

2. TOILETS: Self-contained toilet units shall be provided to the extent permitted by governing regulations.

3. DRINKING WATER FIXTURES: Supply drinking water for construction personnel by containerized tap-dispensers with paper cups.

4. SHOWERS: Contractor may provide a shower facility for which Contractor would be responsible for providing potable water and sewer connection in accordance with the TEMPORARY UTILITIES Section (01 51 00). Location of shower facility shall be approved by the District Representative, and may possibly be placed in the plant facility somewhat remote from the project site. Existing District showers may not be used by Contractor, except as approved by the District Representative for unusual situations.

C. COLLECTION AND DISPOSAL OF WASTES:

1. Establish and enforce a daily system for collecting and disposing of waste materials from construction areas and elsewhere at the project site. No waste material can be stored in tunnels or buildings, it must be disposed of daily. Do not hold collected materials at the site for periods of more than 7 days, nor for periods of more than 3 days during hot weather (when daily temperatures can be expected to rise above 80 degrees F). Handle hazardous, dangerous, unsanitary, contaminated, polluting and similar harmful wastes separately from inert materials. Store and dispose of hazardous wastes in a lawful and timely manner. Allowable mandated storage retention times may be less than the 7-day limit stated for nonhazardous wastes. Dispose of each category of waste material in a lawful manner. Do not bury or burn waste materials on District property.

D. MISCELLANEOUS GENERAL SERVICES:

1. Include whatever general services may be required, or are found to be necessary, for the accommodation of the work. The items of general service which may be needed include, but are not necessarily limited to, the installation of postal delivery service, parking spaces at the temporary offices, walkways in and around the construction area and personal protection items for employees and visitors.

3.02 OPERATIONS AND TERMINATIONS

A. SUPERVISION:

1. Enforce strict discipline in the use of general services at the project site. Limit availability of facilities to essential and intended uses, so as to minimize wastes and the possibility of abuses and the resulting unsanitary and hazardous or dangerous conditions. Do not allow temporary offices and similar temporary or permanent spaces to be used as living quarters, or for other unintended occupancies or uses.

B. JANITORIAL SERVICES:

1. Provide daily janitorial services for temporary offices, toilets, wash facilities, and similar areas at the project site. Require users of other general services to maintain clean and orderly premises.

C. MAINTENANCE:

1. Operate and maintain general services in good operating condition through the time of use, and until removal is authorized. Protect from damage by weather.

D. TERMINATION AND REMOVAL:

1. When the need has ended for each temporary general service facility, or at the time of substantial completion, promptly remove the facility unless requested by the District Representative to retain it. Complete or restore permanent work which may have been delayed or otherwise affected by the temporary facility. Replace work which cannot be satisfactorily restored. Except as otherwise indicated, the materials and equipment of temporary general services remain the property of Contractor. District reserves the right to take possession of project identification signs.

****END OF SECTION****

SECTION 01 56 00

TEMPORARY BARRIERS AND ENCLOSURES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. This section specifies minimum requirements of temporary provisions for temporary barriers and enclosures not specified elsewhere.

B. The providing of adequate security and protection is Contractor's responsibility, and is not limited to minimums established by requirements hereof. Except as otherwise indicated, use of alternative security and protection methods of facilities equivalent to those specified is Contractor's option. The work of this section is not intended to include required insurance coverage, individual provisions for safe performance of specific work, first aid requirements, general supervision, quality control, damage surveys, prequalification of construction personnel, temporary enclosure of completed work and stored materials, inspection and tests of the work, instructions to District personnel and similar recognized protection/security provisions, which may be required.

C. The types of security and protection facilities required for the project include but are not necessarily limited to the following:

1. Barricades, warning signs, lights;

2. Enclosure fence for project site and construction areas; and

3. Security enclosure and lockup of work.

D. The types of temporary barriers required for the project include:

1. Species control barriers for giant garter snake habitat to prevent the species from entering active construction areas; and

2. Environmentally Sensitive Area (ESA) fencing.

1.02 QUALITY ASSURANCE

A. REGULATIONS:

1. Comply with governing regulations for installation and operation of security and temporary barrier facilities.

B. RESPONSIBILITIES:

1. The assignment of responsibilities for security and temporary barriers such as installation, maintenance and operation, is Contractor's obligation.

C. DELIVERIES:

1. No deliveries will be accepted by the District. All deliveries shall be made to the Contractor.

1.03 JOB CONDITIONS

A. SCHEDULED USES:

1. Provide temporary barriers, security and protection at site. Maintain, expand and modify facilities as needed throughout construction period.

B. TEMPORARY USE OF PERMANENT FACILITIES:

1. The Contractor shall be required to assume responsibility for its operation, maintenance and protection prior to acceptance of the facility by the District Representative.

C. CONDITIONS OF USE:

1. Use temporary barriers, security and protection facilities and services in a safe, sanitary, lawful, and publicly acceptable manner, which will not interfere unduly with performance of the work nor result in other deleterious effect.

D. TEMPORARY FENCING:

1. Provide and maintain temporary fencing and barriers as shown on the Drawings for the duration of the contract or as directed by the District Representative.

PART 2 -- PRODUCTS

2.01 SECURITY AND PROTECTION FACILITIES

A. GENERAL:

1. Provide either new or used materials and equipment, which are in substantially undamaged and serviceable condition.

B. OPEN-MESH FENCING:

1. No. 11 gage galvanized chain link fabric 6 foot high; galvanized steel pipe posts, 1-1/2-inch line posts, 2-inch corner posts, 2-1/2-inch gate and pull posts.

2.02 GIANT GARTER SNAKE (GGS) EXCLUSION BARRIER(DELETED)

2.03 ENVIRONMENTALLY SENSITIVE AREA (ESA) FENCING(DELETED)

PART 3 -- EXECUTION

3.01 INSTALLATION OF SECURITY/PROTECTION FACILITIES

A. GENERAL:

1. Locate facilities to serve total project construction work adequately, and to result in minimum interference with performance of the work. Relocate, modify and extend facilities as required during course of the work, to properly accommodate entire work of the project. Provide and maintain a reasonably neat and uniform appearance in security and protection facilities, acceptable to District.

2. Do not plan to change over from use of temporary security and protection facilities to use of permanent facilities until time of substantial completion, or for longer periods of time as requested by District.

B. BARRICADES, WARNING SIGNS AND LIGHTS:

1. Comply with recognized standards and code requirements for erection of substantial and structurally adequate barricades where needed to prevent accidents and losses. Paint with appropriate colors, graphics and warning signs to inform personnel at site, and the general public where exposure exists, of hazard being protected. Provide lighting where appropriate and needed for recognition of facility, including flashing red lights where appropriate.

2. Provide and maintain all barricades, warning lights, signs, fences and other work for the protection and safety of the public and workers as required by the District's Representative. Contractor shall at all times have at least 50 unused barricades on site whenever excavation of any type is taking place.

3. Construction areas within the existing buildings shall be adequately signed and partitioned off so that such areas can be secured, at all times, against unauthorized entry.

C. ENCLOSURE FENCING:

1. Install temporary fencing prior to excavation, or other substantial elements of the work at the project site. Install fencing so as to exclude entrance to the site except at gates.

2. Temporary fencing shall be minimum 6'-0" high, shall be constructed of chain-link mesh with vertical and horizontal supports as required for sturdy barrier.

3. Gates in temporary fencing shall be as required for Contractor's access and facility use. All gates shall be lockable with padlocks, padlocks to be furnished by Contractor for gates. Furnish one key to the District Representative for Contractor's padlocks. Gates in temporary fencing shall be hinged and of construction which will not cause problems for District and as approved.

4. Provide fencing within the site, as required, with posts set in compacted earth/gravel mixture or temporary concrete footings.

D. SECURITY ENCLOSURE AND LOCKUP:

1. The Contractor shall be responsible for the security of all equipment, materials and work until it is accepted by the District Representative.

3.02 INSTALLATION OF ENVIRONMENTALLY SENSITIVE AREA (ESA) FENCING(DELETED)

3.03 TERMINATION AND REMOVAL

A. Maintain protection and security facilities and services in good operating condition through time of use and until completion and use of permanent work makes each temporary service unnecessary, or until District occupancy has replaced the need for service or until its discontinuation has been otherwise authorized. Remove each facility promptly after its use has been terminated. Complete or restore permanent work which may have been delayed or otherwise affected by temporary facility. Replace work which cannot be satisfactorily restored. Except as otherwise indicated, materials and equipment of temporary security and protection facilities remain the property of the Contractor.

****END OF SECTION****

SECTION 01 57 19

TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 -- GENERAL

1.01 HOUSEKEEPING

A. Throughout the construction period, Contractor shall keep the site of the work in a presentable condition, shall dispose of any surplus materials appropriately, clean out all drainage ditches and structures, and repair any fences or other property damaged during the progress of the work, to the satisfaction of the District Representative.

B. Upon completion of the work, and prior to requesting final inspection, Contractor shall thoroughly clean the site of the work of all rubbish, excess material, and equipment, and all portions of the work shall be left in a neat and orderly condition. The final inspection will not be made until this has been accomplished.

1.02 TEMPORARY DAMS

A. Except in time of emergency, earth dams are not acceptable at catch basin openings, local depressions, or elsewhere. Temporary dams of sand bags, asphaltic concrete, or other acceptable material will be permitted when necessary to protect the work, provided their use does not create a hazard or nuisance to the public. Such dams shall be removed from the site as soon as they are no longer necessary.

1.03 AIR POLLUTION CONTROL

A. Contractor shall comply with all air pollution control rules, regulations, ordinances, and statutes which apply to any work performed pursuant to the contract, including any air pollution control rules, regulations, ordinances, and statutes, specified in Section 11017 of the Government Code.

1.04 SOUND CONTROL REQUIREMENTS

A. Contractor shall comply with all local sound control and noise level rules, regulations, and ordinances which apply to any work performed pursuant to the contract.

B. Each internal combustion engine shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated without said muffler.

C. No internal combustion engine shall be operated in the tunnel system or enclosed below grade spaces or HVAC air intakes.

1.05 WATER POLLUTION AND SOIL CONTAMINATION

A. Contractor shall comply with all federal state, and local rules, regulations, ordinances, and statutes which apply to water pollution and soil contamination, including the TEMPORARY STORM WATER POLLUTION CONTROL Section (01 57 23).

B. In order to minimize the possibility of water or soil contamination due to spills of crankcase oil, gasoline and other fuels, Contractor shall designate an area for the storage and handling of lubricants, fuels and other supplies which is acceptable to the District Representative.

1.06 HAZARDOUS MATERIALS

A. Contractor shall comply with all applicable federal environmental regulations by the U.S. Environmental Protection Agency (US EPA), United States Department of Transportation (US DOT), Occupational Safety and Health Administration (OSHA), the Resource Conservation and Recovery Act (RCRA), California Code of Regulations Title 24, state environmental regulations and local environmental regulations and ordinances for hazardous waste/materials management.

B. Contractor shall develop and submit a Hazardous Material Plan (HMP) for hazardous materials anticipated during the project to the regulating authority (Sacramento County's Environmental Management Department has been designated as the Sacramento region's Certified Unified Program Agency (CUPA) by Cal EPA). A HMP is mandated when hazardous material/waste is stored in the reportable quantities:

   Liquid: 55 gallons or greater

   Solid: 500 pounds or greater

   Gas: 200 cubic feet (at standard temperature and pressure) or greater

   Note: A reportable quantity is the aggregate of all similar materials and accounts for the capacity to store. Example: 15 gallons of a hazardous waste stored in a 55 gallon container must be reported. The District will require any material meeting or exceeding the reportable quantity to be reported.

C. The Plant is in the jurisdiction of the Cosumnes Fire Department (CFD) which enforces the California Fire Code (CFC). Per CFC Section 105.6.15 a construction permit is required for installation of or modification to an LP-gas system. Section 105.5.29 states that an operational permit is required for the storage and use of LP-gas As such all contractors utilizing propane as part of their operations, regardless of the amount, shall submit plans to the fire department for review and approval.

D. Per CFC Section 105.5.18 a permit is required for the use of Class I liquids in excess of 5 gallons indoors or 10 gallons outdoors. Paints, oils, varnishes and similar liquids used for painting or maintenance and maintained for less than 30 days are exempt. Use of

Class II (diesel) or Class IIIA liquids in excess of 25 gallons indoors or 60 gallons outdoors also requires a fire department permit.

E. Use of other hazardous materials, as defined by Fire Code Appendix E, shall be approved by the fire department. Plans are submitted electronically at eplan@cosumnescsd.gov. Contractor shall contact the Cosumnes Fire Department Fire Prevention Office at 916-405-7100 for permit application(s) in a timely manner.

F. Contractor shall be responsible for ensuring that Contractor personnel including subcontractors are adequately trained and understand how to handle, store, transport and dispose of waste per this specification. Contractor shall further ensure that personnel involved in the work area are aware of the spill prevention and containment responsibilities.

G. Contractor shall comply with all Federal and State laws for employee right-to-know in association with the use and storage of hazardous substances on-site. Contractor to have on the project site the Material Safety Data Sheets (MSDS)/Safety Data Sheets for all hazardous substances stored or used on-site, readily available to employees and inspectors at all times. Contractor is responsible for the removal and disposition of all surplus chemicals (e.g., paints, lubricants, and cleaning products) that they bring onsite as part of the work.

H. Contractor shall provide immediate notice to the District Representative in the event of a spill. Any release or threatened release on land or in watercourses, regardless of quantity, shall be cleaned up immediately.

I. The Contractor shall furnish certified copies of manifests (interim storage and final disposal) within regulatory requirements. Within 180 days from the acceptance of the waste by the disposal facility, the Contractor shall provide the District Representative with the Certificate of Disposal documentation.

J. Only Contractors licensed to transport hazardous materials/waste (under EPA and US DOT) shall be permitted to transport hazardous materials/waste. Transportation of hazardous material shall be conducted in accordance with all applicable regulations for proper packaging, marking/labeling, handling, and documenting. Contractors are responsible for ensuring that personnel preparing the shipment are properly trained and that proper shipping papers accompany shipments of hazardous materials.

K. Contractor shall be responsible and fully bear costs incurred by the District as a result of violations with applicable Federal, State and local Agencies for spills, unauthorized releases, and discharge, including but not limited to penalties assessed or levied, third party claims, citizen suites, labor materials, laboratory analyses, and handling and disposal of waste. Fines shall be deducted from contract payments specified in the PROGRESS PAYMENT PROCEDURES Section (01 29 76).

1.07 PETROLEUM POLLUTION PREVENTION

A. Contractor shall comply with petroleum pollution prevention measures in accordance with the United States Environmental Protection Agency regulations contained in Title 40, Code of Federal Regulations, Part 112, the California Aboveground Petroleum Storage Act (APSA), and the California Health and Safety Code (Section 25270.4.5). Additionally, all fuel stored on site shall be stored in compliance with the Uniform Fire Code, NFPA standards, and all other applicable laws.

B. If above-ground fuel storage will exceed 55 gallons per container or 1,320 gallons aggregate, Contractor shall develop and submit a Spill Prevention, Control, and Countermeasure (SPCC) Plan as required by 40 CFR 112 Oil Pollution Prevention. The SPCC plan requirement is in addition to the requirements specified in the TEMPORARY STORM WATER POLLUTION CONTROL Section (01 57 23).

C. The SPCC plan shall be prepared and certified by a registered Professional Engineer. Maintain a certified copy of the SPCC plan on-site at all times during construction activities that is readily available to Contractor personnel, inspectors, and regulators. A copy of the SPCC and all amendments shall be submitted to the District Representative for review.

****END OF SECTION****

SECTION 01 57 23

TEMPORARY STORM WATER POLLUTION CONTROL

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. This section specifies the requirements for Stormwater Pollution Prevention which includes a Water Pollution Control Plan (WPCP) for a project resulting in less than one acre of soil disturbance, any size project fully within the EchoWater Resource Recovery Facility (EchoWater Facility) process area, or any project that is not otherwise subject to the requirements of the State Water Resources Control Board (SWRCB), Water Quality Order No. 2022-0057-DWQ, National Pollutant Discharge Elimination System (NPDES), General Permit No. CAS000002, General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) to control storm water discharges from construction and other land disturbance sites.

B. Contractor may opt to implement a more restrictive program than that which is required. The Contractor must then conform to all requirements of both the minimum applicable program and the more restrictive program.

C. Contractor will avoid and minimize permanent and temporary impacts to habitats and land cover types used by sensitive species potentially occurring in the Project Area. Avoidance and minimization of habitat areas will be accomplished during construction by implementing best management practices, including establishment of buffer zones, and implementation of a WPCP to reduce the potential for sediments or contaminants to enter sensitive habitats.

D. Contractor shall implement Best Management Practices (BMPs) including good housekeeping practices and erosion and sediment control, to prevent the direct and indirect contribution of any contaminants into the storm drain system or waters of the United States.

E. BMPs shall be implemented according to the California Stormwater Quality Association BMP Handbook – Construction (2019) BMP fact sheets. Non-structural and structural BMPs shall be acceptable to the District Representative and instituted or placed, as appropriate, before commencement of each phase of clearing, grading, excavation, trenching, or staging of materials that may be potential pollutants.

F. Furnish all labor, materials, equipment, and incidentals necessary to perform all installation, maintenance, removal, and area cleanup related to erosion and sediment control BMPs necessary to prevent the movement of sediment from the construction site

to off-site areas including roadways, surface waters, storm drains, disposal locations, and flood control facilities.

G. Contractor shall be responsible and fully bear costs incurred by the District as a result of violations under the Federal Clean Water Act, the State Porter-Cologne Water Quality Control Act, or for unauthorized release or discharge from the work including but not limited to penalties assessed or levied, third party claims, citizen suits, labor, materials, analytical analyses, and handling of waste. Fines shall be deducted from contract payments specified in the PROGRESS PAYMENT PROCEDURES Section (01 29 76).

1.02 REFERENCES

A. The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of the referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall govern.

Reference	Title
California Stormwater Quality Association (CASQA)	California Stormwater BMP Handbook – Construction 2019

1.03 SUBMITTALS

A. The following information shall be submitted for review and approval in accordance with the SUBMITTAL PROCEDURES Section (01 33 00):

1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviation.

2. The Contractor shall designate a Storm Water Pollution Prevention Coordinator. This person shall have previous experience in erosion and sediment control with similar type and size projects and shall submit a resume to the District Representative for approval. This person will be responsible for preparing and implementing the WPCP.

3. The WPCP shall be submitted to the District within 10 days of the NTP and prior to the commencement of the Work.

4. Completed inspection and maintenance reports within 3 working days of preparation.

5. Upon completion of the project, submit the complete WPCP and relevant documents and amendments to the District Representative.

PART 2 -- PRODUCTS

2.01 EROSION CONTROL MATERIAL

A. All fiber rolls, straw wattles, and/or hay bales utilized within and adjacent to the project site shall be free of non-native plant materials. Fiber rolls or erosion control mesh shall be made of loose-weave mesh that is not fused at the intersections of the weave, such as jute, or coconut (coir) fiber, or other products without welded weaves. Coconut coir matting and fiber rolls with burlap are examples of acceptable erosion control materials. Products with plastic monofilament or cross joints in the netting that are bound/stitched (such as found in straw wattles/fiber rolls and some erosion control blankets), which may cause entrapment of wildlife, shall not be allowed.

PART 3 -- EXECUTION

3.01 GENERAL

A. The Contractor shall assume responsibility for stormwater runoff management and erosion and sediment control at the project site during construction. Fully comply with all applicable state and local regulations, and requirements related to stormwater management, erosion and sediment control.

B. Prior to commencement of any land disturbing activity, the contractor shall submit the WPCP to the District Representative. No activity having the potential to cause water pollution, as determined by the District Representative, shall be performed until the District Representative has approved the WPCP and appropriate BMPs have been installed by the Contractor.

3.02 WATER POLLUTION CONTROL PLAN

A. Develop a Water Pollution Control Plan (WPCP) to identify potential pollutants associated with each phase of construction activity and non-structural and structural BMPs appropriate to each phase of the work. The WPCP shall detail the following, if applicable:

- Schedule
- Location of soil stockpiles
- Location of solid waste containers
- Vehicle and equipment fueling, servicing, cleaning and storage areas
- Material storage areas
- Chemicals, potential pollutants and hazardous materials to be used and methods for safekeeping

- Site drainage during execution of the Work
- Stabilization of vehicle access to site
- De-watering operations
- Methods for spill prevention and control
- Secondary containment
- Handling and disposal of solid waste
- Storage and dispensing of fuel and lubricants
- Clean out and disposal of ready mix concrete
- Sanitation provisions
- Disposal location for excess excavated material
- Haul Routes

B. The WPCP shall include BMPs to prevent an unauthorized release or discharge of pollutants, contaminants, chemicals, hazardous substances or materials. The BMPs will be described in both narrative form and proper placement illustrated on figures.

1. Stockpiled soil shall be stored in a clear area of the construction site where it would not have the potential to affect agricultural or biological resources. Stockpiled soil shall be covered with a tarp at all times to prevent generation of fugitive dust.

C. Maintain one copy of the WPCP and amendments at the project site. The WPCP shall be made available upon request by a representative of the Regional Water Quality Control Board (RWQCB), State Water Resources Control Board (SWRCB), United States Environmental Protection Agency (USEPA), or the local stormwater management agency. Requests by the public shall be directed to the District Representative. At completion of construction, submit the complete WPCP, amendments, inspection and maintenance records, and any other relevant documents to the District's Representative.

3.03 INSPECTIONS AND MAINTENANCE

A. Make a visual inspection of all BMPs as necessary to ensure proper operation but not less than once per week. For rain events predicted at a 50 percent (50%) chance or higher (as reported at https://www.weather.gov/sto/), inspections are to be conducted within 48 hours before. For rain events measuring 0.50 inches or greater (as reported at https://www.weather.gov/sto/), inspections are to be conducted at least every 48 hours during and within 48 hours after. If such inspection reveals that existing measures are damaged or that additional measures are needed to prevent movement of sediment to off-

site areas, promptly repair, replace or install additional devices as needed within 24 hours of notification. Sediment controls in need of maintenance shall be repaired within 24 hours of notification.

B. Maintenance of BMPs shall be per the Construction BMP Handbook. Perform routine maintenance consisting of debris removal, silt/sediment removal, clearing of vegetation around flow control devices to prevent clogging, and maintenance of healthy vegetative cover.

C. The Contractor shall be responsible for preparing and maintaining inspection and maintenance records. Inspection and maintenance reports are to be submitted to the District Representative within 3 working days.

3.04 DISPOSAL OF EXCESS EXCAVATED MATERIAL

A. Excess excavated material is defined as material from onsite excavations that are beyond the volumes necessary to meet the finish grades shown on the Contract Documents.

B. The Contractor shall be responsible for the disposal of excess excavated material.

3.05 NOTIFICATION AND REPORTING

A. The Contractor is responsible for identifying and bringing to the attention of the District's Representative all activities that may result in a non-stormwater discharge prior to commencing with such work. Any uncontrolled non-stormwater discharge shall be reported to the District Representative immediately.

3.06 REMOVAL AND FINAL CLEANUP

A. Once the site has been fully stabilized against erosion, remove sediment control devices and all accumulated silt. Dispose of silt and waste materials in proper manner.

B. Provide post-construction erosion controls, including soil stabilization, in accordance with the Contract Documents. Materials subject to degradability shall have a minimal functional longevity of 12-months.

****END OF SECTION****

SECTION 01 65 00

PRODUCT DELIVERY REQUIREMENTS

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Equipment, products and materials shall be shipped, handled, stored, maintained and installed in ways which will prevent damage to the items. Damaged items will not be permitted as part of the work except in cases of minor damage that have been satisfactorily repaired and are acceptable to the District Representative.

B. Failure of Contractor to properly store and maintain equipment and materials will result in rejection of the equipment or material or a withholding from the progress payment.

C. Deliveries to the EchoWater Facility must include the contract number and name of the project on all delivery manifests.

1.02 MATERIALS

A. Materials shall be handled, stored, and installed as recommended by the manufacturer. Pipes with paint, tape coatings, linings or the like shall be stored to protect the coating or lining from physical damage or other deterioration. Plastic pipes including PVC conduit shall be stored with UV protection until placed or installed. Pipes shipped with interior bracing shall have the bracing removed only when recommended by the pipe manufacturer.

1.03 EQUIPMENT

A. PACKAGE AND MARKING:

1. All equipment shall be protected against damage from moisture, dust, handling, or other cause during transport from manufacturer's premises to site. Each item or package shall be marked with the number unique to the specification reference covering the item.

2. Stiffeners shall be used where necessary to maintain shapes and to give rigidity. Parts of equipment shall be delivered in assembled or subassembled units where possible.

B. IDENTIFICATION:

1. Each item of equipment and valve shall have permanently affixed to it a label or tag with its equipment or valve number designated in this contract. Label or tag shall be of stainless steel. Location of label will be easily visible.

C. SHIPPING:

1. Bearing housings, vents and other types of openings shall be wrapped or otherwise sealed to prevent contamination by grit, dirt and water vapor.

2. Damage shall be corrected to conform to the requirements of the contract before the assembly is incorporated into the work. Contractor shall bear the costs arising out of dismantling, inspection, repair and reassembly.

D. FACTORY APPLIED COATINGS:

1. Unless otherwise specified, each item of equipment shall be shipped to the site of the work with the manufacturer's shop applied prime coating which is compatible with the field applied coating as specified in the PAINTING AND COATING Section (09 90 00). The prime coating shall be applied over clean dry surfaces in accordance with the coating manufacturer's recommendations. The prime coating will serve as a base for field-applied finish coats. Electrical equipment and materials shall be painted by manufacturer as specified in the PAINTING AND COATING Section (09 90 00).

E. STORAGE:

1. During the interval between the delivery of equipment to the site and installation, all equipment, unless otherwise specified, shall be stored in an enclosed space affording protection from weather, dust and mechanical damage and providing favorable temperature, humidity and ventilation conditions to ensure against equipment deterioration. Manufacturer's recommendations shall be adhered to in addition to these requirements.

2. Equipment and materials to be located outdoors may be stored outdoors if protected against moisture condensation. Equipment shall be stored at least 6 inches above ground. Temporary power shall be provided to energize space heaters or other heat sources for control of moisture condensation. Space heaters or other heat sources shall be energized without disturbing the sealed enclosure.

F. PROTECTION OF EQUIPMENT AFTER INSTALLATION:

1. After installation, all equipment shall be protected from damage from, including but not limited to, dust, abrasive particles, debris and dirt generated by the placement, chipping, sandblasting, cutting, finishing and grinding of new or existing concrete, terrazzo and metal; and from the fumes, particulate matter, and splatter from welding,

brazing and painting of new or existing piping and equipment. As a minimum, vacuum cleaning, blowers with filters, protective shieldings, and other dust suppression methods will be required at all times to adequately protect all equipment. The protection of equipment shall also apply to disassembled equipment. During concreting, including finishing, all equipment that may be affected by cement dust must be completely covered. During painting operations, all equipment nameplates, grease fittings, and similar openings shall be covered to prevent the entry of paint. Electrical switchgear, unit substation, and motor load centers shall not be installed until after all concrete work and sandblasting in those areas have been completed and accepted and the ventilation systems installed.

G. PREVENTIVE MAINTENANCE:

1. All equipment in storage and during and after installation shall be maintained by qualified Contractor personnel. Contractor shall set up a preventive maintenance program for all equipment. This program shall include as a minimum all manufacturer's recommendations and operation and maintenance manual requirements for the preventive maintenance of each piece of equipment including environmental, lubrication and rotation procedures. Record sheets of the preventive maintenance program shall be submitted to the District Representative monthly in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

1.04 SUBMITTALS

A. Prior to equipment delivery, Contractor shall submit pre and post installation preventive maintenance (PM) instructions recommended by the manufacturers for Major Equipment. Contractor shall conduct an ongoing monthly PM program during construction on all Major Equipment and any minor equipment requiring PM per the manufacturer's recommendations. The PM program shall be witnessed by the District Representative. Contractor shall monthly submit information in accordance with the SUBMITTAL PROCEDURES Section (01 33 00) on the status of all equipment in the PM program. Failure of Contractor to properly maintain the equipment shall result in rejection of the equipment or a withholding from the progress payment.

****END OF SECTION****

SECTION 01 73 33

RESTORATION OF IMPROVEMENTS

PART 1 -- GENERAL

1.01 STRUCTURES

A. Contractor shall remove existing facilities, including curbs, gutters, pipelines and utilities, as may be necessary for the work and shall replace the structures as good a condition as found. Existing facilities which may be damaged as a result of the work shall be repaired and restored.

1.02 ROADS

A. Unless otherwise specified, roads in which the surface is removed, broken, or damaged, or in which the ground has caved or settled shall be restored to the original grade and section. Roads used by Contractor shall be cleaned and repaired. Before pavement is placed, edges of pavements shall be sawcut to provide clean, solid, vertical faces, and shall be free of loose material. Repair work shall conform to the paving specifications.

1.03 CULTIVATED AREAS AND OTHER SURFACE IMPROVEMENTS

A. Cultivated or planted areas and other improvements which are damaged by Contractor shall be restored as nearly as possible to their original condition.

B. Existing guard posts, barricades, fences, and signs shall be protected and replaced if damaged.

1.04 RAILROAD TRACKS

A. Damage to railroad tracks, gates, switches or other equipment shall be repaired or replaced to the satisfaction of Union Pacific Railroad. Contractor shall document the existing condition before beginning work.

1.05 PROTECTION OF EXISTING INSTALLATIONS

A. Contractor shall immediately correct or replace existing equipment, controls or systems which are damaged.

1.06 REMOVAL OF EXISTING PIPING AND EQUIPMENT

A. Material designated as salvage shall be flushed and stored on pallets at the plant site as directed by the District Representative. All other piping, equipment, fixtures, conduit, wiring and other appurtenances not specified or indicated to be salvaged shall become

the property of Contractor and shall be removed from the site and properly disposed of at the expense of Contractor.

1.07 MODIFICATION OF STRUCTURES

A. Contractor shall alter or rework existing concrete structures as shown and specified. Generally, when items of equipment and piping are removed, the areas and surfaces from which items were removed shall be left with a neat appearance and finish compatible with surrounding areas, colors and surfaces. Holes and pipe and conduit penetrations in walls and slabs shall be filled with grout. Contractor shall do all painting, sanding, grouting, sacking, resurfacing, and other work as necessary. Prior to structural modifications, all surfaces shall be inspected by the District Representative. Colors shall match existing.

B. Contractor shall take care when handling materials to prevent dropping them into an operating tank, channel, conduit, pipeline or the like. Contractor shall notify the District Representative immediately if anything is added to any tank, channel, conduit, or pipeline.

1.08 CONNECTIONS TO HYDRAULIC STRUCTURES

A. Connections to existing hydraulic structures, for the purpose of transferring flow to completed portions of the work, shall be as specified.

****END OF SECTION****

SECTION 01 74 23

FINAL CLEANING

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. As a condition precedent to final acceptance or release of a structure, space or process unit for use by District, Contractor shall thoroughly clean all floors, ceilings, roofs, walls, woodwork, counters, sinks, fixtures and windows to leave same in first-class condition.

B. All pits and sumps shall be cleared of silt, sand, debris and construction materials. Ductwork, air intakes, and exhaust grilles shall be inspected and cleared of extraneous dust and material. All filters shall be replaced or cleaned to like new condition. All grounds shall be cleared of all debris and reseeded and restored to its original condition. Finish floors shall be thoroughly cleaned, sealed and given a final coat of wax. Blinds, all furniture and cabinets shall be dusted. Replace all burned out lamps.

C. Contractor shall not proceed with this work until authorized in writing by the District Representative.

****END OF SECTION****

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 -- GENERAL

1.01 WORK DESCRIPTION

A. The work consists of providing equipment operation and maintenance (O&M) data in conformance with the requirements of this specification.

B. The Contractor shall submit O&M data after the subject equipment or material submittal has been approved. The O&M data submittal will be returned if it is included with the equipment or material submittal.

C. O&M data submittals shall be prepared and submitted in accordance with this specification and the SUBMITTAL PROCEDURES Section (01 33 00).

1.02 PAYMENT

A. Payment for any system, equipment, or material for which O&M data are required shall be as specified in the PROGRESS PAYMENT PROCEDURES Section (01 29 76).

PART 2 -- PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Each document in the O&M data shall include the Equipment Tag Number/Location ID and associated auxiliary Equipment Tag Number that it represents.

B. The manufacturer's standard documents shall be neatly marked with arrows or boxes to indicate the specific information that is applicable to the equipment, assembly, subassembly, or material supplied.

1. Non applicable items shall be crossed out.

2. Highlighting is not acceptable.

C. All O&M data materials shall be made from either original materials or a first generation photocopy. Original materials shall be published literature or computer printouts with resolution of at least 600 dots per inch (dpi). Photo copies, scanned copies, and FAX transmittals are not acceptable.

D. O&M data shall be organized into one electronic document bookmarked using an Adobe Acrobat PDF format and submitted to the project controls website in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

E. The District reserves the right to be the sole authority on quality and legibility of O&M data materials.

F. The District reserves the right to delay commissioning if the O&M data submittals are incomplete, inaccurate, or otherwise unsuitable for use by the District's O&M staff. No contract extensions or extra costs will be allowed for delays in commissioning due to O&M data submittal delays.

2.02 SUBMITTALS

A. The following information shall be submitted for review in accordance with the SUBMITTAL PROCEDURES Section (01 33 00):

1. A copy of this specification section (with addenda updates) with each paragraph check marked to show specification compliance or marked to show deviations.

   a. Mark "NA" for requirements that do not apply, and if the submittal does not conform to a requirement, explain the exception.

   b. A check mark shall denote full compliance with a paragraph as a whole.

   c. If deviations from the specification are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph referenced to a detailed written explanation for requesting the deviation.

   d. The District shall be the final authority for determining acceptability of requested deviations.

   e. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specification.

   f. Failure to include a copy of the marked-up specification section, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

B. DELIVERABLES

1. EQUIPMENT SUBMITTAL

   a. Initial shop drawing equipment submittals for individual pieces of equipment should contain adequate storage, installation, operation, and maintenance information from the manufacturer. This information must be sufficient to allow the District to confirm compliance with the manufacturer's recommendations during the storage, installation, and initial startup and testing of the equipment. Such O&M data information in initial equipment submittals will be checked only to verify that the appropriate documents for these purposes are provided. The O&M data submittals required below are in

addition to the initial equipment submittal, even though it contained O&M information. Furthermore, the O&M data submittal requires that approved equipment submittal information be incorporated.

2. O&M DATA DRAFT SUBMITTAL

   a. Within 30 calendar days after the completion of each vendor's training session(s), the draft O&M manual shall be submitted electronically to the Project Control System (PCS) in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26). The O&M data draft submittal shall reflect the resolution of all comments from the training sessions, and from any completed testing and commissioning. District review will be completed within 30 calendar days after receipt of each draft submittal.

3. O&M DATA FINAL SUBMITTAL

   a. Within 21 calendar days after substantial completion, the District will notify the Contractor of deficiencies in the draft submittal. The Contractor shall revise and replace, remove, or add documents to correct any such deficiencies. Such revisions will include whatever changes are necessary to reflect "as-built" conditions, such as instrument settings, field changes of panels, electrical equipment, etc. Such revisions shall include resolution of any comments from commissioning and follow up training sessions. Submission of the O&M data final submittal shall be submitted and District approved prior to Field Acceptance. The District shall be allowed a review period of 14 calendar days after receipt of each final submittal.

   b. Deficiencies corrected in paper copies may be made piecemeal in all District copies by the Contractor, or complete sets may be returned one at a time for corrections, at the Contractor's option. Electronic versions of the O&M data shall be corrected by submitting the document, in its entirety, to the project controls website.

   c. Standard "off the shelf" vendor O&M manuals that are NOT customized for the project will not require a draft submittal and may be submitted as a final O&M manual in accordance with the minimum general requirements set forth in Paragraph 2.01 of this section.

PART 3 -- EXECUTION

3.01 O&M DATA REQUIREMENTS

A. GENERAL:

1. Standard "off the shelf" manuals may be submitted as received from the vendor and will only require a Cover Sheet as described below as they are assumed to generally conform to the information described below and meet the minimum

general requirements in Paragraph 2.01 above. The remaining specific requirements in subsequent paragraphs pertain to manuals that are custom-created for the project equipment.

B. COVER SHEET:

1. The cover sheet shall show a functional title of the system, equipment or material; list of the Equipment Tag Number(s), including all associated auxiliary Equipment Tag Number(s), and corresponding functional description(s); revision date; and specification reference.

C. TABLE OF CONTENTS:

1. The table of contents shall give a detailed description of what is in each tab, including applicable Equipment Tag Number.

D. WARRANTIES & GUARANTEES:

1. A copy of the manufacturer's warranty and/or guarantee certificate shall be provided with the O&M data. The original certificate shall separately accompany the O&M data.

2. List and explain the various warranties and include the servicing and technical precautions prescribed by the manufacturers or contract documents to keep warranties in force. Where warranty is conditional on the manufacturer's approval of the installer, submit the manufacturer's approval of the installing firm.

E. TECHNICAL DATA:

1. Manufacturer's technical specification and engineering data sheets for each component, part, device and auxiliary equipment which make up the equipment or assembly shall be supplied. Include the manufacture's vibration, temperature, and sound data when specified in the technical specifications. All documents contained in this section shall provide a table of contents of the documents, referencing Equip. Tag No., the manufacturer's name, model numbers, and product numbers. Each document shall be cross-referenced to the items, components and parts described above. Label all documents with appropriate Equip. Tag No.

2. Certified performance curve(s) marked to show the operating conditions specified in the technical specification section.

3. Provide protective device settings and safety information.

F. STANDARD O&M MANUAL

1. The O&M manuals must explain and illustrate clearly and simply the principles and theory of operation, operating instructions, and preventive and corrective maintenance precautions and procedures to be followed. The O&M manuals and appurtenant materials shall be written entirely in English and all dimensions shall

be in English units. The manuals shall include the following information, as applicable:

a. OPERATING INSTRUCTIONS:

Specific instructions, procedures, and illustrations shall be provided for the following:

1) SAFETY PRECAUTIONS: List personnel hazards for equipment and list safety precautions for all operating conditions/modes.

2) INSTALLATION AND PRE-OPERATIONAL CHECKOUTS: Provide recommendations and checklists for installation, adjustment, calibration, and troubleshooting to prepare each equipment/system for operation.

3) START-UP, SHUTDOWN, AND POSTSHUTDOWN PROCEDURES: Provide step-by-step equipment-specific procedures for each of these operations.

4) NORMAL OPERATIONS: Provide control diagrams with data and step-by-step procedures to explain operation and control of systems and specific equipment.

5) EMERGENCY OPERATIONS: Provide emergency procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Include emergency shutdown instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance on emergency operations of all utility systems including valve locations and portions of systems controlled.

6) ENVIRONMENTAL CONDITIONS: Provide a list of environmental conditions (temperature, humidity, dust, indoor/outdoor, and other relevant data) which are best suited for each product or piece of equipment and describe conditions under which equipment should not be allowed to run due to applicable industry and regulatory standards and codes.

b. PREVENTIVE MAINTENANCE (PM):

The following information shall be provided for PM:

1) LUBRICATION DATA: Provide the following:

- Manufacturer’s recommended lubrication schedules showing service interval and frequency;

- Diagrams illustrating equipment lubrication points;

- A table identifying recommended types and grades of lubricants for specific temperature ranges and applications; and

- A table identifying equipment lubrication capacities and an estimate of yearly lubricant quantities required for all equipment supplied.

2) PM PLAN AND SCHEDULE: Provide the following in a tabular format for each PM:

- The manufacturer's recommended preventative maintenance task;

- Recommended steps or procedures to complete the PM;

- Recommended scheduled interval and frequency for performing the PM;

- The craft responsible and the person's skill level for performing the PM (i.e., operator, mechanic, electrician, or control systems technician);

- The estimated amount of labor required to perform the PM;

- Required materials or parts; and identify the equipment's energy source(s) (i.e., water, heat, light, electrical, etc.).

c. CORRECTIVE MAINTENANCE:

Manufacturer's recommendations shall be provided on procedures and instructions for correcting problems and making repairs.

1) TROUBLESHOOTING GUIDES AND DIAGNOSTIC TECHNIQUES: Provide step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or requires replacement.

2) MAINTENANCE AND REPAIR PROCEDURES: Provide instructions and a list of specialized tools required to restore product or equipment to proper conditions or operating standards. Include the specialized tool's part number and/or detailed fabrication drawing.

3) REMOVAL AND REPLACEMENT INSTRUCTIONS: Provide step-by-step procedures and a list with part numbers and/or fabrication drawings for all required specialized tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide safety precautions, recommended tolerances, dimensions, settings, critical bolt torques, and

adjustments required. Instructions shall include a combination of text and illustrations.

4) PARTS LIST: Provide a complete list of components and parts which make up the equipment or assembly. All parts and components listed shall be identified using arrows or boxes by the original manufacturer's name, part number, and a purchase order number. Enough information shall be provided to allow purchasing of parts from any supplier who may stock them. If listed components or parts are themselves repairable and made up of components and parts, parts lists shall be provided for them to all repairable levels. The parts list shall have the generic title, identification number, and material of construction of each component part of equipment. Include the bearing manufacturer for every bearing.

5) DRAWING: Disassembly and assembly drawings in Adobe PDF format shall be provided which identify and cross reference all components and parts listed in the parts lists. Exploded or cut views of equipment shall be provided if available as a standard item of the manufacturer's information. When exploded or cut views are not available, plan and section views shall be provided as a minimum.

6) SPARE PARTS AND SUPPLY LISTS: Provide recommended list of spare parts (with quantities) and supplies required for maintenance and repair to ensure continued service or operation without unreasonably delays. Included with the list shall be any special storage precautions. In addition, list spare parts and supplies that have a long lead time to obtain (provide estimated lead time). If no spare parts are recommended by the manufacturer, provide a statement to that effect. Spare parts data shall be provided in a table as shown in Attachment A and is available upon request.

7) PARTS SUPPLIER LIST: Provide the manufacturer’s or supplier’s name, address, and telephone number of the nearest supplier and spare parts warehouse for all parts. Each part’s purchase order number shall also be provided.

8) SPECIAL TOOLS LIST: Provide recommended special tools, including description and use, for all equipment supplied. Special tools are defined as needed tools that are not generally commercially available except from the manufacturer.

G. SHOP/REPAIR MANUAL

1. Provide a Shop or Repair Manual written by the manufacturer specifically for the equipment or assembly. The manual shall include additional troubleshooting tips, routine maintenance hints, and specific repair information not found in a standard O&M manual, includes references to specialized tools and other information uniquely known by the manufacturer.

H. SUPPLEMENTAL DRAWINGS AND INSTRUCTIONS

1. Drawings shall be provided which completely document the equipment, assembly, subassembly or material. As applicable and at a minimum, the following drawings shall be provided:

    a. Fabrication details

    b. Shop and vendor drawings

    c. Layout and dimension drawings

    d. Piping schematics for all equipment supplied

    e. Installation drawings

    f. Electrical equipment:

        1) Schematics for all electrical equipment supplied

        2) Electrical component fabrication drawings

        3) Panel fabrication layout drawings with Bill of Materials

        4) Panel schedules

        5) Elevations and cross-sections

        6) One-line and three-line diagrams

        7) Wiring and connection diagrams

        8) Interconnection diagrams from approved shop drawings and vendor's documentation

    g. Instrumentation and Controls:

        1) Panel elevations

        2) Panel fabrication layout drawings with Bill of Materials

        3) Wiring diagrams for control panels

        4) Internal and external connection wiring diagrams

        5) Connections between existing systems and new additions

        6) Block and logic diagrams

        7) Ladder logic for computer based systems

8) Drawings shall have adjustments such as calibrations and set points for relays, and control or alarm contact settings

9) Contractor-set manual set points and any Contractor provided programming that resides locally and not in the District's PCCS

10) Loop drawings

11) Interconnection diagrams from approved shop drawings and vendor's documentation

I. SUBMITTAL DATA

1. This section includes approved shop drawings submittal information such as catalog cuts, sales brochures, supplemental drawings, product data, equipment data, system data, or material data not already contained in other sections of the O&M data submittal. Approved shop drawings not related to the operation or maintenance of equipment or processes shall not be included.

****END OF SECTION****

ATTACHMENT A

SPARE PARTS RECORD

SPARE PARTS AND INTERCHANGEABILITY RECORD

P/O No.
P/O Disc.
Equipment Disc.
Sub Supplier

								MANUFACTURERS' / SUPPLIERS' DATA								
Equipment Tag No.						Total Qty.	Supplier's Rec Qty.	Description of Parts	Drawing No.	Drawing Item No.	Manufacturer's Name	Part No.	Supplier's Part No.	Material Specification	Unit Price	Delivery Lead Time Weeks
Manufacturers Model of Type																
Manufacturers Serial Number																
No. of Units																
NUMBER OF PARTS PER UNIT (CONTINUED ON SHEET 2 IF NECESSARY																

PROJECT: CATS TERMINAL PROJECT	PRIME SUPPLIER:	Rev
	ADDRESS:	Date
	TEL:	Sign
COMPANY: AMOCO (UK) EXPLORATION COMPANY	FAX:	Sheet No. of

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Project record documents (commonly known as "as-builts") shall show the actual as-constructed conditions of installed or modified systems, equipment and material at the time of field acceptance of the related portions of work. The purpose of as-built documents is to provide accurate information for the future modification, expansion, operation and maintenance of the plant.

B. The project record documents are especially important for recording field conditions of embedded or concealed material and equipment. These embedded or concealed items shall include, but are not limited to, buried structures, thrust restraints, backfill material, piping, cables and raceways.

C. Work related to Field Instructions (FI), Contract Change Orders (CCO), Clarifications or other agreements between Contractor and the District Representative shall be considered part of the project record process. Contractor shall record conditions and/or changes relating to this work on the project record documents.

D. Project record documents shall clearly be shown as part of the CPM activity schedule.

E. Divisions 1 through 50 may contain additional project record document requirements which shall be met in accordance with the requirements of this section.

1.02 VALUES

A. Project record documents shall have a value of not less than one percent (1%) of the contract value. For additional work, the project record document value shall be determined by Field Instructions or Change Orders as outlined in the GENERAL CONDITIONS Section (00 72 00) of this contract. Project record documents for additional work shall meet all conditions of this section.

B. The value of project record documents as specified in the PROGRESS PAYMENT PROCEDURES Section (01 29 76) shall be distributed in the following categories with an associated drawing weight:

No.	Project Record Categories	Drawing Weight
1.	All other contract drawings.	1

C. The sum of the total number of approved drawings multiplied by the assigned weight, divided by the sum of the total number of drawings multiplied by the assigned weight will provide the weighted percent complete for as-built drawings. The weighted percent complete will be used to determine progress payments for project record drawings.

PART 2 -- PRODUCTS

2.01 DISTRICT-SUPPLIED DRAWINGS AND CONTRACT DOCUMENTS

A. The following District-supplied drawings, contract documents, and AutoCAD files are to be submitted in as-built condition for review by the District Representative:

1. Contract drawings and specification schedules.

2. Contract supplemental drawings, existing plant drawings, schedules affected by the work of this contract. These drawings and documents cover electrical distribution systems, electrical control panels, instrumentation panels, control panels, Area Control Centers (ACC), telephone systems, intercom systems, the sound powered telephone system, Process Control Centers (PCC), and terminal panels.

3. Drawings, agreements, tabulations, and schedules supplied by District as a result of Requests for Information (RFIs), Field Instructions (FIs), and Change Orders (COs).

2.02 CONTRACTOR-SUPPLIED DRAWINGS AND OTHER DOCUMENTS

A. The following Contractor supplied drawings, other contract documents, and AutoCAD files shall be submitted in project record condition for review by the District Representative:

1. Shop drawings generated by Contractor, sub-contractors, vendors or suppliers as defined in the SUBMITTAL PROCEDURES Section (01 33 00).

2. Programmable logic controllers (PLC) and analog controller program documentation with control and logic diagrams which have been submitted for construction.

3. Operation and maintenance manual documents, drawings, and schedules supplied by Contractor, subcontractors, vendors, or suppliers.

PART 3 -- EXECUTION

3.01 GENERAL

A. Contractor immediately upon setting up the job site field office shall set up a designated area for project record keeping. An accurate neatly marked complete set of full-size contract drawings, documents and shop drawings (including specifications and schedules) shall be designated as the as-built record set.

B. Contractor shall immediately start recording project record information upon doing any work.

C. Contractor shall keep those documents current with changes reflecting as-built status as construction proceeds.

D. Although some drawings are considered diagrammatic with respect to placement of conduit, piping, etc., Contractor must closely follow the routing shown. If there are deviations, Contractor must show the as-built conditions as work progresses and provide all changes to the project record documents with dimensions as outlined below:

1. Buried or embedded items within buildings, tunnels and other structures including but not limited to, piping, thrust restraints, electrical raceways, cables, duct banks, or other related appurtenances, in or under concrete, asphalt or soil, which are not placed as shown on the drawings, shall show as-built dimensions horizontally and vertically from a wall, formed footing, finish floor, ceiling or finish top of curb. Items placed in the center of concrete slabs do not need to have vertical dimensions.

2. All buried or embedded items as described above which are outside of buildings shall be tied to the plant survey grid system both horizontally and vertically with proper stationing, invert elevations and/or top of buried item. Survey data shall show all transition points (changes in direction, change in elevation, etc.). All items which are installed by horizontal or vertical curves shall show as-built curve data.

3.02 PROJECT RECORD KEEPING

A. All project record documents shall be marked-up copies, with erasable colored pencils using the following color coding:

1. Red - Additions including notes and dimensions.

2. Green - Deletions (By hash marks or appropriate lines through the deletion.)

3. Graphite - General comments and notes used by Contractor or District's Representative and not required on the as-built.

4. Yellow - Work completed as shown and used by District's Representative in field review of the as-built, during the submittal phase.

5. Blue - District's Representative's office verification and notes required to be added and noted by District's Representative in review of the as-built, during submittal phase.

B. All work shall be neatly organized and legible using the same standards and symbols as the original drawing.

3.03 MAINTAINING PROJECT RECORD DOCUMENTS

A. Contractor shall maintain a neatly marked full size set of project record documents. All District-supplied documents shall have shop drawing references clearly marked with clouds around the areas which are detailed on the shop drawing. Shop drawings referenced to other associated shop drawings shall have drawing references clearly marked with clouds around the area representing the shop drawing.

B. Abbreviation of the drawing Originator (Contractor, subcontractors, vendors or suppliers) referenced on the contract documents is unacceptable.

C. In areas where detail does not permit showing as-built conditions clearly on contract drawings but a shop drawing depicts actual as-built condition of the area, a cloud with shop drawing reference may be accepted at the District Representative's discretion. Otherwise all as-built conditions shall be shown on the contract drawings.

D. The project record documents and one copy of all approved shop drawings and one copy of the approved O&M instructions (per the OPERATION AND MAINTENANCE Data Section [01 78 23]) shall be kept in a central location on the job site providing access for all associated with the contract, for updating of as-built information and for review during normal business hours.

E. The project record documents shall be kept current using the mark-up procedures described herein. These documents shall be available for inspection by the District Representative at all times.

F. If project record documents are not kept current based upon weekly review by the District Representative, the current progress payment shall be limited as specified in the PROGRESS PAYMENT PROCEDURES Section (01 29 76).

3.04 PROJECT RECORD SUBMITTAL PROCESS

A. GENERAL:

1. All project record documents shall be submitted electronically in accordance with the SUBMITTAL PROCEDURES Section (01 33 00) and the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26).

2. Project record documents shall be submitted showing the as-built conditions within 30 working days after completion of Clean Water Commissioning of an area or subsystem. Project record documents shall be completed and submitted prior to Substantial completion of each area or subsystem. Contractor shall compare all as-built documents with the actual field conditions and show the actual field conditions on the as-built documents before submitting them for review.

3. Project record submittals shall be rejected without any part being reviewed for any of the following reasons:

    a. Work has not been completed, including work related to Field Instructions, Change Orders, clarifications, or other agreements pending.

    b. Not all components and equipment have been properly labeled on the drawings. All equipment numbers (device and equipment number labeling codes) shall be shown on all drawings depicting the equipment. Equipment numbers must be coordinated with the plans and drawings and shown on all District-supplied and all contractor supplied drawings that depict equipment. The Contractor shall request equipment numbers from the District for all new equipment installed.

    c. Actual field conditions are not substantially shown on the documents.

    d. Drawing cross references are incomplete. District supplied drawings must be cross referenced to Contractor-supplied drawings and Contractor-supplied drawings must be cross referenced back to the District-supplied drawings.

B. PROJECT RECORD GROUPS AND SYSTEMS:

1. All project record documents shall be submitted together in the following logical groups or systems:

    a. All site drawings including survey data and data related to an area.

    b. All mechanical and piping related to an area, or by piping system. Process and Piping Schematics shall be submitted with the mechanical and piping package.

    c. All structural and architectural data related to an area.

    d. All electrical and instrumentation data related to an area, including Interconnection and Instrument Loop Drawings, together with all associated shop drawings and connection drawings; all related drawings found in the O&M manuals; process and Instrumentation diagrams.

C. PRELIMINARY REVIEW PROCESS:

1. In order to minimize the number of re-submittals, the following procedure shall be used:

a. Upon assembly of a project record submittal, Contractor shall notify the District Representative that the submittal is ready for review. Prior to review, a list of project record documents with all drawing numbers, descriptions and originators listed shall be submitted to District's Representative for review. The District Representative will review the list of project record documents and meet with Contractor to review the submittal for completeness and accuracy. Contractor may be required to add or subtract some documents as directed by the District Representative to ensure a complete and reviewable package.

b. Some drawings may show work in several areas or systems. When this occurs, the list shall indicate this type of drawing. The area on this type of drawing which is to be reviewed as part of this submittal shall be clearly outlined by Contractor.

c. Documents that represent more than one area of work must be submitted for each area of work it represents and must receive approval for each area of work.

d. After the preliminary review, Contractor shall submit the as-built package with the necessary corrections for as-built review.

D. PROJECT RECORD SUBMITTALS FOR REVIEW AND COMMENTS

1. Contractor shall submit the original full size markups, one (1) set of full size copies of all District-supplied documents and two (2) sets of Contractor-supplied as-built record documents for each submittal or re-submittal as outlined in this section. One (1) set of Contractor supplied as-built documents shall be returned after each submittal review.

2. Contractor shall correct the original hard copy drawings and AutoCAD drawings once the District Representative has returned the marked up Contractor supplied documents "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED". Contractor shall then supply the mark-ups, and the AutoCAD drawing files electronically as part of the resubmittal package, along with a hard copy of the drawing files.

E. DOCUMENT IDENTIFICATION:

1. Each separately bound document within a submittal shall have the following information shown on it:

a. Submittal number.

b. Document item number within this submittal.

c. Identification of product or material.

d. Manufacturer's name.

F. COORDINATION AND SEQUENCE:

1. Contractor shall coordinate the submittals with the work as outlined in this section. No extension of time will be allowed because of failure to properly schedule as-built submittals as outlined in this section. The submittal will be returned to Contractor within forty (40) working days of receipt by the District Representative, exclusive of any time waiting for clarification or further information from Contractor. The time for return will vary and may exceed 40 days depending on the complexity of the submittal and the number of submittals.

G. PROJECT RECORD RE-SUBMITTALS:

1. Returned project record submittal documents shall be revised as indicated by the District Representative's comments as required. Re-submittal shall be done by using the same submittal number with an alpha suffix after the submittal number. Reference to the previous submittal number and item number is required when resubmitting. Re-submittals shall address all comments from the District Representative. Partial re-submittals will not be reviewed and will be returned in their entirety REJECTED. Contractor will be responsible for the District Representative's review cost for each re-submittal in excess of the first re-submittal. These costs will be back-charged to Contractor and will be deducted from the progress payment.

H. SUBMITTAL REVIEW:

1. GENERAL: The following are the four (4) possible Review Codes each document item can receive:

   a. "A" - NO EXCEPTIONS TAKEN: the as-built document is approved as is.

   b. "B" - MAKE CORRECTIONS NOTED: limited corrections are required. Copies will be returned with remarks as to corrections required.

   c. "C" - AMEND AND RESUBMIT: insufficient or incorrect data has been submitted or data is missing to complete the review. Copies will be returned with remarks requiring re-submittal with deficiencies corrected.

   d. "D" - REJECTED: Submittal is unacceptable and does not meet the requirements of these specifications, the document will be returned with remarks. A complete submittal may be REJECTED for excessive errors.

2. The Review Status and approval of District supplied drawings and documents shall be as follows:

   a. As-built drawings and documents which receive an "A" Review Status are approved as, as-built. District’s Representative will stamp the document As-Built, sign and date it. The document will not be returned to Contractor unless

it is a partial or tied to a related document which has not received an "A" status in the submittal.

b. As-built drawings and documents which receive a "B," "C" or "D" Review Status will be returned with comments indicating corrections needed.

c. Submittals of as-built AutoCAD drawings shall be subject to the same submittal requirements as other as-built documents.

3. The Review Status and approval of Contractor supplied drawings and documents shall be as follows:

a. As-built drawings and documents receiving an "A" Review Status are approved as, as-built. District's Representative will stamp the document As-built, sign and date it. This document will be returned for AutoCAD update, as required.

b. As-built drawings and documents receiving an "B", "C", or "D" will be returned with comments directed at corrections needed.

c. Submittals of as-built AutoCAD drawings shall be subject to the same submittal requirements as other as-built documents.

3.05 PAYMENT

A. Payment shall be part of the progress payment schedule as outlined in the PROGRESS PAYMENT PROCEDURES Section (01 29 76).

B. No partial payments shall be made for project record documents.

C. Only after all the project record documents for a work activity area have been submitted, received, reviewed and approved, will a progress payment be made.

D. Project record documents that include more than one area of work activity will only receive payment upon submittal and approval at the final area of work they represent.

E. Progress payments for Contractor supplied project record documents (including shop drawings) shall only be made for approved original documents and plotted AutoCAD drawings together with the electronic copy of the documents.

F. Progress payments for District-supplied documents shall be given for approved submittal only.

****END OF SECTION****

SECTION 03 01 26.76

CONCRETE REHABILITATION

Part 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

1. This section specifies concrete rehabilitation of existing wall concrete surface. This section shall apply to Tank 10, identified on the drawings requiring concrete rehabilitation. For the tank, contractor shall determine quantities of materials required for this work and shall include all costs for resurfacing.
2. For concrete to be coated with Concrete Sealer per Section 09 90 00, the resurfacing mortar and related products shall be compatible with the Concrete Sealer.

1.02 REFERENCES

A. The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall prevail.

Reference	Title
ACI 503R	Use of Epoxy Compounds with Concrete
ACI 506R	Guide to Shotcrete
ASTM C109	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars – Modified
ASTM C348	Standard Test Method for Flexural Strength of Hydraulic Cement Mortars
ASTM C496	Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens
ASTM C882	Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear – Modified
ASTM C1012	Standard Test Method for Length Change of Hydraulic Cement Mortars Exposed to a Sulfate Solution

ASTM C1202 Standard Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration

ASTM C1583 Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-Off Method)

1.03 SUBMITTALS

A. The following information shall be submitted for review in accordance with Section 01 33 00:

1. Manufacturer's information and catalog data showing compliance with this specification and a full description of the item.

2. A copy of this specification section, with addenda updates, and all referenced sections, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviation.

3. Applicator's qualifications per paragraph 1.04.A.

4. Applicator's references per paragraph 1.04.A.

5. Manufacturer's statement of compatibility for the concrete resurfacing material with the proposed concrete sealer coating per Section 09 90 00.

6. Manufacturer's mixing and application instructions.

7. A list and description of application equipment proposed for the work and certification that the equipment is in good condition for the intended service.

8. Concrete pull-off test plan and test results per paragraph 3.06.

1.04 QUALITY ASSURANCE

A. QUALIFICATIONS:

1. Applicator shall have successfully completed not less than three concrete resurfacing projects in the past two years applying mortar of the same generic type as the mortar specified for this project, and applying mortar on tanks similar in scope and size to the tanks on this project.

2. Provide names, cost, year completed, description of the project, scope of work performed, and the owner's current address and telephone number for each of the three concrete resurfacing projects described above.

3. Applicator shall be approved by the mortar manufacturer.

B. Provide a 4 feet X 4 feet mock-up panel approved by the manufacturer and the District as a trial for inspection.

C. Contractor shall comply with the requirements of ACI 506R including but not limited to the crew qualifications and quality control.

D. Manufacturer's factory representative shall attend a pre-installation meeting and make periodic visits to the project site to provide inspection services and consultation during surface preparation and application of coatings. Manufacturer's factory representative shall inspect the surface preparation, inspect the equipment being used, review the procedures of application by the Contractor, and submit written certification that the work is in accordance with the manufacturer's recommendations.

E. Manufacturer Qualifications: The manufacturer of the specified resurfacing mortar shall have been in existence, for a minimum of 10 years.

F. Allowable Tolerances: Deviation from plumb or level shall not exceed 1/8 inch within 10 feet in any direction, as determined with a 10 foot straight edge.

G. Contractor's equipment to pump the concrete resurfacing mortar shall not be older than 10 years from the date of manufacture. Rebuilt pumps will not be accepted.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver the specified product in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers.

B. Store and condition the specified product as recommended by the Manufacturer.

C. Deliver, store and handle packaged materials in the manufacturer's original, sealed containers, each clearly identified with the manufacturer's name, and name and type of product.

D. Store materials subject to damage by dirt and moisture in a clean, dry location, off the ground and suitably protected.

1.06 SITE CONDITIONS

A. Apply resurfacing mortar between 50 and 95 degrees Fahrenheit.

B. Turn off forced ventilation and radiant heating systems and protect work against drafts during installation and minimum 72 hours after completion. Use indirect auxiliary heaters to maintain temperature in area. Vent temporary heaters to exterior.

C. Follow manufacturer's recommendations regarding additional installation information (hot weather-drying conditions, or cold weather installation).

Part 2 -- PRODUCTS

2.01 MATERIALS

A. Resurfacing Mortar:

1. General: Sprayable, trowelable, shrinkage-compensated, one- component, silica fume, fiber reinforced, cementitious structural mortar with integral corrosion inhibitor, suitable for vertical and overhead applications.

2. Compressive Strength: ASTM C109
   a. 1-day: 4,500 psi.
   b. 7-day: 8,000 psi.
   c. 28-day: 10,000 psi.

3. Slant Shear: ASTM C882, Modified
   a. 28-day: 3,500 psi.

4. Tensile Strength: ASTM C496
   a. 28-day: 735 psi.

5. Flexural Strength: ASTM C348
   a. 28-day: 1,100 psi.

6. Chloride Permeability: ASTM C1202
   a. 28 day: < 500 coulombs.

7. Sulfate Resistance: ASTM C1012
   a. 1 year: less than 0.06%

8. Direct Tensile Bond Strength: ACI 503R, Appendix A
   a. 28-day: 350 psi.

9. Color: Concrete grey.

10. Acceptable Products:
    a. Sika Corporation model SikaRepair 224; or equal, modified as required to meet the specifications.

B. Evaporation Retarder:

1. General: Moisture evaporation retarder and finishing aid, as recommended by resurfacing mortar manufacturer. This product is not a curing compound.

2. Acceptable Products:

   a. Sika SikaFilm; or equal, modified as required to meet the specifications.

C. Curing Compounds: Curing compounds will not be permitted. Contractor shall use wet curing procedures acceptable to product manufacturer in order to prevent shrinkage cracks.

Part 3 -- EXECUTION

3.01 SURFACE PREPARATION

A. The limits for concrete resurfacing for each tank are shown on the drawings. Remove all unsound or deteriorated concrete, dirt, oil, grease, any existing coatings, and all other bond- inhibiting materials from the areas to be resurfaced. Preparation work shall be done by abrasive blasting to obtain an exposed aggregate surface with a minimum surface profile indicated below. Saturate the surface with clean water. Substrate shall be saturated surface dry (SSD) with no standing water during application.

B. Remove a minimum of 3/8” of existing concrete facing and continue removal as required to reach sound concrete. Substrate shall have minimum amplitude of 1/4".

C. Roughness of surface shall be not less than Concrete Surface Profile (CSP) 6 as defined by International Concrete Repair Institute (ICRI).

D. Where reinforcing steel with active corrosion is encountered, inspect and repair the reinforcing steel per the following directions:

1. Abrasive blast reinforcing bar to remove all rust, scale and contaminants to achieve black metal finish. If more than half the diameter of the reinforcing bar is exposed, chip out all around the bar a minimum of 1/2 inch. The clearance chipped around the reinforcing bar must also equal or exceed the minimum placement depth of the accepted repair mortar.

2. Inspect and determine section loss due to corrosion. Replace corroded reinforcing bar with new bar where corrosion has depleted cross-section area by more than 15 percent.

3. Coat the exposed and prepared reinforcing steel surfaces with anti-corrosion coating as recommended by repair mortar manufacturer.

4. Reinforcing steel repair work described above shall be paid under Bid Item No. 12.

E. Thoroughly clean the roughened surface and exposed reinforcement of rust, dirt,

loose chips, and dust using minimum 3,500 psi pressure washer to remove dust impurities and loose materials. Maintain substrate in a saturated, surface dry condition. The Contractor shall not dispose of sediments from concrete surface preparation to the Wastewater Treatment Plant. These sediments shall be disposed of in accordance with Temporary and Permanent Utilities, Section 01 51 00 and Stormwater Pollution Prevention, Section 01 57 23.

F. Manufacturer's Certification: Following surface preparation and prior to application of the resurfacing mortar, the manufacturer's factory representative shall inspect the surface preparation and submit written certification that the work is in accordance with the manufacturer's recommendations.

3.02 MIXING

A. Comply with mortar manufacturer's recommendations for water quantity and mixing procedures.

3.03 APPLICATION

A. Apply mortar in accordance with manufacturer's instructions.

B. Do not fill or cover existing expansion and control joints with mortar.

C. Protect from excessive heat or drafty conditions during curing.

D. Apply resurfacing mortar by low-pressure wet spraying or hand-troweling with the following thicknesses:

1. Minimum 1/2" beyond the highest exposed aggregate. Do not increase the existing wall thickness by greater than 1/4".

3.04 FINISHING

A. Level surface of mortar using a float or screed.

B. Apply evaporation retarder in accordance with manufacturer’s instructions.

C. Provide smooth steel trowel finish free from trowel marks and irregularities.

3.05 CURING

D. Curing shall comply with ACI recommendations for Portland cement concrete. Moist cure with wet burlap and polyethylene, or a fine mist of water. Curing compound will not be permitted. Commence curing immediately after finishing. Protect newly applied material from direct sunlight, wind, rain and frost.

3.06 FIELD TESTING

A. Pull-off Testing:

1. Contractor shall employ an Independent Testing Engineer to perform in-situ tensile pull-off tests to verify:

    a. Substrate soundness of the existing concrete.

    b. Adhesion of mortar to the existing concrete surface.

    c. Tensile strength of the mortar.

2. Mortar shall be cured for a minimum 28 days prior to testing.

3. Tests shall be performed in accordance with ASTM C1583.

    a. The tensile loading device shall comply with the requirements of ASTM C1583.

    b. Samples shall be core drilled to a minimum 1 inch depth or one-half of core diameter, whichever is greater, into the existing substrate prior to testing. Do not locate samples directly above reinforcing steel. Do not cut existing reinforcing steel.

4. Required Pull-off Strengths:

    a. Substrate Soundness Test Strength: 200 psi.

    b. Mortar Adhesion Test Strength: 175 psi.

    c. Mortar Tensile Test Strength: 175 psi.

5. Number and Locations of Tests:

    a. Three (3) tests on each SST wall (3 tests total for each SST).

    b. Locations of test shall be determined in field by Engineer.

6. Retests:

    a. If the average strength is below the strength requirement, or when any single test is below 75% of the required strength, the tank shall be retested.

    b. If the concrete fails to meet the Substrate Soundness Test Strength, the wall shall be retested. Contractor shall pay for cost of the retest.

c. If the mortar fails to meet the Mortar Adhesion Test Strength, the wall shall be retested. Contractor shall pay for cost of the retest.

d. If the mortar fails to meet the Mortar Tensile Test Strength, the wall shall be retested. Contractor shall pay for cost of the retest.

7. Repairs:

a. Make any repairs as needed when retest results fail to meet acceptance criteria.

b. Retest again after repairs.

c. Patch holes with specified resurfacing mortar.

8. Submit certified test results to District.

END OF SECTION

SECTION 03 15 20

ANCHORAGE IN CONCRETE AND MASONRY

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

1. This section specifies anchor bolts complete with washers and nuts. Unless otherwise specified, anchor bolts shall be hot-dip galvanized or type 304 or 316 stainless steel.

B. SPECIAL INSPECTION:

1. Special inspection of anchor bolts shall be performed by the Special Inspector under contract with the District and in accordance with the CBC Chapter 17.

1.02 REFERENCES

A. REFERENCE STANDARDS: The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall prevail.

Reference	Title
CBC	California Building Code, 2010 Edition
ACI 318	American Concrete Institute - Building Code Requirements for Structural Concrete, and Commentary
ACI 350	American Concrete Institute - Code Requirements For Environmental Engineering Concrete Structures, and Commentary
ASTM A36	Structural Steel
ASTM A123 / A123M	Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 193/A	Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service
ASTM A 194/A	Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure or High-Temperature Service, or Both
ASTM A320	Alloy Steel Bolting Materials for Low-Temperature Service
ASTM A325	Standard Specification for Structural Bolts, Steel, Heat

Reference	Title
	Treated, 120/105 ksi Minimum Tensile Strength
ASTM A354	Standard Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners
ASTM A449	Quenched and Tempered Steel Bolts and Studs
ASTM A490	Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength
ASTM A 563	Standard Specification for Carbon and Alloy Steel Nuts
ASTM A572	Standard Specification for High Strength Low Alloy Columbium Vanadium Structural Steel
ASTM F593	Stainless Steel Bolts, Hex Cap Screws and Studs
ASTM F594	Stainless Steel Nuts
ASTM F1554	Anchor Bolts, Steel, 36, 55, 105-ksi Yield Strength

B. DEFINITIONS: (Not Used)

1.03 SUBMITTALS

A. The following information shall be submitted for review in accordance with SUBMITTALS PROCEDURES Section (01 33 00) for all bolt systems not cast-in-place:

1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviations.

2. Data indicating load capacities.

3. Chemical resistance.

4. Temperature limitations.

5. Installation instructions.

6. Manufacturer's data and catalogue numbers.

7. All post installed anchors, adhesive and expansion type anchors shall be listed with at least one of the following agencies, ICC & ICC (ES). Submit ICC evaluation reports for adhesive and expansion type anchors as specified in paragraphs 3.02-B and 3.02-C of this specification section, respectively.

8. Design calculation in accordance with paragraph 2.04 of this specification section.

1.04 OPERATION AND MAINTENANCE INSTRUCTIONS (NOT USED)

PART 2 -- PRODUCTS

2.01 GENERAL

A. Anchor bolt holes in equipment support frames shall not exceed the bolt diameters by more than 25 percent, up to a limiting maximum oversizing of 1/4 inch. Minimum anchor bolt diameter shall be 1/2 inch. Anchor bolts shall be furnished with leveling nuts, the faces of which shall be tightened against flat surfaces as shown to not less than 10 percent of the bolt's safe tensile stress.

B. Tapered washers shall be provided where mating surface is not square with the nut.

C. Expansion, wedge or adhesive anchors set in holes drilled in the concrete after the concrete is placed will not be permitted in substitution for anchor bolts except where otherwise specified. Upset threads shall not be acceptable.

2.02 MATERIALS

A. Anchor bolt materials shall be as specified in Table A unless otherwise specified on the contract drawings.

2.03 ANTI-SEIZE COMPOUND

A. All stainless steel embedded bolts, expansion anchors, and adhesive anchors shall be assembled with a stainless steel anti-seize compound such as molycote.

2.04 DESIGN

A. Anchor bolts for equipment frames and foundations shall be designed in accordance with the CBC. The contractor designed anchor bolts are differed approval, and the “stamped” calculations and drawing shall be submitted to the engineer of record for review of general complaisance with design intent. Calculations and shop drawings shall be submitted with the equipment submittal in accordance with the SUBMITTAL PROCEDURES Section (01 33 00) for all anchorage details. All calculations must be made and signed by a civil or structural engineer currently registered in the State of California.

B. All anchor bolts resisting seismic forces shall be design based on cracked concrete requirement in ACI 318 or ACI 350, Appendix D.

Table A – Anchor Bolt Materials

Material	Specification
Stainless Steel Anchor Bolts	ASTM A193, Grade B8M Class 1, AISI 316 or ASTM A320, Grade B8M Class 1, AISI 316
Stainless Steel Threaded Rods at Adhesive Anchors	ASTM F593 CW1 (1/4" to 5/8" Rod) ASTM F593 CW2 (3/4" to 1 ½" Rod)
Stainless Steel Nuts and Washers	ASTM A194 Grade 8M, SS316 Nuts with Type 316 SS Washers (ASTM F594 Group 2 Type 316 SS Nuts at Adhesive Anchors)
Carbon Steel Anchor Bolts	ASTM F1554 (Grade 36) – Hot Dip Galvanized unless noted otherwise
High-Strength Carbon Steel Anchor Bolts	ASTM F1554 (Grade 55 Weldable per Supplementary Requirement S1) – Hot Dip Galvanized unless noted otherwise
Carbon Steel Nuts and Washers Concrete Expansion Anchors	ASTM A563 and ASTM F844 Stainless Steel HILTI "KWIK BOLT TZ", SIMPSON STRONG-TIE STRONG BOLT 2, or equal
Concrete Adhesive Anchoring System	HILTI HIT-RE 500-SD, SIMPSON STRONG-TIE SET-XP, or equal.
Masonry Expansion Anchors	Stainless Steel HILTI "KWIK BOLT 3", or equal
Masonry Adhesive Anchoring System	HILTI "HIT-HY 150 MAX", or equal

PART 3 -- EXECUTION

3.01 GENERAL

A. Fieldwork, including cutting and threading, shall not be permitted on galvanized items. Dissimilar metals shall be protected from galvanic corrosion by means of pressure tapes, coatings or isolators. Grouting of anchor bolts with nonshrink or epoxy grouts, where specified, shall be in accordance with the GROUTING Section (03 60 00). All stainless steel anchor bolts and fasteners shall be assembled with stainless steel anti-seize compound.

3.02 INSTALLATION

A. CAST-IN-PLACE ANCHOR BOLTS:

1. Anchor bolts to be embedded in concrete shall be placed accurately and held in correct position while the concrete is placed. Only where specifically shown on the contract plans recesses or blockouts shall be formed in the concrete and the metalwork shall be grouted in place in accordance with the GROUTING Section (03 60 00) after strength is attained. The surfaces of metalwork in contact with concrete shall be thoroughly cleaned.

2. After anchor bolts have been embedded, their threads shall be protected by grease and the nuts run on.

3. For grouting of anchor bolts, use non-shrink, non-metallic grout as specified in the GROUTING Section (03 60 00).

B. ADHESIVE ANCHORS:

1. Use of adhesive or capsule anchors shall be as shown on the contract drawings and shall be subject to the following conditions:

   a. Use shall be limited to locations where exposure, on an intermittent or continuous basis, to acid concentrations higher than 10 percent, to chlorine gas, or to machine or diesel oils, is extremely unlikely.

   b. Use shall be limited to applications where exposure to fire or exposure to concrete or rod temperature above 120 degrees F is extremely unlikely. Overhead applications (such as pipe supports), because of the above concerns, shall be disallowed.

   c. Approval from District Representative for specific application and from supplier of equipment to be anchored, if applicable.

d. Anchor diameter and grade of steel shall be per contract documents or per equipment supplier specifications. Anchor shall be threaded or deformed full length of embedment and shall be free of rust, scale, grease, and oils.

e. Embedment depth shall be as specified on the drawings. Adhesive capsules of different diameters may be used to obtain proper volume for the embedment, but no more than two capsules per anchor may be used. When installing different diameter capsules in the same hole, the larger diameter capsule shall be installed first. Any extension or protrusion of the capsule from the hole is prohibited.

f. All installation recommendations by the anchor system manufacturer shall be followed carefully, including, but not limited to, maximum hole diameter, minimum embedment, and minimum edge distance.

g. Holes shall have rough surfaces, such as can be achieved using a rotary percussion drill.

h. Holes shall be blown clean with compressed air and be free of dust or standing water prior to installation.

i. Anchor shall be left undisturbed and unloaded for full adhesive curing period.

j. Concrete temperature (not air temperature) shall be compatible with curing requirements of adhesives per adhesive manufacturer. Anchors shall not be placed in concrete below 25 degrees F.

2. The Contractor shall supply the District Representative with the current ICC evaluation report from the ICC Evaluation Services for the particular brand of adhesive anchors to be used.

C. EXPANSION ANCHORS:

1. Use of expansion anchors shall be as shown on the contract drawings and shall be subject to Conditions c, d, e, f, g, and h specified in paragraph 3.02-B.1 of this specification section.

3.03 TESTING (NOT USED)

3.04 TRAINING (NOT USED)

****END OF SECTION****

SECTION 05 10 00

STRUCTURAL METAL FRAMING

PART 1 -- GENERAL

1.01 DESCRIPTION

A. SCOPE:

1. This section specifies structural metals consisting of standard shapes, fasteners, rods and plates that are used in structural framing, supports, bracing members, and connections.

B. QUALITY ASSURANCE:

1. Structural assemblies and shop and field welding shall meet the requirements of the AISC Manual of Steel Construction and the AISC Specification for Structural Steel Building.

2. The use of salvaged, reprocessed or scrap materials shall not be permitted.

1.02 REFERENCES

A. REFERENCE STANDARDS: The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern, except where a specific date or edition is given below. In case of conflict between the requirements of this section and the listed standards, the requirements of this section shall prevail.

Reference	Title
CBC	California Building Code, 2010 edition
AISC 341-10	Seismic Provisions for Structural Steel Buildings Including Supplement #1
AISC 360-10	Specification for Structural Steel Building
AISC Manual	American Institute of Steel Construction, of Steel Manual of Steel Construction
ASTM A6	General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling
ASTM A36	Structural Steel
ASTM A53	Pipe, Steel, Black and Hot-Dipped, Zinc- Coated Welded and

Reference	Title
	Seamless
ASTM A193	Alloy-Steel and Stainless Steel Bolting Materials for High Temperature or High Pressure Service and Other Special Purpose Applications
ASTM A194	Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service
ASTM A307	Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
ASTM A320	Alloy Steel Bolting Materials for Low-Temperature Service
ASTM A325	Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A490	Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength
ASTM A500	Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A563	Carbon and Alloy Steel Nuts
ASTM A992	Steel for Structural Shapes for Use in Buildings
ASTM B209	Aluminum and Aluminum-Alloy Sheet and Plate
ASTM B241	Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube
ASTM B308	Aluminum-Alloy Standard Structural Shapes, Rolled or Extruded
ASTM F436	Standard Specification for Hardened Steel Washers
AWS B3.0	Welding Procedure and Performance Qualifications
AWS Dl.1	Structural Welding Code - Steel
AWS D1.2	Structural Welding Code – Aluminum

B. DEFINITIONS: (Not Used)

1.03 SUBMITTALS

A. The following submittals shall be submitted for review in accordance with the SUBMITTALS PROCEDURES Section (01 33 00):

1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviations.

2. Complete shop drawings, including erection plans, member and connection details, steel materials, coatings, etc. as required to fully delineate this portion of the work.

3. Welder's qualification certificates stating that welders to be employed in the work have satisfactorily passed AWS qualification tests applicable to the welding to be performed on this project.

4. Certified mill test reports for structural steel and high-strength bolts and nuts.

PART 2 -- PRODUCTS

2.01 MATERIALS

A. STEEL:

1. Materials for steel shall be as specified in Table A.

Table A, Steel Materials

Material	Specification
Standard rolled steel wide flange sections (and WTs)	ASTM A992
Structural steel S-shapes, channels, angles and plates	ASTM A36
Pipe sections for posts, guardrails and handrails	ASTM A53, Type E or S, Grade B
Hollow Structural Steel (HSS)	ASTM A500, Grade B (Fy = 46 ksi)
Stainless steel bolts (used at stainless steel and aluminum framing unless noted otherwise)	ASTM A193, Grade B8M Class 1, AISI 316 or ASTM A320, Grade B8M Class 1, AISI 316
Stainless steel nuts and washers (used at stainless steel and aluminum framing unless noted otherwise)	ASTM A194 Grade 8M, SS316
High strength steel bolts (used at galvanized and painted steel framing)	Galvanized ASTM A325 (Type 1), shear/bearing application using snug-tightened or pretensioned joints.
Nuts and washers for high strength bolts	Galvanized and lubricated nuts ASTM A563 and galvanized washers ASTM F436

B. ALUMINUM:

1. Unless otherwise specified, aluminum shall be extruded from 6061-T6 or 6063-T6 alloy, conforming to ASTM B308. Aluminum guardrail and handrail pipe shall be Alloy 6061-T6 per ASTM B241. Aluminum Plates shall be Alloy 6061-T6 per ASTM B209. Bolts shall be stainless steel bolts for aluminum framing (see Table A above).

C. BITUMASTIC COATING:

1. Material shall be Kop-coat, bitumastic black solution; Porter, Tarmastic No. 100, Tnemec 499 heavy-duty black; or equal.

2.02 FABRICATION

A. Fabrication shall be in accordance with the AISC Manual of Steel Construction. Aluminum fabrication shall be in accordance with the Aluminum Association Specifications and Guidelines for Aluminum Structures.

B. Provide as a minimum two (2) 3/4-inch-diameter, high strength bolts for all bolted connections.

C. FABRICATION TOLERANCES:

1. MEMBER LENGTH:

a. Both ends finished for contact bearing: 1/32 inch

b. Framed members 30 feet or less: 1/16 inch

c. Framed members over 30 feet: 1/8 inch

2. MEMBER STRAIGHTNESS:

a. COMPRESSION MEMBERS: 1/1000 of axial length between points laterally supported.

b. NON-COMPRESSION MEMBERS: ASTM A6 tolerance for wide flange shapes.

3. SPECIFIED MEMBER CAMBER (EXCEPT COMPRESSION MEMBERS):

a. 50 feet or less: +1/2 inch.

b. Over 50 feet: +1/2 inch (plus 1/8 inch per 10 feet over 50 feet).

c. Members received from mill with 75 percent of specified camber require no further cambering.

d. Beams/trusses without specified camber shall be fabricated so after erection, camber is upward.

e. Camber shall be measured in fabrication shop in unstressed condition.

PART 3 -- EXECUTION

3.01 GENERAL

A. Measurements shall be verified at the job.

B. Holes shall be punched 1/16 inch larger than the nominal size of the bolts, unless otherwise specified. Whenever needed, because of the thickness of the metal, holes shall be subpunched and reamed or drilled. No drifting of bolts nor enlargement of holes will be allowed to correct misalignment. Mismatched holes shall be corrected with new material.

C. Dissimilar metals shall be protected from galvanic corrosion by means of pressure tapes, coatings or isolators. Aluminum in contact with concrete or grout shall be protected with multiple heavy coats of bituminous paint to a minimum dry film thickness of 10 mils.

D. Metalwork to be embedded in concrete shall be as specified in the CAST-IN-PLACE CONCRETE Section (03 30 00). Metalwork shall be placed accurately and held in correct position while the concrete is placed. Only where specifically shown on the construction plans, recesses or blockouts shall be formed in the concrete. After the concrete design strength is attained the metalwork shall be grouted in place in accordance with the GROUTING Section (03 60 00). The surfaces of metalwork in contact with or embedded in concrete shall be thoroughly cleaned.

E. Structural steel completely encased in concrete shall not be painted and shall have a clean surface for bonding to concrete. Metalwork which is bent, broken or otherwise damaged shall be repaired or replaced by the Contractor.

F. Until all elements of the permanent structure and lateral bracing system are complete, provide temporary bracing designed, furnished, and installed by the Contractor for the partially complete structure.

3.02 INSTALLATION

A. WELDING:

1. Welding shall be done by operators who have been qualified to perform the type of work required by tests as prescribed by AWS. Welding procedures and welding operators shall be qualified in accordance with AWS D1.1 for steel construction and AWS D1.2 for aluminum construction. Provide certifications that welders to be employed in the work have satisfactorily passed AWS qualification tests. If re-certification of welders is required, retesting will be the Contractor's responsibility.

2. The quality of welding shall conform to AWS Code for Arc Welding in Building Constructions, as applicable. Steel which is required to be coated for corrosion protection shall be continuously welded at all joints.

3. Unless otherwise specified, continuous welds shall be provided on all structural members exposed to weather or submerged in water or wastewater. Continuous seal welds shall be provided on all sides of all plates or structural shapes in contact with or submerged in water or wastewater.

B. BOLTED CONNECTIONS:

1. Bolted connections shall conform to AISC Framed Beam Connections, unless shown otherwise on the drawings, and shall be bearing type connections with threads excluded from shear planes. Bolts shall be fully tensioned unless connecting HSS shapes or indicated on the Drawings to be snug-tightened.

3.03 CORROSION PROTECTION

A. Unless otherwise specified, all structural metal and structural steel, including that used in the fabrication of process equipment, shall be coated in accordance with the PAINTING AND COATING Section (09 90 00). Surface preparation shall be as specified in the PAINTING AND COATING Section (09 90 00). and shall include the following operations:

1. Grind the exterior and interior edges of all flame-cut plates or members to a smooth surface.

2. Grind all sharp edges off of the sheared plates and punched holes.

3. Grind uneven or rough welds with high beads to a smooth finish.

B. Application requirements shall be as specified in the PAINTING AND COATING Section (09 90 00).

3.04 CLEANING

A. After installation, damaged surfaces of shop primed metals shall be cleaned and touched up in accordance with the PAINTING AND COATING Section (09 90 00).

Damaged surfaces of galvanized metals shall be repaired as specified in the HOT DIP ZINC COATING Section.

3.05 TESTING

A. The District will engage inspectors to inspect welded connections and to perform tests. The inspection and tests will be paid for by the District.

B. Ten percent of all butt and bevel welds which extend continuously for 24 inches or less shall be completely tested in accordance with AWS D1.1, Part B, Radiographic Testing of Welds, Chapter 6. All butt and bevel welds which extend continuously for more than 24 inches shall be spot tested at intervals not exceeding 36 inches.

C. Welds that are required by the District to be corrected shall be corrected or redone and retested as directed, at the Contractor's expense and to the satisfaction of the District.

D. The costs for all initial testing shall be paid by the District. However, the Contractor shall pay for all costs for any additional testing and inspection on work which does not meet specifications.

3.06 TRAINING (NOT USED)

****END OF SECTION****

SECTION 05 59 00

METAL SPECIALTIES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

1. This section specifies miscellaneous metalwork, which consists of custom fabricated steel metalwork other than structural metalwork.

1.02 REFERENCES

A. REFERENCE STANDARDS: The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall prevail.

Reference	Title
AISC Manual of Steel Construction	American Institute of Steel Construction, Manual of Steel Construction, Allowable Stress Design
ASTM A36	Structural Steel
ASTM A48	Gray Iron Castings
ASTM A283	Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A307	Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
ASTM A320	Alloy Steel Bolting Materials for Low-Temperature Service
ASTM A500	Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
AWS D1.1	Structural Welding Code – Steel

B. DEFINITIONS: (Not Used)

1.03 SUBMITTALS

A. The following information shall be submitted for review in accordance with the SUBMITTAL PROCEDURES Section (01 33 00):

1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviations.

2. Certified test reports. Before delivery of any miscellaneous metalwork, the Contractor shall provide certificates which attest to their material compliance with these specifications.

3. Welders' qualification certificate.

4. Layout or installation shop drawings for all miscellaneous metals, including but not limited to, stair treads, ladders, ladder rungs, flashing, pipe supports, other components and assemblies.

1.04 OPERATION AND MAINTENANCE INSTRUCTIONS (NOT USED)

PART 2 -- PRODUCTS

2.01 MATERIALS

A. Materials for miscellaneous metalwork are specified in Table A.

Table A. Materials for Miscellaneous Metalwork

Material	Specification
Nonstructural steel bars, angles, clips, and similar items	ASTM A36 or ASTM A283
Iron castings	ASTM A48
Hollow Structural Steel (HSS) tubing	ASTM A500, Grade B
Steel bolts (except flanges and anchor bolts)	ASTM A307, Grade A
Stainless steel	ASTM A320, type 304

2.02 FABRICATION

A. GENERAL:

1. Holes shall be punched 1/16 inch larger than the nominal size of the bolts. Whenever needed, because of the thickness of the metal, holes shall be subpunched and reamed or shall be drilled.

2. Fabrication including cutting, drilling, punching, threading and tapping required for miscellaneous metal or adjacent work shall be performed prior to hot-dip galvanizing.

B. SEAT ANGLES, SUPPORTS AND BRACKETS:

1. Seat angles over slide gate guides shall be welded to the guides. Seat angles for grating, supports for floor plates, clips for precast panels and brackets for piping shall be steel, hot-dip galvanized after fabrication.

C. IRON CASTINGS:

1. Castings shall be as specified on the drawings. Castings weighing less than 100 pounds shall be hot-dip galvanized after machining. Castings weighing greater than 100 pounds shall be galvanized where shown.

D. OTHER MISCELLANEOUS STEEL METALWORK:

1. Other miscellaneous steel metalwork including embedded and nonembedded steel metalwork, hangers and inserts shall be as shown on the drawings and shall be hot-dip galvanized after fabrication.

E. OPEN WEB STEEL JOISTS:

1. Unless otherwise noted, all materials, fabrication, erection and end anchorage of open web steel joints shall conform to applicable provisions of the Steel Joist Institute, “Standard Specifications, Load Tables, and Weight Tables for Steel Joist and Joist Girders.”

2. Joists shall be designed for the uniform and concentrated loads indicated on the drawings. Live load deflections shall not exceed 1/360 of the span. The joists shall be spaced at 7 feet and sized to carry, as a minimum, the loads indicated on the drawings. The joists shall be by Vulcraft or equal.

3. Joists shall be shop painted with red oxide primer as specified herein. Bridging for K-Series joist shall be welded in place ad designed by the manufacturer.

4. Loads shall not be placed on the joists until bridging has been installed and the ends of joist have been securely anchored.

PART 3 -- EXECUTION

3.01 GENERAL

A. Fieldwork shall not be permitted on galvanized items. Drilling of bolts or enlargement of holes to correct misalignment will not be allowed.

B. Dissimilar metals shall be protected from galvanic corrosion by means of pressure tapes, coatings or isolators.

C. Metalwork to be embedded in concrete shall be placed accurately and held in correct position while the concrete is placed or, where shown on the drawings, recesses or blockouts shall be formed in the concrete. The surfaces of metalwork in contact with or embedded in concrete shall be thoroughly cleaned. If accepted, recesses may be neatly cored in the concrete after it has attained its design strength and the metalwork grouted in place. Embedments shall be as specified in CAST-IN-PLACE CONCRETE Section (03 30 00).

3.02 INSTALLATION

A. SEAT ANGLES, SUPPORTS AND GUIDES:

1. Seat angles for grating and supports for floor plates shall be set so that they are flush with the floor and also maintain the grating and floor plates flush with the floor.

B. WELDING:

1. Welding shall be done by operators who have been qualified to perform the type of work required by tests as prescribed by AWS D1.1, Section 5. The quality of welding shall conform to AWS D1.1, Section 3.

2. Steel which is required to be coated for corrosion protection shall be continuously welded at all joints.

3. Unless otherwise shown on the drawings, continuous welds shall be provided on all structural members exposed to weather or submerged in water or wastewater. Continuous seal welds shall be provided on all sides of all plates or structural shapes in contact with or submerged in water or wastewater.

C. JOIST INSTALLATION:

1. The joist shall be installed according to the manufacturer and the Steel Joist Institute Standards and OSHA regulations.

3.03 CORROSION PROTECTION

A. All structural metal and structural steel, including that used in the fabrication of process equipment, shall be coated in accordance with the PAINTING AND COATING Section (09 90 00). Surface preparation shall be as specified in the PAINTING AND COATING Section (09 90 00) and shall include the following operations:

1. Grind the exterior and interior edges of all flame-cut plates or members to a smooth surface.

2. Grind all sharp edges off of the sheared plates and punched holes.

3. Grind uneven or rough welds with high beads to a smooth finish.

B. Application requirements shall be as specified in the PAINTING AND COATING Section (09 90 00).

3.04 CLEANING

A. After installation, damaged surfaces of shop primed metals shall be cleaned and touched up in accordance with the PAINTING AND COATING Section (09 90 00). Damaged surfaces of galvanized metals shall be repaired as specified in the HOT DIP ZINC COATING Section (05 05 14).

3.05 TESTING

A. The District will engage inspectors to inspect welded connections and to perform tests. The District will pay for the inspection and tests.

B. Ten percent of all butt and bevel welds which extend continuously for 24 inches or less shall be completely tested in accordance with AWS D1.1, Part B, Radiographic Testing of Welds, Chapter 6. All butt and bevel welds which extend continuously for more than 24 inches shall be spot tested at internals not exceeding 36 inches.

C. Welds that are required by the District to be corrected shall be corrected or redone and retested as directed, at the Contractor's expense and to the satisfaction of the District Representative.

D. The District shall pay the costs for all initial testing. However, the Contractor shall pay for all costs for any additional testing and inspection on work which does not meet specification.

3.06 TRAINING (NOT USED)

****END OF SECTION****

SECTION 09 06 90

SCHEDULES FOR PAINTING AND COATING

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

1. This section lists the specific coating systems and colors for rooms, galleries, piping, equipment, and other items. Coating system requirements are specified in the PAINTING AND COATING Section (09 90 00).

1.02 REFERENCES (NOT USED)

1.03 SUBMITTALS (NOT USED)

1.04 OPERATION AND MAINTENANCE INSTRUCTIONS (NOT USED)

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.01 GENERAL (NOT USED)

3.02 INSTALLATION (NOT USED)

3.03 TESTING (NOT USED)

3.04 TRAINING (NOT USED)

3.05 COATING SYSTEMS SCHEDULE

A. Refer to the PAINTING AND COATING Section (09 90 00) for coating system designations.

B. Specific coating systems and colors for rooms, galleries, piping, equipment, and other items are specified in the attached Coating System Schedule.

COATING SYSTEM SCHEDULE			
Surface	Environment	Coating System	Color
1. Structural Steel, including fasteners, anchors and supports (except stainless)			
(b) Exterior , Non Galvanized			
• Super Structure I-beams, support braces, stiffeners and removable beam extensions shown on Drawings 94S01 and 94S04	Mild Moderate Harsh	U	Light Grey (N700)
• Super Structure I-beam ends showing corrosion damage and any other corroded metal showing on the Super Structure.	Mild Moderate Harsh	HSE3/U	Light Grey (N700)
(d) Submerged			
• Feed well shown on Drawings 94S01 and 94S03	Harsh	HSE3	Light Grey (N700)
• Effluent Launders, stiffeners and supports shown on Drawings 94S01 and 94S03	Harsh	HSE3	Light Grey (N700)
• Scum baffle shown on Drawings 94S01 and 94S03	Harsh	HSE3	Light Grey (N700)
• Sludge collector mechanism, drive cage, center column, inlet distribution well, launders, etc. shown on Drawings 94S01 and 94S03	Harsh	HSE3	Light Grey (N700)

****END OF SECTION****

SECTION 09 90 00

PAINTING AND COATING

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

1. This section specifies coating systems, surface preparations, and application requirements.

B. RELATED WORK:

1. The following specifications sections are referenced herein:

Section	Title
Section 01 33 00	SUBMITTAL POCEDURES

1.02 REFERENCES

A. REFERENCE STANDARDS: The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall prevail.

Reference	Title
ASTM D16	Standard Terminology for Paint, Related Coatings, Materials, and Applications
SMAQMD Rule 442	Sacramento Metropolitan Air Quality Management District - Architectural Coatings
SMAQMD Rule 451	Sacramento Metropolitan Air Quality Management District – Surface Coating of Miscellaneous Metal Parts and Products
SSPC Good Painting Practice	SSPC: The Society for Protective Coatings (formerly Steel Structures Painting Council) Specifications, Vol. 1 and 2, latest edition.

SSPC Guide 6 Guide for Containing Surface Preparation Debris Generated During Paint Removal Operations

B. DEFINITIONS:

1. Specific coating terminology used in this section is in accordance with definitions contained below and in ASTM D16:

   a. DRY FILM THICKNESS (DFT): The thickness of one fully cured continuous application of coating.

   b. WET FILM THICKNESS (WFT): The thickness of one wet layer of coating taken shortly after application.

   c. FIELD COAT: The application of a coating after installation of the surface at the site of the work.

   d. SHOP COAT: One or more coats applied in a shop or plant prior to shipment to the site of erection or fabrication, where the field or finishing coat is applied.

   e. TIE COAT: An intermediate coat used to bond different types of paint coats. Coatings used to improve the adhesion of a succeeding coat.

   f. VINYL ACID WASH COAT: A coating supplied as one or two component systems on clean light alloy or ferrous surfaces, and on many nonferrous surfaces, to provide adhesion with the substrates, and for the application of subsequent coats of paint.

   g. PHOTOCHEMICALLY REACTIVE ORGANIC MATERIAL: Any organic material that will react with oxygen, excited oxygen, ozone or other free radicals generated by the action of sunlight on components in the atmosphere giving rise to secondary contaminants and reaction intermediates in the atmosphere which can have detrimental effects.

   h. VOLATILE ORGANIC CONTENT: The portion of the coating that is a compound of carbon, is photochemically reactive, and evaporates during drying or curing, expressed in grams per liter or pounds per gallon.

   i. TOUCH UP PAINTING: The application of paint on small areas of painted surfaces to repair marks, scratches, and small areas where the coating has deteriorated to restore the coating film to an unbroken condition.

   j. STRIPE COAT: Coating with brush or spray gun to all edges, corners, bolts and welds, with coating material prior to application of full surface coat. Striping will extend at least one inch minimum from all edges, corners and welds.

k. The terms "solvent cleaning", "hand tool cleaning", "wire brushing", and "blast cleaning", or similar words of equal intent in these Specifications or in paint manufacturer's specifications refer to the applicable SSPC Surface Preparation Standards.

l. SPREADING RAGE: The amount of product that is applied to a specified area of a surface to be coated. The spreading rate is specified in square feet per gallon (SFPG) or square feet per gallon per coat (SFPGPC).

m. FERROUS METAL: Iron, steel, and alloys containing iron as the principal element, except stainless steel.

n. INTERIOR: Inside of a building or structure, unless otherwise specified.

o. EXTERIOR: Outside of building or structures and exposed to weather elements.

p. BURIED: Surfaces that are underground and either in contact with soil or encased in concrete.

q. SUBMERGED: Surfaces that are underwater or are below the top elevation of structures or facilities that contain water, under normal operating conditions.

r. MILD ENVIRONMENT: Standard commercial facility conditions.

s. MODERATE ENVIRONMENT: Industrial facility conditions where surfaces may be occasionally exposed to light-moderately aggressive liquids or gases.

t. HARSH ENVIRONMENT: Industrial facility conditions where surfaces may be subject to aggressive liquids or gases, or normally exposed to light-moderately aggressive liquids or gases.

1.03 SUBMITTALS

A. The following information shall be submitted for review in accordance with SUBMITTAL PROCEDURES Section (01 33 00):

1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviations.

2. Manufacturer's standard product data and material safety data sheet for all field applied primer, tie coat, thinners, intermediate and finish coating, abrasives and all shop applied primers, intermediate and finish coating including those from equipment manufacturers and suppliers. Copies of these data shall be posted at the job site at each field application area.

3. List of materials proposed to be used under this section.

4. Manufacturer's literature and written instructions for surface preparation, mixing and application of each primer and finish coating.

5. Manufacturer's complete color selection chart.

6. Applicator's SSPC QP-1 certification and manufacturer's certification of installation contractor.

7. Containment system plan.

8. Shop and field inspection records.

1.04 OPERATION AND MAINTENANCE INSTRUCTIONS (NOT USED)

1.05 REGULATORY REQUIREMENTS

A. All applicable federal, state, and local regulatory agency requirements shall be complied with during the course of the work. The Contractor's attention is directed to the following list of agency requirements that generally apply to coatings work; the Contractor is responsible for identifying and complying with any other agencies or requirements not listed.

1. OSHA – Personnel protection during all phases of work, including exposure to airborne solvents, dust, and lead.

2. CAL/OSHA – Personnel protection; requirements may supersede OSHA regulations.

3. California Title 22 – Environmental requirements, including definition of abrasive blast materials and residue relative to hazardous waste disposal requirements. Abrasives shall not contain metals or other substances that would classify abrasive as a hazardous waste under California Title 22 requirements.

4. California Air Resources Board (CARB) and Sacramento Metropolitan Air Quality Management District (SMAQMD) – Environmental requirements for equipment and products. Also, environmental requirements for limiting emissions produced by paint removal and coating operations. Maximum VOC limits shall comply with SMAQMD Rule 442 and Rule 451.

1.06 QUALITY ASSURANCE

A. QUALIFICATIONS:

1. SSPC Painting Contractor Certification Program, QP-1 certification.

2. Coating manufacturer approved applicator when coating manufacturer has approved applicator program.

B. INSPECTION:

1. The District may retain the services of an independent third party NACE CIP Level III-Certified Inspector for partial or full-time inspection of the work.

2. The Contractor shall give the District Representative a minimum of 14 calendar days advanced notice of the start of all coating application work to allow scheduling for shop and field observation.

3. Provisions shall be made to allow the District Representative full access to facilities and appropriate documentation regarding coating materials, coating material storage, surface preparation and coating application. The Contractor shall provide access to the District Representative at all times during the contract period to observe the work.

4. Observation by the District Representative or the waiver of observation of any particular portion of the work shall not be construed to relieve the Contractor of his responsibility to perform the work in accordance with these Specifications.

5. Coating materials shall be subject to testing for conformance with this specification prior to or during incorporation into the work.

1.07 DELIVERY, STORAGE AND HANDLING

A. Materials shall be delivered to the job site in their original, unopened containers. Each container shall bear the manufacturer's name, coating type, batch number, date of manufacture, and special directions. All materials delivered to the job site shall be accompanied by the manufacturer's latest product data sheets which indicate storage life.

B. All protective coating materials shall be used within the manufacturer’s recommended shelf life. Shelf life shall not be extended beyond the stated periods for any reason, including statements or certifications by the manufacturer.

C. Deliver and store abrasives in their original moisture-proof bags or airtight bulk containers.

D. Materials shall be stored in enclosed structures and shall be protected from weather and excessive heat or cold. Flammable materials shall be stored in accordance with state and local codes. Materials exceeding storage life recommended by the manufacturer shall be removed from the site.

E. Where shop-primed or shop-finished items are to be shipped to the job site, protect coatings from damage by the use of battens, padded straps, and nonmetallic slings. Excessive shipping damage will be considered grounds for rejection of shop primers and shop finishes.

F. The Contractor shall keep and maintain records for all products delivered to the site. Information should include batch numbers, quantities, and dates used for all paints,

solvents, and cleaners used. These records should be reported to the District Representative weekly.

PART 2 -- PRODUCTS

2.01 GENERAL

A. Materials and supplies provided shall be the standard products of manufacturers. Materials in each coating system shall be the products of a single manufacturer.

B. The standard products of manufacturers other than those specified will be accepted when it is demonstrated to the District that they are equal in composition, durability, usefulness, and convenience for the purpose intended. Requests for substitutions, in accordance with the SUBMITTAL PROCEDURES Section (01 33 00), will be considered, provided the criteria specified in the SUBMITTAL PROCEDURES Section (01 33 00) are satisfied and the following minimum conditions are met:

1. The proposed coating system shall use an equal number of coats to achieve the required dry film thickness.

2. The proposed coating system shall use coatings of the same generic type as that specified.

3. Requests for substitution shall have directions for application and descriptive literature which includes generic type, percent solids by volume, volatile organic content (grams per liter), flammability, toxicity, and any other information required to determine if the substitution is equal to the specified coating system.

4. The Contractor shall provide a list of references where paint of the same generic type has been applied. The reference list shall give the project name, city, state, owner, phone number of owner, coating system reference and number, and year coating material was applied.

5. Any shop applied coating materials shall be compatible with the field applied coating materials specified.

6. Coatings shall contain ≤ 0.0000% lead.

7. Coatings shall contain ≤ 0.0000% zinc-chromate and ≤ 0.0000% strontium-chromate.

8. Coatings shall contain ≤ 0.0000% asbestos.

9. Coatings shall contain ≤ 0.0000% mercury and ≤ 0.0000% mercury compounds.

10. Coatings shall not contain any toxic chemicals in amounts greater than the amounts in the specified acceptable products.

11. Abrasives shall not contain metals or other substances that would classify abrasive as a hazardous waste under California Title 22 requirements.

12. Maximum VOC limits shall comply with Sacramento Metropolitan Air Quality Management District (SMAQMD) Rule 442 and Rule 451.

2.02 COATING SYSTEM SPECIFICATION SHEETS

A. Coating systems are specified on the following Coating System Specification sheets:

COATING SYSTEM SPECIFICATIONS		
Coating System:	**High Solids Epoxy - High Solids Epoxy - High Solids Epoxy**	**Symbol: HSE3**
	Description:	**Acceptable Products:**
Prime Coat:	82-85% solids cycloaliphatic polyamine epoxy	Carboline: Carbomastic 15 Tnemec: Series 104
Intermediate Coat:	82-85% solids cycloaliphatic polyamine epoxy	Carboline: Hydroplate 1086 Tnemec: Series 104
Finish Coat:	82-85% solids cycloaliphatic polyamine epoxy	Carboline: Hydroplate 1086 Tnemec: Series 104
Services:	Submerged Harsh	
Surface:	Metal	
Surface Preparation:	In accordance with manufacturer's written instructions. SSPC-SP10 or SSPC-SP5, per manufacturer's recommendation. 3 to 5 mil sharp anchor profile.	
Application:	In accordance with manufacturer's written instructions, plus the following: 1. Apply 7-10 mils DFT prime coat. 2. Apply 4-10 mils DFT intermediate coat. 3. Apply 4-10 mils DFT finish coat to obtain a total system of 15-30 mils DFT.	

COATING SYSTEM SPECIFICATIONS		
Coating System:	**High Solids Epoxy - High Solids Epoxy - High Solids Epoxy**	**Symbol: HSE3/U**
	Description:	**Acceptable Products:**
Prime Coat:	82-85% solids cycloaliphatic polyamine epoxy	Carboline: Carbomastic 15 Tnemec: Series 104
Second Coat:	82-85% solids cycloaliphatic polyamine epoxy	Carboline: Hydroplate 1086 Tnemec: Series 104
Third Coat:	82-85% solids cycloaliphatic polyamine epoxy	Carboline: Hydroplate 1086 Tnemec: Series 104
Finish Coat:	Aliphatic Acrylic Polyurethane, Gloss or Semi-gloss	Carboline: Carbothane 134 VOC Polyurethane Tnemec: Series 1075
Services:	Exterior, Not Submerged Mild, Moderate, Harsh	
Surface:	Metal	
Surface Preparation:	In accordance with manufacturer's written instructions. SSPC-SP10 or SSPC-SP5, per manufacturer's recommendation. 3 to 5 mil sharp anchor profile.	
Application:	In accordance with manufacturer's written instructions, plus the following: 1. Apply 7-10 mils DFT prime coat. 2. Apply 4-10 mils DFT intermediate coat. 3. Apply 4-10 mils DFT intermediate coat. 4. Apply two 2-3 mils DFT finish coat to obtain a total system of 17-33 mils DFT.	

COATING SYSTEM SPECIFICATIONS		
Coating System:	**High Solids Epoxy - High Solids Epoxy - High Solids Epoxy - Polyurethane**	**Symbol: U**
	Description:	**Acceptable Products:**
Finish Coat:	Aliphatic Acrylic Polyurethane, Gloss or Semi-gloss	Carboline: Carbothane 134 VOC Polyurethane Tnemec: Series 1075
Services:	Interior, Exterior Mild, Moderate, Harsh	
Surface:	Metal	
Surface Preparation:	Lightly sand in accordance with manufactures written instructions.	
Application:	In accordance with manufacturer's written instructions, plus the following: 1. Apply two 2 -3 mil DFT finish coats.	

PART 3 -- EXECUTION

3.01 GENERAL (NOT USED)

3.02 INSTALLATION

A. SURFACE PREPARATION:

1. GENERAL:

   a. Surface preparations for each type of surface shall be in accordance with the specific manufacturer's requirements of each coating and its intended service, and the Coating System Specification sheets.

   b. All surfaces to be coated shall have a sharp angular surface profile of the minimum depth specified by the coating manufacturer.

   c. If existing lead-based coating is present, all Work shall comply with the LEAD-CONTAINING PAINT ABATEMENT Section (02 83 19.15).

2. ABRASIVE BLAST MEDIA:

   a. Blast media shall CARB-approved.

3. ABRASIVE BLAST CONTAINMENT SYSTEM:

   a. Provide a Class 3A Containment System in accordance with SSPC Technology Guide 6.

   b. Utilize Method G, Visual Assessment of Site Cleanliness, to monitor the amount of dust or debris that may escape the work area.

B. METAL SURFACE PREPARATION (UNGALVANIZED):

1. ABRASIVES:

   a. The type and size of abrasive shall be selected to produce a surface profile as specified and as recommended by the coating manufacturer for the particular coating and service conditions.

   b. Abrasive blasting nozzles shall be equipped with "deadman" emergency shut-off nozzles. Blast nozzle pressure shall be a minimum of 95 PSI and shall be verified by using an approved nozzle pressure gauge at each start-up period or as directed by the Engineer. The number of nozzles used during all blast cleaning operations must be sufficient to ensure timely completion of project.

   c. Interior blast cleaning shall be by dry method unless otherwise directed.

d. The Contractor shall keep the area of his work in a clean condition and shall not permit blasting materials to accumulate as to constitute a nuisance or hazard to the workers or the existing facilities. Spent abrasives and other debris shall be removed at the Contractor's expense, as directed by the District Representative.

e. Blast cleaned and coated interior surfaces shall be cleaned prior to application of specified coatings via a combination of blowing with clean dry air, brushing/brooming and/or vacuuming as necessary to achieve a clean surface condition.

f. Compressed air for air blast cleaning shall be supplied at adequate pressure from well-maintained compressors equipped with oil and moisture separators which remove at least 95 percent of the contaminants. An oil and moisture separator shall be provided in the air line between the compressor and blast machine.

g. Do not abrasive blast when air temperature is less than 5 degrees above the dew point.

C. PROTECTION OF SURFACES NOT TO BE COATED:

1. Surfaces which are not to receive protective coatings shall be protected during surface preparation, cleaning, and coating operations.

2. All hardware, lighting fixtures, switchplates, machined surfaces, couplings, shafts, bearings, nameplates on machinery, and other surfaces not to be painted shall be removed, masked or otherwise protected. Dropcloths shall be provided to prevent coating materials from falling on or marring adjacent surfaces. The working parts of all mechanical and electrical equipment shall be protected from damage during surface preparation and coating operations. Openings in motors shall be masked to prevent entry of coating or other materials.

3. Project is subject to intermittent shutdown if, in the opinion of the District Representative, any operations are creating a condition detrimental to the site personnel or adjacent property. In the event of emergency shutdown by the District Representative, Contractor shall immediately correct deficiencies. All additional costs created by shutdown shall be borne by Contractor.

D. APPLICATION:

1. GENERAL:

a. Coating products shall not be used until the District has inspected the materials.

b. All of the manufacturer's printed recommendations with respect to surface preparation, mixing instructions, thinning, application method, application equipment, pot life, drying times, and any other manufacturer's

recommendations deemed applicable by the District shall be strictly adhered to by the Contractor.

c. All steel coating application shall also comply with SSPC-PA 1.

d. Application of the first coat shall follow immediately after completion of final surface preparation, dust removal operations, and before any rusting or other deterioration of the surface occurs. Cleaning shall be limited to only those surfaces that can be prime-coated in the same working day.

e. All irregular surfaces shall receive a brush coat of the specified product prior to application of each coat. Irregular surfaces include edges, angles, weld seams, flanges, nuts and bolts, ends and flanges of structural members, crevices, surfaces with restricted access for spray application, and other places where insufficient film thicknesses are likely to be applied. During application to irregular surfaces, paint shall be brushed in multiple directions to ensure penetration and coverage. Care shall be exercised to ensure that the resulting dry film thicknesses do not exceed the maximum thicknesses allowed by the manufacturer for each product.

2. SHOP-APPLIED COATINGS:

a. Except as otherwise specified herein, coatings may be shop applied or field applied. All coatings, whether shop applied or field-applied shall comply with the specifications.

b. Shop-applied primers shall be compatible with the specified coating system and shall be applied at the dry film thickness recommended by the manufacturer. Product data sheets identifying the shop primer used shall be provided to the on-site finish coat applicator.

c. If the shop-applied prime coat meets the requirements of this section, the field coating may consist of touching up the shop prime coat with a compatible field prime coat and then applying compatible intermediate and/or finish coats to achieve the specified film thickness and continuity. Intermediate or finish coats shall not be applied beyond the primer recoat window. If the primer recoat window is exceeded, the item shall be re-blasted and re-primed in accordance with the manufacturer's recommendations.

d. Damaged, deteriorated and/or poorly applied shop coatings that do not meet the requirements of this section shall be removed and the surfaces recoated.

3. WORKMANSHIP:

a. Coated surfaces shall be free from runs, drops, ridges, waves, laps, and brush marks. Coats shall be applied so as to produce an even film of uniform thickness

completely coating corners and crevices. Painting shall be done in accordance with the requirements of SSPC Paint Application Specification No. 1.

b. Each coat of paint shall be applied evenly and sharply cut to line. Each coat shall give a uniform appearance throughout. Lap marks for multiple coats shall be staggered. Care shall be exercised to avoid overspraying or spattering paint on surfaces not to be coated. Glass, hardware, floors, roofs, and other adjacent areas and installations shall be protected by taping, drop cloths, or other suitable measures.

c. Where two or more coats of epoxy mastic are required, the alternate coats shall be of contrasting colors.

d. Existing coating systems damaged by new construction shall be repaired and coated in accordance with the appropriate system specified for new work.

e. Items which have been newly coated shall not be handled, worked on, or otherwise disturbed, until the paint is completely dry and hard.

E. CLEANUP:

1. Upon completion of coating, the Contractor shall remove surplus materials, protective coverings, and accumulated rubbish, and thoroughly clean all surfaces and repair any overspray or other paint related damage.

F. COATING SYSTEMS SCHEDULE:

1. Existing surfaces not damaged by work in this contract shall not be coated unless specifically shown on the drawings. Existing surfaces damaged by work in this contract shall be repaired to match existing coating and color.

2. Specific coating systems and colors for rooms, galleries, piping, equipment, and other items are specified in the SCHEDULES FOR PAINTING AND COATING Section (09 06 90).

3.03 TESTING

A. FIELD QUALITY CONTROL:

1. GENERAL:

a. The District shall have the right to inspect at all times any tools, instrument, materials, staging, or equipment used or to be used in the performance of the work accessible for these inspections. The District shall have the right to take samples of the coating material at any time during the coating operation.

b. The District shall have the right to observe all application procedures during the time the work is in progress, inspect and approve the surface preparation prior to the application of any coating, and to inspect and approve the condition of each coat prior to the application of the following one.

c. The Contractor shall provide the same access to the inspector as for his painters. If necessary for safe inspection, scaffolding shall be provided for use by the inspector.

d. The Contractor shall notify the District Representative 48 hours before work or part of the work commences.

e. Where applicable, inspection of substrate anchor patterns shall be done with a surface profile indicator, surface profile comparator or Testex Press O Film Replica Tape.

f. Abrasive blast samples shall be utilized for inspection purposes throughout the duration of blast cleaning operations.

g. District may inspect coatings during application with a wet mil gauge. After drying, the District may inspect coatings with an Elcometer, Positest, or equivalent DFT instrument.

h. Contractor shall furnish, until Final Acceptance of such coatings, inspection devices in good working condition for the detection of holidays and measurement of dry-film thicknesses of protective coatings.

i. Contractor shall provide the services of a trained operator for the holiday detection devices.

j. Holiday detection testing of coatings for submerged and severe service shall be performed in accordance with AWWA D.102-06 and NACE SPO 188.

    1) Testing shall be performed in the presence of the District Representative and shall be performed until the subject surfaces are 100% holiday-free.

    2) Contractor shall holiday test all coated ferrous surfaces. Areas which contain holidays shall be marked and repaired or recoated in accordance with the coating manufacturer's printed instructions and then retested.

    3) COATINGS WITH THICKNESS EXCEEDING 20 MILS: For surfaces having a total dry film coating thickness exceeding 20 mils, a pulse-type holiday detector such as Tinker & Rasor Model AP-W, D.E. Stearns Co. Model 14/20, or equal shall be used. The unit shall be adjusted to operate at the voltage required to cause a spark jump across an air gap equal to twice the specified coating thickness.

4) COATINGS WITH THICKNESS OF 20 MILS OR LESS: For surfaces having a total dry film coating thickness of 20 mils or less, a Tinker & Rasor Model M1non-destructive type holiday detector, K-D Bird Dog, or equal shall be used. The unit shall operate at less than 75-volts. For thicknesses between 10 and 20 mils, a non-sudsing type wetting agent, such as Kodak Photo-Flo, or equal, shall be added to the water prior to wetting the detector sponge.

k. District may perform destructive coating adhesion tests with an Elcometer, Positest, or equivalent pull-off adhesion tester. Contractor shall be responsible for repairing the coatings.

2. FILM THICKNESS TESTING:

a. On ferrous metals, the dry film coating thickness shall be measured in accordance with the SSPC-PA2 using a magnetic-type dry film thickness testing device such as Mikrotest model FM, Elcometer model 111/1EZ, “Inspector” or “Positest” or equal. Each coat shall be tested for the correct thickness.

b. No measurements shall be made until at least 8 hours after application of the coating. On non-ferrous metals and other substrates, the coating thicknesses shall be measured at the time of application using a wet film gauge.

3. REJECTED WORK AND EQUIPMENT:

a. The District shall have the right to condemn any and all tools, instruments, materials, staging, equipment, or work which does not conform to the specifications and CAL/OSHA regulations. Condemned areas of coating applications shall be marked with a compatible paint of contrasting color.

b. Any condemned coating applications, defective preparatory work (i.e., blast cleaning, staging) or any defective work not conforming to this specification shall be rectified by the Contractor at no additional cost to the District. Any condemned tools, instruments, materials or equipment shall be replaced or rectified at no additional costs to the District.

4. APPROVAL:

a. Prior to acceptance of part of the work or the complete work, an inspection of the work will be conducted by the District.

B. WARRANTY:

1. ELEVENTH MONTH INSPECTION:

a. The District will conduct an inspection of coated surfaces prior to the end of the warranty period. The Contractor will be notified in advance of this inspection

and may attend at his option and at no additional cost to the District. A list of all coating defects and failures identified during the inspection will be prepared and transmitted to the Contractor. The list will serve as notice of repairs required under warranty, at no additional cost to the District.

2. REPAIRS:

   a. All defective coatings shall be repaired by Contractor using coating materials, equipment, and methods similar to those used in the original work. Materials shall be of fresh manufacture and within the manufacturer's stated shelf life, at the time of application.

   b. Contractor shall complete all required coating repairs within 90 calendar days of the eleventh month inspection.

3.04 TRAINING (NOT USED)

****END OF SECTION****

SECTION 40 05 59.37

FABRICATED SLIDE GATES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

1. This section specifies stainless steel fabricated slide gates complete with frames, seals, operators, and appurtenances. Operators shall be in accordance with the ACTUATORS FOR PROCESS VALVES AND GATES Section (40 05 57).

1.02 REFERENCES

A. REFERENCE STANDARDS: The publications referred to hereinafter form a part of this specification to the extent that they are referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall prevail.

Reference:	Title
ASTM A193	Alloy Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other special Purpose Applications
ASTM A240	Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
ASTM A276	Stainless and Heat-Resisting Steel Bars and Shapes
ASTM D2000	Standard Classification System for Rubber Products in Automotive Applications
ASTM D4020	Ultra-High-Molecular-Weight-Polyethylene Molding and Extrusion Materials
ASTM F593	Stainless Steel Bolts, Hex Cap Screws, and Studs
AWWA C561	Fabricated Stainless Steel Slide Gates

B. DEFINITIONS:

1. As used in the SLIDE GATE SCHEDULE Section (40 06 20 30), slide gates are identified by code as shown in the table below:

SLIDE GATE CODES				
X	**—**	**X**	**—**	**X**
UO = Upward Opening		S3S = Seal 3 Sides		SC = Self-Contained
DO = Downward Opening		S4S = Seal 4 Sides		NSC = Non Self-Contained

1.03 SUBMITTALS

A. The following information shall be submitted for review in accordance with the SUBMITTAL PROCEDURES Section (01 33 00):

1. Manufacturer's information and catalog data showing compliance with this specification and a full description of the product.

2. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviations.

3. Certified shop drawings.

4. Parts list including materials of construction.

5. Calculations justifying the size of stems, gate, baffles, slide reinforcing, and operators.

6. Manufacturer's recommended storage, installation and startup procedures.

7. Spare parts listing in accordance with the SPARE PARTS Section (01 78 43).

1.04 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Submit operation and maintenance (O&M) instructions in accordance with the OPERATION AND MAINTENANCE DATA Section (01 78 23) by submitting a copy of the OPERATION AND MAINTENANCE DATA Section (01 78 23) with each paragraph check marked to show compliance. O&M instructions shall be submitted after all submittals specified above have been returned mark “No Exceptions Taken” or “Make Corrections Noted.” O&M instructions shall reflect the approved materials and equipment.

1.05 UNIT RESPONSIBILITY:

A. The Contractor shall assign unit responsibility to the gate manufacturer for the combined equipment consisting of slide gate and operator.

B. Equipment systems made up of two or more components shall be manufactured and assembled as a unit by the responsible manufacturer. The responsible manufacturer shall select all components of the system to assure compatibility, ease of construction and efficient maintenance. The responsible manufacturer shall coordinate selection and design of all system components such that all equipment furnished under the specification for the equipment system, including equipment specified elsewhere but referenced in the specification, is compatible and operates properly to achieve the performance requirements specified. Unless otherwise specified in the particular equipment specification, the responsible manufacturer shall be the manufacturer of the driven equipment. Agents, representatives or other entities who are not a direct component of the manufacturing corporation shall not be acceptable as a substitute for the manufacturer's corporation in meeting this requirement. This requirement for unit responsibility shall in no way relieve the Contractor of his responsibility for performance of all systems as provided in the GENERAL CONDITIONS Section (00 72 00).

C. The Contractor shall ensure that all equipment systems provided for the project are products for which unit responsibility has been accepted by the responsible manufacturer. Certificates shall be signed by an officer of the manufacturer's corporation.

PART 2 -- PRODUCTS

2.01 ACCEPTABLE PRODUCTS

A. Slide gates must be heavy duty and engineered with material thicknesses to resist the operating forces. The components' overall weights and thicknesses must be comparable to those of manufacturers' of acceptable products. Acceptable slide gate products are Fontaine, Waterman, or equal, modified as required to meet the specifications.

2.02 OPERATING REQUIREMENTS

A. Equipment operational requirements are listed in the SLIDE GATE SCHEDULE Section (40 06 20.30).

2.03 MATERIALS/EQUIPMENT

A. GENERAL:

1. Slide gates shall be designed and fabricated in accordance with AWWA C561 and as modified herein.

2. Welded connections shall be fully welded. Skip welding is not acceptable.

3. Seams shall be fully welded. Skip welding is not acceptable.

B. FRAME:

1. Frames shall be ASTM A240 or A276, Type 304L stainless steel.

2. Frame guide members and invert members shall be constructed of bent or formed stainless steel plates. Frame guide members and frame invert members that are fabricated by welding multiple shapes together are not acceptable.

3. For self-contained gates, frame yoke members shall be constructed of bent or formed stainless steel plates, or structural stainless steel shapes. Frame yoke members that are fabricated by welding multiple shapes together shall have all seams fully welded. Frame yoke members shall be designed so that its deflection is less than 1/360 of the span when the gate is operated at the maximum actuator thrust with the safety factor as indicated in the governing standard.

C. GATE SLIDE:

1. Gate slide shall be ASTM A240 or A276, Type 304L stainless steel plate reinforced with structural shapes welded to the plate. Maximum deflection shall be 1/720 of the span under maximum head conditions.

D. STEM:

1. Stems shall be ASTM A276 stainless steel, Type 303 or 304. Gates shall have single rising stems with Acme threads.

E. SEATS:

1. General: Seats shall provide a leakage rate less than 0.1 gpm per linear foot of wetted seal perimeter in both seating and unseating conditions per AWWA C561.

2. TYPE UO-S3S GATES (DELETED)

3. TYPE DO-S3S GATES (DELETED)

4. TYPE UO-S4S GATES:

1) Side and top seats shall be ASTM D4020 UV-resistant UHMW polyethylene on the upstream, edge and downstream sides of the slide plate. UHMW seats must be self-energized with an elastomeric o-ring behind the UHMW seat to provide sealing pressure against the slide plate. J-bulb or P-bulb type rubber seals are not acceptable.

2) Bottom seat shall be a flush bottom style, utilizing an ASTM D2000 neoprene elastomer.

F. OPERATOR:

1. Manual operators and powered actuators shall be as specified in ACTUATORS FOR PROCESS VALVES AND GATES Section (40 05 57).

2. Type of operator for each gate shall be as specified in the SLIDE GATE SCHEDULE Section (40 06 20.30).

G. FASTENERS:

1. Fasteners and adjusting hardware shall be ASTM A193 Grade B8 or A276 or F593 Group 1 stainless steel, Type 304.

H. ACCEPTABLE PRODUCTS:

1. Slide gates must be heavy duty and engineered with material thickness to resist the operating forces. The components' overall weights and thickness must be comparable to those manufacturers of acceptable products. Acceptable slide gate products are Fontaine model 203; Waterman model SS-251-1-Y series; Whipps model 924; or equal, modified as required to meet the specifications.

2.04 NAMEPLATES

A. Nameplates shall be provided on each item of equipment. Equipment nameplates shall be 16-gauge aluminum bearing the equipment name and equipment number legibly engraved in ¾ inch high letters. Nameplates shall be attached to the equipment in an accessible location with stainless steel screws.

PART 3 -- EXECUTION

3.01 GENERAL (NOT USED)

3.02 INSTALLATION

A. Slide gates and operators shall be installed in accordance with the drawings and the manufacturer's recommendations.

3.03 TESTING

A. Testing for the gates and associated operators shall be in accordance with the COMMISSIONING Section (01 91 00) and the ACTUATORS FOR PROCESS VALVES AND GATES Section (40 05 57). The installed gate and operator assemblies shall be tested for proper alignment, balancing, and smooth operation.

B. Gates and operators shall be adjusted in accordance with the manufacturer's recommendations.

C. Field leakage test shall be conducted in accordance with AWWA C561.

3.04 TRAINING (DELETED)

****END OF SECTION****

SECTION 40 06 20.30

FABRICATED SLIDE GATE SCHEDULE

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

1. This section specifies operating conditions for fabricated slide gates. Refer to the FABRICATED SLIDE GATES Section (40 05 59.37) for descriptions of types, frames, seals, operators, and appurtenances. Operators shall be in accordance with the ACTUATORS FOR PROCESS VALVES AND GATES Section (40 05 57).

1.02 REFERENCES (NOT USED)

1.03 SUBMITTALS (NOT USED)

1.04 OPERATION AND MAINTENANCE INSTRUCTIONS (NOT USED)

PART 2 -- PRODUCTS

2.01 OPERATING REQUIREMENTS

A. GATE SCHEDULE:

Equipment Number	Gate Size, inch x inch	Gate Type[a]	Opening Direction[b]	Frame Type[c]	Bottom Seating[d]	Service[e]	Max Seating Design Head, feet	Max Unseating Design Head, feet	Max ΔP, Both Directions, feet	Operator Type[f]
SLG44214	24w x 24h	SS	UO	SC	FB	O/C	10	10	10	MLQ

Notes:

[a] TYPE 1 = stainless steel; TYPE 2 = aluminum;

[b] UO = upward opening ; DO = downward opening

[c] C = conventional; SC = self-contained

[d] FB = flush bottom; S = standard

[e] O/C = open/close; M = modulating

[f] Operator type per the ACTUATORS FOR PROCESS VALVES AND GATES Section (40 05 57) (For example: MLQ = manual lever quarter turn operator)

PART 3 -- EXECUTION

3.01 GENERAL (NOT USED)

3.02 INSTALLATION (NOT USED)

3.03 TESTING (NOT USED)

3.04 TRAINING (NOT USED)

****END OF SECTION****