

**SECTION 00010**

**TITLE PAGE**



**SAN LORENZO VALLEY WATER DISTRICT  
13060 CA-9 BOULDER CREEK, CALIFORNIA 95006**

**FALL CREEK FISH LADDER REHABILITATION**

**OCTOBER 2022 REBID**

**BID DOCUMENTS VOLUME I OF II**

**BIDDING REQUIREMENTS, CONTRACT FORMS,  
CONDITIONS OF THE CONTRACT AND  
TECHNICAL SPECIFICATIONS**

**APPROVED:**

A handwritten signature in black ink, appearing to read "Rick Rogers", is written over a horizontal line.

**Rick Rogers District  
Manager**

**SECTION 00015**

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**SECTION 00015**

**NOTICE OF INVITING BIDS**

**RECEIPT AND OPENING OF BIDS.**

- A. Bids will be received in writing by Holly Hossack at SLVWD, 13060 CA-9 Boulder Creek, CA 95006 until 10:00 a.m. on December 20, 2022, for construction of the work entitled:

**FALL CREEK FISH LADDER REHABILITATION**

**DESCRIPTION OF WORK:** The project consists of modification to the existing Fish Ladder weirs, construction of two new weirs, refurbishment of the existing raw water intake pump system, and associated work as shown on the Improvement Plans; to include but not be limited to temporary stream diversion and intake construction; demo, grading, concrete work, construction of access structures, fencing, erosion control, electrical systems, and piping improvements.

**SITE OF WORK:** Fall Creek Fish Ladder, located at 545 Fall Creek Drive Felton, CA 95018

- B. Bids will be opened at the time and place noted above. There will be no in-person bid opening, bidders are instead invited to attend a virtual Bid Opening:

<https://meet.goto.com/921781077>

- C. The Owner shall not open any bids received after the time specified above and shall return the unopened Bids to the Bidder.

**SECURING BID DOCUMENTS.** Bidders may examine the Contract Documents at 13060 CA-9, Boulder Creek, California, 95006. The project specifications and bidding documents will be available on the San Lorenzo Valley Water District website at: <https://www.slvwd.com/doing-business/pages/bid-opportunities>. Copies may be obtained at SLVWD, for a non-refundable cost of **\$200.00** per set. Prospective bidders must arrange to collect the specifications and bidding documents at SLVWD at their own cost. The complete RFP, including specifications and bidding documents, is available on the District website at <https://www.slvwd.com/doing-business/pages/bid-opportunities>

**PRE-BID MEETING.** A mandatory pre-bid meeting and site walk is scheduled for 10:00 a.m. on November 8, 2022. Prospective Bidders should meet at the project site.

**CONTRACT TIME.** The contract time is hereby established as 270 calendar days. The contract time shall be consecutive calendar days from the date of receipt of the Notice to Proceed. Note that work within or directly affecting the creek bed, water, and/or banks below the Ordinary High Water Mark (OHWM) is restricted to the period June 15, 2023 through and including October 15, 2023 by the California Department of Fish and Wildlife and is **non-negotiable**. The District

prefers that all work within or directly affecting the creek bed, water, and/or banks below the OHWM be completed prior to September 30, 2023.

OVERTIME. Prospective Bidders shall identify in their Bids any overtime work or work outside the hours of 8:00 A.M. – 5:00 P.M., Monday – Friday necessary to meet the specified deadline.

LIQUIDATED DAMAGES. The fixed liquidated damages amount is hereby established as \$1,000 for each calendar day of unauthorized delay in completion of the Work.

BONDS. The Bidder to whom the award is made will be required to submit a payment bond and a performance bond, each in a principal amount not less than one hundred percent (100%) of the total Contract Price.

BIDS. Bidders must comply with and agree to all instructions and requirements in this Notice and in the Instructions to Bidders, including post-bidding procedures.

- A. All Bids must be submitted on the prescribed Bid Form.
- B. Bid security or a bid guaranty bond, in an amount not less than ten percent (10%) of the Total Bid amount, is required to be submitted with the Bid.
- C. Requests for interpretation of the Contract Documents shall be submitted to Josh Wolff, District Engineer at SLVWD in writing to [JWolff@slvwd.com](mailto:JWolff@slvwd.com) no later than 4:00 p.m., December 12, 2022. SLVWD will release a final response to requests for interpretation no later than 5:00 p.m. December 14, 2022. All requests and responses thereto will be posted to the District's website <https://www.slvwd.com/doing-business/pages/bid-opportunities> not later than 5:00 p.m. December 14, 2022.
- D. The successful Bidder shall execute the Contract Agreement within ten (10) work days after the date of the Notice of Award.
- E. The successful Bidder shall furnish insurance in accordance with the Contract Documents before execution of the Contract Agreement. The required insurance includes, but is not limited to, Contractor's Installation All Risk Insurance covering the value of the Work and all materials and equipment to be incorporated therein while at the site and during inland transit insuring the replacement value, subject to a deductible not to exceed \$5,000 for any single loss. This insurance shall also contain an insurer's waiver of subrogation against SLVWD, and it shall specifically cover losses due to earthquake and flooding.
- F. SLVWD may withhold issuance of the Notice to Proceed for a period not to exceed sixty (60) calendar days after the date the Contract Agreement is executed.
- G. The Contractor shall start the Work within ten (10) work days after the date of the Notice to Proceed. Bidders not prepared to conform to this start date requirement shall provide a proposed starting date with their Bid.

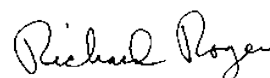
H. SECURITY SUBSTITUTIONS FOR MONEYS WITHHELD TO INSURE CONTRACTOR'S PERFORMANCE.

In accordance with Section 22300 of the State of California Public Contract Code, the Contractor, at his request and expense, will be permitted to substitute equivalent securities for any monies withheld to ensure performance. Upon satisfactory completion of the Contract, the Contractor shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from SLVWD, pursuant to the terms of Section 22300. Refer to applicable portions of the Escrow Agreement (Section 00630) for Security Deposits in Lieu of Performance Retention included with the

Contract Documents. The Contractor shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon.

- I. Contractor shall possess a Class 'A' Contractor's License at the time of bid submission and award of the Contract.
- J. Pursuant to Sections 1770 *et seq.* of the State of California Labor Code, the successful bidder shall pay not less than the prevailing rate of per diem wages as determined by the Director of the Department of Industrial Relations. SLVWD has obtained the general prevailing rate of per diem wages in the locality in which this work is to be performed for each craft or type of worker needed to execute the contract from the Director of the Department of Industrial Relations. These rates are on file at SLVWD located at 13060 CA-9, Boulder Creek, California, 95006 or may be obtained from the State of California, Division of Labor Statistics and Research at (415) 557-0561. Copies may be obtained on request. A copy of these rates shall be posted at the job site.
- K. No contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725. No contractor or subcontractor may be awarded a contract for public work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5. This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.
- L. SLVWD reserves the right to reject any and all bids.

APPROVAL. This Notice is approved and authorized by SLVWD this 31<sup>st</sup> day of October, 2022.



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Rick Rogers  
District Manager

**END OF SECTION 00020**

**SECTION 00100**

**INSTRUCTIONS TO BIDDERS**

IB-01 **GENERAL.** Sealed bids will be received only to the care of Holly Hossack at CA-9, Boulder Creek, California, 95006, Telephone (831) 338-2153 for the construction of the Work entitled:

**FALL CREEK FISH LADDER REHABILITATION**

The Contract Documents will be available for examination without charge, and copies may be secured and examined at SLVWD. Terms used in the Bidding Requirements shall have the meanings defined in the Conditions of the Contract.

IB-02 **EXAMINATION BY BIDDERS.** At his/her own expense and prior to submitting a Bid, each Bidder shall (a) examine the Contract Documents, (b) visit the site and determine the local conditions which in any way affect the performance of the Work, including access to the site, prevailing wages, and other pertaining cost factors, (c) familiarize himself/herself with all Federal, State, and local laws, ordinances, rules, regulations, and codes affecting the performance of the Work, including the cost of permits and licenses required for the Work, (d) make such surveys and investigations, including investigation of subsurface or latent physical conditions at the site or where Work is to be performed, as he/she may deem necessary for performance of the Work at his/her Bid price within the terms of the Contract Documents, (e) determine the character, quality, and quantities of the Work to be performed and the materials and equipment to be provided, and (f) correlate his/her observations, investigations, and determinations with the requirements of the Contract Documents. The Contract Documents show and describe the existing conditions as they are believed to exist, and the surveys, investigations and other data which have been used in the design of the Work. Except as provided otherwise by law or these Contract Documents, neither SLVWD nor the Engineer shall be liable for any loss sustained by the Contractor resulting from any variance between the conditions and design data given in the Contract Documents and the actual conditions revealed during the Bidder's examination or during the progress of the Work. The submission of a Bid shall be incontrovertible evidence that the Bidder has complied with all the requirements of this Section.

IB-03 **QUALIFICATIONS OF BIDDERS.**

- A. At time of bid submission, all Bidders must currently possess a Class 'A' Contractor's License, according to the laws of the State and legal jurisdiction of the place where the Work is located, and meet the qualifications stipulated hereinafter. All Subcontractors desiring to bid on the Work must possess a Contractor's License within their individual specialties.
- B. All bidders shall have recent experience, defined as acting a prime contractor or self-



performing all work for a project involving demolition, cast in place concrete construction, dewatering, retaining walls and retaining wall tie backs, raw water intake construction, and electrical control installation within a stream bed in California within the last 10 years as of the bid date. Note that the experience requirement may be met by employment of a sub-contractor meeting the requirement.

- C. No person, organization, or corporation is allowed to make, submit, or be interested in more than one Bid for the Work unless in a subcontractor relationship with respect to the Bids or unless Alternative Bids are required. A person, organization, or corporation submitting sub-proposals or quoting prices on materials to Bidders is not prevented from submitting a Bid for the entire Work.
- D. At the time of bid submission, all Bidders must be currently registered with the Department of Industrial Relations ("DIR") and have paid the annual fee pursuant to Section 1725.5 of the California Labor Code.

IB-04 PREPARATION AND SUBMISSION OF BIDS.

- A. Bids shall be submitted on the prescribed Bid Document Forms Volume II bound herein. All bid items and statements shall be properly filled out. Numbers shall be stated both in words and in figures, where so indicated, and the signatures of all persons signing shall be in longhand. Where there is a conflict in the words and the figures, the words will govern. An appropriate Power of Attorney shall be submitted if the Bid is executed by other than an official of the Bidder, showing that signer of Bid has the authority to obligate the Bidder. **BID DOCUMENT VOLUME II MUST BE SUBMITTED AS A WHOLE, BOUND AND INTACT. DO NOT REMOVE ANY PAGES FROM BID DOCUMENT VOLUME II. ANY ADDENDA SHALL BE STAPLED TO BID DOCUMENT VOLUME II AND SHALL BECOME A PART OF THIS DOCUMENT. FAILURE TO DO SO WILL RESULT IN AN IMMEDIATE REJECTION OF THE BID. ADDITIONAL SHEETS ARE ALLOWABLE, AND MAY BE STAPLED TO THE BACK OF BID DOCUMENT VOLUME II.**
- B. Prices, wording, and notations must be in ink or typewritten. No erasures will be permitted. Mistakes may be crossed out and corrections typed or written in ink adjacent thereto, and must be initialed in ink by the person or persons signing the Bid or the authorized agent. Any alterations in the Contract Documents not thus initialed will be disregarded.
- C. Bids shall not contain any recapitulation of the Work or change in the phraseology. Unauthorized conditions, limitations or provisions attached to a Bid will render it informal and may cause its rejection. Alternative Bids or Incomplete Bids will not be received or considered unless required by the Contract Documents. No oral, facsimile, or telephonic proposals or modifications will be considered.

- D. Delivery of Bids shall comply with Specific Provisions as to place, date, and time. Bids shall be enclosed in a sealed opaque envelope bearing the Work title.
- E. In the event that the Bidder is a joint venture, there shall be submitted with the Bid, certifications signed by authorized officers of each of the parties to the joint venture, naming the individual who shall be the agent of the joint venture. The individual shall sign all necessary documents for the joint venture, and should the joint venture be the successful Bidder, shall act in all matters relative to the Contract resulting therefrom for the joint venture.
- F. Mailed Bids must be sent by the U.S. Postal Service, Registered or Certified Mail, Return Receipt Requested. The return receipt will be endorsed to show the date and time received. Mailed Bids not received at the required place before the date and time set for the receipt of Bids will be rejected. Misdirection of mailed Bids resulting in receipt of the Contractor's Bid after the required date and time will render the Bid non-responsive and will result in rejection of the Bid.

IB-05 WITHDRAWAL OF BIDS. Any Bidder may withdraw his Bid prior to the date and time set for the receipt of Bids, either in person or by written notice delivered to SLVWD before said date and time. Faxed withdrawal notices are not allowed. Mailed withdrawal notices must be received before said date and time. Misdirection of mailed withdrawal notices resulting in receipt of said notice after the date or time set for receipt of Bids will render the withdrawal notice invalid.

IB-06 INTERPRETATIONS. Should any Bidder find discrepancies in or omissions from the Contract Documents, or if there should be doubt as to the true meaning of any part thereof, the Bidder shall at once submit a written request for correction, clarification, or interpretation. Such requests shall be submitted in writing to SLVWD to [JWolff@slvwd.com](mailto:JWolff@slvwd.com) no later than the date and time specified in the Notice of Inviting Bids, Section 00020.

- A. If SLVWD or the Engineer determines the Contract Documents require changes, correction, clarification, or interpretation prior to the receipt of Bids, an appropriate Addendum will be issued.
- B. SLVWD, the Engineer, and their officers, employees, and agents will not be responsible for any changes, instructions, clarifications, interpretations, or other information pertaining to the Contract Documents given to Bidders during the bidding period in any manner other than written Addendum.

IB-07 BID PRICES.

- A. Bid prices shall be stated in United States dollars.
- B. Each proposed lump sum or unit price shall cover all costs and charges, including

without limitation the costs of materials, labor, fabrication, construction, delivery, installation or application, supervision, insurance charges, overhead, profit, and taxes.

- C. No separate payment will be made for items other than those on the Bid Proposal Form unless specifically mentioned in these Contract Documents. The costs of overhead, administration, materials, equipment, supplies, insurance, bonds, meetings, temporary facilities, construction utilities, quality control not otherwise specified, and all other such items specified, indicated, or otherwise required to complete the Work, shall be included in the unit prices and/or lump sum prices.
- D. The Bid price for mobilization shall not exceed five percent (5%) of the cumulative total price for all other items identified in the Bid Proposal Form. (See Section 01505 regarding mobilization.)

IB-08 SUBCONTRACTOR LIST. Each Bidder shall list in the spaces provided in the Bid Proposal Form: (1) the name and business address of each Subcontractor proposed to perform or render service for a portion of the Work, or to specially fabricate and install a portion of the Work, if the value of such subcontracted portion exceeds one-half of one percent (0.5%) of the Bidder's total aggregate Bid amount, and (2) the portion of the Work to be performed by each proposed Subcontractor. Only one Subcontractor shall be listed for each portion of the Work so defined by the Bidder. Proposed Subcontractors must be licensed according to the State and jurisdiction where the Work is located. Proposed Subcontractors must be registered with the DIR and have paid the annual fee pursuant to Section 1725.5 of the California Labor Code. No change may be made to the listing after receipt of Bids without the written consent of SLVWD.

IB-09 ADDENDA. Full consideration shall be given to all Addenda in the preparation of Bids, as Addenda form a part of the Contract Documents. Bidders shall verify the number of Addenda issued, if any, and acknowledge the receipt of all Addenda in the Bid. Failure to so acknowledge may cause the Bid to be rejected. Addenda may modify previously issued Addenda. No Addendum will be issued within 72 hours of the advertised Bid closing date and time without an appropriate adjustment to the Bid closing date and time.

IB-10 AWARD. Bids will be publicly opened and read aloud at SLVWD. Award of the Contract or the rejection of Bids will be made during the time accorded to review Bids.

- A. Bids shall be evaluated based on total cost, contractor experience, and District needs.
- B. The Contract for the Work, if awarded, will be awarded to the eligible Bidder submitting the lowest responsive responsible Bid complying with A, above, and in conformance with these Instructions to Bidders, and other bidding requirements in the Contract Documents. By submitting a Bid, each Bidder agrees and consents that SLVWD, in determining the successful Bidder and his eligibility for the award, may ascertain and consider the Bidder's experience and facilities, conduct and performance under other contracts, financial condition, reputation in the industry,

and other factors which could affect the Bidder's performance of the Work.

- C. The lowest Bid will be determined based on the Total Bid amount identified on all Bids received by SLVWD.
- D. The successful Bidder shall execute the Contract Agreement within ten (10) work days after the date of the Notice of Award. The contract time is hereby established as consecutive work days from the date of receipt of the Notice to Proceed. Bidder shall furnish Proof of Insurance as required herein, and the Contract Agreement shall be executed in the form provided by SLVWD.
- E. If a Bidder receiving a Notice of Award fails or refuses to execute the Contract Agreement within the stated time limit or fails or refuses to furnish Proof of Insurance as required herein, SLVWD may annul the award and issue an award to the next lowest responsive responsible Bidder or may reject all Bids.
- F. A corporation receiving the award shall furnish evidence of its corporate existence and evidence that the person signing the Contract Agreement for the corporation is duly authorized to do so.

IB-11 INSURANCE. The successful Bidder shall furnish to SLVWD evidence of insurance ensuring the payment of all obligations arising from the Work. Insurance shall comply with the requirements in the General Conditions. Insurance certificates shall be delivered to SLVWD at the time and place the Contract Agreement is executed.

IB-12 RIGHTS RESERVED. SLVWD reserves the right to reject any or all Bids, to waive any informality or irregularity in any Bid, to have performed the entire Work defined by the Contract Documents or such parts of said Work as SLVWD may elect, to combine various alternative bids and bid items within a Bid, and to accept or reject one or more separately scheduled bid items within a Bid. SLVWD further reserves the right to withhold issuance of the Notice to Proceed, after execution of the Contract Agreement, for the period not to exceed sixty (60) calendar days after the date the Contract Agreement is executed. No additional payment will be made to the successful Bidder on account of such withholding.

IB-13 LOCAL WAGE RATES. In accordance with the laws of the state Department of Industrial Relations and jurisdiction where the Work is located, SLVWD has determined and adopted the general prevailing per diem wages, including wages for overtime and holiday work, for each craft or type of workman needed in the execution of the Work. Said wages shall be the minimum paid to workmen employed for the Work. Copies of the wage determination are on file and may be obtained by interested parties at San Lorenzo Valley Water District, 13060 CA-9, Boulder Creek, California 95006

**END OF SECTION 00100**

FALL CREEK FISH LADDER REHABILITATION  
San Lorenzo Valley Water District

Contract Agreement  
00500-0

**SECTION 00500**

**CONTRACT AGREEMENT**

THIS CONTRACT AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_,  
\_\_\_\_\_, by and between San Lorenzo Valley Water District, 13060 CA-9, Boulder Creek, CA 95006,  
hereinafter called "SLVWD" and

\_\_\_\_\_, hereinafter called "Contractor".

**WITNESSETH**

WHEREAS, SLVWD has caused Specifications and other Contract Documents to be prepared for certain Work described as the

**FALL CREEK FISH LADDER REHABILITATION**

WHEREAS, Contractor has offered to perform the proposed Work in accordance with the terms of the Contract Documents,

NOW, THEREFORE, in consideration of the mutual covenants and agreements of the parties herein contained and to be performed, Contractor hereby agrees to complete the Work at the prices and on the Terms and conditions herein contained, and SLVWD hereby employs the Contractor and agrees to pay him/her the Contract Prices provided herein for the fulfillment of the Work and the performance of the covenants set forth herein.

- A. **The contract time is hereby established as 270 calendar days. The contract time shall be consecutive work days from the date of receipt of the Notice to Proceed.**

The further terms, conditions and covenants of the Contract are set forth in the following exhibit parts, each of which is by this reference made a part hereof:

- Legal and Procedural Documents, including the Bidding Requirements and the Contract Forms;
- Conditions of the Contract;
- Specifications, including Technical Specifications;
- Addenda;
- Notice of Award; and
- Notice to Proceed.

For each calendar day of unauthorized delay in completion of the work, Contractor shall be assessed liquidated damages. The provisions of section 4.4 of the General Conditions are incorporated herein by reference. This provision shall be construed in accordance with Government Code Section 53069.85.

IN WITNESS WHEREOF, this Contract Agreement has been executed on the day and year first above written.

**San Lorenzo Valley Water District**

SLVWD

\_\_\_\_\_  
Contractor

by: \_\_\_\_\_  
Signature

\_\_\_\_\_  
License No.

**Rick Rogers, District Manager**  
Name/Title

by: \_\_\_\_\_  
\*Signature

\_\_\_\_\_  
Name/Title (Please Print)

ATTEST:

ATTEST:

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature

**Holly Hossack, Executive Secretary**

Name /Title

\_\_\_\_\_  
Name/Title (Please Print)

APPROVED:

By: \_\_\_\_\_  
Signature

**Gina R. Nicholls, Legal Counsel**  
Name /Title

*\*Signature must be accompanied by notarized document citing the individual's relationship to the Party of the Contract and his/her power to sign on behalf of the Party.*

END OF SECTION 00500



**SECTION 00610**

**PERFORMANCE BOND**

KNOW ALL MEN AND WOMEN BY THESE PRESENTS:

THAT \_\_\_\_\_, hereinafter called Principal, and \_\_\_\_\_ hereinafter called Surety, are jointly and severally held and firmly bound unto the San Lorenzo Valley Water District, 13060 CA-9, Boulder Creek, CA 95006, hereinafter called SLVWD, its successors and assigns in the penal sum of \_\_\_\_\_ Dollars (\$\_\_\_\_\_) lawful money of the United States, for the payment whereof until, the Principal and Surety jointly and severally bind themselves, their heirs, executors, administrators, and successors, jointly and severally, forever firmly by these presents.

WHEREAS, SLVWD has awarded to Principal the Work entitled:

**FALL CREEK FISH LADDER REHABILITATION** (the "Contract"), and

WHEREAS, Principal is required under the terms of the Contract to furnish a bond for the faithful performance of the Contract,

NOW, THEREFORE, the condition of this obligation is such that if Principal shall faithfully perform the covenants, conditions, and agreements in the Contract and any changes made as therein provided, at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save or hold harmless SLVWD, its directors, officers, employees, Engineer, and agents as therein stipulated, then this obligation shall become null and void; otherwise, it shall remain in full force and virtue, and Principal and Surety, in the event suit is brought on this bond, will pay to SLVWD sufficient funds to complete the Scope of Work required by the Contract.

As a condition precedent to the satisfactory completion of the Contract, the above obligation shall hold good for a period of not less than one (1) year after the completion of the Work and its acceptance by SLVWD, during which time if Principal, his/her or its heirs, executors, administrators, successors, or assigns shall fail to make full, complete, and satisfactory repair and replacements and totally protect SLVWD from loss or damage made evident during the period of not less than one (1) year from the date of acceptance of the Work, and resulting from or caused by defective materials and/or faulty workmanship, the above obligation in penal sum thereof shall remain in full force and effect. However, notwithstanding anything in this paragraph to the contrary, the obligation of Surety hereunder shall continue so long as any obligation of Principal remains.

AND, Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed there under or the Specifications accompanying the same, shall in any way affect its obligations to this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Work or to the Specifications. The Surety hereby waives the provisions of Sections 2819 and 2845 of the Civil Code of the State of California.

As part of the obligation secured hereby and in addition to the amount specified therefore, there shall be included costs and reasonable expenses and fees, including reasonable attorneys' fees and court costs, incurred by SLVWD in successfully enforcing any and all obligations hereunder, all to be taxed as costs and included in any judgment rendered.

AND IT IS HEREBY DECLARED AND AGREED that this obligation shall be binding upon and inure to the benefit of Principal, Surety, and SLVWD and their respective heirs, executors, administrators, successors, and assigns.

SIGNED AND SEALED THIS \_\_\_\_\_ day of \_\_\_\_\_, 202\_\_.

\_\_\_\_\_  
Principal

By: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Surety

By: \_\_\_\_\_  
Signature

\_\_\_\_\_  
(Surety's Mailing Address)

\_\_\_\_\_  
(Telephone Number)

(Attach Notary Acknowledgement of Surety)

Approved as to form this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

FALL CREEK FISH LADDER REHABILITATION  
San Lorenzo Valley Water District

Performance Bond  
00610-3

---

Attorney for SLVWD

NOTE: *The principal amount of this bond shall not be less than one hundred percent (100%) of the total Contract Price.*

END OF SECTION 00610

**SECTION 00620**

**PAYMENT BOND**

KNOW ALL MEN AND WOMEN BY THESE PRESENTS:

THAT \_\_\_\_\_, hereinafter called Principal, and \_\_\_\_\_  
\_\_\_\_\_, hereinafter called Surety, are jointly and severally  
held and firmly bound unto the San Lorenzo Valley Water District, 13060 CA-9, Boulder Creek,  
CA 95006, hereinafter called SLVWD, its successors and assigns in the penal sum of  
\_\_\_\_\_ Dollars (\$\_\_\_\_\_) lawful money of the United States,  
for the payment whereof unto SLVWD, the Principal and Surety jointly and severally bind  
themselves, their heirs, executors, administrators, and successors, jointly and severally, forever  
firmly by these presents.

WHEREAS, SLVWD has awarded to Principal the Work entitled:

**FALL CREEK FISH LADDER REHABILITATION** (the "Contract"), and

WHEREAS, said Principal is required to furnish a Payment Bond in connection with said  
Contract.

NOW, THEREFORE, the condition of this obligation is such that if said Principal, his/her  
or its heirs, executors, administrators, successors, or assigns, or any of his/her or its  
Subcontractors, shall fail to pay any of the persons named in Civil Code Section 3181, or amounts  
due under the Unemployment Insurance Code with respect to work or labor performed under the  
Contract, or for any amounts required to be deducted, withheld, and paid over to the Franchise  
Tax Board from the Wages of employees of the Principal and his/her subcontractors pursuant to  
Section 18668 of the Revenue and Taxation Code, with respect to such work and labor, or any  
amounts required to be deducted, withheld, and paid over the Employment Development  
Department from the wages of employees of the Principal and Subcontractors pursuant to Section  
13020 of the Unemployment Insurance Code with respect to the work and labor, or for any work  
or labor for which a bond is required by the provisions of Sections 3247 through 3252 of the Civil  
Code, and provided that the persons, companies, or corporations so furnishing said materials,  
provisions, or other supplies, appliances, owned or used, in, upon, for, or about the performance  
of the work contracted to be executed or performed, or any person who performs work or labor  
upon the same, or any person who supplies both work and materials, thereto, shall have complied  
with the provisions of the Civil Code, then the Surety will pay the same or an amount not  
exceeding the amount herein above set forth, and also will pay in case suit is brought upon this  
bond, reasonable attorneys' fees and costs of SLVWD as shall be fixed by the court.

This bond shall insure to the benefit of any and all persons, companies, and corporations entitled to file claims under Section 3181 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the Work to be

performed thereunder, or the Specifications accompanying the same shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Work or to the Specifications.

The Surety hereby waives the provisions of Sections 2819 of the Civil Code.

AND IT IS HEREBY DECLARED AND AGREED that this obligation shall be binding upon and inure to the benefit of Principal, Surety, and SLVWD and their respective heirs, executors, administrators, successors, and assigns.

SIGNED AND SEALED THIS \_\_\_\_\_ day of \_\_\_\_\_, 202\_\_.

\_\_\_\_\_  
Principal

By: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Surety

By: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Surety's Mailing Address

\_\_\_\_\_  
Telephone Number

*(Attach Notary Acknowledgement of Surety)*

FALL CREEK FISH LADDER  
REHABILITATION San Lorenzo Valley Water

Payment Bond  
00620-3

Approved as to form this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_

Attorney for SLVWD

NOTE: *The principal amount of this bond shall not be less than one hundred percent (100%) of the total Contract Price.*

END OF SECTION 00620

**SECTION 00630**

**ESCROW AGREEMENT FOR SECURITY DEPOSIT IN LIEU OF RETENTION**

This Escrow Agreement is made and entered into by and between San Lorenzo Valley Water District (SLVWD) whose address is 13060 CA-9, Boulder Creek, CA 95006 hereinafter called "SLVWD" and \_\_\_\_\_ whose address is

\_\_\_\_\_  
"Contractor," and \_\_\_\_\_  
hereinafter called whose address is \_\_\_\_\_  
\_\_\_\_\_ hereinafter called "Escrow Agent."

For the consideration hereinafter set forth, SLVWD, Contractor, and Escrow Agent agree as follows:

(1) Pursuant to Section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with an Escrow Agent as a substitute for retention earnings required to be withheld by SLVWD, pursuant to the Construction Contract entered into between SLVWD and Contractor for:

**FALL CREEK FISH LADDER REHABILITATION**

in the amount of \_\_\_\_\_ dated \_\_\_\_\_ (hereinafter referred to as the "Contract"). Alternatively, on written request of the Contractor, SLVWD shall make payments of the retention earnings directly to the Escrow Agent. When Contractor deposits the securities as a substitute for Contract earnings, the Escrow Agent shall notify SLVWD within ten (10) calendar days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between SLVWD and Contractor. Securities shall be held in the name of SLVWD, and shall designate the Contractor as the beneficial owner.

(2) SLVWD shall make progress payments to the Contractor for such funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.

(3) When SLVWD makes payment of retention earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until such time as the escrow created under this Contract is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this agreement and the rights and responsibilities of the parties shall be equally applicable and binding when SLVWD pays the Escrow Agent directly.

(4) Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of SLVWD. These expenses and payment terms shall be determined by SLVWD. Contractor and Escrow Agent.

(5) The interest earned on the securities or the money market accounts held in

escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by the Contractor at any time and from time to time without notice to SLVWD.

(6) Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from SLVWD to the Escrow Agent that SLVWD consents to the withdrawal of the amount sought to be withdrawn by Contractor.

(7) SLVWD shall have a right to draw upon the securities in the event of default by the Contractor. Upon seven (7) calendar days' written notice to the Escrow Agent from SLVWD of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by SLVWD.

(8) Upon receipt of written notification from SLVWD certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.

(9) Escrow Agent shall rely on the written notifications from SLVWD and the Contractor pursuant to Sections (5) to (8), inclusive, of this agreement and SLVWD and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.

(10) The names of the persons who are authorized to give written notice or to receive written notice on behalf of SLVWD and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

*On behalf of SLVWD:*

District Manager

Title

Rick Rogers

Name

\_\_\_\_\_  
Signature

13060 CA-9, Boulder Creek, California 95006

Address

*On behalf of Contractor:*

\_\_\_\_\_  
Title

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Address

*On behalf of Escrow Agent:*

\_\_\_\_\_



Title

---

Name

---

Signature

---

Address

At the time the Escrow Account is opened, SLVWD and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

San Lorenzo Valley Water District

Contractor

---

District Manager  
Title

---

Title

---

Rick Rogers  
Name

---

Name

---

Signature

---

Signature

END OF SECTION 00630

**SECTION 00655**

**WORKER'S COMPENSATION INSURANCE CERTIFICATE**

The Contractor shall execute the following form as required by the California Labor Code, Sections 1860 and 1861:

I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of this Contract.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Contractor

By: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Name/Title (Please Print)

ATTEST:

By: \_\_\_\_\_ Signature

\_\_\_\_\_  
Name/Title (Please Print)

END OF SECTION 00655

**SECTION 00657**

**CERTIFICATE OF CONTRACTOR**

I, \_\_\_\_\_, certify that I am a/the  
\_\_\_\_\_(designate sole proprietor, partner in partnership, or specify  
corporate office, e.g., secretary) in the entity named as Contractor in the foregoing Contract. I  
hereby expressly certify that the name of the entity to which I am associated is  
\_\_\_\_\_; that this  
entity is in good standing and has complied with all applicable laws and regulations, and that I  
have been expressly authorized by the proper parties in this entity to execute this contract on behalf  
of the above-named entity.

\_\_\_\_\_  
Date

By: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Name/Title (Please Print)

ATTEST:

By: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Name/Title (Please Print)

FALL CREEK FISH LADDER REHABILITATION  
San Lorenzo Valley Water District

Certificate of Contractor  
00657-1

END OF SECTION 00657

**CONTRACTOR RELEASE**

## FALL CREEK FISH LADDER REHABILITATION

Period Work Performed: \_\_\_\_\_

RETENTION AMOUNT FOR THIS PERIOD: \$\_\_\_\_\_

[illegible]

The Contractor further expressly waives and releases any claim the Contractor may have, of whatever type or nature, for the period specified which is not shown as a retention amount or a disputed claim on this form. This release and waiver has been made voluntarily by Contractor without any fraud, duress, or undue influence by any person or entity.

Contractor further certifies, warrants, and represents that all bills for labor, materials, and work due Subcontractors for the specified period have been paid in full and that the parties signing below on behalf of Contractor have express authority to execute this release.

Dated: \_\_\_\_\_  
(Print Name of Contractor)

\_\_\_\_\_  
(Describe Entity: Partnership, Corporation, etc.)

By: \_\_\_\_\_

By: \_\_\_\_\_

By: \_\_\_\_\_

END OF SECTION 00660

**SECTION 00662**

**CONTRACTOR'S CERTIFICATE REGARDING WORKERS' COMPENSATION**

**FALL CREEK FISH LADDER REHABILITATION**

Description of Contract: The project consists removal of existing roof; construction of a new fire-resistant roof; provision and application of new exterior paint; and restoration of the booster station to service.

Labor Code Section 3700:

Every employer except the State shall secure the payment of compensation in one or more of the following ways:

- (a) By being insured against liability to pay compensation by one or more insurers duly authorized to write compensation insurance in this State.
- (b) By securing from the Director of Industrial Relations a certificate of consent to self-insure, either as an individual employer or as one employer in a group of employers, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his or her employees.
- (c) For any county, city, municipal corporation, public district, public agency, or any political subdivision of the state, including each member of a pooling arrangement under a joint exercise of powers agreement (but not the state itself), by securing from the Director of Industrial Relations a certificate of consent to self-insure against workers' compensation claims, which certificate may be given upon furnishing proof, satisfactory to the director, of ability to administer workers' compensation claims that may become due to its employees. On or before March 31, 1979, a political subdivision of the state which, on December 31, 1978, was uninsured for its liability to pay compensation, shall file a properly completed and executed application for a certificate of consent to self-insure against workers' compensation claims. The certificate shall be issued and be subject to the provisions of Section 3702.

For the purposes of this section, "state" shall include the superior courts of California.

I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract.

FALL CREEK FISH LADDER REHABILITATION  
San Lorenzo Valley Water District

Contractor's Certificate (Workers' Compensation)  
00662-2

Dated: \_\_\_\_\_, 20\_\_

By: \_\_\_\_\_  
(Contractor)

By: \_\_\_\_\_ (Authorized Representative of Contractor)

(Seal of Corporation)

Name/Title: \_\_\_\_\_  
(Please Print)

*(Labor Code Section 1861 provides that the above certificate must be signed and filed by the Contractor with SLVWD prior to performing any work under this Contract.)*

END OF SECTION 00662



**SECTION 00664**

**CERTIFICATE OF INSURANCE**

**Description of Contract:**

**FALL CREEK FISH LADDER REHABILITATION**

**Type of Insurance:** Workers' Compensation Insurance and Employer's Liability Insurance

**THIS IS TO CERTIFY** that the following policy has been issued by the below-stated company in conformance with the requirements of Article 6 of the General Provisions and is in force at this time.

The Insurance Company will give at least 30 calendar days' written notice by certified mail to SLVWD prior to any material change or cancellation of said policy. (10 calendar days for non-payment).

**POLICY NO./EXPIRATION DATE      LIMITS OF LIABILITY**

**A.   WORKERS' COMPENSATION**

Statutory Limits Under the Laws of the State  
of California

Policy No. \_\_\_\_\_

Expiration Date\_\_\_\_\_

---

**B.   EMPLOYER'S LIABILITY**

Each Employee

Each Accident

Bodily Injury by Accident

\$\_\_\_\_\_

\$\_\_\_\_\_

Bodily Injury by Disease

\$\_\_\_\_\_

\$\_\_\_\_\_

Policy No. \_\_\_\_\_

Expiration Date\_\_\_\_\_

---

Name Insured (Contractor)

---

Insurance Company

---

Street Number

---

Street Number

---

City, State, and Zip Code

---

City, State, and Zip Code

By: 

---

  
(Insurance Company Representative)  
(See Notice on Page 2)

*(Attach Notary Acknowledgement of Insurance Company Agent)*

Insurance Company Agent for Service  
of Process in California:

---

Name

---

Agency

---

Street Number

---

Street Number

---

City, State, and Zip Code

---

City, State, and Zip Code

---

Telephone Number

---

Telephone Number

This certificate or verification of insurance is not an insurance policy and does not amend, extend, or alter the coverage afforded by the policies listed herein. Notwithstanding any requirement, term, or condition of any contract or document with respect to which this certificate or verification of insurance may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions, and conditions of such policies.

NOTICE: Unless otherwise specified in writing by SLVWD at SLVWD's sole discretion, no substitution or revision to the above certificate form will be accepted. If the insurance called for is provided by more than one insurance company, a separate certificate in the exact above form shall be provided for each insurance company.

**SECTION 00666**

**INSURANCE ENDORSEMENT**

**Description of Contract:**

**FALL CREEK FISH LADDER REHABILITATION**

**Type of Insurance:** Workers' Compensation Insurance and Employer's Liability Insurance

This endorsement forms a part of Policy No. \_\_\_\_\_

**ENDORSEMENT**

It is agreed that with respect to such insurance as is afforded by the policy, the Insurance Company named below waives any right of subrogation it may acquire against SLVWD and/or its directors, officers, officials, agents, employees, and volunteers by reason of any payment made on account of injury, including death resulting therefrom, sustained by the insured, any employee of the insured, or the insured's agents and/or subcontractors arising out of the performance of the above-referenced Contract.

This endorsement does not increase the Insurance Company's total limits of liability.

\_\_\_\_\_  
Name Insured (Contractor)

\_\_\_\_\_  
Insurance Company

\_\_\_\_\_  
Street Number

\_\_\_\_\_  
Street Number

\_\_\_\_\_  
City, State, and Zip Code

\_\_\_\_\_  
City, State, and Zip Code

By: \_\_\_\_\_  
(Insurance Company Representative)  
(See Notice on Page 2)

*(Attach Notary Acknowledgement of Insurance Company Agent)*

*NOTICE: Unless otherwise specified in writing by SLVWD at SLVWD's sole discretion, no substitution or revision to the above endorsement form will be accepted. If the insurance called for is provided by more than one policy, a separate endorsement in the exact above form shall be provided for each policy.*

FALL CREEK FISH LADDER REHABILITATION  
San Lorenzo Valley Water District

Insurance Endorsement (Workers' Compensation)  
00666-1

END OF SECTION 00666

**SECTION 00668**

**CERTIFICATE OF INSURANCE**

**Description of Contract:**

**FALL CREEK FISH LADDER REHABILITATION**

**Type of Insurance:** Liability Insurance

THIS IS TO CERTIFY that the following policies have been issued by the below-stated Insurance Company in conformance with the requirements of Article 6 of the General Provisions and are in force at this time. The policy shall be an occurrence policy with a deductible not to exceed \$5,000.

POLICY NUMBER &  
EXPIRATION DATE

LIMITS OF  
LIABILITY  
(thousands)

Occurrence      Aggregate

_____	A. GENERAL		
_____	LIABILITY Bodily		
	Injury, Personal		
	Injury,		
	and Property	\$ _____	\$ _____
	Damage Combined		

_____	B. EXCESS		
	GENERAL		
	LIABILITY		
		\$ _____	\$ _____

_____	C. AUTOMOBILE LIABILITY		
		\$ _____	\$ _____

_____	D. EXCESS		
	AUTOMOBILE		
	LIABILITY		
		\$ _____	\$ _____

_____	E. BUILDER'S RISK		
_____		\$ _____	\$ _____
_____	F. CONTRACTOR'S POLLUTION LEGAL LIABILITY/ASBESTOS LEGAL LIABILITY/ ERRORS AND OMISSIONS	\$ _____	\$ _____

The following types of coverage are included in said policies (indicate by "X" in space):

A. GENERAL LIABILITY

Comprehensive Form.....	YES	NO
Premises-Operations.....	YES	NO
Explosion and Collapse Hazard.....	YES	NO
Underground Hazard.....	YES	NO
Products/Completed Operations Hazard.....	YES	NO
Contractual Insurance.....	YES	NO
Broad Form Property Damage, Including:		
Completed Operations.....	YES	NO
Independent Contractors.....	YES	NO
Personal Injury.....	YES	NO

B. EXCESS GENERAL LIABILITY

Umbrella Form.....	YES	NO
Other Than Umbrella Form.....	YES	NO
If other than Umbrella Form, please explain below:		

C. AUTOMOBILE LIABILITY

Comprehensive Form Including Loading and Unloading.....	YES	NO
Owned.....	YES	NO

....		
Hired.....	YES	NO
...		
Non-Owned.....	YES	NO

D. EXCESS AUTOMOBILE LIABILITY

Umbrella	YES	NO
Form.....		
Other Than Umbrella	YES	NO
Form.....		

If other than Umbrella Form, please explain below:

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This certificate or verification of insurance is not an insurance policy and does not amend, extend, or alter the coverage afforded by the policies listed herein. However, the insurance provided shall meet the requirements of the Contract Documents and include coverage as specified in this certificate.

\_\_\_\_\_  
Name Insured (Contractor)

\_\_\_\_\_  
Insurance Company

\_\_\_\_\_  
Street Number

\_\_\_\_\_  
Street Number

\_\_\_\_\_  
City, State, and Zip Code

\_\_\_\_\_  
City, State, and Zip Code

By: \_\_\_\_\_

FALL CREEK FISH LADDER REHABILITATION  
San Lorenzo Valley Water District

Certificate of Insurance (Liability Insurance)  
00668-4

(Insurance Company Representative)  
*(See Notice on Page 4)*



*(Attach Notary Acknowledgement of Insurance Company Agent)*

*Insurance Company Agent for Services of Process in  
California:*

---

Name

---

Agency

---

Street Number

---

Street Number

---

City, State, and Zip Code

---

City, State, and Zip Code

---

Telephone Number

---

Telephone Number

This certificate or verification of insurance is not an insurance policy and does not amend, extend, or alter the coverage afforded by the policies listed herein. Notwithstanding any requirement, term, or condition of any contract or other document with respect to which this certificate or verification of insurance may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions, and conditions of such policies.

Insurers must be authorized to do business and have an agent for service of process in California and have an "A" policyholder's rating and a financial rating of at least Class VII in accordance with the most current Best's Rating.

*NOTICE: Unless otherwise specified by SLVWD in its sole discretion, no substitution or revision to the above certificate form will be accepted. If the insurance called for is provided by more than one insurance company, a separate certificate in the exact above form shall be provided for each insurance company.*

END OF SECTION 00668

**SECTION 00670**

**INSURANCE ENDORSEMENT**

**Description of Contract:** FALL CREEK FISH LADDER REHABILITATION

**Type of Insurance:** Liability Insurance

This endorsement forms a part of Policy No. \_\_\_\_\_

**ENDORSEMENT**

SLVWD its officers, officials, directors, employees, and volunteers are to be covered as insureds under said policies but only while acting in their capacity as such and only with respect to operations of the named insured, his contractors, any subcontractor, any supplier, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable in the performance of the above referenced contract. This insurance shall not apply if the loss or damage is ultimately determined to be the result of the sole and exclusive negligence (including any connected with the preparation or approval of maps, drawings, opinions, reports, surveys, designs, or specifications) of one or more of the aforesaid additional insureds. The insurance afforded to these additional insured is primary insurance. If the additional insured have other insurance or self-insurance which might be applicable to any loss, this insurance shall be primary and the amount of this insurance shall not be reduced or prorated by the existence of such other insurance or self-insurance. Any insurance or self-insurance maintained by the additional insureds shall be excess of the Contractor's insurance and shall not contribute with it.

The Contractual Liability Insurance afforded is sufficiently broad to insure all of the matters set forth in the article entitled "BONDS, INSURANCE, AND INDEMNITY" in the General Conditions of the above-referenced contract except those matters set forth in the third paragraph thereof.

This endorsement does not increase the Company's total limits of liability.

\_\_\_\_\_  
Name Insured (Contractor)

\_\_\_\_\_  
Insurance Company

\_\_\_\_\_  
Street Number

\_\_\_\_\_  
Street Number

\_\_\_\_\_  
City, State, and Zip Code

\_\_\_\_\_  
City, State, and Zip Code

FALL CREEK FISH LADDER  
REHABILITATION San Lorenzo Valley Water

Insurance Endorsement (Liability Insurance)  
00670-2

By: \_\_\_\_\_  
(Insurance Company Representative)

*(Attach Notary Acknowledgement of Insurance Company Agent)*

Insurers must be authorized to do business and have an agent for services of process in California and have an "A" policyholder's rating and a financial rating of at least Class VII in accordance with the most current Best's Rating.

*NOTICE: Unless otherwise specified by SLVWD in its sole discretion, no substitution or revision to the above certificate form will be accepted. If the insurance called for is provided by more than one policy, a separate endorsement in the exact above form shall be provided for each policy.*

END OF SECTION 00670

**SECTION 00680**

**NOTICE OF AWARD**

To: \_\_\_\_\_ Board Approval Date: \_\_\_\_\_  
(Contractor)

Project: **FALL CREEK FISH LADDER REHABILITATION**

Your Bidder's Proposal dated \_\_\_\_\_, is accepted.

You are required by the Notice and Instructions to Bidders to execute the Contract Documents within ten (10) work days of the date of mailing of this notice (not including Sundays and holidays).

Received:

\_\_\_\_\_  
Contractor

San Lorenzo Valley Water District  
SLVWD

By: \_\_\_\_\_ By: \_\_\_\_\_

\_\_\_\_\_  
Name /Title:

Rick Rogers, District Manager  
Name/Title:

Date: \_\_\_\_\_ Date: \_\_\_\_\_

FALL CREEK FISH LADDER REHABILITATION  
San Lorenzo Valley Water District

Notice of Award  
00680-1

END OF SECTION 00680

**SECTION 00685**

**NOTICE TO PROCEED**

To: \_\_\_\_\_ Date: \_\_\_\_\_  
(Contractor)

Project: **FALL CREEK FISH LADDER REHABILITATION**

You are hereby notified to commence Work in accordance with the Agreement dated \_\_\_\_\_, and you are to complete the Work prior to \_\_\_\_\_.

\_\_\_\_\_  
SLVWD

By: Rick Rogers

Title: District Manager

**ACCEPTANCE OF NOTICE**

Receipt of the above Notice to Proceed is hereby acknowledged by \_\_\_\_\_ this  
the \_\_\_\_\_ day of \_\_\_\_\_.

Name: \_\_\_\_\_ (Print)

By: \_\_\_\_\_

Title: \_\_\_\_\_

FALL CREEK FISH LADDER REHABILITATION  
San Lorenzo Valley Water District

Notice to Proceed  
00685-1

END OF SECTION 00685



## UNCONDITIONAL RELEASE AND CERTIFICATE OF FINAL PAYMENT

Contract Dated \_\_\_\_\_

Address: \_\_\_\_\_

In consideration of \$\_\_\_\_\_ as final payment under the Contract, the Undersigned hereby unconditionally and forever discharges, waives, and releases SLVWD and the site and property from all claims, stop notices, liens, bond rights, and obligations and rights of every nature arising out of or in connection with the performance of the said Contract and all amendments thereto except as set forth below:

As additional consideration for the final payment, the Contractor agrees to indemnify and hold harmless SLVWD from and against all costs, losses, damages, claims, causes of action, judgments, and expenses, including attorney's fees arising out of or in connection with claims against

END OF SECTION 00686

**RECORDING REQUESTED BY:**

San Lorenzo Valley Water District

**WHEN RECORDED RETURN TO:**

San Lorenzo Valley Water District  
13060 CA-9  
Boulder Creek, California 95006

**MAIL TAX STATEMENTS TO:**

NO FEE REQUIRED PER GOVERNMENT  
CODE SECTION 27383

**SECTION 00687**

**NOTICE OF COMPLETION**

To: \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_ Project No.: \_\_\_\_\_

Owner: San Lorenzo Valley Water District  
13060 CA-9  
Boulder Creek, CA 95006  
Date of Completion: \_\_\_\_\_

**OWNER'S ESTATE OF INTEREST:**

Easement \_\_\_\_\_ Fee Title \_\_\_\_\_ Encroachment Permit \_\_\_\_\_

Other (describe) \_\_\_\_\_

**CONTRACTOR FOR WORK OF IMPROVEMENT AS A WHOLE:**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

**TITLE OF PROJECT: FALL CREEK FISH LADDER REHABILITATION**

**DESCRIPTION OF PROJECT:**

The project consists of removal of the existing roof structure and covering; construction of new fire-resistant roof structure and covering; and repainting of the pump station exterior.

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LEGAL DESCRIPTION OF SITE: See survey.

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ADDRESS OF THE SITE:

FALL CREEK FISH LADDER, located at 545 Fall Creek Drive Felton, CA 95018

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This Notice is given for (check one):

- ☐ Completion of the work of improvement as a whole.  
☐ Completion of a contract for a particular portion of the work of improvement (per Cal. Civ. Code § 8186).

If this notice is given only of completion of a contract for a particular portion of the work of improvement, the name and address of the direct contractor under that contract is:

---

Final payment will be made to the above contractor on or after thirty-five (35) calendar days from the recording date of this Notice of Completion, except where otherwise provided for by law.

**1.01 VERIFICATION**

I, the undersigned state that I am the \_\_\_\_\_ of the San Lorenzo Valley Water District, the public agency authorizing the Work of Improvement referred to in the foregoing Notice of Completion; that I have executed such Notice of Completion on behalf of such public agency and likewise make this verification on behalf of said public agency; and that I have read said Notice of Completion and know the contents thereof and the facts therein stated are true of my own knowledge.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

---

Date and Place

---

Rick Rogers, District Manager  
San Lorenzo Valley Water District  
13060 CA-9, Boulder Creek, California 95006

Distribution:

Original - County  
Recorder Copy -

FALL CREEK FISH LADDER  
REHABILITATION San Lorenzo Valley Water

Notice of Completion  
00687-3

Contractor

END OF SECTION 00687

**SECTION 00692**

**CONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT**

California Civil Code Section 8132

**NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.**

**Identifying Information**

Name of Claimant: \_\_\_\_\_

Name of Customer: \_\_\_\_\_

Job Location: \_\_\_\_\_

Owner: \_\_\_\_\_

Through Date: \_\_\_\_\_

**Conditional Waiver and Release**

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: \_\_\_\_\_

Amount of Check: \$ \_\_\_\_\_

Check Payable to: \_\_\_\_\_

**Exceptions**

This document does not affect any of the following:

(1) Retentions.

(2) Extras for which the claimant has not received payment.

The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:

Date(s) of waiver and release: \_\_\_\_\_

Amount(s) of unpaid progress payment(s): \_\_\_\_\_

(3) Contract rights, including:

(A) a right based on rescission, abandonment, or breach of contract, and

(B) the right to recover compensation for work not compensated by the payment.

## **SIGNATURE**

Claimant's Signature: \_\_\_\_\_

Claimant's Title: \_\_\_\_\_

Date of Signature: \_\_\_\_\_

Note: Where the claimant is required to execute a waiver and release in exchange for or in order to induce the payment of a progress payment and the claimant is not, in fact, paid in exchange for the waiver and release or a single payee check or joint payee check is given in exchange for the waiver and release, the waiver and release shall follow substantially this form. This form of release complies with the requirements of California Civil Code Section 8132.

The Contractor is required to obtain from each subcontractor and supplier this conditional waiver and release of claims for each preliminary notice received by SLVWD. Final payment shall be held in abeyance pending receipt of release of claims from all subcontractors or suppliers.

Alternatively, the final payment will be made by check payable to the Contractor and subcontractor or supplier to the extent the subcontractor or supplier has not been paid as shown on the preliminary notice.



FALL CREEK FISH LADDER  
REHABILITATION San Lorenzo Valley Water

Conditional Waiver and Release Upon Progress  
00692-3

END OF SECTION 00692

**SECTION 00693**

**UNCONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT**

California Civil Code Section 8134

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

**Identifying Information**

Name of Claimant: \_\_\_\_\_

Name of Customer: \_\_\_\_\_

Job Location: \_\_\_\_\_

Owner: \_\_\_\_\_

Through Date: \_\_\_\_\_

**Unconditional Waiver and Release**

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has received the following progress payment:

\$\_\_\_\_\_

**Exceptions**

This document does not affect any of the following:

- (1) Retentions.
- (2) Extras for which the claimant has not received payment.
- (3) Contract rights, including:
  - (A) a right based on rescission, abandonment, or breach of contract, and the right to recover compensation for work not compensated by the payment.

**SIGNATURE**

Claimant's Signature: \_\_\_\_\_

Claimant's Title: \_\_\_\_\_

Date of Signature: \_\_\_\_\_

Where the claimant is required to execute a waiver and release in exchange for, or in order to induce the payment of, a progress payment and the claimant asserts in the waiver it has, in fact, been paid the progress payment, the waiver and release shall follow substantially this form. This form of release complies with the requirements of California Civil Code Section 8134.

The Contractor is required to obtain from each subcontractor and supplier this unconditional waiver and release of claims for each preliminary notice received by SLVWD. Final payment shall be held in abeyance pending receipt of release of claims from all subcontractors or suppliers.

Alternatively, the final payment will be made by check payable to the Contractor and subcontractor or supplier to the extent the subcontractor or supplier has not been paid as shown on the preliminary notice.

END OF SECTION 00693

**SECTION 00694**

**CONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT**

California Civil Code Section 8136

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

**Identifying Information**

Name of Claimant: \_\_\_\_\_

Name of Customer: \_\_\_\_\_

Job Location: \_\_\_\_\_

Owner: \_\_\_\_\_

**Conditional Waiver and Release**

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: \_\_\_\_\_

Amount of Check: \$ \_\_\_\_\_

Check Payable to: \_\_\_\_\_

**Exceptions**

This document does not affect any of the following:

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Disputed claims for extras in the amount of: \$ \_\_\_\_\_

**SIGNATURE**

Claimant's Signature: \_\_\_\_\_

Claimant's Title: \_\_\_\_\_

Date of Signature: \_\_\_\_\_

Notice: Where the claimant is required to execute a waiver and release in exchange for, or in order to induce the payment of, a final payment and the claimant is not, in fact, paid in exchange for the waiver and release or a single payee check or joint payee check is given in exchange for the waiver and release, the waiver and release shall follow substantially this form. This form of release complies with the requirements of California Civil Code Section 8136.

The Contractor is required to obtain from each subcontractor and supplier this conditional waiver and release of claims for each preliminary notice received by SLVWD. Final payment shall be held in abeyance pending receipt of release of claims from all subcontractors or suppliers.

Alternatively, the final payment will be made by check payable to the Contractor and subcontractor or supplier to the extent the subcontractor or supplier has not been paid as shown on the preliminary notice.

END OF SECTION 00694

**SECTION 00695**

**UNCONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT**

California Civil Code Section 8138

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

**Identifying Information**

Name of Claimant: \_\_\_\_\_

Name of Customer: \_\_\_\_\_

Job Location: \_\_\_\_\_

Owner: \_\_\_\_\_

**Unconditional Waiver and Release**

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has been paid in full.

**Exceptions**

This document does not affect any of the following:

\_\_\_\_\_

\_\_\_\_\_

---

Disputed claims for extras in the amount of: \$ \_\_\_\_\_

**SIGNATURE**

Claimant's Signature: \_\_\_\_\_

Claimant's Title: \_\_\_\_\_

Date of Signature: \_\_\_\_\_

Where the claimant is required to execute a waiver and release in exchange for, or in order to induce the payment of, a progress payment and the claimant asserts in the waiver it has, in fact, been paid the final payment, the waiver and release shall follow substantially this form. This form of release complies with the requirements of California Civil Code Section 8138.

The Contractor is required to obtain from each subcontractor and supplier this unconditional waiver and release of claims for each preliminary notice received by SLVWD. Final payment shall be held in abeyance pending receipt of release of claims from all subcontractors or suppliers.

Alternatively, the final payment will be made by check payable to the Contractor and subcontractor or supplier to the extent the subcontractor or supplier has not been paid as shown on the preliminary notice.

END OF SECTION 00695

## **SECTION 00700**

### **GENERAL CONDITIONS**

#### ARTICLE 1 – DEFINITIONS

- 1.1 Terms used in the Contract Documents are defined in the “Glossary, Water and Wastewater Control Engineering” prepared by the Joint Editorial Board representing the American Public Health Association, American Society of Civil Engineers, American Water Works Association, and the Water Pollution Control Federation, 1969 Edition, and are further defined herein. The terms shall have the meanings described which shall be applicable to both the singular and plural thereof.
- 1.2 Addenda. Written or graphic instructed issued prior to execution of the Contract Agreement which modify or interpret the Contract Documents.
- 1.3 Bid. The offer or proposal of the Bidder submitted in the prescribed form setting forth the prices for the Work to be performed.
- 1.4 Bidder. Any person, firm, corporation, or organization submitting a Bid or Proposal for the Work.
- 1.5 Bonds. Bid, performance, and payment bonds, and other instruments of security furnished by the Contractor and his surety in accordance with the Contract Documents.
- 1.6 Change Order. A written order to the Contractor signed by SLVWD ordering and authorizing an addition, deletion, or revision in the Work, or an adjustment in the Contract Price or the Contract Time.
- 1.7 Contract Agreement. The Contract Documents form the Contract Agreement. The Contract Agreement represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract Agreement may be amended or modified after execution only by a Modification. References herein to the Contract or the Agreement, or the Form of Agreement, shall be understood to mean and refer to the Contract Agreement.
- 1.8 Contract Documents. The Contract Documents consist of the Contract Agreement, notices, instructions, and forms issued to Bidders in the Bidding Requirements for the submittal of Bids, the Contractor’s Bid, the Bid security, the Notice of Award, the Notice to Proceed, the Notice to Construct, if any, the Conditions of the Contract (General, Supplementary, and other Conditions),



the Bonds, the Specifications, all Addenda, and all Modifications.

- 1.9 Contract Price. The total moneys payable to the Contractor under the Contract Documents.
- 1.10 Contract Time. The number of work days for completion of the Work, or the date upon which the Work shall be completed and ready for use by SLVWD, as stated in the executed Contract Agreement.
- 1.11 Contractor. The Contractor is the person, firm, corporation, or organization identified as such in the Contract Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Contractor means the Contractor or his/her authorized representative.
- 1.12 Day and Days. The term day shall mean calendar day, the term calendar days shall mean consecutive calendar days, and the term work days shall mean consecutive calendar days excluding Saturdays, Sundays, and legal holidays, unless otherwise stated or specified.
- 1.13 District Biologist. District Biologist of San Lorenzo Valley Water District, SLVWD or an authorized representative.
- 1.14 District Engineer. District Manager acting as District Engineer of San Lorenzo Valley Water District, SLVWD or an authorized representative.
- 1.15 DIR. California Department of Industrial Relations.
- 1.16 Drawings. The Drawings or exact reproductions thereof which show the scope and character of the Work to be performed and which have been approved by SLVWD, and are referred to in the Contract Documents. The terms Drawing, Plan, and Plans have the same meaning as the term Drawings unless otherwise stated or specified.
- 1.17 Engineer. The term Engineer shall mean the person or firm appointed by SLVWD to undertake the duties and powers assigned to the Engineer by these Specifications acting directly or through authorized representatives. In this project MME, Inc. The term Engineer is referred to throughout the Contract Documents as if singular in number and masculine in gender, and means the Engineer or his authorized representative, including the Engineer's employees, agents, and consultants. (See Section 00800.)
- 1.18 Field Order. A Field Order is a written order issued by SLVWD to the Contractor which clarifies or interprets the Contract Documents pursuant to Paragraph 3.2, or orders minor changes or alterations in the Work pursuant to Paragraph 16.6.

- 1.19     Inspector. The Inspector is the authorized agent of SLVWD acting as the designee of the District Engineer, limited in each case to the duties entrusted to him by SLVWD. The term Inspector applies to all Inspectors appointed by SLVWD.
  
- 1.20     Modification. A Modification is a written amendment to the Contract Agreement signed by both parties, a Change Order, or a Field Order.

- 1.21 Notice of Award. The written notice by SLVWD to the Contractor that the Contractor is the successful Bidder and that, upon compliance with the conditions precedent to be fulfilled by the Contractor within the stated time, SLVWD will execute the Contract Agreement.
- 1.22 Notice to Construct. The written notice by SLVWD to the Contractor authorizing the Contractor to begin the physical installation of the particular material or equipment covered by such notice.
- 1.23 Notice to Proceed. The written notice by SLVWD to the Contractor authorizing him to proceed with the Work and establishing the date of commencement of the Work.
- 1.24 Owner. The Owner is the San Lorenzo Valley Water District and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Owner means the Owner or his authorized representative, and includes the Owner's employees, agents, and consultants. (See Section 00800.)
- 1.25 Project. The Project is the total construction designed for or by the Owner of which the Work performed or constructed under the Contract Documents may be the whole or a part.
- 1.26 Shop Drawings. All drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data which are prepared by the Contractor or any Subcontractor, manufacturer, supplier, or distributor and which illustrate the equipment, material, or some portion of the Work.
- 1.27 Samples. Samples are physical examples furnished by the Contractor to illustrate materials, equipment, or workmanship, and to establish standards by which the Work will be judged.
- 1.28 Specifications. The Specifications include the Bidding Requirements, the Contract Forms, the Conditions of the Contract (General, Supplementary, and other Conditions), and the Divisions and Sections of the Specifications.
- 1.29 Subcontractor and Sub-subcontractor. The terms Subcontractor and Sub-subcontractor are referred to throughout the Contract Documents as if each were singular in number and masculine in gender, and means a Subcontractor or Sub-subcontractor or an authorized representative thereof. A Subcontractor is a person, firm, corporation, or organization who has a direct contract with the Contractor to perform any of the Work at the site.
- 1.30 Supplier. Any person, firm, corporation, or organization who supplies materials or equipment for the Work, including that fabricated to a special design, and

may also be a Subcontractor or a Sub-subcontractor.

- 1.31 Surety. The term Surety is the person, firm, corporation, or organization that joins with the Contractor in assuming the liability for the faithful performance of the Work and for the payment of all obligations pertaining to the Work in accordance with the Contract Documents by issuing the Bonds required by the Contract Documents or by law.
- 1.32 Work. The term Work includes all labor, materials, equipment, and incidentals necessary to produce the construction required by the Contract Documents and any and all obligations, duties, and responsibilities necessary to the successful completion of the construction assigned to or undertaken by the Contractor under the Contract Documents.

## ARTICLE 2 – PRELIMINARY MATTERS

- 2.1 Award. The award of the Contract Agreement, if awarded, will be to the eligible, lowest responsive responsible Bidder. No Notice of Award will be given until SLVWD has concluded such investigations as it deems necessary to establish the responsibility, qualifications, and financial ability of the Bidders to do the Work in accordance with the Contract Documents to the satisfaction of SLVWD within the time prescribed. SLVWD reserves the right to reject the Bid of any Bidder who does not pass such investigation to SLVWD's satisfaction. If the Contract Agreement is awarded, SLVWD will give the successful Bidder a Notice of Award within time period prescribed in Notice Inviting Bids after the opening of the Bids and no Bidder may withdraw his Bid for a period of time as prescribed in Notice Inviting Bids after the date set for the receipt of Bids unless other time periods are stated in the Bidding Requirements or elsewhere in the Contract Documents.
- 2.2 Execution of Contract Agreement. The Contract Agreement and such other Contract Documents are practicable shall be suitably identified as agreed by the parties and signed by SLVWD and the Contractor. The Contract Agreement shall be executed within the time period prescribed in Notice Inviting Bids of the Notice of Award unless otherwise provided in the Bidding Requirements or elsewhere in the Contract Documents. SLVWD will hold the Original Agreement and the Contractor shall receive a copy of the Agreement and such other Contract Documents. The Contract Agreement shall be executed in the form adopted or directed by SLVWD.
- 2.3 Delivery of Bonds and Insurance Endorsements. Simultaneously with the execution of the Contract Agreement, the Contractor shall deliver to SLVWD the required Bonds and Insurance Endorsements.
- 2.4 Forfeiture of Bid Security. Failure of the successful Bidder to whom a Notice of Award is tendered to execute the Contract Agreement and deliver the Bonds

and other documents required of him at the time of execution within the time limit provided in the Contract Documents shall be just cause for SLVWD to annul the Notice of Award and declare the Bid and any security therefore forfeited.

- 2.5 Copies of Documents. SLVWD will furnish to the Contractor copies of the Specifications as are reasonably necessary for the execution of the Work. Upon request, additional copies will be furnished at the cost of reproduction and handling as determined at the sole discretion of SLVWD.
- 2.6 Progress Schedule. Simultaneously with the execution of the Contract Agreement, the Contractor shall submit to SLVWD for approval as estimated progress schedule in chart form indicating the date that each part or brand of the Work will be started and completed including, where applicable, the continuance of operations as provided in Paragraph 12.10, and indicating a schedule of the required submittals including shop drawings, samples, lists of materials and equipment, equipment data, and instruction manuals. The schedule shall conform to the Work and the Contract Time, shall be subdivided and coordinated to the schedule of values, and shall be subject to such revisions SLVWD may require for his approval. The Contractor shall revise the approved progress schedule at monthly intervals, the revised schedules in the same form as the original approved schedule and concurrent with the time periods covered by applications for progress payments. Each revised schedule shall indicate the Work actually accomplished during the time period and the schedule for performance of the remaining Work. Each revised schedule shall be submitted to SLVWD for approval simultaneously with the Contractor's application for progress payment for the same time period, and shall be subject to such revisions SLVWD may require for his approval. SLVWD's approval of revised progress schedules will be a condition precedent to the approval of the Contractor's applications for progress payments.
- 2.7 Schedule of Values. Simultaneously with the execution of the Contract Agreement, the Contractor shall submit a schedule of values as required by Paragraph 20.1 for use in progress payments. When directed by SLVWD, the Contractor shall submit to SLVWD for approval a revised schedule of values coordinated to the revised progress schedules required under Paragraph 2.6 and pertinent requirements of Supplementary Conditions.
- 2.8 Insurance. Before execution of the Contract Agreement, the Contractor shall deliver to SLVWD the certificates and Proof of Insurance as required by Article 6.
- 2.9 Preconstruction Conference. Before the Work is started, a conference will be held to review the progress schedule and the schedule of values, to establish procedures for handling the required submittals and for processing applications for payment, and to establish a working understanding between the parties as

to the Project and the Work. Present at the conference shall be SLVWD, the Engineer, and the Contractor and his Superintendent.

- 2.10 Verification. Before undertaking the Work, the Contractor shall carefully study and compare the Contract Documents for any discrepancies, inconsistencies, ambiguities, conflicts, or other errors in them or between the Contract Documents and the site conditions, and check and verify all figures, dimensions, and quantities shown thereon and all field measurements and actual site conditions, and shall bear all costs for any error in the Work resulting from his failure to so compare and verify. He shall at once report in writing to SLVWD any error in which he may discover and shall not perform or construct any of the Work affected thereby until an interpretation or clarification has been issued pursuant to Paragraph 32. The Contractor assumes full responsibility for having familiarized himself with the nature and extent of the Contract Documents, the Work, locality, and local conditions that may in any manner affect the Work to be done, and represents that he has visited the site and correlated his observations with the requirements of the Contract Documents.
- 2.11 Qualifications of Subcontractors and Suppliers.
- 2.11.1 Listing. The listing of Subcontractors shall be submitted with the Bid as required by the instructions to Bidders and the Bid Form.
- 2.11.2 Revision of Listing. No change or revision shall be made to the list nor shall any other Subcontractor, person, or organization not named in the accepted list be employed on or for the Work without SLVWD's consent, the issuance of an appropriate Modification, and at no additional cost to SLVWD.
- 2.12 Starting the Work. The Contractor shall start the Work not later than the date stated in the Notice to Proceed, which date will be the first day of the Contract Time. Unless otherwise provided in the Bidding Requirements, the date so stated for the Work to start will be the tenth day from the date of the Notice to Proceed. SLVWD reserves the right to delay issuance of the Notice to Proceed for a period not to exceed sixty (60) calendar days after the date the Contract Agreement is executed, unless otherwise provided in the Bidding Requirements, and no additional payment will be made to the Contractor on account of such delay.
- 2.13 Contractor's License. Contractor shall possess a Class 'A' Contractor's License at the time of bid submission and award of the Contract, unless otherwise specified in the Notice Inviting Bids. Contractor shall fill out and execute the Contractor's Licensing Statement. (See Section 00406.)
- 2.14 Registration with DIR. Subcontractors must be registered with the DIR and have paid the annual fee pursuant to Section 1725.5 of the California Labor

Code.

### ARTICLE 3 – INTENT AND INTERPRETATION OF CONTRACT DOCUMENTS

- 3.1      Intent of the Contract Documents. The Contract Documents are complementary and what is called for by one is as binding as if called for by all. Any Work that may be reasonably inferred from the Specifications as being required to produce the intended result shall be provided by the Contractor whether or not it is specifically called for. The Contractor shall furnish and pay for all labor, supervision, materials, equipment, transportation, construction equipment and machinery, tools, appliances, water, fuel, power, energy, light, heat, utilities, telephone and communications, temporary and sanitary facilities, storage, protection, safety provisions, and all other facilities, services, and incidentals of any nature whatsoever necessary for the satisfactory and acceptable execution, testing,



initial operation, and completion of the Work in accordance with the Contract Documents, ready for use, occupancy or operation by SLVWD.

- 3.2 Interpretations. Written clarifications of interpretations necessary for the proper execution or progress of the Work, in the form of drawings or otherwise, will be issued with reasonable promptness by SLVWD and in accordance with any schedule agreed upon. Such clarifications or interpretations shall be consistent with or reasonably inferable from the intent of the Contract Documents and shall become a part thereof, and may be affected by Field Order. If the Contractor believes that a written clarification or interpretation entitles him to an increase in the Contract Price or an extension of the Contract Time, he may make a claim therefore as provided in Paragraph 16.4.

Pursuant to this section of the General Provisions, the Contractor shall use the Request for Clarification Form, included herein (at the end of the General Provisions section), for submittal of inquiries and requests for information or clarification of the Contract Documents.

- 3.3 Organization of Specifications. Except where a particular item or type of equipment is specified or otherwise required to be assembled of various components under the coordination and responsibility of one manufacturer or supplier (sometimes referred to or specified as until responsibility), the organization of the Specifications into Division, Sections, Articles, and paragraphs, the listing of the Work included and not included in the various sections of the Specifications, shall not control the Contractor in dividing the Work among Subcontractors nor establish the extent of Work to be performed by any trade.

- 3.3.1 Specification Titling and Arrangement. The Article and paragraph titles and other identifications of subject matter in the Specifications are intended as an aid in locating and recognizing various requirements. Except where titling forms are part of the text, such as the beginning words of a sentence or establishes the subject of an Article or paragraph, the titles are subordinate to and do not define, limit, or otherwise restrict the Specifications test. Underlining or capitalizing of words in the text does not signify or mean that such words convey special or unique meanings having precedence over any other part of the Contract Documents. The Specification text shall govern over titling and shall be understood to be and interpreted as a whole. The order of Articles, paragraphs, and subparagraphs is established by the alpha-numeric or similar system employed in the text.

- 3.3.2 Specification Language. Words or phrases requiring an action or performance, such as perform, provide, install, furnish, erect, connect, test, operate, and

adjust, shall be understood to include the meaning of the phrase “The Contractor shall” unless otherwise specified. The requirements of the Specifications apply to all Work of the same type, kind, and class even though the word “all” may not be stated. The usage and meaning of various words and phrases employed in the Specifications and herein are as follows, and shall be understood to apply to the future, present, and past tenses according to the context.

- 3.3.2.1 References to Specifications. The words indicated, shown, detailed, noted, scheduled, illustrated, and words of like import shall mean that reference is made to the Specifications unless stated otherwise.
- 3.3.2.2 Directives. The words directed, direction, designated, selected, and words and phrases of like import shall mean that the direction, designation, selection, or like action of SLVWD is intended unless stated otherwise.
- 3.3.2.3 Submittals. The words submit, submittal, submission, and words of like import shall be understood to include the meaning of the phrase “Submit to SLVWD for approval” unless stated otherwise.
- 3.3.2.4 Equals and Approvals. The words equal, approved equal, equivalent, and words and phrases of like import shall be understood to be followed by the expression “in the opinion of SLVWD” unless stated otherwise. The words approval, acceptable, acceptance, satisfaction, and words of like import shall mean that the approval, acceptance, or satisfaction of SLVWD is intended unless stated otherwise.
- 3.3.2.5 Perform. The word perform shall mean that the Contractor shall perform all operations required to complete the mentioned action or Work in accordance with the intent of the Contract Documents.
- 3.3.2.6 Provide. The word provide shall mean that the Contractor shall furnish and install the mentioned Work, complete in place, connected, and ready for use by SLVWD in accordance with the intent of the Contract Documents, except the words providing and provided may mean “contingent upon” and the phrase “as provided in” may mean “in accordance with” where such is the context.
- 3.3.2.7 Required. The word required and words of like import shall mean “as required to complete the Work” and “as required by SLVWD” according to the context, unless stated otherwise.
- 3.3.2.8 Technical Words. Work, materials, or equipment described in words which so applied have a well-known trade or technical meaning shall be deemed to refer to such recognized meanings.
- 3.4 Reference or Standard Specifications. Specifying in the Contract Documents

by reference to standard or reference type specification documents or to another part of the Contract Documents shall have the same force and effect as if the document or portion referred to were exactly repeated at the place where reference is made. In case of conflict between any applicable code, law, ordinance, rule, regulation, or order and the referenced standard or reference Specification Documents, the Contractor shall conform to the most restrictive requirement provided such conformance is lawful. Standard or reference Specification Documents incorporated into the Contract Documents by reference shall be those in effect on the date shown at the end of the Notice Inviting Bids. The Contractor, Subcontractors, Sub-subcontractors, and suppliers of materials and equipment for the Work shall be fully familiar with the referenced documents. Abbreviations specified to indicate or identify standard or reference specification documents, such as ASTM, ANSI, AWWA, and ASME, shall be interpreted according to their well-known technical and trade meanings and usage.

Work conducted in conjunction with the Contract shall conform to the requirements of the Caltrans Standard Specifications, latest edition, unless otherwise indicated or directed in the Contract Documents included herewith.

- 3.5 Precedence of Documents: It is the intent of the Contract Documents to provide the SLVWD with complete and fully operational facilities as indicated and specified. All information conveyed by the Contract Documents shall be construed to that effect, and shall be performed to that effect.

To the fullest extent reasonably possible, all provisions of the Contract Documents shall apply to performance of the Work; provided, however, that in resolving conflicts, errors, omissions, or discrepancies in any of the Contract Documents, the order of precedence shall be as follows:

- Permits;
- Applicable Codes;
- Change Orders;
- Approved Revisions to the Contract Documents;
- Addenda;
- Special Provisions;
- Notice Inviting Bids;
- Information for Bidders;
- Contract Agreement;
- California State Requirements/Supplementary General Conditions;
- General Provisions;
- Technical Specifications;
- Standard Drawings;
- SLVWD Standard Specifications and Drawings;
- Referenced Standard Specifications and Drawings.

- 4.1 Time Limits. All time limits stated in the Contract Documents are of the essence of the Contract Agreement.
- 4.2 Time of Performance. The Contractor shall construct and complete the Work, including final clean up, final inspection, and final acceptance of the Work, within the Contract Time. It is expressly understood and agreed, by and between SLVWD and the Contractor, that the Contract Time for the completion of the Work is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the Work.
- 4.3 Extension of Contract Time. If the Work is not completed within the Contract Time and any previously authorized extensions thereof, SLVWD may extend the Contract Time at his discretion and, if so extended, the Contractor shall pay to SLVWD all or any part, as SLVWD may deem just and proper, of the actual costs incurred by SLVWD due to such extension and that are directly related to the Work including the cost of additional engineering, consultant or professional services, tests, inspections, painting inspections, supervision, administration, and other incidental and overhead expenses, and the Change Order authorizing such extension of the Contract Time will effect an appropriate reduction in the Contract Price.
- 4.4 Delays and Liquidated Damages. If the Work is not completed within the Contract Time, or within any period of authorized extension thereof, it shall be understood and agreed that SLVWD will suffer damage solely by reason of delay. Since it is impractical and infeasible to determine the amount of actual damage, it is agreed that the Contractor shall pay to SLVWD, as fixed and liquidated damages and not as a penalty, the amount stated in the Bidding Requirements, unless otherwise provided or agreed by the parties. Payment shall be made for each calendar day of delay until the Work is completed and accepted; and the Contractor and his surety shall be liable for the amount thereof, except the Contractor will not be charged liquidated damages because of any delays in the completion of the Work due to unforeseeable causes beyond their control and without the fault or negligence of the Contractor including, but not restricted to, acts of God or of the Public enemy, acts of the Government, acts of SLVWD including any preference, priority, or allocation order duly issued by SLVWD, acts of another contractor in the performance of a contract with SLVWD, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather. The Contractor shall, within ten (10) work days from the beginning of any such delay, notify SLVWD in writing of the cause of the delay, whereupon SLVWD will ascertain the facts and the extent of the delay and extend the time for completing the Work when in SLVWD's judgment the findings of fact justify such an extension, and SLVWD's findings of fact thereby shall be final and conclusive on the parties hereto. It is understood and agreed that such liquidated damage provision does not limit SLVWD with respect to any other damage capable of ascertainment. The Contractor hereby acknowledges and

agrees that the Engineer and other professionals, consultants, and specialists appointed or employed by SLVWD for the Work will suffer damages as a result of any unauthorized delay in completion of the Work and accepts the liability and responsibility for these damages as damage to SLVWD that is capable of ascertainment. (See Supplementary Conditions, Section 00800)

## ARTICLE 5 – LANDS, CONDITIONS, AND LAYOUT

- 5.1 Land and Rights-of-Way. SLVWD will furnish and pay for the land, easements, and rights-of-way for the facilities to be installed. The Contractor shall obtain consents from the property owners, make all necessary arrangements, and pay all costs for additional land areas or access required by him during the course of construction outside the limits of the land, easements, and rights-of-way furnished by SLVWD, without liability to SLVWD.
- 5.2 Data Furnished by SLVWD. Upon written request, SLVWD will furnish to the Contractor a copy of all available boundary surveys and subsurface investigations. (See Section 00800.)
- 5.3 Subsurface Conditions. SLVWD has conducted a Geotechnical Investigation for the Work, included in the Appendix. Neither SLVWD or the Engineer warrant or guarantee the accuracy or adequacy of any such report or any data, statements, opinions, recommendations, or conclusions therein, nor shall SLVWD or the Engineer be responsible or liable for any loss sustained by the Contractor because of any variance between the conditions indicated in or deduced by the Contractor from such a report or the Contract Documents and the actual conditions encountered in the Work. The Contractor shall make such subsurface investigations he/she may require to establish the true nature of the subsurface conditions affecting the Work, the difficulties which may be encountered (including subsurface rock or other obstacles), and the dewatering or other operations which may be required to complete the Work. No additions or extra payment will be made to the Contractor on account of any subsurface conditions whether or not known or latent, include rock. This paragraph shall be construed in accordance with Public Contract Code Section 7104 and Government Code Section 4215; to the extent such provisions may apply.
- 5.4 Laying Out the Work. The Work shall be laid out in accordance with the following. Laying out work is the sole responsibility of the Contractor. The Contractor shall immediately notify SLVWD of any potential or real conflicts. The Contractor is responsible for preservation of his/her layout work and reference points.
  - 5.4.1 Surveys. Property and boundary surveys will be established by SLVWD and the Contractor shall furnish to SLVWD such assistance and materials as SLVWD may require. The Contractor shall carefully preserve all survey

stakes, reference points, bench marks, and monuments. Should any stakes, points, or benches be removed or destroyed by any act of the Contractor or his employees, they may be reset at the Contractor's expense. Any expense incurred in replacing permanent monuments which the Contractor may have failed to preserve shall be borne by the Contractor unless the removal of the monuments is required by the Contract Documents.

- 5.4.2 Lines and Grades, Setting Stakes. The Contractor shall give at least five (5) work days' notice in writing when he/she will require the services of SLVWD for laying out any portion of the work. Elevations shown for various part of the Work refer to the Datum Bench Mark which will be established by SLVWD near the site. SLVWD will establish the necessary base lines and grades at the surface of the ground and at convenient locations for the construction of the Work. The base line for pipeline construction will be parallel to and offset from the position of the pipeline. From the established base lines and grades, the Contractor shall extend the necessary lines and grades for construction of the Work and shall be responsible for the correctness of same. The Contractor shall preserve all stakes set for lines, grades, or measurements of the Work in their proper places until authorized to move them by SLVWD. Any expense incurred in replacing said stakes which the Contractor may have failed to preserve shall be borne by the Contractor.

- 5.4.3 Preparation. Prior to setting out the work, the Contractor shall have all utility lines located and marked in the field and shall have all right-of-ways cleared, graded, and ready for construction activities.

## ARTICLE 6 – BONDS, INSURANCE, AND INDEMNITY

- 6.1 Bonds. The Contractor shall furnish performance and payment Bonds for the faithful performance and payment of all his obligations under the Contract Documents. Each Bond shall be in penal sums at least equal to the Contract Price unless otherwise stated in the Bidding Requirements, and in such form and with such sureties as are acceptable to SLVWD. Prior to execution of the Contract Agreement SLVWD may require the Contractor to furnish other Bonds in such form and with such sureties as SLVWD may require. Sureties, to be acceptable to SLVWD, shall be legally authorized to do business in the State and jurisdiction where the Work is to be constructed and shall have assets that exceed its liabilities in an amount equal to, or in excess of, the amount of the bond. Bonds shall be duly executed by a responsible corporate surety, authorized to issue such bonds in the State of California and secured through an authorized agent with an office in California. The bidder shall also be required to submit along with the proposal and bond the following documents:
- a) The original, or a certified copy, of the unrevoked appointment, power of attorney, bylaws, or other instrument entitling or authorizing the person who executed the bond to do so.
  - b) A certified copy of the authority of the insurer by the Insurance

Commissioner.

- c) Proof that the Surety is named in the current list of "Surety Companies Acceptable On Federal Bonds" as published by the United States Treasury Department.
- d) Proof that the Surety has an "A" policyholder's rating and a financial rating of at least Class VII in accordance with the most current rating by A.M. Best Company.

The performance bond shall remain in full force and effect for the entire guarantee period as provided in Paragraphs 19.1 and 19.2. If such Bonds are required by written instructions given prior to the opening of Bids, the premiums shall be paid by the Contractor; if subsequent thereto, they will be paid by SLVWD. If at any time a surety on any such Bond is declared bankrupt or loses its right to do business in the State or jurisdiction in which the Work is to be performed or is removed from the list of Surety Companies Acceptable on Federal Bonds, the Contractor, within ten (10) work days after notice by SLVWD to do so, shall substitute an acceptable Bond or Bonds in such form and sum and signed by such other surety or sureties as may be satisfactory to SLVWD. The premium on such Bond or Bonds shall be paid by the Contractor. No further payments shall be deemed due nor shall be made to the Contractor until the new surety or sureties shall have furnished an acceptable Bond or Bonds to SLVWD.

6.2 Insurance. No Work shall be done under these Contract Documents unless there is in full force and effect during and until final acceptance of the Work, and thereafter as provided in subparagraph 6.2.1, all the insurance required to be furnished by the Contractor under this Article. The Contractor shall procure and maintain insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees, or subcontractors. Nothing herein contained shall be construed as limiting in any way the extent to which the Contractor may be held responsible for payment of damages to persons or property resulting from his operations or the operations of any Subcontractor or Sub-subcontractor under him.

6.2.1 Carriers and Evidence. All insurance policies shall be with such insurance carriers and in such form as is satisfactory to and approved by SLVWD. The Insurance is to be placed with insurers with a current A.M. Best rating of no less than A: VII, unless otherwise acceptable to SLVWD. Contractor shall file with SLVWD a Certificate of Insurance for each policy required of him, and shall submit the actual insurance policies to SLVWD for inspection if requested or so required herein. Any insurance bearing on the adequacy of performance shall be maintained by the Contractor after final acceptance of the Work for the entire guarantee period as provided in Paragraphs 19.1 and 19.2. If the Contractor fails to maintain the required insurance, in whole or in part, SLVWD may secure and pay the premiums for such insurance and the

Contractor shall pay to SLVWD such premium costs SLVWD may so incur in accordance with Paragraph 20.12.

- 6.2.2 Additional Insureds, Primary Insurance. SLVWD, its officers, officials, directors, employees, and volunteers shall be included as an additional insured in all insurance policies to be maintained by the Contractor, including comprehensive general liability and auto policies with respect to liability arising out of automobiles owned, leased, hired, or borrowed by or on behalf of the Contractor, and with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts, or equipment furnished in connection with such work or operations. Such other persons or organizations as SLVWD may designate shall also be included as additional insureds. General liability coverage can be provided in the form of an endorsement to the Contractor's insurance (at least as broad as ISO Form CG 20 10, 11 85 or both CG 20 10 and CG 20 37 forms if later revisions used). The insurance afforded to the additional insureds shall be primary as respect to SLVWD, its officers, officials, directors, employees, and volunteers. If the additional insureds have other insurance which might be applicable to any loss, the insurance to be maintained by the Contractor shall be primary and the amount of the insurance to be maintained by the Contractor shall not be reduced or prorated by the existence of such other insurance. Any insurance or self-insurance maintained by SLVWD, its officers, officials, directors, employees, and volunteers shall be excess of the Contractor's insurance and shall not contribute with it. Exclusions in the insurance policies to be maintained by the Contractor are subject to the approval of SLVWD.
- 6.2.3 Noncancellation Clause and Renewals. All insurance policies required of the Contractor shall contain or be endorsed to contain a provision that the coverage afforded under the policies will not be canceled or changed until at least thirty (30) calendar days' prior written notice (ten (10) days for non-payment) has been given to SLVWD by registered or certified mail. Exact copies of renewal policies or endorsement extensions of previous policies shall be delivered to SLVWD by the Contractor prior to the expiration date of any of the insurance.
- 6.2.4 Indemnification. The Contractor shall indemnify, defend, and save harmless SLVWD, its officers, officials, directors, employees, and volunteers and each of them from and against all losses and all claims, demands, payments, suits, actions, recoveries, and judgments of every nature and description brought or recovered against any of them by reason of any act or omission of the Contractor, his agents or employees, or of any Subcontractor or Sub-subcontractor relating to or arising out of the execution of the Work, excepting that caused by the active negligence, sole negligence, or willful misconduct of SLVWD. The Contractor shall maintain and pay for such insurance as will protect SLVWD from any and all contingent liability under the Contract Agreement and a copy of such insurance policy shall be filed with SLVWD.
- 6.2.5 Workers' Compensation and Employer's Liability Insurance. The Contractor



shall maintain or cause to be maintained an adequate workers' compensation insurance, including occupational disease provisions, under the laws of the State where the Work is located and employer's general liability insurance for the benefit of his employees and the employees of any Subcontractor or Sub-subcontractor under him not protected by such compensation laws. The Contractor shall maintain Workers' Compensation insurance as required by the State of California, with statutory limits, and Employer's Liability insurance with a limit of no less than \$1,000,000 per accident for bodily injury or disease. The workers' compensation insurance shall include an All States endorsement, a voluntary compensation endorsement, a marine workers and a longshoreman's and harbor workers endorsement where applicable to the Work, and an endorsement waiving subrogation against the Contractor and SLVWD for all work performed by the Contractor, its employees, agents, and subcontractors.

The Contractor shall execute the Contractor's Certificate Regarding Workers' Compensation pursuant to Section 1881 of the California Labor Code. (See Section 00662.)

- 6.2.6 Public Liability and Property Damage Insurance. The Contractor shall maintain or cause to be maintained public liability and property damage insurance in commercial general liability policy form to protect the Contractor against claims or loss from liability imposed by law from damages which may arise out of or result from the Contractor's operations under the Contract Agreement, whether such operations be by himself or by any Subcontractor or any Sub-subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, on account of bodily injury, sickness, or disease, including death resulting therefrom, suffered or alleged to have been suffered by any person or persons resulting directly or indirectly from said operations, and against claims or loss from liability imposed by law for damage to any property caused directly or indirectly by said operations, which insurance shall also cover accidents arising out of the use and operation of automobiles, trucks, and other vehicles on or for the Work whether or not owned by those performing said operations and, further, shall include operations and premises coverage, contractual liability and indemnification agreement coverage, and products and completed operations coverage. The insurance required of the Contractor under this subparagraph shall remain in full force and effect for the entire time of the Contractor's guarantee. Unless otherwise stated in the Supplementary Conditions, the coverage amount of said insurance shall be not less than the following:

Commercial General Liability: Insurance Services Office Form CG 00 01, including products and completed operations, with limits of no less than Five Million Dollars (\$5,000,000) per occurrence for bodily injury, personal injury, and property damage. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.

Auto Liability: Insurance Services Office Form Number CA 0001 covering Code 1 (any auto), with limits no less than Five Million Dollars (\$5,000,000) per accident for bodily injury and property damage.

Contractor's Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors and Omissions (if the project involves environmental hazards) with limits no less than One Million Dollars (\$1,000,000) per occurrence or claim, and Two Million Dollars (\$2,000,000) policy aggregate.

- 6.2.7 Property Insurance. The Contractor shall maintain or cause to be maintained, until the Work is accepted by SLVWD, Builders' Risk "All-Risk" Completed Value Insurance coverage including earthquake and flood upon the entire Work and including completed Work, Work in progress, and materials and equipment in transit or storage for the Work, to the full value thereof and no coinsurance penalty provisions. Contractor may submit evidence of Builder's Risk insurance in the form of Course of Construction coverage. Such coverage shall name SLVWD as loss payee as their loss may appear. This insurance shall include the interests of SLVWD, the Contractor, and the Subcontractors and Sub-subcontractors in the Work. Such insurance may have a deductible clause with a maximum Five- Thousand Dollar (\$5,000) deductible unless otherwise stated in the Supplementary Conditions. Any insured loss is to be adjusted with SLVWD and made payable to SLVWD as trustee for the insureds as their interests may appear. SLVWD and the Contractor waive all rights against each other for damages caused by fire or other perils to the extent covered by insurance provided under this subparagraph, except such rights as they may have to the proceeds of such insurance held by SLVWD as trustee. The Contractor shall require similar waivers by Subcontractors and Sub-subcontractors. If after such loss no other special agreement is made, replacement of damaged Work may be covered by an appropriate Change Order. Under the contract documents, the property insurance shall include coverage against the perils of flood and earthquake. (See Section 00800.)

If the project does not involve new or major reconstruction, at the option of SLVWD, an Installation Floater may be acceptable. For such projects, a Property Installation Floater shall be obtained that provides for the improvement, remodel, modification, alteration, conversion or adjustment to existing buildings, structures, processes, machinery and equipment. The Property Installation Floater shall provide property damage coverage for any building, structure, machinery, or equipment damaged, impaired, broken or destroyed during the performance of the Work, including during transit, installation, and testing at SLVWD's site.

6.2.7.1 Responsibility for Work.

- 1) Contractor shall be responsible for and shall bear any and all risk of loss or damage to Work in progress, all materials delivered to the site and

all materials and equipment until completion and acceptance of the Work, unless such loss or damage results from the sole active negligence of SLVWD, or its representatives, and as otherwise hereinafter provided for in Paragraphs 6.2.7.1.2 and 6.2.7.1.3.

- 2) As provided in Section 7105 of the California Public Contract Code, the Contractor shall not be responsible for the cost of repairing or restoring damage to Work determined to have been approximately caused by an Act of God, in excess of five percent (5%) of the contract price, provided that the Work damaged was built in accordance with accepted and applicable building standards and the plans and specifications as set forth in this Contract.

The Contractor shall obtain insurance to indemnify SLVWD for any damage to the Work caused by an Act of God if the premium of said insurance coverage is called for as a separate bid item in the Schedule of Quantities and Prices.

The Contractor's Installation All Risk Insurance shall be provided covering value of the Work and all materials and equipment to be incorporated therein while at the site and during inland transit insuring to the replacement value, subject to the deductible not to exceed \$5,000 for any single loss. This insurance shall also contain an insurer's waiver of subrogation against SLVWD. This insurance shall specifically cover losses due to earthquake.

- 3) As provided in Section 7105 of the California Public Contract Code, the term "Acts of God" shall include only the following occurrences or conditions and effects: earthquakes in excess of a magnitude of 3.5 on a Richter Scale and tidal waves.
- 4) Pursuant to provisions of Section 7105 of the Public Contract Code SLVWD reserves the right to make changes in this Contract in the course of construction to bring the completed improvements into compliance with environmental requirements or standards established by State or Federal statutes and regulations enacted after this Contract has been awarded or entered into. In such cases, the Contractor shall be paid for the changes in accordance with the provisions of the Contract governing payments for changes in the Work, or if such relevant provisions are not set forth in this Contract, payment shall be as agreed to by the parties pursuant to procedures under this Contract. SLVWD further reserves the right to terminate the contract pursuant to provisions provided herein for environmental considerations as may be allowed under Section 7105.

- 6.3 Loss of Use Insurance. SLVWD may purchase and maintain such insurance as will insure SLVWD against loss of use of SLVWD's property due to fire or other hazards or permits, however caused.

- 6.4 Loss or Damage and Indemnity Agreement. The Contractor shall be responsible for any liability imposed by law for any damage to the Work or any part thereof or to any of the materials or other things used in performing the Work or for injury to any person or persons or for any property damage. The Contractor shall indemnify and hold SLVWD, its officers, officials, directors, employees, and volunteers and each of them harmless against any and all liability, claims, loss or injury, including costs, expenses, and attorney's fees incurred in the defense of same, arising from any allegation, whether groundless or not, of damage or injury to any person or property resulting from the performance of the Work or from any material used in the Work or from any condition of the Work or Work site, or from any cause whatsoever during the process of the Work. Said indemnity includes acts of passive negligence of SLVWD, its officers, officials, directors, employees, or volunteers. This indemnity agreement does not extend to one whose sole negligence or willful misconduct caused injury or damage.
- 6.5 Nonlimitation of Indemnity Agreements. The indemnification obligations of the Contractor under the Contract Documents shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor or Sub- subcontractor of any tier under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- 6.6 Occurrence Coverage. Coverage required by this Contract shall be occurrence coverage.
- 6.7 Deductibles and Self-Insured Retentions: Any deductibles or self-insured retentions must be declared to and approved by SLVWD. At the option of SLVWD, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects SLVWD, its officers, officials, directors, employees, and volunteers; or the Contractor shall provide a financial guarantee satisfactory to SLVWD guaranteeing payment of losses and related investigations, claim administration, and defense expenses.
- 6.8 Waiver of Subrogation. Contractor hereby agrees to waive rights of subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss. Contractor agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation.
- 6.9 Subcontractors. Contractor shall require and verify that all subcontractors maintain insurance meeting all of the requirements stated herein unless otherwise agreed to in writing by SLVWD prior to commencement of work by such subcontractor.
- 6.10 Verification of Coverage. Contractor shall furnish SLVWD with original certificates and amendatory endorsements, or copies of the applicable insurance language, effecting coverage required by this Contract. All

certificates and endorsements are to be received and approved by SLVWD before work commences. However, failure to obtain the required documents prior to the work beginning shall not waive the Contractor's obligation to provide them. SLVWD reserves the right to require complete, certified copies of all required insurance policies, including endorsements, required by these specifications, at any time.

## ARTICLE 7 – SUPERVISION AND SUPERINTENDENCE

- 7.1        Contractor's Supervision. The Contractor shall supervise and direct the Work efficiently and with his best skill and attention. He shall be solely responsible for means, methods, techniques, procedures, and sequences of construction. The Contractor shall coordinate all parts of the Work and shall be responsible to see that the finished Work complies accurately with the Contract Documents.
- 7.2        Superintendent. The Contractor shall keep on the Work at all times during its progress a competent resident English speaking Superintendent satisfactory to SLVWD, who shall not be replaced without ten (10) work days' written notice to SLVWD except under extraordinary circumstances. The Superintendent shall be the Contractor's representative at the site and shall have the authority to act on behalf of the Contractor. All communications, instructions, and directions given to the Superintendent shall be as binding as if given to the Contractor. Whenever the Contractor or the Superintendent is not present on a part of the Work where SLVWD wishes to give orders or directions, the orders or directions shall be received and obeyed by the Foreman in charge of that part of the Work the same as if the order or direction had been given to the Contractor or the Superintendent. Any order or direction given by SLVWD not otherwise required to be in writing will be given or confirmed in writing upon request of the Contractor.

## ARTICLE 8 – CONSTRUCTION PROCEDURES AND PROTECTION

- 8.1        Contractor's Plant and Equipment. The Contractor shall furnish modern plant and equipment as necessary to perform the Work in a manner satisfactory to SLVWD and in accordance with the Contract Documents, types and designs that comply with the requirements of Article 13 and with the requirements prescribed by laws, ordinances, codes, rules, regulations, and orders pertaining to wind and seismic forces at the place of the Project. Construction equipment or machinery that at any time produces unsatisfactory results shall be promptly repaired or replace by the Contractor and as SLVWD may require.
- 8.2        Use of Site. The Contractor shall confine his equipment, the storage of materials and equipment, and the operations of those directly and indirectly employed by him to areas permitted by law, ordinances, permits, and the Contract Documents, and shall not unreasonably encumber the site with materials and equipment. Nothing in the Contract Documents shall grant to

the Contractor exclusive occupancy of the site of the Work and Project.

- 8.3 Overloading. No part of the Work or new and existing structures, scaffolding, shoring, sheeting, construction machinery and equipment, or other permanent and temporary facilities shall be loaded with weights or subjected to stresses or pressures that endanger any of them. The Contractor shall bear the cost of correcting damage caused by overloading or excessive stresses or pressures.
- 8.4 Use of Explosives. The use of explosives for any and all purposes is not permitted for the Work under this Contract.
- 8.5 Cutting and Patching. The Contractor shall perform all cutting, fitting, or patching of the Work that may be required to make its several parts fit together properly and satisfactorily, and shall not endanger any Work, structures, adjacent property, workmen, or the public by cutting, excavating, or otherwise altering the Work or any part of it. The Contractor shall restore all such cut or patched Work and improvements as approved by SLVWD.
- 8.6 Verification of Installed Work. The Contractor shall correct all defects in installed Work of the Contract before subsequent related or connected Work is applied or installed. Where the Contract Documents require a material or item of equipment to be applied or installed under the supervision, inspection, or direction of the supplier or manufacturer, or his representative, the supplier, manufacturer, or his representative shall inspect the applicable installed Work and issue a letter to SLVWD stating the corrections required to or approval of the installed Work before his material or equipment is installed or applied.
- 8.7 Manufacturers' Instructions. Unless otherwise provided in the Contract Documents, the Contractor shall apply, install, erect, connect, use, clean, condition, and operate manufactured articles, materials, and equipment in accordance with the various manufacturers' instructions including those in the instruction manuals required in Paragraph 12.7 and other instructions required in Paragraph 12.8. The Contractor shall compare the requirements of the various manufacturers' instructions with the requirements of the Contract Documents, shall promptly notify SLVWD in writing of any difference between such requirements, and shall not proceed with any of the Work affected by such differences until an interpretation or clarification is issued pursuant to Paragraph 3.2. The Contractor shall bear all costs for any error in the Work resulting from his failure to so compare the various requirements and notify SLVWD of any such differences.
- 8.8 Public Convenience. The Contractor shall at all times so conduct his operations as to ensure the least possible obstruction and inconvenience to traffic and the general public and the residents in the vicinity of the Work, to protect persons and property, and to preserve access to driveways, houses, and buildings. The Contractor shall have under construction no greater amount of Work than he can properly perform with due regard to the rights of the public, and shall not create any public nuisance. No road, street, or highway shall be

closed to the public except with the permission of the proper authorities. Where existing streets are not available as detours, the Contractor shall permit traffic to safely pass through the Work with as little delay and inconvenience as possible, unless otherwise authorized by SLVWD. When a section of new surfacing, paving, or a traffic structure intended for public use has been completed, it shall be opened for use at the request of SLVWD. The Contractor shall furnish competent flagmen whose sole duty shall be the directing of traffic through or around the Work when ordered by SLVWD, required by public authorities having jurisdiction, or required by law. At no time shall the Contractor prevent free access to fire hydrants, water and gas main valves, manholes or vaults, or other utility facilities. The Contractor shall make temporary provisions to ensure the use of walkways and sidewalks and the proper functioning of gutters, sewer and storm drain inlets, and ditches, which shall not be obstructed.

- 8.9 Protection. The Contractor shall take all precautions and furnish and maintain protection to prevent damage, injury, or loss to all employees and workmen on the Work and all other persons who may be affected thereby; all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-subcontractors; and other improvements and property at the site or where Work is to be performed including buildings, trees and plants, pole lines, fences, guard rails, guide posts, culvert and project markers, signs, structures, conduits, pipe lines, and improvements within or adjacent to streets, rights-of-way, or easements, except those items required to be removed by the Contractor in the Contract Documents. The Contractor's protection shall include all the safety precautions required under Article 13 and other necessary forms of protection, and the notification of SLVWD of utilities and adjacent property.

- 8.9.1 Utilities and Substructures. The indication of the type and approximate location of existing utilities and substructures in the Contract Documents represents a diligent search of known records, but the accuracy and completeness of such indications are not warranted by SLVWD or the Engineer and utility structures and services not so indicated may exist. Before commencing any excavations, the Contractor shall investigate, determine the actual locations, and protect the indicated utilities and structures, shall determine the existence, position, and ownership of other utilities and substructures in the site or where the Work is to be performed by communication with such owners, search of records, or otherwise, and shall protect all such utilities and substructures. SLVWD has indicated on the Plans and Specifications with reasonable accuracy the location of main or trunk line utilities located on the site of project. The Contractor shall be compensated for reasonable costs of locating and repairing any such facilities if not located with reasonable accuracy unless Contractor has failed to exercise reasonable care. Contractor shall not be assessed liquidated damages for delay caused by the failure of SLVWD to provide for the removal, relocation, or protection of such utilities not identified in the Plans and Specifications. The Contractor shall verify the actual location and depth by "pot-holing" of each utility.

This paragraph shall be construed in accordance with Government Code Section 4215.

- 8.9.2 Maintenance of Facilities. Unless otherwise provided in the Contract Documents or otherwise cared for by SLVWD thereof, all water, gas, oil, or irrigation drainage lines and house connection lines, sprinkling systems, and other subsurface, surface and overhead structures of any nature along the Work shall be maintained by the Contractor at his expense, and shall not be disturbed, disconnected, or damaged by him during the progress of the Work. The Contractor shall install temporary pipes of adequate size to carry off sewage from any sewer facilities cut off by construction operations. Installation of temporary pipes shall be made immediately upon cutting of the existing facility, and no sewage shall be allowed to flow from any severed facility upon the ground surface or in the trench excavation. Pipe used in temporary sewers may be clay, metal, concrete, or composition. Before completion of Work, the Contractor shall replace all severed connections and restore to operating order the existing sanitary facilities with matching materials and construction. No liquid from any severed facility shall be allowed to flow upon the ground surface or in any excavation.
- 8.9.3 Restoration and Repair. Except for those improvements and facilities required to be permanently removed by the Contract Documents, the Contractor shall make satisfactory and acceptable arrangements with the appropriate owners and, at his expense, shall repair and restore all improvements, structures, property, utilities, and facilities disturbed, disconnected, or damaged as a result or consequent of his Work or the operations of those for whom he is responsible or liable, including that caused by trespass of any of them with or without his knowledge or consent, or by the transporting of workmen, materials, or equipment to or from the site.
- 8.9.4 Protection of Workers in Trench Excavations. (See California State Requirements, Section 00800CA, Paragraph L.)
- 8.10 Utilities.
- 8.10.1 Water Supply. The Contractor shall not draw water from any fire hydrant or service, nor operate any valve or control of any water system without the written permission of SLVWD thereof, and a copy of each written permission shall be filed with SLVWD.
- 8.10.2 Temporary Utility Interruptions. If the temporary interruption of utility services is necessary for the prosecution of the Work, the Contractor shall make all arrangements with the utility owners and pay all fees and charges levied by them for the interruptions, and shall notify the affected users at least twenty-four (24) hours in advance of the probable duration of interruption unless such notice is given by the appropriate utility owner.
- 8.10.3 Temporary Removal or Maintenance. If it should be necessary to move or



temporarily maintain the property of any public utility or other property, the cost of which because of the terms of any franchise or for any other reason must be borne by SLVWD thereof, such owner will, upon proper application by the Contractor, be notified by SLVWD to move or temporarily maintain such property until after the expiration of the time required for the Work. SLVWD, public authorities having jurisdiction, and SLVWDs of public utilities

and franchises shall have access to any street, alley, right-of-way, or easement for the purpose of maintaining or of making repairs or changes in property made necessary by the Work.

## ARTICLE 9 – LABOR, MATERIALS, AND EQUIPMENT

- 9.1 Workman. The Contractor shall at all times enforce strict discipline and good order among his employees and those of any Subcontractor or Sub-subcontractor, and shall not employ on the Work any unfit person or anyone not skilled and experienced in the assigned task. All Superintendents and foremen shall be English-speaking. Any Superintendent, foreman, laborer, or other person employed on the Work who fails or refuses to perform the Work in the manner required by the Contract Documents shall be discharged immediately and such person shall not again be employed on the Work. When required in writing by SLVWD, the Contractor, Subcontractor, or Sub-subcontractor shall discharge any person who is, in the opinion of SLVWD, incompetent, unfaithful, disorderly, or otherwise unsatisfactory. Such discharge shall not be the basis of any claim for compensation or damages against SLVWD or the Engineer.
- 9.2 Workmanship. The quality of workmanship produced by skilled, knowledgeable, and experienced journeymen mechanics and artisans is required for the Work; Particular attention shall be given to the appearance and finish of exposed Work. The decision of SLVWD with regard to the quality and adequacy of workmanship shall be final and binding.
- 9.3 Materials and Equipment. All materials and equipment incorporated in the Work shall be new unless otherwise specified. Materials and equipment not covered by detailed requirements in the Contract Documents shall be of the best commercial quality, suitable for the purpose intended, and approved by SLVWD prior to use in the Work. The Contractor shall provide proper storage facilities and exercise such measures as will ensure the preservation of the required quality and fitness of all materials and equipment. Materials or equipment not conforming to the requirements of the Contract Documents shall be rejected and immediately removed from the site of the Work. Materials, supplies, or equipment to be incorporated into the Work shall not be purchased by the Contractor or any Subcontractor or Sub-subcontractor subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.
- 9.3.1 Plurality of Terms. Where materials or equipment are referred to in the singular number, it is intended unless otherwise limited that such reference

shall be applied to as much material or equipment as is required to complete the Work.

- 9.3.2 Optional Materials. Where any material or equipment item is specified by two or more manufacturer's name or proprietary identifications, the Contract may provide any one of the materials or equipment so specified. Only one brand, kind, or make of material or equipment shall be used for each specific purpose throughout the Work notwithstanding that similar material or equipment of two or more manufacturers may be specified for the same purpose.
- 9.3.3 Space Requirements and Arrangement. The Contractor shall ensure that the materials and equipment to be furnished fit the space available, and shall make the necessary field measurements to ascertain space requirements including those for connections. If material or equipment requiring arrangement or connections different from those required by the Contract Documents is approved by SLVWD, the Contractor shall bear all costs for installing the material or equipment and for changes to adjoining or related Work SLVWD may require.
- 9.3.4 Materials Furnished by SLVWD. Material or equipment to be furnished by SLVWD will be supplied in accordance with the Specifications.
- 9.4 Substitutions and Equals. References in the Contract Documents to any material, item of equipment, or type of construction by manufacturer's name, make, catalog number, or other proprietary identification shall be interpreted as establishing a standard of quality. If the Contractor wishes to furnish or use a proposed substitute or equal material, item of equipment, or type of construction, he shall make written application to SLVWD for approval, certifying in writing that the proposed substitute or equal will perform adequately the duties imposed by the general design, be similar and of equal substance to that specified, and be suited to the same use and capable of performing the same function as that specified, and stating all variations in costs pertaining to the application. No proposed substitute or equal shall be ordered or installed without the written approval of SLVWD, and it shall be understood and agreed that the decision of SLVWD in this matter shall be final and binding.

Prior to the receipt of Bids, requests for consideration of proposed substitute or equal materials or equipment shall comply with the Bidding Requirements. After receipt of Bids, if the Contractor should wish to propose a substitute or equal item for any specified by brand or trade name, within five (5) work days after issuance of the Notice of Award, he shall in writing notify SLVWD of his intent to do so and at that time submit to SLVWD an itemized list of the item or items he proposes setting forth the various manufacturers' names and such other information he has available. Unless this notification is given within the time stated, the Contractor shall provide only the items specified by brand or trade name. If notification is so given to SLVWD, within thirty-five (35) work days after issuance of the Notice of Award, the Contractor shall supply data to SLVWD to substantiate the proposed substitution or equal. SLVWD will then decide whether the proposed substitution or equal is in fact

equal in quality and utility to the specified trade or brand name items. It is agreed that the decision of SLVWD in this matter shall be final.

- 9.4.1 Use of Approved Substitutions or Equals. The Contractor's use of approved substitutions or equals shall in no way relieve the Contractor from compliance with the Contract Documents. The Contractor shall bear all extra expense resulting from providing or using approved substitutions or equals where they affect the adjoining or related Work, including the expense of required engineering, redesigning, drafting, and permits where necessary, whether SLVWD's approval is given before or after receipt of Bids.

The Contractor shall approve engineering costs for review and evaluation of substitutions or equals prior to the performance of the engineering work using the form titled, "Authorization of Engineering Costs for Evaluation of Substitutions and Equals", bound herein (at the end of the General Provisions section of these Specifications). SLVWD's Representative will not perform the submittal review until the authorization form is signed and returned by the Contractor. If the Contractor does not provide this authorization, the submittal will be rejected.

The Contractor shall approve engineering costs associated with redesign of adjoining or related Work caused by substitutions or equals prior to the performance of the engineering work using the form titled "Authorization of Engineering Costs for Redesign Due to Substitutions or Equals", bound herein (at the end of the General Provisions section of these Specifications). SLVWD's Representative will not perform the redesign until the authorization form is signed and returned by the Contractor. If the Contractor does not provide the required authorization, the submittal which created the need for redesign will be requested.

SLVWD, at its own discretion, will deduct the authorized costs from the Contractor's monthly progress payment or will require direct payment of the authorized amounts by the Contractor to SLVWD's Representative providing the evaluation and/or redesign services.

- 9.4.2 Unauthorized Substitutions. If substitute materials or equipment are installed without SLVWD's approval, the Contractor shall remove the unauthorized materials or equipment and install those required by the Contract Documents at his expense.

## ARTICLE 10 – SUBCONTRACTORS

- 10.1 Responsibility for Subcontractors. The Contractor shall be fully responsible for all acts and omissions of his Subcontractors, Sub-subcontractors, and of persons directly or indirectly employed by them and of persons for whose acts any of them may be liable to the same extent that he is responsible for the acts and omissions of persons directly employed by him. Under these Contract

Documents, no Subcontractor or Sub-subcontractor will be recognized as such, and all persons and organizations engaged by the Contractor for the furnishing or installing of any part of the Work, either at the site or elsewhere, are considered as and agreed to be employees of the Contractor except with regard to insurance as provided in Article 6 and except with regard to payment as provided in Article 20. Nothing in the Contract Documents shall create any contractual relationship between any Subcontractor, Sub-subcontractor, or any person directly or indirectly employed by them, and SLVWD and the Engineer. The Contractor will be responsible for ensuring that the Subcontractor and any Sub-Subcontractor is registered with the DIR as required by Section 1725.5 of the California Labor Code.

- 10.2     Extent of Subcontracting. It is SLVWD's intent that the Work shall be performed and constructed by a Contractor who is staffed and equipped to construct the major portion of the Work with his own directly employed personnel and with the minimum feasible subcontracting. Subcontracting may be permitted by SLVWD to such extent as is shown to be necessary or advantageous to the Contractor without injury to the intent and interest of SLVWD.
- 10.3     Subcontractual Relations. All Work, performed for the Contractor by a Subcontractor shall be pursuant to an appropriate agreement between the Contractor (and where appropriate between Subcontractor and Subcontractor) which shall contain provisions that: (a) protect and preserve the rights of SLVWD and the Engineer with respect to the Work to be performed under the subcontract so that the Subcontracting thereof will not prejudice such rights; (b) require that such Work be performed in accordance with the requirements of the Contract Documents; (c) require under each subcontract to which the Contractor is a party the submission to the Contractor of applications for payment and claims for additional costs, extension of time, damages for delay or otherwise with respect to the subcontracted portions of the Work (via any Subcontractor or Sub-subcontractor where appropriate) in sufficient time that the Contractor may apply for payment in accordance with Article 20 and comply in accordance with the Contract Documents for like claims by the Contractor upon SLVWD; (d) waive all rights the contracting parties may have against one another for damages caused by fire or other perils covered by the property insurance except such rights as they may have to the proceeds of such insurance held by SLVWD as trustee as provided in subparagraph 6.2.7; and (e) obligate each Subcontractor specifically to consent to the provisions of this Paragraph 10.3.

## ARTICLE 11 – LAWS AND REGULATIONS

- 11.1     Governing Law. The Contract Documents shall be governed by the law of the place of the Project.
- 11.2     Compliance. The Contractor shall inform himself/herself of all laws, ordinances, codes, rules, and regulations in any manner affecting those

employed on the Work, or the materials used in the Work, or in any way affecting the conduct of the Work, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over the Work. He shall at all times himself give all notices and observe and comply with, and shall require all his agents, employees, Subcontractors, and Sub-subcontractors to observe and comply with all such applicable laws, ordinances, rules, regulations, orders, and decrees in effect or which may become effective before completion and acceptance of the Work; and shall protect and indemnify SLVWD and the Engineer against any claim of liability arising from or based upon the violation of any such law, ordinance, code, rule, regulation, order, or decree, whether by himself, his employees, or his Subcontractors or Sub-subcontractors, or any other person or organization employed for or upon the Work. If the Contractor observes that any requirement of the Contract Documents is at variance with such laws, ordinances, codes, rules, regulations, orders, or decrees, he shall promptly notify SLVWD in writing and shall not proceed with any Work affected by such variance without SLVWD's written instructions or the issuance of an appropriate Modification.

- 11.3 Permits, Fees, and Taxes. Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for all permits, governmental fees, and licenses necessary for the execution and completion of the Work. The Contractor shall pay all sales, consumer, use, and other taxes required by law including all taxes properly assessed against his equipment or property used in connection with the Work. All such costs shall be included in the bid prices.
- 11.4 Provisions of Law Deemed Inserted. Each and every provision of law required by law to be inserted in the Contract Documents shall be deemed to be inserted and the Contract Documents shall be read and enforced as though it were included. If through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon application of either party to the Contract Agreement, the Contract Documents will be physically amended to make such insertion or correction and an appropriate Modification will be issued.
- 11.5 Registration with the DIR. Contractor must be, and must require all Subcontractors to be, registered with and have paid the annual fee to the DIR pursuant to Labor Code Section 1725.5. No Contractor or Subcontractor may be listed on a bid proposal for a public works project unless registered with the DIR pursuant to Labor Code Section 1725.5. No Contractor or Subcontractor may be awarded a contract for public work on a public works project unless registered with the DIR pursuant to Labor Code Section 1725.5. This project is subject to compliance monitoring and enforcement by the DIR.
- 11.6 Validity of Agreement. The invalidity in whole or in part of any provision of this Agreement, by operation of law or judicial decree, shall not void or affect the validity of any other provision of this Agreement.

## ARTICLE 12 – SUBMITTALS

- 12.1.1 General. Unless otherwise specified or directed by SLVWD, the Contractor shall submit to SLVWD for his review and approval all shop drawings, samples, materials lists, equipment, data, instruction manuals, record documents, manufacturers' equipment manuals, and other submittals required by the Contract Documents and herein, or subsequently as covered by Modifications. Submittals and their contents shall be properly prepared, identified, and transmitted as provided herein or as SLVWD may otherwise direct. Except for record documents and instructional manuals for operation and maintenance, submittal shall be approved before the material or equipment covered by the submittal is delivered to the site. The progress schedule required under Paragraph 2.6 shall be coordinated to this requirement.

Pursuant to this section of the General Provisions, the Contractor shall use the Transmittal Form, included herewith (located at the end of the General Provisions section), for submittal of shop drawings to the SLVWD. The procedures governing shop drawing submittal is contained in these General Provisions. Failure to comply with all requirements specified herein will constitute grounds for return of the shop drawings for proper re-submittal. The Contractor shall sequentially number each submittal. The Contractor may, within five (5) working days of the Notice of Award, submit to the Engineer an alternate Transmittal Form for review and approval for use under this Contract. The Engineer shall have the sole right for determination of the Transmittal Form to be used, and the Contractor shall use the form designated for use by the Engineer.

- 12.1.2 Deviations. At the time of the submission, the Contractor shall give notice in writing in the submittal of any deviation from the requirements of the Contract Documents. The deviations shall be clearly indicated or described, including all other changes required to correlate the Work. The Contractor shall state in writing all variation in costs occasioned by the deviations and his assumption of the cost of all related changes if the deviation is approved.
- 12.1.3 Schedule of Submittals. The progress schedule required under Paragraph 2.6 shall allow not less than twenty (20) working days for the review of submittals, not including the time necessary for delivery or mailing, and shall cause no delay in the Work or the work of any other contractor. Extension of the Contract Time will not be granted because of the Contractor's failure to make timely and correctly prepared and presented submittals with allowance for the checking and review periods.
- 12.1.4 Method of Submittal. The Contractor shall deliver submittals by means of dated, signed, and sequence numbered transmittals on the Contractor's letterhead, identifying as to initial or resubmittal status, and fully describing the submittal contents. Submittals are not acceptable directly from Subcontractors, suppliers, or manufacturers. In each transmittal the Contractor shall state the Specification Sections, Articles, and paragraphs to which the

submittal pertains; accompanying data sheets, catalogs, and brochures shall be identified in the same manner, and where several types or models are contained, the Contractor shall delete non-applicable portions or specifically indicate which portions are intended and applicable.

- 12.1.5 Contractor's Review and Approval. Every submittal of shop drawings, samples, materials lists, equipment data, instruction manuals, and other submittals upon which the proper execution of the Work is dependent shall bear the Contractor's review and approval stamp certifying that the Contractor (a) has reviewed, checked, and approved the submittal and has coordinated the contents with the requirements of the Work and the Contract Documents including related Work, (b) has determined and verified all quantities, field measurements, field construction criteria, materials, equipment, catalog numbers, and similar data, or will do so, and (c) states the Work covered by the submittal is recommended by the Contractor and the Contractor's guarantee will fully apply thereto. The Contractor's stamp shall be dated and signed by the Contractor in every case. It is expected that the Contractor will prepare his submittals in such a manner that he is able to obtain a submittal approval by the second submission. SLVWD reserves the right to deduct moneys from the amounts due to Contractor to cover the cost of the Engineer's review time beyond the second submission.
- 12.1.6 Corrections and Resubmittals. The Contractor shall make all required corrections and shall resubmit the required number of corrected submittals until approved. The Contractor shall direct specific attention in writing to revisions other than the corrections called for on previous submittals, and shall state in writing all variations in costs and his assumption of the cost of related changes the same as is required for deviations in subparagraph 12.1.1. Identify each resubmittal with number of the original submittal followed by consecutive letters starting with "A" for first resubmittal, "B" for second resubmittal, etc.
- 12.1.7 Check of Returned Submittals. The Contractor shall check submittals returned to him for correction and ascertain if the corrections result in extra cost to him above that included under the Contract Documents, and shall give written notice to SLVWD within five (5) work days if, in his opinion, such extra cost results from corrections. By failing to so notify SLVWD or by starting any Work covered by a submittal, the Contractor waives all claims for extra costs resulting from required corrections.
- 12.1.8 Review and Approval. Submittals will be reviewed with reasonable promptness, but only for conformance with the design concept of the Project and with the information given in the Contract Documents. The approval of a separate item as such will not indicate approval of the assembly in which the item functions. The approval of submittals shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents or for any revision in resubmittals unless the Contractor has given

notice in writing of the deviation or revision at the time of submission or resubmission and written approval has been given to the specific deviation or revision, nor shall any approval relieve the Contractor of responsibility for errors or omissions in the submittals or for the accuracy of dimensions and quantities, the adequacy of connections, and the proper and acceptable fitting, execution, and completion of the Work.

- 12.1.9 Incomplete Submittals. Incomplete Submittals, including those not correctly transmitted, not correctly titled and identified, or not bearing the Contractor's review and approval stamp, will be returned to the Contractor without review.
- 12.1.10 Conformance. No Work represented by required submittals shall be purchased or commenced until the applicable submittal has been approved. Work shall conform to the approved submittals and all other requirements of the Contract Documents unless subsequently revised by an appropriate Modification, in which case the Contractor shall prepare and submit revised submittals as may be required. The Contractor shall not proceed with any related Work which may be affected by the Work covered under submittals until the applicable submittals have been approved, particularly where piping, machinery, and equipment and the required arrangements and clearances are involved.
- 12.1.11 Interrelated Submittals. Except where the preparation of a submittal is dependent upon the approval of a prior submittal, all submittals pertaining to the same class or portion of the Work shall be submitted simultaneously.
- 12.2 Shop Drawings. Each submittal shall be complete with respect to dimensions, design criteria, materials, connections, bases, foundations, anchors, and the like, and shall be accompanied by technical and performance data as necessary to fully illustrate the information in the shop drawings. Unless otherwise specified, each submittal shall include one set of reproducible digital copies.
- 12.3 Samples. Unless otherwise specified, each submittal shall include two (2) sets of samples. One set of approved samples and all disapproved samples will be returned to the Contractor. Samples of value retained by SLVWD will be returned to the Contractor after completion of the Work if the Contractor's first transmittal for the sample requests its return. Approved samples of manufactured items returned to the Contractor may be installed in the Work if the location is recorded and the samples bear temporary identification as such.
- 12.4 Materials Furnished Under Standard Specifications. For materials specified by reference to standard or reference specifications, the Contractor shall prepare and submit for approval a list of such materials by manufacturer's names and identifications to the extent requested by SLVWD.
- 12.5 Material Lists. For each item listed, the Contractor shall include the



manufacturer's name and address, trade or brand name, local supplier's name and address, catalog numbers and cuts, brochures, terms and conditions of manufacturer's guarantee and warranty, other information to fully describe the item, and supplementary information as may be required for approval. Cuts, brochures, and data shall be marked to indicate the items proposed and the intended use.

- 12.6 Equipment Data. The Contractor shall submit complete technical and catalog data for every item of mechanical and electrical equipment and machinery to be incorporated in the Work, including components. Submittal copies shall be bound, indexed, and contain information as required in Paragraph 12.5 for submittal of materials lists and shall further include specific information on performance and operating curves and data, ratings, capacities, characteristics, efficiencies, and other data to fully illustrate and describe the items as may be specified or required for approval. Data shall be submitted in sets covering complete systems or functioning units.
- 12.7 Instruction Manuals. The Contractor shall obtain data from the various manufacturers and submit instruction manuals covering all mechanical equipment and machinery installed in the Work.
- 12.7.1 Contents. Each manual shall have an index listing the contents. Information in the manuals shall include not less than (a) general, introduction and overall equipment description, purpose, functions, and simplified theory of operation, (b) specifications, installation instructions, procedures, sequences, and precautions, including tolerances for level, horizontal, and vertical alignment, (d) grouting requirements including grout spaces and materials, (e) list showing lubricants for each item of mechanical equipment, approximate quantities needed per year, and recommended lubrication intervals; where possible, types of lubricants shall be consolidated with equipment manufacturers' approval to minimize the number of different lubricants required for plant maintenance, (f) startup and beginning operation procedures, (g) operational procedures, (h) shut down procedures, (I) short and long term inactivation procedures, (j) maintenance, calibration, and repair instruction, (k) parts lists and spare parts recommendations, (l) lists of all special tools, instruments, accessories, and special lifting and handling devices required for periodic maintenance, repair, adjustment, and calibration, and any other information as may be specified or required for approval.
- 12.7.2 Format and Organization.
- a. Use drawings and pictorials to illustrate the printed text as necessary to fully present the information.
  - b. Where information covers a family of similar items of equipment, identify the applicable portions by heavy weighted arrows, boxes or circles, or strike-out the inapplicable information. Non-conforming data are not acceptable and will be returned for rework and resubmittal.

- c. Contractor shall incorporate into books all Manufacturers' Equipment Manuals including those specified in pertinent Sections of the Specifications. These books shall be organized by Equipment Class in same manner and sequence as the Specifications, i.e. Mechanical, Electrical, Instrumentation, etc. Book size and quantity shall be sufficient for inclusion of all data, and be of type and quality hereinafter specified in Article 12.7.3.
- d. Within each book of manuals, provide a Table of Contents for that book. If more than one book is necessary for a Class of Equipment, place a complete Table of Contents for that Class of Equipment within each book of that Class.
- e. In addition, an overall Index of Contents shall be prepared in ten (10) sets and submitted separately to SLVWD for his insertion in his Operation and Maintenance Manuals.
- f. When a manufacturer's manual exceeds one (1) inch in thickness and is bound as specified in Article 12.7.3 it need not be rebound within another book, but the Overall Index shall refer to it by title and indicate that it is bound separately.

12.7.3 Manual Binding.

- a. Bind all books in sturdy hard covers fastened to provide full view of contents on each page, and ease of making content additions or replacements. No book shall be more than four (4) inches thick. Manuals less than one (1) inch thick shall be bound in substantial three-ring loose leaf binders; others shall have covers secured by operable locking-bars to permit full view opening with contents bound by hinged interfacing pairs of three-ring binding posts, Model S70468-12 by McBee, Springfield, MO., or Model 745483 by Inter-City, St. Louis, Mo., or equal.
- b. Permanently label face of cover and bound edge of each book "MANUFACTURERS' INSTRUCTION MANUAL," and indicate Class of Equipment, i.e., Mechanical, Electrical, Instrumentation, etc. or name specific equipment if a single unit is contained. Where more than one book is needed for a Class of Equipment or a single specific equipment unit, number books consecutively BOOK I, BOOK II, etc.
- c. If more than one Class of Equipment is contained in a book, separate each class with a tabbed stiff divider insert page.
- d. Prior to purchase or delivery, submit samples of each intended type of binder and obtain approval from SLVWD.

12.7.4 Manual Submittals. Submittals shall include two (2) copies of each manual, one of which will be returned to the Contractor marked to show the required

corrections or approval. When approved, the Contractor shall deliver ten (10) copies to SLVWD unless otherwise specified.

- 12.8. Manufacturers' Instructions. In addition to the instructions submitted under Paragraph 12.7, the Contractor shall submit manufacturers' instructions to the extent specified or requested by SLVWD for his determination of their adequacy and approval. When approved, the Contractor shall distribute copies to all those involved with the instructions.
- 12.9 Tools, Accessories, Spare Parts, and Maintenance Materials. The Contractor shall furnish and deliver all special tools, instruments, accessories, spare parts, and maintenance materials required by the Contract Documents, and shall furnish and deliver the special tools, instruments, accessories, and special lifting and handling devices shown in the instruction manuals approved under Paragraph 12.7. Unless otherwise specified or directed by SLVWD, the items shall be delivered to SLVWD, with the Contractor's written transmittal accompanying each shipment, in the manufacturers' original containers labeled to describe the contents and the equipment for which it is furnished. The Contractor shall deliver a copy of each transmittal to the Engineer for record purposes.
- 12.10 Continuance of Operations. The Contractor shall arrange and schedule the Work in such manner as to ensure that all existing utility treatment or disposal operations and facilities are maintained in operation and in no way disrupted or disabled as a result of the Work. The Contractor shall submit for approval a written plan and description of the proposed schedule, methods, and facilities to be employed in conforming to this requirement.
- 12.11 Record Drawings and Specifications. The Contractor shall maintain one record copy of all Drawings, Specifications, Addenda, Modifications, approved submittals, correspondence, and transmittals at the site in good order and readily available to SLVWD, the Engineer, and the Inspector. The Record Drawings shall be clearly and correctly marked and the Record Specifications annotated by the Contractor to show all changes made during the construction process at the time the changed Work is installed. No such changes shall be made in the Work unless previously authorized by a Modification or by specific approval of deviations or revisions in submittals.
- 12.11.1 Buried and Concealed Work. The Contractor shall record the precise location of all piping, conduits, ducts, cables, and like Work that is buried, embedded in concrete or masonry, or concealed in wood or metal framed walls and structures at the time such Work is installed and prior to concealment. Each feature of the concealed Work, such as the beginning and end of straight runs, radius center point of curved runs, angles, connections, plugged tees or other fittings for future connections, and like items shall be accurately located by not less than two dimensions to permanent structures. The depth below finish grade, slab, or paving shall be noted for buried pipe, conduit, or ducts at the beginning and end of straight grade runs and at all grade change points, excepting sewer or drain lines run between manholes. Should the Contractor fail to record such buried or concealed Work, he shall uncover the unrecorded

Work to the extent required by SLVWD and shall satisfactorily restore and reconstruct the removed Work with no change in the Contract Price or the Contract Time.

- 12.11.2 Delivery. Upon completion and prior to final inspection of the Work, the Contractor shall submit the Record Drawings and Specifications to SLVWD for review, and shall make such revisions or corrections as may be necessary for them to be a true, complete, and accurate record of the Work in the opinion of SLVWD. When approved, the Contractor shall deliver the Record Drawings and Specifications to SLVWD.
- 12.12 Revision of Submittals. Whenever a Modification causes a change to the information contained in previously approved submittals, the Contractor shall submit information and data corresponding to the changed requirements for approval. After completion of the operational test required in Paragraph 17.4, the Contractor shall submit revised or additional information and data for the instruction manuals and equipment data as SLVWD may require. Revision submittals shall be submitted following the procedures required for previously approved submittals.

#### ARTICLE 13 – SAFETY PRECAUTIONS AND EMERGENCIES

- 13.1 Contractor's Responsibility for Safety. The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. This requirement will apply continuously twenty-four (24) hours a day every day until final acceptance of the Work and shall not be limited to normal working hours. The duties of SLVWD, Engineer and Inspector do not include review of the adequacy of the Contractor's safety measures in, on, or about the site and vicinity.
- 13.2 Safety Officer. The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of hazards and accidents. This person shall be the Contractor's Superintendent unless otherwise designated in writing by the Contractor to SLVWD.
- 13.3 Safety Measures. The Contractor shall comply with all laws, ordinances, codes, rules, regulations and lawful orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. The Contractor shall comply with the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, Inc., including the recommendations for safe construction methods and the requirements for the guarding of machinery and equipment therein, to the extent that the provisions of the manual are not in conflict with applicable laws, ordinances, rules, regulations, and orders. The Contractor shall maintain copies of all documents mentioned or referenced in this paragraph readily available at the site until the Work is completed.
- 13.4 Warnings and Barricades. The Contractor shall provide and maintain

barricades, guards, temporary bridges and walkways, watchmen, night lights and danger signals illuminated from sunset to sunrise, and all other necessary appliances and safeguards to protect the Work, life, property, the public, excavations, equipment, and materials. Barricades shall be of substantial construction and shall be painted such as to increase their visibility at night. Suitable warning signs shall be so placed and illuminated at night as to show in advance where construction, barricades, or detours exist. Guard rails shall be provided for bridges and walkways over or adjoining excavations, shafts, and other openings and locations where injury may occur.

- 13.5      Fire Prevention. The Contractor's Safety Officer shall inspect the entire Work and site, including storage areas, at frequent intervals to verify that fire prevention measures are constantly enforced.
- 13.5.1    Fire Extinguishers and Hoses. The Contractor shall furnish and maintain fully charged fire extinguishers of the appropriate type, supplements with temporary fire hoses wherever an adequate water supply exists, at the places where burning, welding, or other operations that may cause a fire are being performed.
- 13.5.2    Flammable or Toxic Materials. Only a working supply of flammable or toxic materials shall be permitted in or on any of the permanent structures and improvements, and shall be removed therefrom at the end of each day's operations. The Contractor shall store flammable or toxic materials and waste separate from the Work and stored materials for the Work in a manner that prevents spontaneous combustion or dispersion, and none shall be placed in any sewer or drain piping nor buried on SLVWD's property.
- 13.6      Safety Helmets, Clothing, and Equipment. The Contractor shall not permit any person for whom he is responsible or liable to enter or remain on the site of the Work unless the person is equipped with and wearing a safety helmet and other protective clothing and safety equipment conforming to the requirements of Paragraph 13.3, and shall discharge from the site all persons not so equipped. The Contractor shall post conspicuous signs at appropriate locations warning the public and persons engaged upon the Work of this requirement. The Contractor shall furnish for their temporary use such safety helmets, protective clothing, and safety equipment as SLVWD, the Engineer, or their representatives may request of him.
- 13.7      Hazardous Areas. The Contractor shall not permit or allow any person or persons to enter any pipe or space containing hazardous or noxious substances person for whom he is responsible or liable to enter or remain on the site of the Work unless the person is equipped with and wearing a safety helmet and other protective clothing and safety equipment conforming to the requirements of Paragraph 13.3, and shall discharge from the site all persons not so equipped. The Contractor shall post conspicuous signs at appropriate locations warning the public and persons engaged upon the Work of this requirement. The Contractor shall furnish for their temporary use such safety helmets,

protective clothing, and safety equipment as SLVWD, the Engineer, or their representatives may request of him.

13.8 Emergencies.

13.8.1 Work During an Emergency. The Contractor shall perform any and all operations and shall furnish any materials and equipment necessary during an emergency endangering life or property and, in all cases, shall notify SLVWD of the emergency as soon as practicable, but shall not wait for instruction before proceeding to properly protect both life and property. Any additional compensation or extension of Contract Time claimed by the Contractor on account of an emergency shall be applied for as provided in Paragraph 16.4.

13.8.2 Representatives for Emergencies. The Contractor shall file with SLVWD a written list giving the names, addresses, and telephone numbers of at least two of his representatives who can be contacted at any time in case of emergency. The representatives shall be fully authorized and equipped to correct any unsafe or inconvenient conditions on short notice. The Contractor shall promptly notify SLVWD of all changes in the listing.

ARTICLE 14 – SEPARATE CONTRACTS

14.1 Award of Separate Contracts. SLVWD reserves the right to award other contracts in connection with other portions of the Project. When separate contracts are awarded for different portions of the Project, "the Contractor" in the contract documents in each case shall be the contractor who signs each separate contract. The Contractor shall not cause any unnecessary hindrance or delay to any other contractor working on the Project. If the performance of any contract for the Project is likely to be interfered with by the simultaneous execution of some other separate contract or contracts, SLVWD will decide which contractor may proceed. SLVWD shall not be responsible for any damages suffered or extra costs incurred by the Contractor resulting directly or indirectly from the award or performance or attempted performance of any other separate contract or contracts on the Project, or caused by any decision or omission of SLVWD respecting the order of precedence in the performance of the separate contracts awarded for completion of the Project. Any costs caused by defective or ill-timed work shall be borne by the contractor responsible therefore.

14.2 Mutual Responsibility of Contractors. The Contractor shall cooperate with other contractors with regard to storage of materials and execution of their work, and shall coordinate with them with respect to construction scheduling and sequence of operations, all subject to the approval of SLVWD. The Contractor shall properly connect his Work to the work of separate contractors, and shall inspect the work of other contractors affecting his Work and promptly report to SLVWD in writing any irregularities or defects in the separate contract work which renders it unsuitable for reception or connection

of his Work. Failure of the Contractor to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper to receive his Work, except as to defects which may develop in the other separate contractor's work after the execution of the Contractor's Work. Each Contractor shall monitor the schedule and progress of each other Contractor whose work affects his own work, and shall be responsible for giving timely notice to SLVWD of potential problems of interface so that SLVWD can mitigate the issue.

14.3 Cutting and Patching Under Separate Contracts. The Contractor shall be responsible for any cutting, fitting, and patching that may be required to complete his Work except as otherwise specifically provided in the Contract Documents. The Contractor shall not endanger any work of any other contractor by cutting, excavating, or otherwise altering any work and shall not cut or alter the work of any other contractor except with the written consent of SLVWD.

14.4 Claims Between Separate Contractors. Should the Contractor cause damage to the work or property of any separate contractor on the Project, the Contractor shall, upon due notice, settle with such other contractor by agreement or arbitration, if he will so settle. If such separate contractor sues SLVWD or initiates an arbitration proceeding on account of any damage alleged to have been so sustained, SLVWD will notify the Contractor who shall defend such proceedings at the Contractor's expense, and if any judgment or award against SLVWD arises therefrom, the Contractor shall pay or satisfy it and shall, as provided in Paragraph 20.12, pay SLVWD for all attorneys' fees, court or arbitration costs, and additional administrative, professional, consultant, inspection, testing, and other service costs which SLVWD has incurred.

## ARTICLE 15 – SLVWD’S AND ENGINEER’S STATUS DURING CONSTRUCTION

15.1 Authority of SLVWD. SLVWD shall have the authority to enforce compliance with the Contract Documents. On all questions relating to quantities, the acceptability of materials, equipment, or Work, the adequacy of the performance of the Work, and the interpretation of the Specifications, the decision of SLVWD is final and binding and shall be precedent to any payment under the Contract Agreement unless otherwise provided in the Contract Documents. SLVWD shall have the authority to stop the Work or any part thereof as may be necessary to ensure the proper execution of the Work, to disapprove of or reject Work which is defective, to require the uncovering and inspection or testing of Work as provided in Paragraph 17.5, to require re-examination of Work as provided in Paragraph 18.4, to issue interpretations and clarifications as provided in Paragraph 3.2, to order minor changes or alterations in the Work as provided in Paragraph 16.6, and other authority as provided elsewhere in the Contract Documents. SLVWD shall not be liable for the results of any ruling, interpretation, or decision rendered or request, demand, instruction, or order issued by him in good faith. The Contractor shall promptly comply with request, demands, instructions, and

orders from SLVWD.

- 15.2 Engineer's Observation of the Work. The Engineer will make periodic observations of the progress and quality of the executed Work and will determine, in general, if the Work is proceeding in accordance with the Contract Documents. The Engineer will not be required to make exhaustive or continuous observations to check the quality or quantity of the Work. Neither observations by the Engineer nor inspections, tests, or approvals by persons other than the Contractor shall relieve the Contractor from his obligations to perform and construct the Work in accordance with the requirements of the Contract Documents. SLVWD will inform the Contractor in writing of other duties of the Engineer under the Contract Documents, if any.
- 15.3 Limitations On Responsibility. SLVWD and the Engineer will not be responsible for construction means, methods, techniques, procedures, sequences, or the safety precautions and programs incident thereto, or for the acts or omissions of the Contractor or any Subcontractor, Sub-subcontractor, or any of their agents or employees, or any other persons performing any of the Work, or for the Contractor's failure to perform and construct the Work in accordance with the Contract Documents. Neither the Engineer's authority to act under the Contract Documents nor any decision made by him in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any Subcontractor or Sub-subcontractor, any of their agents or employees, or any other person performing any of the Work, nor shall anything in the Contract Documents create any contractual relationship between any of them and the Engineer.
- 15.4 Protests. If the Contractor considers any Work requested or ordered of him to be outside the requirements of the Contract Documents, or considers any request, demand, instruction, order, ruling, or decision of SLVWD to be unfair, he shall, within ten (10) work days after any such request, demand, instruction, order, ruling, or decision is made or given, file a written protest with SLVWD stating clearly and in detail his objections and the reasons therefore. Except for written protests as are made of record in the manner and within the time stated herein, the Contractor shall be deemed to have waived and does hereby waive all grounds for protests or objections to such requests, demands, instructions, orders, rulings, or decisions. SLVWD will issue a written decision regarding each protest so filed with reasonable promptness.

## ARTICLE 16 – CHANGES IN THE WORK

- 16.1 Change Orders. Without invalidating the Contract Agreement and without notice to sureties or insurers, SLVWD may, at any time, order additions, deletions, or revisions in the Work; these will be authorized by Change Order. The Contractor shall comply promptly with the requirements of all executed Change Orders. The Work involved in Change Orders shall be executed under the applicable conditions and requirements of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Price or an



extension or shortening of the Contract Time, an equitable adjustment will be made and included in the Change Order. Additional or extra Work performed by the Contractor without authorization of a Change Order will not entitle the Contractor to an increase in the Contract Price or an extension of the Contract Time, except as provided in subparagraph 13.8.1 for emergencies and in Paragraph 18.4 for the re-examination of Work.

- 16.2 Valuation of Change Orders. When required by SLVWD, the Contractor shall submit in the form prescribed by SLVWD an itemized cost breakdown with supporting data of the quantities and prices used by him in computing the value of any change that may be ordered. The cost or credit to SLVWD resulting from a change in the Work will be determined by one or more of the following methods: (a) by an acceptable lump sum proposal from the Contractor, (b) by unit prices accepted by SLVWD and stated in the Contract Documents or unit prices subsequently fixed by agreement between the parties, (c) by cost and a mutually acceptable fixed amount for overhead and profit, or (d) by force account when directed in writing and administered by SLVWD. Under the methods described in (c) and (d), the Contractor shall maintain an accurate written daily direct cost record pertaining to such ordered Work in the form and detail acceptable to SLVWD. The Contractor shall certify each daily record to be true and correct, and shall furnish copies to SLVWD as the ordered Work progresses. The direct costs so recorded shall include only the labor cost for workmen and foremen (payroll taxes and assessments, fringe benefits, employer's contributions, workers' compensation coverage, withholdings required by law, and other verified direct labor costs included), the cost of materials and equipment delivered and installed in such Work as substantiated by appropriate documents, the cost of construction machinery and equipment based on fair rental values acceptable to SLVWD, and the cost of incidentals directly related to such Work. The direct costs shall not include any labor or office costs pertaining to the Contractor, his superintendents, his office staff and office facilities, or anyone not directly employed on such Work, nor the premium costs for bonds or insurance other than workers' compensation insurance, nor the cost or rental of small tools as all such indirect costs form a part of the Contractor's overhead expense. Under the method described in (d), the maximum percentage which will be allowed for the Contractor's combined overhead and profit will be: (1) for all such Work done by his own organization, the Contractor may add up to ten (10) percent of his actual net increase in cost, and two (2) percent for all such Work done by Subcontractors, each Subcontractor may add up to ten (10) percent of his actual net increase in costs for combined overhead and profit and the Contractor may add up to five (5) percent of the Subcontractor's total for his combined overhead and profit. The amount of credit to be allowed by the Contractor to SLVWD for any such change which results in a net decrease in cost will be the amount of the actual net decrease as determined by SLVWD taking into consideration adjustments for overhead and profit as determined herein, plus deductions for combined overhead and profit as computed in (1) and (2) above. When both additions and credits are involved in any one change, the combined overhead and profit shall be figured on the basis of the

net difference.

- 16.3 Notice to Sureties. The Contractor shall notify his sureties and the carriers of the insurance furnished and maintained by him of any changes affecting the general scope of the Work or change in the Contract Price, and the amount of the applicable Bonds and the coverage of the insurance shall be adjusted accordingly. The Contractor shall furnish proof of such adjustments to SLVWD.
- 16.4 Contractor's Claims. If the Contractor wishes to make a claim for a change in the Contract Price or the Contract Time, the Contractor shall give SLVWD written notice thereof within ten (10) work days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work covered by the claim except in an emergency endangering life or property. No such claim shall be valid unless so made. Any change in the Contract Price or the Contract Time resulting from a claim that is approved by SLVWD will be authorized by Change Order.
- 16.5 Adjustment of Unit Prices. If unit prices are stated in the Contract Documents or subsequently agreed upon, and if the quantities originally contemplated are so changed (by 30% or greater quantity change) in a proposed Change Order such that application of the agreed unit prices to the quantities of Work proposed will create a hardship on SLVWD or the Contractor, the applicable unit prices will be equitably adjusted to prevent such hardship by negotiation or by force account.
- 16.6 Minor Changes. SLVWD may issue written Field Orders or other written orders that authorize minor changes or alterations in the Work consistent with the overall intent of the Contract Documents that do not involve an adjustment in the Contract Price or an extension of the Contract Time. Such orders shall be binding on the Contractor and he shall carry out such orders promptly. If the Contractor believes any minor change or alteration ordered by SLVWD entitles him to an increase in the Contract Price or an extension of the Contract Time, he may make a claim therefore as provided in Paragraph 16.4.
- 16.7 Information Revisions Caused by Change Orders. As provided in Paragraph 12.12, whenever a Change Order or other Modification causes a change in the information contained in previously approved submittals, the Contractor shall include in the itemized breakdown required of him under Paragraph 16.2 all costs for preparing and submitting revised information and submittals corresponding to the changed requirements. If the Change Order or other Modification causes no change in such information or submittals, the Contractor shall so certify in writing in his itemized breakdown.
- 16.8 Change Order Procedure. The following procedure will be followed in issuing a change order.
- 16.8.1 The Inspector identifies the need for a change in plans.

- 16.8.2 The Inspector discusses the required change with the Engineer and Contractor.
- 16.8.3 The Engineer prepares a detailed description of the Work required, including any additional drawings, and prepares a change order in the required format.
- 16.8.4 The change order is provided to the Contractor for his review and negotiation of the price for the change.
- 16.8.5 The Engineer and Contractor agree on the Work to be performed and price for doing the Work. Each signs the change order, indicating that both agree as to the terms of performing the required change.
- 16.8.6 The Engineer submits the change order to the SLVWD through the designated SLVWD Representative.
- 16.8.7 If the SLVWD Staff concurs with the change order, it is submitted to the General Manager for approval and signature if the change order involves a change in a price that is within the General Manager's approval authority. If the change order involves a change in price that is greater than the General Manager's approval authority, it will be submitted to the Board of Directors for approval. If the Board of Directors approves, the General Manager signs the change order, authorizing the change to be implemented.
- 16.9 Field Order Procedure. The following procedure will be followed in issuing a field order.
  - 16.9.1 Inspector identifies the need for a field order change.
  - 16.9.2 The Inspector discusses the required change with the Engineer and Contractor.
  - 16.9.3 The Inspector prepares a detailed written description of the minor changes or alterations in the work.
  - 16.9.4 The Contractor reviews field order.
  - 16.9.5 The Inspector and Contractor agree on field order work to be performed. Each signs the field order, indicating that both agree as to the terms of performing the required changes.
  - 16.9.6 General Manager signs the field order authorizing the change to be implemented.

#### ARTICLE 17 – ACCES, INSPECTIONS, AND TESTS

- 17.1 Access to the Work and Records. SLVWD, the Engineer, the Inspector, and the representatives of any Federal, State, or other public body or authority having jurisdiction of the Project shall have, at all times and for any purpose,

immediate access to the Work and the premises used by the Contractor for the Work and shall have access to the places where materials or equipment are being fabricated, manufactured, or produced for the Work. To the extent requested by SLVWD, the Contractor shall furnish access to the purchase orders and records, invoices, bills of lading, payroll records, and other documents and records pertaining to the Work, or shall furnish certified true copies thereof at his expense.

17.2 Inspection. SLVWD will furnish inspection of the Work at no cost to the Contractor except as provided in Paragraphs 4.3, 14.4, 17.5, 17.6, 18.1, and 21.2, and except for inspections required to be furnished and paid for by the Contractor elsewhere in the Contract Documents. All Work shall be performed and constructed under the inspection of the Inspector unless waived in writing by SLVWD in each case or exempted wholly or in part from inspection elsewhere in the Contract Documents. Any Work requiring such inspection that is performed or constructed in the absence of the Inspector shall be considered defective and is subject to rejection. The Contractor shall give written notice to SLVWD at least five (5) work days in advance of the performance of any part of the Work requiring special inspection by someone other than the Inspector and shall state the probable duration of the required special inspection. Inspection of any material or equipment at the factory or shop will not constitute an acceptance. The Inspector is authorized to suspend any part or all of the Work, by notice to the Contractor confirmed in writing, when a question arises as to whether the materials or equipment being installed or the methods or workmanship being used comply with the Contract Documents until such question is decided by SLVWD. The Inspector is not authorized to accept or reject any Work, to modify or change any requirement of the Contract Documents, to advise or instruct the Contractor or his employees as to the prosecution of the Work, to perform any duty or service for the Contractor, or relieve the Contractor of the obligation to fulfill any conditions and requirements of the Contract Documents.

17.3 Testing. All Work, materials, and equipment to be performed and constructed by the Contractor are subject to testing for compliance with the Contract Documents and shall be tested when required by the Contract Documents. The Contractor shall give SLVWD timely written notice of the dates and times that testing is to be performed at the site or the place of manufacture or fabrication. All tests are subject to the observation of the Engineer and approval of SLVWD and shall be performed as directed by SLVWD unless otherwise provided in the Contract Documents. Materials or equipment required to be tested prior to installation shall not be installed until SLVWD has approved the test results and the tested material or equipment in writing. Under these Contract Documents, the Contractor shall employ the services and pay the costs of tests performed by a testing laboratory or agency for field slump tests, concrete strength, optimum moisture, soil compaction tests, and painting/crating in the field and at the shop. The Contractor shall bear all other testing costs. The Contractor shall pay SLVWD, in accordance with Paragraph 20.12, any cost SLVWD incurs for test where the tested material or equipment fails the test and for retesting caused by failure disclosed in

previous tests.

- 17.3.1 Contractor's Testing Agency. If materials or equipment are required to be tested by a testing laboratory or agency employed by the Contractor, the testing laboratory or agency shall be satisfactory to and approved by SLVWD. The Contractor shall deliver five (5) certified copies of each test report to SLVWD unless otherwise specified.
- 17.3.2 Test Samples. The Contractor, at his expense, shall furnish samples of materials to be tested in sufficient time before use to allow for testing and to cause no delay in the Work.
- 17.3.3 Test Costs. The Contractor shall bear all testing costs unless otherwise provided in the Contract Documents.
- 17.4 Operational Tests. After the Work is completed and as one of the precedents to final inspection, the Contractor shall perform operational tests as required by the Contract Documents and as required to demonstrate to SLVWD the correct and proper operation of the various facilities forming a part of the Work including but not limited to the correct sequences of operation and the satisfactory performance of all components. The Contractor shall repair, replace, adjust, or otherwise correct the improper operation of any system or component and all faulty or defective Work as SLVWD may require for his approval. Based upon the operational tests results, the Contractor shall prepare and submit revised or additional information and data for the previously approved submittals as required by SLVWD and as provided in Paragraph 12.12. Each operational test shall be performed continuously for not less than 168 hours (7 days).
- 17.5 Uncovering the Work. Any Work that is covered by the Contractor before required inspections or tests are performed or approvals are given shall be uncovered by the Contractor to the extent directed by SLVWD, and the Contractor shall bear all the expense for uncovering, exposure, inspection, testing, and of satisfactory reconstruction.
- 17.6 Inspections, Tests, and Approvals Required by Others. If the laws, ordinances, rules, regulations, or orders of any public body or authority having jurisdiction require any Work to be specifically inspected, tested, or approved by someone other than the Contractor, SLVWD, the Engineer, or the Inspector, the Contractor shall give all required notices and make all required arrangements therefore, and shall deliver to SLVWD certificates of inspection, testing, or approval issued by the applicable public bodies or authorities having jurisdiction. The cost of all such inspections, tests, and approvals shall be borne by the Contractor unless otherwise provided in the Contract Documents.
- 17.7 Soil Compaction Testing. The Contractor shall employ the services and pay the costs of tests performed by a testing laboratory for optimum moisture and soil compaction tests in the field.

## ARTICLE 18 – DEFECTIVE WORK

- 18.1 Correction of Defective Work. All Work, material, or equipment that is unsatisfactory, faulty, incomplete, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, test, or approval is defective. If the Work or any part thereof is found to be defective, whether or not manufactured, fabricated, installed, completed, or over-looked and accepted by SLVWD, the Contractor shall, promptly and in accordance with the written instructions of SLVWD and within the reasonable time limits stated therein, either correct such defective Work or, if it has been rejected by SLVWD, remove it from the site and replace it with non-defective and conforming Work. The Contractor shall bear all costs for the correction or removal and replacement of defective Work and all additional direct and indirect costs SLVWD may incur on account of defective Work including the costs of additional administrative, professional, consultant, inspection, testing, and other services. If such additional costs are incurred by SLVWD prior to the making of final payment, a Change Order will be issued to effect a reduction in the Contract Price in the amount of SLVWD's additional costs; otherwise, the Contractor shall pay the amount to SLVWD in accordance with Paragraph 20.12. The Contractor shall also bear all costs of making good all Work and the work and property of separate contractors, SLVWD, and others that is destroyed or damaged by his correction or removal and replacement of his defective Work.
- 18.2 SLVWD's Right to Correct Defective Work. If the Contractor fails to correct or remove and replace defective Work in accordance with the requirements of Paragraph 18.1, SLVWD may correct or remove and replace it without prejudice to any other remedy SLVWD may have, and SLVWD may store the removed materials or equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal and storage within ten (10) days thereafter, SLVWD may upon ten (10) additional days' written notice sell such removed Work at auction or private sale and shall account for the net proceeds or deficit thereof, after deducting all expenses SLVWD may incur from such removal, storage, or sale. If SLVWD corrects or removes and replaces defective Work prior to the making of final payment, one or more Change Orders will be issued to effect appropriate reductions in the Contract Price for all costs and expenses incurred by SLVWD in the correction or removal and replacement of defective Work, adjusted to account for the net proceeds or deficit of said auction or sale, if any, and all additional costs SLVWD may incur on account of defective Work as provided in Paragraph 18.1; otherwise, the Contractor shall pay to SLVWD the amount of all such costs and expenses incurred by SLVWD adjusted to account for the net proceeds or deficit of said auction or sale, if any, in accordance with Paragraph 20.12.
- 18.3 SLVWD's Right to Accept Defective Work. SLVWD may accept defective Work instead of requiring its correction or removal and replacement. In such case, if acceptance occurs prior to the making of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract Price covering the

value of such accepted defective Work and the additional costs SLVWD may incur on account of such defective Work as provided in Paragraph 18.1; or, if the acceptance occurs after the making of final payment, the amount that would have been the reduction in the Contract Price prior to the making of the final payment shall be paid by the Contractor to SLVWD in accordance with Paragraph 20.12.

- 18.4 Re-Examination of Work. If SLVWD, at any time prior to the final acceptance of the Work, orders reexamination of Work completed, including the uncovering, removing, exposing, dismantling, inspecting, or testing of Work covered by such order, the Contractor shall promptly comply with the order. If the Work so re-examined is defective, the Contractor shall correct or remove and replace it with nondefective and conforming Work in accordance with all the provisions of Paragraph 18.1 and also shall bear the cost of the satisfactory reconstruction of the Work. If the Work so re-examined is not defective or if any defective or deficient condition discovered was caused by a separate Contractor employed on the Project, the Contractor shall satisfactorily reconstruct the Work as ordered by SLVWD and, if claim is made as provided in Paragraph 16.4, a Change Order will be issued to compensate the Contractor for his Work under such order, valued as provided in Paragraph 16.2, and to effect an appropriate adjustment of the Contract Time.

#### ARTICLE 19 – GUARANTEES AND WARRANTIES

- 19.1 Contractor's Guarantee. The Contractor shall warrant and guarantee the entire Work and all parts thereof, including that performed and constructed by Subcontractors, Sub-subcontractors, and others employed directly or indirectly on and for the Work, against faulty or defective materials, equipment, or workmanship for a period of one (1) year from the date of SLVWD's written final acceptance of the Work or such longer period of time as may be prescribed by law or by the terms of any special guarantee or warranty required by the Contract Documents.
- 19.2 Bonds and Insurance. The performance bond and the public liability and property damage insurance required of the Contractor in Article 6 shall remain in full force and effect for the entire time of the Contractor's guarantee.
- 19.3 Corrections During Guarantee Period. The Contractor's correction of defective Work during the guarantee period shall be in accordance with all the provisions of Paragraph 18.1 or SLVWD may correct or accept it as provided in Paragraphs 18.2 and 18.3.
- 19.4 Guarantee of Work on Property of Others. The Contractor's guarantee shall cover and include any of the Work installed on property not owned by SLVWD, whether public or private, and shall include the repair of damage to improvements and existing conditions on such other property caused by settlement or otherwise resulting from the Contractor's operations unless the owner of such other property shall in writing release SLVWD from liability and responsibility for Work or damage therefrom on such other property.

- 19.5      Manufacturer's Warranties. As a precedent to final inspection, the Contractor shall deliver to SLVWD all the manufacturers' warranties required by the Contract Documents, with SLVWD named as beneficiary. In addition, for all equipment and machinery bearing a manufacturer's warranty that extends for a longer period of time than the Contractor's guarantee, the Contractor shall secure and deliver the warranties to SLVWD in the same manner.

## ARTICLE 20 – PAYMENTS AND COMPLETION

- 20.1      Schedule of Values. Prior to applying for the first progress payment, the Contractor shall submit to SLVWD for approval, in the form directed by or acceptable to SLVWD, a complete schedule of the values of the various portions of the Work, including quantities and unit prices if required by SLVWD, aggregating the Contract Price (except in cases and to the extent that accepted unit prices form the basis for payment). The schedule shall subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction, to coordinate with the progress schedule required under Paragraph 2.6, to form the basis for possible change orders or field orders and shall be supported by such data to substantiate its correctness as SLVWD may require. Each item in the Schedule of Values shall include its proper share of overhead and profit. An unbalanced breakdown providing for overpayment to the Contractor on items of Work performed during the initial phases of the Work, such as mobilization, will not be approved. The Schedule of Values, when approved by SLVWD, shall be used only as a basis for the Contractor's applications for payment and not for additions to or deductions from the Contract Price.
- 20.2      Contractor's Certification. All applications for payment shall contain the Contractor's certification that all his labor for the period for which payment is claimed has been paid, including all amounts to the account of such labor lawfully required to be allocated, withheld, or set aside, and that he has assured himself and represents that all labor on the account of Subcontractors or Sub-subcontractors for which payment amounts are claimed has also been paid.
- 20.3      Contractor's Warranty of Title. The Contractor warrants and guarantees that title to all Work, materials, and equipment covered by an application for payment, whether incorporated in the Work or not, will have passed to SLVWD prior to the making of the application for payment, free and clear of all liens, claims, security interests or encumbrances (hereafter in these General Conditions referred to as "liens"); and that no Work, materials, or equipment covered by an application for payment will have been acquired by the Contractor or by any other person performing the Work at the site or furnishing materials and equipment for the Work, subject to an agreement under which an interest therein or encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.
- 20.4      Progress Payments. Unless otherwise provided in the Contract Documents, at least four (4) work days before each progress payment application falls due,



but not more often than once a month, the Contractor shall submit to SLVWD for review the itemized progress payment application in the form required by SLVWD, filled out and signed by the Contractor and supported by such data substantiating the Contractor's right to payment as SLVWD may require. Any progress payment application not accompanied by the revised progress schedule required of the Contractor in Paragraph 2.6 will be returned to the Contractor. Progress payments shall be made in accordance with the withholding requirements of Public Contract Code Section 9203.

Pursuant to Section 20104.50 of the California Public Contract Code, upon receipt of a payment request, SLVWD shall review such request as soon as practicable after receipt for the purpose of determining that the payment request is a proper payment request. Any payment request determined not to be a proper payment request suitable for payment shall be returned to the Contractor as soon as practicable, but not later than seven (7) days after receipt. The returned request shall be accompanied by a document setting forth in writing the reasons why the payment request is not proper. If SLVWD fails to make any progress payment within thirty (30) days after receipt of an undisputed and properly submitted payment request, SLVWD shall pay interest to the Contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the California Code of Civil Procedure. A "progress payment" includes all payments due to the Contractor, except that portion of the final payment designated by this Agreement as retention earnings. A payment request shall be considered properly executed if funds are available for payment of the payment request and payment is not delayed due to an audit inquiry by a financial officer of SLVWD.

Pursuant to Section 10262 of the California Public Contract Code and section 7108.5 of the California Business and Professions Code, the Contractor shall pay its Subcontractors, within seven (7) days of receipt of each progress payment, the respective amounts allowed the Contractor on account of the work performed by its Subcontractors, to the extent of each Subcontractor's interest therein.

- 20.4.1 Progress Payment for Materials and Equipment. If an application requests payment on account of imperishable materials or equipment not incorporated in the Work but delivered and suitably stored at the site, or at some other location approved by SLVWD and agreed to in writing, the application shall be accompanied by such bills of sale, data, and other procedures satisfactory to SLVWD as will establish SLVWD's title to such materials or equipment or otherwise protect SLVWD's interest including applicable liability and property insurance and transportation to the site. Payment on account of such materials or equipment will not include any amount for the Contractor's overhead or profit or relieve the Contractor of his obligation to protect and install such materials or equipment in accordance with the Contract Documents and for the restoration of damaged or defective Work.

- 20.4.2 Retention. SLVWD will retain a portion of the amount otherwise due the Contractor. Unless otherwise provided in the Contract Agreement or subsequently agreed by the parties, SLVWD will retain an amount equal to five percent (5%) of the estimated value of the actual Work completed and five percent (5%) of the value of material delivered on the ground or stored subject to, or under the control of, SLVWD and unused.
- 20.4.3 Approval of Progress Payments. Upon receipt of an application for progress payment, the application shall be reviewed by SLVWD as soon as practicable after receipt for the purpose of determining that the payment application is a proper payment application. Any payment application determined not to be a proper payment application suitable for payment shall be returned to the Contractor as soon as practicable, but not later than seven (7) calendar days, after receipt. An application returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the payment application is not proper. SLVWD shall make any progress payment within 30 days after receipt of an undisputed and properly submitted payment request from the Contractor. The number of days available to SLVWD to make a payment without incurring interest equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure shall be reduced by the number of days by which SLVWD exceeds the seven (7) calendar day return requirement set forth in this paragraph.
- 20.4.4 Each application for progress payment shall be accompanied by the following. Progress Payment Applications not accompanied by Items 1, 2, 3, and 4 below will be returned to the Contractor.
1. Progress Report – A narrative summary indicating the status of the Work performed and other pertinent activities including the actual percentage of Work completed, an estimate of the percentage of Work to be completed in the succeeding month, a revised CPM schedule, problem areas and manpower used by trade and hours. If the Work has fallen behind the schedule, the Contractor shall state how the time is to be made up to remain on schedule.
  2. Record Drawings and Specifications – Submit changes during previous month. These may be photocopies of the Specifications changed.
  3. Certified Payrolls – Submit copies of certified payroll including fringe benefit statements for each employee during the progress period. The Contractor and each Subcontractor must comply with Sections 1776 and 1771.4(a)(3)(A) of the Labor Code regarding payroll records.
  4. Progress Photographs - A commercial photographer will not be required for the Work under this Contract. However, copies of any photographs taken during this project shall be submitted to SLVWD for the permanent record. The Contractor shall submit all photographs in RAW, TIFF, or JPG digital format on CD or DVD.

- a. General - Provide photographs of the site and construction throughout the progress of Work, acceptable to SLVWD. Photographs shall be taken on the cutoff date for each application for payment and at the beginning and completion of each of the following elements of Work:

- 1. Prior to Work
- 2. Final Completion

In addition, the Engineer may request up to five (5) photographs of various views (non-aerial) in any one (1) month of progress or problem areas.

- c. Photographs. Digital photographs in RAW, TIFF, or JPG format will be required.
- d. Technique. Provide factual presentation. In each photograph include an object of known size to determine size of object being photographed. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion. Any photograph which is not clear and distinct, double exposed, over exposed, etc. shall be retaken.
- e. Views. Provide photographs from two (2) views at each element of Work. The Engineer will select the various viewpoints for photography.
- f. Submittals. Contractor shall deliver the photographs with each application for payment. The photographs will be dated by the Photographer. One (1) of each retained by the Engineer and Contractor and SLVWD will retain one (1) of each photograph which will be the permanent record. (See Paragraph 20.4.4.4)

## 20.5 Withholding of Payments.

- 20.5.1 Right to Withhold. SLVWD may refuse to approve any payment because of subsequently discovered evidence or the results of subsequent inspection or tests, nullify any such payment previously approved to such extent as may be necessary in the opinion of SLVWD to protect SLVWD from loss because: (a) the Work is defective, (b) third party claims have been filed or there is reasonable evidence indicating probable filing of such claims, (c) the Contract Price has been reduced because of Change Orders, (d) of the Contractor's failure to make payment properly to Subcontractors or for labor, materials, or equipment, (e) of damage to another contractor or to the property of others caused by the Contractor, (f) of reasonable doubt that the Work can be completed for the unpaid balance of the Contract Price, (g) of reasonable indication that the Work will not be completed within the Contract Time, (h) of the Contractor's neglect or unsatisfactory prosecution of the Work including failure to clean up, (i) SLVWD has been required to correct defective Work as provided in Paragraph 18.2 or to finish the Work as provided in Paragraph

21.2, (j) of insurance premium costs SLVWD has incurred by the Contractor's failure to maintain the insurance required of him,  
(k) of reasonable doubt as to the Contractor's warranty of title required under Paragraph 20.3, (l) of payments due SLVWD from the Contractor, or (m) of provisions of law that enable or require SLVWD to withhold such payments in whole or in part. When the grounds for withholding payments are removed, payment will be made for amounts withheld because of them to the extent the Contractor is entitled to payment.

20.5.2 SLVWD's Right to Apply Withheld Payments. SLVWD may, but is not obligated to the Contractor, his surety or sureties, or any third party, to apply the amounts withheld pursuant to subparagraph 20.5.1 to the payment of any and all claims which are grounds for such withholding. In so doing, SLVWD shall be deemed the agent of the Contractor and any payments so made by SLVWD shall be considered as a payment made under the Contract Agreement by SLVWD to the Contractor and SLVWD shall not be liable to the Contractor for such payment made in good faith. Such payment by SLVWD may be made without prior judicial determination of the claim or claims. SLVWD will render to the Contractor a proper accounting of such funds disbursed on behalf of the Contractor.

20.6 Payments to Subcontractors. The Contractor shall pay each Subcontractor, upon receipt of payment from SLVWD, an amount equal to the percentage of completion allowed to the Contractor on account of such Subcontractor's Work, less the percentage retained from payments to the Contractor. The Contractor shall also require each Subcontractor to make similar payments to his Sub-subcontractors. If SLVWD refuses or fails to approve an application for payment for any cause which is the fault of the Contractor and not the fault of a particular Subcontractor, the Contractor shall pay that Subcontractor on demand, made at any time after SLVWD's approval for payment should otherwise have been issued, for his Work to the extent completed less the retained percentage. The Contractor shall pay each Subcontractor a just share of any insurance moneys received by the Contractor under subparagraph 6.2.7, and he shall require each Subcontractor to make similar payment to his Sub-subcontractors. Neither SLVWD nor the Engineer shall have any obligation to pay or to see to the payment of any moneys to any Subcontractor or Sub-subcontractor except as may otherwise be required by law.

20.7 Final Inspection and Acceptance. Upon written notice from the Contractor that the entire Work required by the Contract Documents is complete and that all submittals required of him are made, and after the Contractor has delivered the Bonds, certificates in inspection, proof of insurance, guarantees, warranties, releases, and other documents, all as required by the Contract Documents or by law, a post construction conference will be held to review the Work and resolve any unsettled matters. Present at the conference shall be SLVWD, the Engineer, the Inspector, the Contractor, and the Superintendent. Following this conference, the Engineer will make a final inspection with SLVWD and the Contractor, and SLVWD will notify the Contractor in writing of any particulars in which this inspection reveals that the Work is defective, and will also notify the Contractor in writing of any deficiencies in the

submittals and other documents required of him. The Contractor promptly shall make such corrections as are necessary to remedy all defects or deficiencies. After the Contractor has completed any such corrections to the satisfaction of SLVWD, SLVWD will issue a written final acceptance of the Work and file any notice of completion required by law or otherwise.

20.8 Application for Final Payment. After issuance of SLVWD's final written acceptance, the Contractor may make application for final payment following the procedure for progress payments. Neither the final payment nor the remaining retained percentage shall become due unless the application for final payment is accompanied by such supporting data as SLVWD may require, together with complete and legally effective releases or waivers, satisfactory to SLVWD, of all liens arising out of the Contract Documents and the labor and services performed and the material and equipment furnished thereunder. In lieu thereof and as approved by SLVWD, the Contractor may furnish receipts or releases in full; an affidavit of the Contractor that the releases and receipts include all labor, services, material, and equipment for which a lien could be filed, and that all payrolls, material, and equipment bills, and other indebtedness connected with the Work for which SLVWD or his property might in any way be responsible, have been paid or otherwise satisfied; and consent of Surety, if any, to final payment. If any Subcontractor, Sub-subcontractor, or supplier fails or refuses to furnish a release or receipt in full, the Contractor may furnish a Bond satisfactory to SLVWD to indemnify him against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor or his surety shall pay to SLVWD all moneys SLVWD may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

- A. The Contractor must obtain an unconditional waiver and release of claims upon final payment from all suppliers and subcontractors which have filed preliminary notices with SLVWD.
- B. The Contractor must obtain in writing releases from each owner of real property from which the Contractor has obtained permission to use land. Such release shall state that the land is returned to the property owner in an acceptable condition. Similar releases must be obtained from owners of property disturbed by the Contractor from which the Contractor has not obtained permission to use or enter; except that releases are limited to restoration of land to original lines and grades, restoration of vegetation, and removal of waste material.

THE APPLICATION FOR FINAL PAYMENT SHALL INCLUDE FROM THE CONTRACTOR A SIGNED RELEASE AND CERTIFICATE OF FINAL PAYMENT FORM AS INCLUDED HEREIN. (See Release and Certificate of Final Payment, Section 00686.)

20.9 Approval of Final Payment. SLVWD will, within ten (10) work days after the Contractor has fulfilled and satisfied all the requirements of Paragraph 20.8, indicate in writing his approval of payment or will return the application to the

Contractor, indicating in writing his reasons for refusing to approve final payment, in which case the Contractor shall make the necessary corrections and resubmit the application. SLVWD, within the time period stated in the Supplementary Conditions, Section 00800, will pay the Contractor the amount so approved unless a longer period of time is prescribed by law or required for the lawful filing and publishing of Notices of Completion and the expiration of any lien periods thereof. (See Supplementary Conditions, Section 00800)

- 20.10 Continuing Obligation of the Contractor. The Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is and shall be absolute. Neither the observation during construction and final inspection of the Work by SLVWD and the Engineer, nor any payment by SLVWD to the Contractor under the Contract Documents, nor any use or occupancy of the Work or any part thereof by SLVWD, nor any act of acceptance by SLVWD, nor any failure to do so, nor any correction of defective Work by SLVWD shall constitute acceptance of Work not in accordance with the Contract Documents.
- 20.11 Release of Claims. Contractor shall, before being entitled to final payment, also execute and file with SLVWD a release upon the form provided by SLVWD, releasing SLVWD from all claims or liability relating to undisputed contract amounts or work performed in relation to such amounts. However, any payment, final or otherwise, shall not release the Contractor or his sureties from any obligations under the Contract Documents or the performance bond or payment bond. The making of final payment by SLVWD shall not constitute a waiver of claims by SLVWD for unsettled liens, from faulty or defective Work appearing after final acceptance of the Work by SLVWD, from failure of the Work to comply with the requirement of the Contract Documents, or from the terms of any special guarantees or warranties required by the Contract Documents.
- 20.12 Contractor's Payment to SLVWD. The Contractor shall pay to SLVWD all moneys so required of him under the provisions of the Contract Documents. If any such payments are required prior to final payment, an appropriate Change Order will be issued and, as provided in subparagraph 20.5.1, the amount of such payments may be withheld from payments due the Contractor. If the payments then or then after due the Contractor are insufficient to cover any payments due SLVWD from the Contractor, or if the amount of such payment due SLVWD is determined after the making of final payment, the difference in the amounts of the payments or the amount so determined shall be paid by the Contractor to SLVWD. The obligation of the Contractor to pay the moneys due SLVWD from him shall specifically bind the Contractor's sureties, assigns, executors, administrators, and heirs to his obligation to so pay SLVWD.
- 20.13 Interest. Any moneys not paid when due to either party under this Contract Agreement shall bear interest at the maximum legal rate in force at the place of the Project.
- 20.14 Nonreceipt of Payment. The Contractor shall notify SLVWD in writing of any

approved progress payment not received by him within five (5) work days after the date the payment should properly have been paid to him. In the absence of such written notice in each case, the Contractor hereby agrees and waives his right under Paragraph 21.5 to terminate the Contract Agreement or stop the Work on account of nonpayment by SLVWD and further waives his right under Paragraph 20.13 to interest on the amount of any such payment not received by him.

- 20.15     False Claim Act. The Contractor certifies that he will not make any false claims pursuant to Government Code Section 12650 *et seq.*
- 20.16     Compliance with Law. Notwithstanding anything to the contrary in the foregoing provisions, this Article 20 shall be interpreted in accordance with Public Contract Code Section 7107.

## ARTICLE 21 – SUSPENSION AND TERMINATION

- 21.1     Suspension of Work. SLVWD, at any time and without cause, may suspend the Work or any part thereof by notice in writing to the Contractor. Unless otherwise provided in the Contract Documents, the Contractor shall have no claim for damages or compensation on account of such suspension unless he makes a claim therefore as provided in Paragraph 16.4, but the Contractor will be allowed an extension of the Contract Time to complete the Work and an appropriate Change Order will be issued. The Contractor shall resume the Work when so notified in writing by SLVWD.
- 21.2     Suspension of Contract Agreement. If the Contractor abandons the Work, or if he is adjudged a bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the Contractor or for any of his property, or if he files a petition to take advantage of any debtor's act or to reorganize under bankruptcy or similar laws, or if he persistently fails to supply sufficient skilled superintendence and workmen or suitable materials or equipment, or if he persistently fails to make prompt payments to Subcontractors or for labor, materials or equipment, or if he disregards laws, ordinances, rules, regulations, or orders of any public body having jurisdiction, or if he disregards the authority of SLVWD, or neglects to prosecute the Work in accordance with the Contract Documents including requirements of the progress schedule, or if he fails to promptly comply with the requirements of any Change Order, or if he assigns this Contract Agreement otherwise than herein provided, or if SLVWD at any time is of the opinion that the performance of the Work is unnecessarily or unreasonably delayed or that the Contractor is willfully violating any of the provisions of the Contract Documents or is executing the same in bad faith, or if the Work is not fully completed within the Contract Time and any authorized extensions thereof, or if SLVWD is of the opinion that the Work cannot be completed for the unpaid balance of the Contract Price or will not be completed within the Contract Time, or if the Contractor otherwise violates any provisions of the Contract Documents, then SLVWD may, without prejudice to any other right or remedy and by means of written notice to the Contractor and his surety,

instruct the Contractor to discontinue all Work or any part thereof under the Contract Agreement or terminate the services of the Contractor. The Contractor, under a written instruction to discontinue, shall not resume any of the Work except by written notice from SLVWD. In either such case, SLVWD may take possession of the Work and Project and of all materials, equipment, plant, tools, supplies, construction machinery and equipment, and property of every kind thereon owned and furnished by the Contractor for the purpose of the Work, and finish the Work by whatever method SLVWD may deem expedient. The Contractor shall not be entitled to receive any further payment after the date of said written notice from SLVWD unless instructed in writing by SLVWD to resume any part of the Work, or until the Work is finished by SLVWD if SLVWD so elects. If the unpaid balance of the Contract Price exceeds the direct and indirect costs to SLVWD of finishing the Work, including compensation for additional administrative, consultant, professional, testing, and inspection services, such excess will be paid to the Contractor. If such costs to SLVWD exceed such unpaid balance, the Contractor, in accordance with Paragraph 20.12, shall pay the difference to SLVWD.

- 21.3 Contractor's Continuing Liability. When the Contractor's services have been discontinued or terminated as provided in Paragraph 21.2, said discontinuance or termination shall not affect any rights of SLVWD against the Contractor then existing or which may then after accrue. Any retention or payment of moneys by SLVWD due the Contractor will not release the Contractor from liability.
- 21.4 Termination of Contract Agreement. Upon seven (7) calendar days' written notice to the Contractor, SLVWD may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Contract Agreement. In such case, the total compensation to be paid to the Contractor shall be determined on the basis of the components stated in Section 8-1.14(E) of the California Department of Transportation's Standard Specifications dated 2015, a copy of which is provided in Section 00700A.
- 21.5 Stopping Work or Termination by Contractor. If, through no fault, act, or omission of the Contractor, Subcontractor, Sub-subcontractor, or their agents or employees, or any other person performing any of the Work under a contract with the Contractor, the Work is suspended for a period of more than ninety (90) calendar days by SLVWD (except as provided in Paragraph 23.7 for Federal hindrance), or under an order of any court or other public authority having jurisdiction, or SLVWD fails to act on any application for progress payment within thirty (30) calendar days after it is submitted, or SLVWD fails to pay the Contractor any progress payment sum approved by SLVWD within forty-five (45) calendar days of its approval, or SLVWD fails to pay the Contractor any sum awarded by arbitrators within sixty (60) calendar days of its approval and presentation, then the Contractor may, upon fourteen (14) calendar days written notice to SLVWD, terminate the Contract Agreement and recover from SLVWD payment for all Work satisfactorily executed and for any proven loss sustained upon any materials, equipment, tools, and construction equipment and machinery, including reasonable profit and damages. In addition and in lieu of terminating the Contract Agreement,



if SLVWD has failed to act on an application for progress payment or has failed to make any progress payment as aforesaid, the Contractor may, upon fourteen (14) calendar days written notice to SLVWD, stop the Work until he has been paid all amounts then correctly due him, in which event and upon resumption of the Work, an appropriate Change Order will be issued for adjusting the Contract Price or extending the Contract Time, or both, to compensate for the costs and delays attributable to such storage of the Work.

- 21.6 Continuing Liability of Sureties. Termination of the contract shall not relieve the surety or sureties from obligations for any just claims arising out of the Work performed.

## ARTICLE 22 – ARBITRATION

- 22.1 Resolution of Certain Disputes. See California State Requirements, Section 00800CA, Paragraph O.

- 22.2 Payment of Undisputed Amounts. SLVWD shall be entitled to withhold any disputed unpaid contract amount, which would otherwise be due and payable after the filing of any claim by the Contractor pursuant to Article 22 of the General Conditions, pending final resolution of the claim.

22.3 Waiver of Rights. Except as set forth in this Article 22, or as otherwise provided under state law, it is understood and agreed by the parties that all rights any of them may have to arbitration for settling of disputes, claims, and other matters arising out of or relating to this Contract Agreement, or the breach thereof, are hereby specifically waived by all of them.

## ARTICLE 23 – MISCELLANEOUS PROVISIONS

- 23.1 Successors and Assigns. SLVWD and the Contractor each binds himself, his partners, successors, assigns, and legal representatives to the other party hereto and to the partners, successors, assigns, and legal representatives of such other party in respect to all covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract Agreement shall assign the Contract Agreement or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him hereunder without the previous written consent of SLVWD.

- 23.2 Written Notice. Written notice shall be deemed to have been duly served if delivered in person to the individual or member of the firm or to an officer of the corporation for whom it was intended on the date of delivery, or if delivered at or sent by registered or certified mail to the last business address known to him who gives the notice on the third business day after it is deposited in the mail, or if delivered to the Project Superintendent on the date of delivery. The address given in the Contractor's Bid on which the Contract Agreement is founded is hereby designated as the place to which all notices, letters, and other communications to the Contractor shall be mailed or delivered, except that said address may be changed by the Contractor by notifying SLVWD in writing. This shall not preclude the service of any notice,

letter, or other communication upon the Contractor personally.

- 23.3 Communications. SLVWD will issue all communications to the Contractor and the Contractor shall deliver all communications to SLVWD unless otherwise provided in the Contract Documents or directed by SLVWD.
- 23.4 Deleted.
- 23.5 Rights and Remedies. The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder and, in particular but without limitation, the warranties, guarantees, and obligations imposed upon the Contractor by subparagraph 6.2.4 and by Paragraphs 6.4, 19.1, and 20.3 and the rights and remedies available to SLVWD and the Engineer thereunder, shall be in addition to and not a limitation of any otherwise imposed or available by law, by special guarantee or warranty, or by other provisions of the Contract Documents.
- 23.6 Royalties and Patents. Unless otherwise specifically stipulated elsewhere in the Contract Documents, the Contractor shall pay and, in particular but without limitation, the warranties, guarantees and obligations imposed upon the Contractor by subparagraph 6.2.4 and by Paragraphs 6.4, 19.1, and 20.3 and the rights and remedies available to SLVWD and the Engineer thereunder, shall be in addition to and not a limitation of any otherwise imposed or available by law, by special guarantee or warranty, or by other provisions of the Contract Documents.
- 23.7 Federal Hindrance. In entering into this Contract Agreement, it is clearly understood by all parties hereto that conditions may subsequently arise resulting from, connected with, or growing out of any war in which the United States may be engaged, or any national emergency or condition created directly or indirectly by or for the national defense or national interests, and which are entirely beyond the control of either party, that may hinder, delay, or render impossible the performance of this Contract Agreement in accordance with its terms and conditions. It is therefore mutually understood and agreed, anything herein contained to the contrary notwithstanding, that in the event the Contractor shall be prevented from performing the Work or any part thereof by reasons of the conditions above stated, the Contractor shall notify SLVWD in writing of his inability to perform, stating in full the reason therefore and the probable duration of such inability. If required, he shall also submit proof or evidence in support of his claim of inability to perform. If it shall appear to the satisfaction of SLVWD that the cause of inability to perform arose after the Contract Agreement was entered into and is beyond the control of the Contractor, SLVWD may, (a) if lawfully within its power, remove the cause which prevents performance; or (b) suspend this Contract Agreement until the cause of inability to perform is removed; or (c) with the consent of the Contractor, renegotiate or amend this Contract Agreement by extending the time of performance or by making the changes in the character of the Work, or in the materials or equipment required in order to enable performance of the Work; or (d) waive performance of that part of the Work which is impossible, or supply substitute materials for those unavailable, and

where this remedy is resorted to, the payment due the Contractor will be reduced to the extent of the Work not required to be performed, based so far as is practicable upon unit prices bid, by an appropriate Change Order. If none of the foregoing procedures are adopted by SLVWD within thirty (30) calendar days after SLVWD is satisfied and so finds that the Contractor is unable to perform for the reasons above stated, then either party hereto may, without incurring any liability, elect to declare this Contract Agreement terminated upon the ground of impossibility of performance. Upon such termination, the Contractor will be paid as provided in Paragraph 21.4 for termination of the Contract Agreement.

- 23.8 Oral Agreements. No oral order, objection, claim, or notice by any party to the others shall affect or modify any of the terms or obligations contained in any of the Contract Documents, and none of the provisions of the Contract Documents shall be held to be waived or modified by reason of any act whatsoever, other than by a definitely agreed waiver or modification thereof in writing, and no evidence shall be introduced in any proceeding of any other waiver or modification.
- 23.9 Work in Jurisdiction of Others. Where any of the Work is adjacent to or crosses highways, railroads, streets, utilities, property, right-of-ways, or easements under the jurisdiction of Federal, State, County, City, or other public agency, public utility, or private entity from whom SLVWD has not obtained permits, the Contractor shall secure written permission from the proper authority and furnish bonds and insurance and pay all fees and charges as the proper authority may require for permission before executing such Work. A copy of each written permission shall be filed with SLVWD before such Work is begun. The Contractor shall repair or replace all existing construction damaged in the execution of the Work to the satisfaction of the proper authority, and shall furnish to SLVWD a release from the proper authority prior to final inspection of the Work.
- 23.10 Cash Allowances. When included in the Contract Documents, the Contractor shall include in his Bid and the Contract Price the cash allowances stated in the Contract Documents. These stated allowances represent the net cost estimate of the materials and equipment delivered and unloaded at the site, and all applicable taxes. The Contractor's handling costs on the site, labor, installation costs, overhead, profit, and other expenses contemplated for the cash allowance material and equipment shall be included in the Contract Price since they are not included in the cash allowance estimates. The Contractor shall purchase the cash allowance materials and equipment as directed by SLVWD on the basis of the lowest responsive bid of at least three competitive bids. If the actual cost of the materials and equipment approved by SLVWD delivered and unloaded at the site, and all applicable taxes, is more or less than the cash allowance estimates, the Contract Price will be adjusted accordingly by Change Order.
- 23.11 Ownership of Documents and Models. All Specifications and copies thereof furnished to or obtained by the Contractor, and all models pertaining to the Work are and shall remain the property of SLVWD or the Engineer as they may agree. They shall not be used by the Contractor on any other project and,

with the exception of one (1) contract set of Specifications to be retained by the Contractor, shall be returned, on request and as directed, prior to final acceptance of the Work.

23.12 Use of Completed Portions. SLVWD shall have the right, upon written notice to the Contractor, to take possession or occupancy of and use any completed or partially completed portions of the Work, notwithstanding that the time for completing the entire Work or such portions may not have expired; but such taking possession or occupy and use shall not be deemed a waiver of any requirement of the Contract Documents or a waiver or acceptance of any Work not completed in accordance with the Contract Documents. If such prior possession, occupy, or use increases the cost of or delays the completion of uncompleted Work, or causes repair or refinishing of completed Work, the Contractor shall be entitled to such extra compensation or extension of time, or both, as agreed by SLVWD and an appropriate Change Order will be issued. The Contractor will not be required to perform housekeeping obligations in or bear utility costs for buildings or structures to the extent so occupied or used by SLVWD. If SLVWD takes possession of and places any of the machinery or equipment of the Work into continuing operation consonant with its intended final service or purpose and for his beneficial use, the period of the Contractor's guarantee, solely with respect to such machinery or equipment, shall begin on the first day of such beneficial use by SLVWD and SLVWD will bear the utility and maintenance costs for such beneficial use. Prior to SLVWD taking possession, occupancy, or use of any portion of the Work, but not as a condition or precedent to SLVWD's right thereto, SLVWD and the Contractor shall jointly inspect and determine the condition and completeness of the involved portions of the Work, shall agree upon appropriate procedures and other pertinent matters including the payment or apportioning of utility costs, and shall execute a memorandum recording the inspection determination and the procedures and matters agreed. Such possession, occupancy, or use by SLVWD under this paragraph shall not entitle the Contractor to claim or receive payment of any amounts retained or withheld by SLVWD pursuant to subparagraphs 20.4.2 and 20.5.1 unless otherwise agreed by the parties.

23.13 Cleaning Up. The Contractor shall at all times during the Work keep the site and premises, adjoining property, and public property free from accumulations of waste materials, rubbish, and other debris resulting from the Work, and at the completion of the Work shall remove all waste materials, rubbish, and debris from and about the site and premises as well as all tools, construction equipment and machinery, and surplus materials, and shall leave the site and premises clean and ready for occupancy by SLVWD. The Contractor shall restore to their original condition those portions of the site not designated for alteration by the Contract Documents. Paved walkways, parking areas, and roadways shall be swept and broomed clean. Cleaning up operations shall include the removal and disposal of earth that is contaminated and the filling of resulting excavations with sound compacted earth as directed and approved by SLVWD. Contamination includes the earth in areas used for disposal of waste concrete, mortar, plaster, masonry, and like materials'; areas in which washing out concrete and plaster mixers or washing of tools and like cleaning operations have been performed; areas that have been oiled, paved, or chemically treated; and areas where waste oils, solvents, paints, solutions,

or similar materials of a penetrating nature have been incorporated into the soil. SLVWD will determine the contaminated earth areas. No waste material shall be buried or disposed of on SLVWD's property unless so permitted in the Contract Documents or approved in writing by SLVWD. Before the Contractor applies for final inspection and acceptance of the Work, all items of Work shall be complete, ready to operate, and in a clean condition as determined by SLVWD.

- 23.14 SLVWD's Right to Clean Up. If the Contractor fails to satisfactorily clean up or if a dispute arises between the Contractor and any separate contractor as to their responsibility for cleaning up, SLVWD may clean up and charge the cost thereof to the Contractor for his failure, or to the several Contractors as SLVWD shall determine to be just.
- 23.15 Certificates. Each certificate, required under the Contract Documents shall be signed by the individual, office, or agent lawfully authorized to execute the certificate, and such authority shall be cited in the certificate by title, description, or other acceptable evidence. All certificates shall be sworn and notarized as to the correctness and validity of the contents, and duplicate copies shall be notarized to be true copies.
- 23.16 Excavations; Discovery of Hazardous Conditions.  
  
See California State Requirements, Section 00800CA, Paragraph P.
- 23.17 California State Codes. The Contractor shall comply with all requirements of Section 00800CA which outlines particular State of California laws.
- 23.17.1 Wage Rates. See California State Requirements, Section 00800CA, Paragraph A.
- a. Working Hours. See California State Requirements, Section 00800CA, Paragraph D.
  - b. Apprentices. See California State Requirements, Section 00800CA, Paragraph C.
  - c. Payroll Records. See California State Requirements, Section 00800CA, Paragraph K.
  - d. Ineligible Subcontractors. See California State Requirements, Section 00800CA, Subparagraph A.3.
  - e. Penalties. See California State Requirements, Section 00800CA, Paragraph A.2.
- 23.17.2 Safety Orders. The California Construction Safety Orders in effect during the Work shall apply continuously until final acceptance of the Work.
- 23.17.3 Subcontractors. See California State Requirements, Section 00800CA,

Paragraph R.

- 23.18     Substitution of Securities for Monies Withheld to Ensure Performance of Contractor. See California State Requirements, Section 00800CA, Paragraph I.
- 23.19     No Discrimination. Contractor shall not discriminate in the employment of persons upon the Contract Work because of their race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, sexual orientation, gender, or sex of such persons. Contractor shall cause an identical clause to be included in every subcontract for Contract Work.
- 23.20     Copyrights and Patents. The Contractor shall and does hereby hold and save SLVWD harmless from liability of any nature and kind, including costs and expenses, for or on account of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article or appliance, manufactured, furnished or used by him in the performance of this Contract, including their use by SLVWD unless otherwise specifically stipulated in this Contract.
- 23.21     Anti-Trust Claims. In entering into this Contract or a subcontract to supply goods, services, or material pursuant to this Contract, the Contractor or Subcontractor offers and agrees to assign to SLVWD all rights, title, and interest in and to and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from the purchase of goods, services, or materials pursuant to the Contract or the subcontract. This assignment shall be made and become effective at the time SLVWD tenders final payment to the Contractor, without further acknowledgment by the parties.
- 23.22     Attorneys' Fees. In the event any legal action is commenced to enforce or interpret the terms and conditions of this Agreement, the prevailing party shall, in addition to any other costs and relief, be entitled to reasonable attorneys' fees.
- 23.23     Notice of Third Party Claims. SLVWD will timely notify Contractor in the event that a claim is filed by a third party which is related to the Contract. SLVWD will notify Contractor of such claim within ten (10) business days from the date on which SLVWD is made aware of the claims. SLVWD may recover reasonable costs incurred in providing such notification.

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2. **SHOP DRAWING SUBMITTAL FORM**

Submittal No. \_\_\_\_\_ Specifications Section: \_\_\_\_\_

Submittal Description: \_\_\_\_

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PROJECT INFORMATION	ROUTING	DATE
<b>Owner: San Lorenzo Valley Water District</b>	<b>Contractor to Engineer</b>	
<b>Project Name: FALL CREEK FISH LADDER REHABILITATION</b>		
<b>Project No.: 1967</b>	<b>Engineer Contractor</b>	
<b>Contractor:</b>		

We are sending you: \_\_\_\_\_ Attached \_\_\_\_\_ Under Separate Cover Via \_\_\_\_\_

Other: \_\_\_\_\_

\_\_\_\_\_ Submittals for Approval (Submit a minimum of 8 copies for approval).

\_\_\_\_\_ Product Data for Information Only (Submit a minimum of 8 copies).

---

Item	Copies	Date	Section No.	Description	Review/Action

A. Contractor to Certify either A or B:

\_\_\_\_\_ A. We have verified that the material or equipment contained in this submittal meets all requirements, including coordination with all related work, as specified (no exceptions).

\_\_\_\_\_ B. We have verified that the material or equipment contained in this submittal meets all the requirements specified, except for the following (or attached) deviations:

\_\_\_\_\_

**Certified by:** \_\_\_\_\_  
Contractor's Signature Date Signed

**3. REQUEST FOR INFORMATION**

Owner: **San Lorenzo Valley Water District** Project: **FALL CREEK FISH LADDER**

Contractor: \_\_\_\_\_ Project No: 1967

Date: \_\_\_\_\_ RFI No. \_\_\_\_\_

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<b>RFI DATA/INFORMATION</b>	
<b>Originator</b>	<b>Date Transmitted:</b>
<b>Directed To:</b>	<b>Date Received:</b>
<b>Specification Section:</b>	<b>Date Reply Transmitted:</b>
	<b>Date Reply Received:</b>
<b>Subject:</b>	
<b>Date Reply Required:</b>	
<b>Message:</b>	
<b>Originator:</b>	<b>Date</b>
<b>Reply:</b>	
<b>Reply By:</b>	<b>Firm Date:</b>



**AUTHORIZATION OF ENGINEERING COSTS FOR  
EVALUATION OF SUBSTITUTES AND EQUALS**

To: \_\_\_\_\_  
*Contractor*

Date: \_\_\_\_\_

PROJECT NAME: **FALL CREEK FISH LADDER REHABILITATION**

We have received a submittal for \_\_\_\_\_ on  
\_\_\_\_\_. The equipment submitted is being  
substituted as being "equal" to the equipment originally specified. Per the General Provisions or  
the Contract Documents, the Contractor shall pay for the San Lorenzo Valley Water District  
(SLVWD) effort in establishing the quality of the submitted equipment and the suitability for the  
intended purpose. The estimated time to review this submittal is \_\_\_\_\_ hours at an hourly rate of  
\$\_\_\_\_\_ Dollars, for a total cost of \$\_\_\_\_\_ dollars. Before any work can  
be done on this review submittal, a signed copy of this authorization form must be received from  
the Contractor by SLVWD. The starting date for the submittal review shall be the date that  
SLVWD receives the signed authorization from the Contractor.

\_\_\_\_\_  
*Rick Rogers, District Manager*

**1.02 APPROVED:**

\_\_\_\_\_  
*Contractor*

\_\_\_\_\_  
*Date*

Distribution of Executed Document: Rick Rogers, SLVWD, District Manager  
Josh Wolff, SLVWD District Engineer  
Contractor

FALL CREEK FISH LADDER REHABILITATION  
San Lorenzo Valley Water District

General Conditions  
00700-67

**4. AUTHORIZATION OF ENGINEERING COSTS FOR  
REDESIGN DUE TO SUBSTITUTIONS AND EQUALS**

To: \_\_\_\_\_  
*Contractor*

Date: \_\_\_\_\_

**PROJECT NAME: FALL CREEK FISH LADDER REHABILITATION**

As a result of the contractor's request to use the substitution (or equal) titled \_\_\_\_\_, the following redesign is required to Work referred to in the Specifications as: \_\_\_\_\_.

The cost of the required engineering redesign work is detailed as follows:

Work Description	Labor Hours	Hourly Rate	Total Cost
1.		\$	\$
2.		\$	\$
3.		\$	\$
4.		\$	\$
<b>TOTAL AUTHORIZED AMOUNT .....\$</b>			

Before any work can be completed on this redesign effort, a signed copy of this authorization form must be received from the Contractor by SLVWD. The starting date for this redesign shall be the date that SLVWD receives the signed authorization from the Contractor.

\_\_\_\_\_  
*Rick Rogers, District Manager*

**1.03 APPROVED:**

\_\_\_\_\_  
*Contractor*

\_\_\_\_\_  
*Date*

Distribution of Executed Document: Rick Rogers, SLVWD, District Manager  
Josh Wolff, SLVWD District Engineer  
Contractor

END OF SECTION 00700

**SECTION 00700A**

**REFERENCED PROVISIONS OF SECTION 8-1.14 OF CALTRANS' STANDARD  
SPECIFICATIONS ISSUED 2015  
(as referenced in General Conditions Section 21.4)**

**8-1.14 CONTRACT TERMINATION**

**8-1.14E Payment Adjustment for Termination**

If the Department issues a termination notice, the Engineer determines payment for termination based on the following:

1. Direct cost for the work:
  - 1.1. Including:
    - 1.1.1. Mobilization.
    - 1.1.2. Demobilization.
    - 1.1.3. Securing the job site for termination.
    - 1.1.4. Losses from the sale of materials.
  - 1.2. Not including:
    - 1.2.1. Cost of materials you keep.
    - 1.2.2. Profit realized from the sale of materials.
    - 1.2.3. Cost of material damaged by:
      - 1.2.3.1. Act of God.
      - 1.2.3.2. Act of a public enemy.
      - 1.2.3.3. Fire.
      - 1.2.3.4. Flood.
      - 1.2.3.5. Governor-declared state of emergency.
      - 1.2.3.6. Landslide.
      - 1.2.3.7. Tsunami.
    - 1.2.4. Other credits.
2. Cost of remedial work, as estimated by the Engineer, is not reimbursed.
3. Allowance for profit not to exceed 4 percent of the cost of the work. Prove a likelihood of having made a profit had the Contract not been terminated.
4. Material handling costs for material returned to the vendor or disposed of as ordered.
5. Costs in determining the payment adjustment due to the termination, excluding attorney fees and litigation costs.

Termination of the Contract does not relieve the surety of its obligation for any just claims arising out of the work performed.

END OF SECTION 00700A

**SECTION 00800**

**SUPPLEMENTARY CONDITIONS**

**MODIFICATION OF THE GENERAL CONDITIONS**

- A. General. These Supplementary Conditions form a part of and modify the preceding General Conditions. Provisions and requirements of the General Conditions not so modified shall remain in full force and effect.
- B. District Standards. All Work conducted under this Contract shall be constructed in strict accordance with SLVWD's standard plans and specifications. A copy of the standard plans and specifications are available to the Contractor at SLVWD, located at 13060 CA-9, Boulder Creek, California 95006.

Failure of SLVWD to provide a copy of the standard plans and specifications with the Contract Documents does not relieve the Contractor of his responsibility to conduct the Work in accordance with the standards, or his responsibility to obtain a copy of the standard plans and specifications from SLVWD. The Contractor is hereby made aware of the existence of said standard plans and specifications, and as such, shall be bound by their contents and provisions.

In the event of a conflict between these Specifications and SLVWD's standard plans and specifications, SLVWD standards shall be followed. Conflict between the standards and these Specifications shall be identified by the Contractor to the Engineer prior to conduct of the Work, and the Work shall not proceed without written clarification of the Work by the Engineer. Conduct of the Work by the Contractor without written clarification shall be at the risk of the Contractor, and no additional compensation will be allowed, in any form, for correction of conflicted Work performed by the Contractor without the written clarification of the Engineer.

- C. Modifications. The Articles, paragraphs, and subparagraphs mentioned are those of the General Conditions (Section 00700).
  - 1. Paragraph 2.9 – Preconstruction Conference. Add the following: Preconstruction conference shall be conducted via telephone conference call.
  - 2. Paragraph 8.10.1 - Water Supply. Add the following: Contractor is responsible for securing and paying District for construction water supply.
  - 3. Paragraph 12.1.6 – Corrections and Resubmittals. Resubmittals shall be identified with number of the original submittal followed by consecutive numbers in accordance with Section 01300.

- 1.
4. Paragraph 17.3.3 – Test Costs. SLVWD shall bear all testing costs. Contractor shall bear all costs associated with testing of any required re-work due to deficiencies in initial work product.
5. Paragraph 20.9 – Approval of Final Payment. Add the following: The application will be returned if the items in Paragraph 20.8 are not submitted with the final application for payment. The Contractor may make application for final payment upon obtaining unconditional releases of claims from each sub-contractor or supplier for each preliminary notice submitted to SLVWD. After the work is complete and SLVWD receives unconditional releases from all subcontractors and suppliers, SLVWD will file a Notice of Completion with the County Recorder. After thirty-five (35) calendar days have elapsed following recording of such notice, final payment will be made to the Contractor.

END OF SECTION 00800

**SECTION 00800CA**

**CALIFORNIA STATE REQUIREMENTS**

**CALIFORNIA STATE REQUIREMENTS**

**A. State Wage Determinations:**

1. As required by Sections 1770 *et seq.* of the California Labor Code, the Contractor shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations ("DIR"). SLVWD has obtained from the Director of the DIR the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which the Public Work is to be performed for each craft, classification or type of workman needed to execute this Contract. Copies of the wage determination are on file and may be obtained by interested parties at the office of SLVWD or may be obtained from the State of California, Division of Labor Statistics and Research at (415) 557- 0561. The Contractor shall post a copy of such determination at each job site.
2. The Contractor and all Subcontractors shall comply with all applicable requirements and provisions of the Labor Code, including Sections 1775 and 1776. The Contractor shall forfeit, as a penalty to SLVWD, two-hundred dollars (\$200.00), for each calendar day, or portion thereof, for each workman paid less than stipulated prevailing rates for Work done under the Contract Agreement by him, or any Subcontractor under him, in violation of the provisions of the California Labor Code. Copies of these wage determinations shall be posted and maintained at the job site by the successful bidding Contractor.
3. The Contractor shall not perform the Work with a subcontractor who is ineligible to perform work on a public works project in accordance with the requirements of Sections 1777.1 and 1777.7 of the California Labor Code.

**B. Workers' Compensation:**

1. In accordance with the provisions of Section 3700 of the California Labor Code, the Contractor shall secure the payment of compensation to his employees.
2. Prior to beginning work under the Contract, the Contractor shall sign and file with SLVWD the following certification:

"I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of

this Contract."

3. Notwithstanding the foregoing provisions, before the Contract is executed on behalf of SLVWD, a bidder to whom a Contract has been awarded shall furnish satisfactory evidence that it has secured in the manner required and provided by law the payment of workers' compensation.

**C. Apprentices on Public Works Contracts:**

1. The Contractor shall confirm to all the requirements of Sections 1777.5 and 1777.6 of the California Labor Code concerning the employment of apprentices by the Contractor or any Subcontractor under him. The Contractor shall provide SLVWD with a copy of the contract award information at the time that information is submitted to the applicable apprenticeship program. Within sixty (60) days after concluding the work pursuant to this Contract, the Contractor shall submit, and require each Subcontractor under him to submit, to SLVWD and the apprenticeship program a verified statement of the journeyman and apprentice hours performed on the Contract.
2. Section 1777.5 requires that every apprentice employed upon public works shall be paid the prevailing rate of per diem wages for apprentices in the trade to which he or she is registered and shall be employed only at the work of the craft or trade to which he or she is registered.
3. Only apprentices, as defined in section 3077 of the Labor Code, who are in training under the apprenticeship standards that have been approved by the Chief of the Division of Apprenticeship Standards and who are parties to written apprentice agreements under Chapter 4 (commencing with Section 3070) of Division 3 are eligible to be employed at the apprentice wage rate on public works. The employment and training of each apprentice shall be in accordance with either of the following:
  - a. The apprenticeship standards and apprentice agreements under which he or she is training.
  - b. The rules and regulations of the California Apprenticeship Council.
4. When the Contractor, or any subcontractor under him, employs workers in any apprenticeable craft or trade to perform Work, the Contractor and subcontractor shall employ apprentices in at least the ratio set forth in Labor Code section 1777.5 and may apply to any apprenticeship program in the craft or trade that can provide apprentices to the site of the public work for a certificate approving the Contractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected.
5. Prior to commencing Work on the Contract, the Contractor and/or subcontractor shall submit contract award information to an applicable apprenticeship program that can supply apprentices to the site of the Work. The information submitted shall include



an estimate of the journeyman hours to be performed under the Contract, the number of apprentices proposed to be employed, and the approximate dates the apprentices would be employed. A copy of this information shall also be submitted to the Owner.

6. Within 60 days after concluding Work on the Contract, the Contractor and any subcontractors shall submit to the Owner, and to the apprenticeship program a verified statement of the journeyman and apprentice hours performed on the Contract. The information submitted pursuant to this section GC 7-2 shall be public.
7. If the Contractor, in performing any of the Work under the Contract, employs journeymen or apprentices in any apprenticeable craft or trade, then the Contractor shall contribute to the California Apprenticeship Council the same amount that the director determines is the prevailing amount of apprenticeship training contributions in the area of the site of the Work. The Contractor may take as a credit for payments to the council any amounts paid by Contractor to an approved apprenticeship program that can supply apprentices to the Site of the Work. The Contractor may add the amount of the contributions in computing his or her Bid for the Contract.
8. Contractor and any subcontractor under him shall comply with the requirements of Sections 1777.5 and 1777.6 in the employment of apprentices. The Contractor has the responsibility of compliance with these requirements for all apprenticeable occupations.
9. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

**D. Working Hours:** The Contractor shall comply with all applicable provisions of Section 1810 to 1815, inclusive, of the California Labor Code relating to working hours. The time of service of any laborer, workman, or mechanic employed on the Work shall be limited and restricted to eight (8) hours during any one (1) calendar day and forty (40) hours in any one (1) calendar week, except as otherwise provided in said sections. The Contractor shall forfeit to SLVWD as a penalty, twenty-five dollars (\$25.00) for each laborer, worker, or mechanic employed in the execution of the Work by him or any Subcontractor under him for each calendar day during which such laborer, worker, or mechanic is required or permitted to labor more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of provisions of the California Labor Code, unless such worker receives compensation for all hours worked in excess of eight (8) hours per day, at not less than 1-1/2 times the basic rate of pay.

**E. Contractor Not Responsible For Damage Resulting From Certain Acts of God:** As provided in Section 7105 of the California Public Contract Code, the Contractor shall not be

responsible for the cost of repairing or restoring damage to the Work which damage is determined to have been proximately caused by an Act of God, in excess to five percent (5%) to the contracted amount, provided, that the Work damaged was built in accordance with accepted and applicable building standards and the plans and specifications of SLVWD. The Contractor shall obtain insurance to indemnify SLVWD for any damage to the Work caused by an Act of God if the insurance premium is a separate bid item in the bidding schedule for the Work. For purposes of this Section, the term "Acts of God" shall include only the following occurrences or conditions and effects: earthquakes in excess of a magnitude of 3.5 on the Richter Scale and tidal waves.

- F. Notice of Completion:** In accordance with the Sections 8182 of the California Civil Code, within fifteen (15) days after date of acceptance of the Work and after Owner receives an unconditional waiver and release form from all subcontractors and suppliers, SLVWD will file, in the County Recorder's office, a Notice of Completion of the Work.
- G. Unpaid Claims:** If at any time prior to the expiration of the period of service of a stop notice, there is served upon SLVWD a stop notice as provided in Section 3179 and 3210 of the California Civil Code, SLVWD shall, until the discharge thereof, withhold from the monies under its control so much of said monies due or to become due to the Contractor under this Contract as shall be sufficient to answer the claim stated until such stop notice and to provide for the reasonable cost of any litigation thereunder provided that if SLVWD shall, in its discretion, permit Contractor to file with SLVWD the bond referred to in Section 3196 of the Civil Code of the State of California, said monies shall not thereafter be withheld on account of such stop notice.
- H. Retainage from Monthly Payments:** Pursuant to Section 22300 of the California Public Contract Code, the Contractor may substitute securities for any money withheld by SLVWD to insure performance under the Contract. At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with SLVWD or with a state or federally chartered bank in California as the escrow agent, who shall return such securities to the Contractor upon satisfactory completion of the Contract. Alternatively, the Contractor may request and SLVWD shall make payment of retentions earned directly to the escrow agent at the expense of the Contractor. At the expense of the Contractor, the Contractor may direct the investment of the payments into securities and the Contractor shall receive the interest earned on the investments upon the same terms provided for in Section 22300 for securities deposited by the Contractor. Upon satisfactory completion of the Contract, the Contractor shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from SLVWD, pursuant to the terms of Section 22300. Securities eligible for investment under Section 22300 shall include those listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to the Contractor and SLVWD. The Contractor shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon. If the Contractor elects to receive interest on moneys withheld in retention by SLVWD, the Contractor shall, at the request of any Subcontractor performing more than five percent (5%) of the Contractor's total bid, make that option available to the Subcontractor regarding any moneys

withheld in retention by the Contractor from the Subcontractor. If the Contractor elects to receive interest on any moneys withheld in retention by SLVWD, then a Subcontractor performing more than five percent (5%) of the Contractor's total bid shall receive the identical rate of interest received by the Contractor on any retention moneys withheld from the Subcontractor by the Contractor, less any actual pro rata costs associated with administering and calculating that interest. In the event that the interest is a fluctuating rate, the rate for the Subcontractor shall be determined by calculating the interest rate paid during the time that retentions were withheld from the Subcontractor. If the Contractor elects to substitute securities in lieu of retention, then, by mutual consent of the Contractor and the Subcontractor, the Subcontractor may substitute securities in exchange for the release of moneys held in retention by the Contractor. The mandatory escrow agreement is included in these Contract Documents at Section 00630. SLVWD will not certify that the Contract has been satisfactorily completed until at least 30 days after filing by SLVWD of a Notice of Completion.

- I. **Public Works Contractors; Assignment to Awarding Body:** In accordance with Section 7103.5 of the California Public Contract Code, the Contractor and Subcontractors shall conform to the following requirements. In entering into a public works Contract or a subcontract to supply goods, services, or materials pursuant to a public works Contract, the Contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works Contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.
- J. **Payroll Records; Retention; Inspection; Noncompliance Penalties; Rules and Regulations:**
  1. In accordance with Section 1776 of the California Labor Code, the Contractor and each 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 by him or her in connection with the work pursuant to the Contract. The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the division. In accordance with Section 1771.4 of the California Labor Code, each Contractor and Subcontractor shall furnish payroll records directly to the Labor Commission at least monthly and in a format prescribed by the Labor Commissioner. The payroll records may consist of printouts of payroll data that are maintained as computer records, if the printouts contain the same information as the forms provided by the division and the printouts are verified in the manner specified in subdivision (a) of Section 1776 of the Labor Code. Each payroll record shall contain or be verified by a written declaration that is made under penalty of perjury, stating both of the following: (1) the information contained in the payroll record is true and correct and (2) the employer has complied with the requirements of Sections 1771,

- 1811, and 1815 for any work performed by his or her employees on the public works project.
2. The payroll records enumerated under Paragraph K.1 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. A certified copy of all employees' payroll records shall be made available for inspection or furnished to the employee or his or her authorized representative on request, and will accompany each progress payment to Owner.
    - b. A certified copy of all payroll records enumerated in Paragraph K.1 shall be made available for inspection or furnished upon request to a representative of SLVWD, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations in compliance with Section 1776 of the California Labor Code and other relevant state law.
    - c. A certified copy of all payroll records enumerated in Paragraph K.1 shall be made available upon request by the public for inspection or 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 K.1(b) 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.
  3. The Contractor and Subcontractors shall file a certified copy of the records, enumerated in Paragraph K.1 with the entity that requested the records within ten (10) work days after receipt of a written request.
  4. Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by SLVWD, 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 the Subcontractor performing the Contract shall not be marked or obliterated.
  5. The Contractor shall inform SLVWD of the location of the records enumerated under Paragraph K.1 including the street address, city and county, and shall, within five (5) working days, provide a notice of change of location and address.
  6. The Contractor or Subcontractor shall have ten (10) work days in which to comply subsequent to receipt of written notice requesting the records enumerated under Paragraph K.1. In the event that the Contractor or Subcontractor fails to comply within the 10-workday period, he or she shall, as a penalty to SLVWD, forfeit one- hundred

dollars (\$100.00) 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 Contractor shall not be subject to a penalty assessment pursuant to this Paragraph K.6 due to the failure of a Subcontractor to comply with this Section K.

7. Contractor shall cause an identical clause to be included in every subcontract for work pursuant to this Contract.

**K. Removal, Relocation, or Protection of Existing Utilities:**

1. In accordance with the provisions of Section 4215 of the California Government Code, any Contract to which a public agency as defined in Section 4401 is a party, the public agency shall assume the responsibility, between the parties to the Contract, for the timely removal, relocation, or protection of existing main or trunk line utility facilities located on the site of any construction project that is a subject of the Contract, if such utilities are not identified by the public agency in the plans and specifications made a part of the invitation for bids. The agency will compensate 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 utility facilities not indicated in the plans and specifications with reasonable accuracy and for equipment on the project necessarily idled during such work.
2. The Contractor shall not be assessed liquidated damages for delay in completion of the project, when such delay was caused by the failure of the public agency or the owner of the utility to provide for removal or relocation of such utility facilities.
3. Nothing herein shall be deemed to require the public agency to indicate the presence of existing service laterals or appurtenances when the presence of such utilities on the site of the construction project can be inferred from the presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the site of construction; provided, however, nothing herein shall relieve the public agency from identifying main or trunk lines in the plans and specifications.
4. If the Contractor while performing the Contract discovers utility facilities not identified by the public agency in the Contract plans and specifications, it shall immediately notify the public agency and utility in writing.
5. The public utility, where they are the owner, shall have the sole discretion to perform such repair or relocation work or permit the Contractor to do such repair or relocation work at a reasonable price.

- L. Contractor License Requirements:** In accordance with Section 7028.15 of the California Business and Professions Code, a licensed Contractor shall not submit a bid to a public agency unless his or her Contractor's license number and expiration date appears clearly on the bid. Any bid not containing this information, or a bid containing information which is

subsequently proven false, shall be considered non-responsive and shall be rejected by the public agency.

**M. Resolution of Construction Claims:**

1. In accordance with Section 20104 *et seq.* of the California Public Contract Code. This paragraph O applies to all claims of \$375,000 or less which arise between the Contractor and SLVWD under this Contract for
  - a. A time extension;
  - b. Payment of money or damages arising from work done by or on behalf of the Contractor pursuant to this Contract and payment of which is not otherwise expressly provided for as the Contractor is not otherwise entitled; or
  - c. An amount the payment of which is disputed by SLVWD.
2. For any claim set out in Paragraph M1. a, b. or c. above the following requirements apply:
  - a. The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing herein is intended to extend the time limit or supersede notice requirements otherwise provide by Contract for the filing of claims.
  - b. For claims of less than fifty thousand dollars (\$50,000), SLVWD shall respond in writing to any written claim within forty-five (45) calendar days of receipt of the claim, or may request, in writing, within thirty (30) calendar days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims SLVWD may have against the Contractor.

If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of SLVWD and the Contractor.

SLVWD's written response to the claim, as further documented, shall be submitted to the Contractor within fifteen (15) calendar days after receipt of further documentation or within a period of time no greater than that taken by the Contractor in producing the additional information, whichever is greater.

- c. For claims over fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000), SLVWD shall respond in writing to all written claims within sixty (60) calendar days of receipt of the claim or may request, in writing, within thirty (30) calendar days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims SLVWD may have against the Contractor.

If additional information is therefore required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of SLVWD and the Contractor.

SLVWD's written response to the claim, as further documented, shall be submitted to Contractor within thirty (30) calendar days after receipt of the further documentation, or within a period of time no greater than that taken by the Contractor in producing the additional information or requested documentation, whichever is greater.

- d. If the Contractor disputes SLVWD's written response, or SLVWD fails to respond within the time prescribed, the Contractor may notify SLVWD, in writing, either within fifteen (15) calendar days of receipt of SLVWD's response or within fifteen (15) calendar days of SLVWD's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, SLVWD shall schedule a meet and confer conference within thirty (30) calendar days for settlement of the dispute.
  - e. If the following meet and confer the claim or any portion remains in dispute, the Contractor may file a claim pursuant to Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time Contractor submits its written claim pursuant to subdivision (a) until the time the claim is denied, including any period of time utilized by the meet and confer conference.
3. The following procedures are established for all civil actions filed to resolve claims subject to this article:
- a. Within sixty (60) calendar days, but no earlier than thirty (30) calendar days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within fifteen (15) calendar days by both parties of a disinterested third person as mediator, shall be commenced within thirty (30) calendar days of the submittal, and shall be concluded within fifteen (15) calendar days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court. If the parties fail to select a mediator within the fifteen (15) calendar day period, any party may petition the court to appoint the mediator.
  - b. If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act (Title 4 (commencing with Section 2016.101) or Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this

subdivision consistent with the rules pertaining to judicial arbitration.

Upon stipulation of the parties, arbitrators appointed for purposes of this Paragraph O.3 shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid by state or county funds.

In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, any party who after receiving an arbitration award requests a trial de novo but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of the trial de novo.

4. SLVWD shall not fail to pay money to any portion of a claim which is undisputed except as otherwise provided in this Contract.
5. In any suit filed under Section 20104.4 of the California Public Contract Code SLVWD shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

**N. Retention Proceeds; Withholding; Disbursement.** In accordance with Section 7107 of the Public Contracts Code with respect to all Contracts entered into on or after January 1, 1993 relating to the construction of any public work of improvement the following shall apply:

1. The retention proceeds withheld from any payment by SLVWD from the original Contractor, or by the original Contractor from any subcontractor, shall be subject to this paragraph N.
2. The retention will be paid 60 calendar days "after" the date when Notice of Completion was filed with the County Recorder's Office. In the event of a dispute between SLVWD and the original Contractor, SLVWD may withhold from the final payment an amount not to exceed one hundred and fifty percent (150%) of the disputed amount. For the purposes of this paragraph, "completion" means any of the following:
  - a. The occupation, beneficial use, and enjoyment of a work of improvement, excluding any operation only for testing, startup, or commissioning, by SLVWD, accompanied by cessation of labor on the work of improvements.
  - b. The acceptance by SLVWD of the work of improvement.
  - c. After the commencement of a work of improvement, a cessation of labor on the work of improvement for a continuous period of 100 calendar days or more, due to factors beyond the control of the Contractor.



- d. After the commencement of a work of improvement, a cessation of labor on the work of improvement for a continuous period of 30 calendar days or more, if SLVWD files for record a notice of cessation or a notice of completion.
3. Subject to subparagraph 4, within seven (7) days from the time that all or any portion of the retention proceeds are received by the original Contractor, the original Contractor shall pay each of its subcontractors from whom retention has been withheld, each Subcontractor's share of the retention received. However, if a retention payment received by the original Contractor is specifically designated for a particular Subcontractor, payment of the retention shall be made to the designated Subcontractor, if the payment is consistent with the terms of the subcontract.
4. The original Contractor may withhold from a Subcontractor its portion of the retention proceeds if a bona fide dispute exists between the Subcontractor and the original Contractor. The amount withheld from the retention payment shall not exceed one hundred and fifty percent (150%) of the estimated value of the disputed amount.
5. In the event that retention payments are not made within the time periods required by this paragraph N, SLVWD or original Contractor shall be subject to a charge of two percent (2%) per month on the improperly withheld amount, in lieu of any interest otherwise due. Additionally, in any action for the collection of funds wrongfully withheld, the prevailing party shall be entitled to attorney's fees and costs.
6. Any attempted waiver of the provisions of this section shall be void as against the public policy of this state.

**O. Subcontractors.**

1. In compliance with the California Public Contract Code Section 4100 *et seq.*, each bidder shall state in his bid the name and business address of each subcontractor who will perform work or a labor or render services to the Contractor in or about the construction of the Work in an amount in excess of one-half of one percent (0.5%) of the total bid amount, and the portion of the Work which will be done by each subcontractor.
2. Each portion of the Work shall be performed by an organization equipped and experienced to do the Work in the particular field, and no portion of the Work shall be reserved by the bidder or Contractor to himself unless he is so equipped and experienced.
3. Not more than one (1) subcontractor shall be listed for the same portion of the Work.
4. If a particular portion of the Work would be modified by an alternative bid or work in a bid item required by the bid, the bidder shall separately identify such portions of the Work, and list the subcontractors appropriately where they differ from those listed for

the basic Work.

5. The substitution of Subcontractors shall comply with California Public Contract Code Sections 4107 and 4107.5. Prior to SLVWD approving Contractor's request for substitution, SLVWD shall give written notice to the listed Subcontractor of the Contractor's request and the reasons for the request. The listed Subcontractor will have five (5) days to submit written objections. Failure of the listed Subcontractor to submit written objections constitutes the listed Subcontractor's consent to the substitution. Requirements of General Conditions, Paragraph 2.11 and 10.2 shall also govern except where differing, in which instances the requirement of this Paragraph shall govern.

**P. Notification of Third-Party Claim.**

1. SLVWD shall notify the Contractor of the receipt of any third-party claim relating to the Contract within ten (10) work days of SLVWD's receipt of such claim.
2. SLVWD shall be entitled to recover its reasonable costs in providing the notification pursuant to this Paragraph P.

- Q. State Audit.** The Contract shall be subject to the examination and audit of the State Auditor, at the request of SLVWD or as part of any audit of SLVWD, for a period of three (3) years after final payment under the Contract. The contracting parties shall be subject to that examination and audit.

**R. Information Pursuant to California Labor Code Section 2810.**

1. The name, address, and telephone number of SLVWD is:

San Lorenzo Valley Water District  
13060 CA-9  
Boulder Creek, California  
95006 (831) 338-2153

2. The name, address, and telephone number of the Contractor is:

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3. A description of the labor or services to be provided is stated in the Contract Documents, including but not limited to Section 01010, Summary of the Work.
4. The Contract Time is stated in the Contract Documents, including but not limited to Section 00500, Contract Agreement.
5. The Contractor's employer identification number for state tax purposes is \_\_\_\_\_.

6. The workers' compensation insurance policy and the name, address, and telephone number of the insurance carrier of the Contractor is:

Workers' Compensation Insurance Policy Number: \_\_\_\_\_

Insurance Carrier Name: \_\_\_\_\_

Insurance Carrier Address: \_\_\_\_\_

Insurance Carrier Telephone Number: \_\_\_\_\_

7. The vehicle identification ("VIN") for any vehicle that is owned by the Contractor and used for transportation in connection with any service provided pursuant to this Contract, the number of the vehicle liability insurance policy that covers the vehicle, and the name, address, and telephone number of the insurance carrier are as follows:

VIN: \_\_\_\_\_

Vehicle Liability Insurance Policy Number: \_\_\_\_\_

Insurance Carrier Name: \_\_\_\_\_

Insurance Carrier Address: \_\_\_\_\_

Insurance Carrier Telephone Number: \_\_\_\_\_

VIN: \_\_\_\_\_

Vehicle Liability Insurance Policy Number: \_\_\_\_\_

Insurance Carrier Name: \_\_\_\_\_

Insurance Carrier Address: \_\_\_\_\_

Insurance Carrier Telephone Number: \_\_\_\_\_

VIN: \_\_\_\_\_

Vehicle Liability Insurance Policy Number: \_\_\_\_\_

Insurance Carrier Name: \_\_\_\_\_

Insurance Carrier Address: \_\_\_\_\_

Insurance Carrier Telephone Number: \_\_\_\_\_

VIN: \_\_\_\_\_

Vehicle Liability Insurance Policy Number: \_\_\_\_\_

Insurance Carrier Name: \_\_\_\_\_

Insurance Carrier Address: \_\_\_\_\_

Insurance Carrier Telephone Number: \_\_\_\_\_

8. The address of any real property to be used by the Contractor to house workers in connection with the Contract is: \_\_\_\_\_
9. The total number of workers to be employed by the Contractor to perform labor or services under this Contract is \_\_\_\_\_
  - a. If the information pursuant to paragraph 9, above, is unknown, the Contractor shall provide the best estimate available at the time.
  - b. If a best estimate is provided, the Contractor shall have a continuing duty to ascertain the actual figures and provide SLVWD with written notice of those actual figures once that information becomes known.
10. The total amount of all wages to be paid, and the date or dates when those wages are to be paid are:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- a. If the information pursuant to paragraph 10, above, is unknown, the Contractor shall provide the best estimate available at the time.
- b. If a best estimate is provided, the Contractor shall have a continuing duty to ascertain the actual figures and provide SLVWD with written notice of those actual figures once that information becomes known.
11. The total compensation for all services which the Contractor is obligated to perform under the terms and conditions of this Contract is \_\_\_\_\_.

12. The total number of persons who will be utilized by the Contractor under this Contract as independent contractors, along with a list of any current local, state, and federal contractor license identification numbers that the independent contractors are required to have under local, state, or federal laws or regulations.

Name of Independent Contractor: \_\_\_\_\_

Contractor's License Number(s): \_\_\_\_

Name of Independent Contractor: \_\_\_\_\_

Contractor's License Number(s): \_\_\_\_

Name of Independent Contractor: \_\_\_\_\_

Contractor's License Number(s): \_\_\_\_\_

Total Number of Persons Utilized as Independent Contractors: \_\_\_\_\_.

- a. If the information pursuant to paragraph 12, above, is unknown, the Contractor shall provide the best estimate available at the time.
- b. If a best estimate is provided, the Contractor shall have a continuing duty to ascertain the actual figures and provide SLVWD with written notice of those actual figures once that information becomes known.
13. Any material change to the terms and conditions of the Contract shall be in writing, in a single document, and contain all of the provisions listed in this paragraph U that are affected by the change.

**S. Public Works Contractor Registration Program:**

In compliance with Section 1725.5 of the California Labor Code, Contractor must be, and must require all Subcontractors be, registered with the DIR prior to execution of the Contract Agreement. Contractor and all Subcontractors who bid or work on, and/or who are awarded the Contract Agreement, must be registered with and pay an annual fee to the DIR. Neither Contractor nor any Subcontractors may be listed on the Bid Proposal unless registered with the DIR pursuant to Section 1725.5 of the Labor Code. Neither Contractor nor any Subcontractors may be awarded the Contract Agreement unless registered with the DIR pursuant to Section 1725.5 of the Labor Code. The project is subject to compliance monitoring and enforcement by the DIR. Contractor shall submit proof of current DIR registration, and shall require all Subcontractors to submit proof of current DIR registration, to SLVWD prior to commencing work on the project.

END OF SECTION 00800CA

**SECTION 01010**

## **SUMMARY OF THE WORK**

### **PART 1 - GENERAL**

#### **1.01 DESCRIPTION OF THE WORK**

- A. San Lorenzo Valley Water District is a water supplier established in 1941 and serves several communities within the 136 square-mile San Lorenzo River watershed. The District owns, operates, and maintains two permitted water systems. Each service area provides supplies from separate water sources. The North/South Service Area includes the unincorporated communities of Boulder Creek, Brookdale, Ben Lomond, Manana Woods, Scotts Valley and Lompico. The Felton Service Area was acquired by the District from California American Water in September 2008 and includes the town of Felton and adjacent unincorporated areas.

The District's legal boundaries encompass approximately 62 square miles. Land uses include timber, State and regional parks, water supply watersheds, rural residential, low-density urban residential, commercial, quarries, agriculture, and other open space. Within these boundaries, the District's two service areas have a combined area of approximately 29 square miles, made up of the North Service Area (26.7 square miles) and the Felton Service Area (2.2 square miles).

The District relies on both surface water and groundwater resources, including nine currently active stream diversions, one groundwater spring, and eight active groundwater wells. These sources are derived solely from rainfall within the San Lorenzo River watershed.

The scale and complexity of SLVWD's water distribution system reflect the San Lorenzo Valley's rugged topography, dispersed pattern of development, and widely distributed raw water sources. The District's three systems have limited above-ground storage capacity equal to a few days' average use and rely on groundwater for seasonal and year-to-year storage. The District produces and treats water based on relatively immediate water demand.

FALL CREEK FISH LADDER is located at 545 Fall Creek Drive Felton, CA 95018. The existing fish ladder was designed with 18-inch jumps at each weir, a height which has since been identified as excessively high for salmonid passage.

The District has teamed with WaterWays Consulting and Water Systems Consulting to design a rehabilitation of the fish ladder and is soliciting bids for construction of the resulting design.

- B. The official title for this project is FALL CREEK FISH LADDER REHABILITATION.

## **1.02 SCOPE OF SERVICES**

- A. The following information addresses the basic details of the District's facility that requires rehabilitation. Methods and procedures for the rehabilitation can be found in subsequent sections of this RFP, the Technical Specifications, and the Drawings. The information included in this RFP is believed to be accurate based on the information the District has available. No change orders will be provided based on an inconsistency in the information provided.
  - i. It is the intent of the District to solicit a Vendor possessing the capabilities to modify portions of the existing fish ladder by: revising weir heights, relocating access facilities, and making site improvements; constructing new weirs; removing and reinstalling the existing pumps; and upgrade existing piping and electrical facilities. The District's operational requirements are of paramount importance and will always take priority when conflicts with scheduling arise.
  - ii. It is assumed that all qualified Vendors are fully acquainted with the District's requirements to ensure absolute compliance with District procedures. Each qualified Vendor shall have a duty to request any information from the District as it deems necessary to prepare this price proposal. No change orders will be granted, or additional compensation permitted once this RFP is submitted to the District and accepted by the District.
- B. The Work to be performed under this Contract shall consist of furnishing all tools, equipment, materials, supplies, manufactured articles, labor, transportation and services, fuel, power, water, essential communications, and performing all Work or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. The Work shall be complete, and all Work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the Work in good faith shall be provided

by the Contractor as though originally so indicated, at no increase in cost to the Owner, San Lorenzo Valley Water District (SLVWD).

- C. The Work includes the provision of all labor, material, and equipment to furnish and install the Work as described in the Contract Documents.
- D. The Contract Documents include the Improvement Plans titled “FALL CREEK FISH LADDER IMPROVEMENT PLAN 100% DESIGN SUBMITTAL”. All references to work “by others” are intended to indicate work DESIGNED by other than the Registered Professional whose seal appears on that section of the plan set. The Contractor shall be responsible for the construction of ALL improvements shown in ALL sections of the Improvement Plans.
- E. Specific attention is directed to Section 01 58 00 Temporary Creek Intake System, paragraph 2.1.B System Description. The temporary intake system MUST provide a MINIMUM of 420 gallons per minute (420-GPM) at 66-feet of Total Dynamic Head. Contractor shall provide all necessary pumping equipment; power for same shall be determined and provided by the Contractor as described in Section 01 58 00 Temporary Creek Intake System.
- F. Bids will be evaluated on the total Work as described in the Contract Documents.
- G. The District has secured the permits listed below. It shall be the responsibility of the Contractor to conform to the requirements of these permits, and to obtain any additional permits required.
  - 1. California Department of Fish & Wildlife: **Final Lake or Streambed Alteration Agreement, Notification No. 1600-2020-0072-R3, Fall Creek; Fall Creek Fish Ladder Improvement Project**
  - 2. Santa Cruz County: **Grading Permit No. B-211066**
  - 3. Santa Cruz County Encroachment permit (in process). Contractor shall be responsible to obtain the required double encroachment permit; SLVWD shall reimburse the Contractor the actual cost of such permit.
  - 4. Regional Water Quality Control Board: **Water Quality Certification No. 34420WQ02**
  - 5. Department of the Army Nationwide Permit (NWP) 3 – *Maintenance* (82 Fed. Reg. 1860, January 6, 2017), pursuant to Section 404 of the CWA of



1972, as amended (33 U.S.C. § 1344 et seq.).

- H. The District has obtained a Riparian Exemption (Application No. 201191) for this project. The District shall be responsible for execution of this Exemption; Contractor shall conform to all requirements of said Exemption.

### **1.03 WORK UNDER THIS CONTRACT**

- A. The Work shall be completed within 270 calendar days from the date SLVWD issues Notice to Proceed. Work within the river channel shall not begin prior to June 15<sup>th</sup>, 2023; and shall be completed not later than September 30<sup>th</sup>, 2023 or the river channel shall be made safe and prepared for winter flows by that date. No work shall take place within the river channel between October 15<sup>th</sup> and June 15<sup>th</sup>. If construction within the river channel is not complete by October 15<sup>th</sup>, 2023, the contractor shall negotiate an extension of the contract time with SLVWD to allow for resumption of work after June 15<sup>th</sup>, 2024.
- B. Upon the completion and acceptance of the Work and the Operational Interim Period a Notice of Completion will be recorded. The final retention payment will be made 35 calendar days after the recording of the Notice of Completion in accordance with the contractual provisions defined herein.
- C. Except when overtime is specified or in cases of emergency acknowledged by SLVWD, Work or operations under the Contract work shall not be scheduled to be performed between the hours of 5 p.m. and 8 a.m. nor at any time on Saturdays, Sundays, nor on any of the following holidays:
  - 1. New Year's Day
  - 2. Presidents Day
  - 3. Memorial Day
  - 4. Independence Day
  - 5. Labor Day
  - 6. Thanksgiving
  - 7. Christmas Day

Holidays on Saturday shall be observed on the preceding Friday. Holidays on Sunday shall be observed on following Monday. SLVWD may permit Contractor to perform Work on Saturdays provided Contractor agrees to pay all additional SLVWD costs incurred for additional inspection services and construction management.

- D. SLVWD will not make extra payment for overtime Work performed by the Contractor. Overtime work shall be performed by the Contractor as part of its obligation under the Contract, and the cost of overtime shall be included in the prices entered on the Bid Schedules.

- E. Contractor should consider the limited construction window and propose schedule accordingly. If Contractor assumes overtime work in their schedule, days and hours of requested overtime work must be specified in the Bid.

#### **1.04 LAND FOR CONSTRUCTION PURPOSES**

The Contractor shall coordinate the identification of construction storage and staging areas immediately adjacent to the Work area. If additional construction storage and staging area(s) are required, the Contractor shall coordinate and supply, as necessary. The Contractor shall use all storage and staging areas at his own risk and shall not be entitled to extensions of time or additional compensation caused by loss of materials stored or maintained at these sites. Additionally, the Contractor shall not interfere in the normal operation of any ancillary or other facilities, either SLVWD owned or not, during the completion of the Work. The Contractor shall maintain full access at all times to all homes, businesses, equipment, or other facilities for the conduct of normal or emergency operations.

#### **1.05 NOTICES TO OWNERS AND AUTHORITIES**

- A. The Contractor shall, as provided in the General Conditions, notify owners of adjacent property and utilities 5 work days prior to prosecution of the Work which may affect the adjacent property owners.
- B. When it is necessary to temporarily deny access to property, or when any utility service connection must be interrupted, the Contractor shall give notices 10 work days in advance to enable the affected person(s) to provide for their needs. Written notices will conform to any applicable local ordinance and will include appropriate information concerning the interruption and instructions on how to limit their inconvenience. All interruptions caused by the Contractor or the Work shall be coordinated and pre-approved by SLVWD, without exception. Failure to acquire prior SLVWD approval shall result in the Contractor being liable for all costs associated with the interruption of services.

#### **1.06 UNFAVORABLE CONSTRUCTION CONDITIONS**

During unfavorable weather, wet ground, or other unsuitable construction conditions, the Contractor shall confine his operations to Work which will not be affected adversely by such conditions. No portion of the Work shall be constructed under conditions which would adversely affect the quality or efficiency thereof, unless special means or precautions are taken by the Contractor to perform the Work in a proper and satisfactory manner.

#### **1.07 PRE-CONSTRUCTION CONFERENCE**

Prior to the commencement of Work, a pre-construction conference will be held at a mutually agreed time and place which shall be attended by the Contractor's Project Manager, superintendent, and subcontractors, as appropriate. Other attendees will be the District Engineer and SLVWD representatives. The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The complete agenda will be furnished by SLVWD to the Contractor prior to the meeting date. The District Engineer, or designee, will preside at the pre-construction conference and will arrange for keeping and distributing the minutes to all persons in attendance.

#### **1.08 SUMMARY OF CONSTRUCTION PROCEDURES**

The Contractor shall provide SLVWD and the District Engineer at the pre- construction meeting a schedule denoting the sequence of construction to be followed during the Project. The Contractor shall revise their construction sequence based on this review at no additional cost to SLVWD to avoid potential coordination impacts. This review is for the benefit of the Contractor and shall in no way relieve the Contractor of their responsibilities discussed in the Contract Documents.

#### **1.09 CLEAN UP**

- A. The Contractor shall keep the premises and surrounding Right-of-Way areas free at all times from accumulation of waste materials and rubbish. The Contractor shall provide adequate trash receptacles about the site and shall promptly empty the containers when filled.
- B. Volatile and hazardous wastes shall be properly stored in covered metal containers and removed daily in accordance with all applicable disposal regulations.
- C. Wastes shall not be buried or burned on the site or disposed of into storm drains, sanitary sewers, streams, or waterways. All wastes shall be removed from the site and disposed of in a manner complying with applicable local ordinances and anti-pollution laws.
- D. Adequate on-going cleanup will be a condition for approval of progress payment applications.

#### **1.10 TRAFFIC CONTROL**

The Contractor shall coordinate with the District Engineer or other agencies having jurisdiction while working in streets, roads, or other traveled ways. If required by SLVWD, County, or other agency, a traffic control plan shall be developed by the Contractor and submitted for approval by the District Engineer, SLVWD, County, and any other agency

having jurisdiction over the Work, at no additional cost to the SLVWD.

#### **1.11 COOPERATION AND COLLATERAL WORK**

- A. The Contractor shall be responsible for ascertaining the nature and extent of any simultaneous, collateral, and essential work by others. SLVWD, its workers and contractors, and others shall have the right to operate within or adjacent to the site during the Contractor's performance of such Work. SLVWD and the Contractor, and each of such workers, contractors, and others, shall coordinate their operations and cooperate to minimize interference.
- B. The Contractor shall include in their Bid all costs involved as a result of coordinating their Work with others. The Contractor shall not be entitled to additional compensation from the SLVWD for damages resulting from such simultaneous, collateral, and essential Work. If necessary to avoid or minimize such damage or delay, the Contractor shall re-deploy its work force to other parts of the Work. Should the Contractor be delayed by SLVWD, and such delay could not have been reasonably foreseen or prevented by the Contractor, the District Engineer will determine the extent of the delay, the effect on the project, and any extension of time. The decision of the District Engineer shall be final.

### **PART 2 – PRODUCTS**

All products used shall conform to the Technical Specifications and Plans.

### **PART 3 – EXECUTION**

#### **3.01 QUALITY ASSURANCE**

- A. General: Quality assurance procedures and practices shall be used to monitor all phases of work throughout the duration of the project. Procedures and practices not specifically defined herein may be used provided they meet recognized and acceptable professional standards and are approved by the Engineer and/or Inspector.
- B. All materials furnished and all work accomplished under the Contract shall be subject to inspection by the Engineer or his designated representative. The Vendor shall be held strictly to the true intent of the specifications in regard to quality of materials, workmanship, and diligent execution of the Contract.
- C. The Vendor is responsible for minimizing any disruption to the local residents. Equipment placement shall be designed to minimize noise and all non-hazardous debris must be contained within the perimeter of the site. Equipment placement

and containment efficiency must be pre-approved by the Engineer prior to full scale production.

- D. Owner approval of Vendor's damage prevention procedures and the Engineer's (or his designees) presence on-site does not free the Vendor from responsibility for any damage associated with the completion of the specified work scope.

### **3.02 SAFETY AND HEALTH REQUIREMENTS**

The vendor is responsible for the safety of their employees and equipment. In addition, the vendor is responsible for understanding and knowing the regulations and laws that need to be followed to keep their employees and equipment safe. Below is not a comprehensive list of safety and sanitary requirements.

- A. Access Facilities: All ladders, scaffolding and rigging shall be designed for their intended uses. Ladders and scaffolding shall be erected where requested by the Engineer to facilitate inspection and be moved by the Vendor to locations requested by the Engineer.
- B. Head Protection: Equipment shall include protective helmets which shall be worn by all persons while in the vicinity of the work.
- C. Sound Levels: Whenever the occupational noise exposure exceeds the maximum allowable sound levels, the Vendor shall provide and require the use of approved ear protective devices.
- D. General sound levels for project shall be those which will not affect routine facility or neighborhood activities. Whenever levels are objectionable, they shall be adjusted as directed by the Engineer.

END OF SECTION 01010

## **SECTION 01015**

### **GENERAL REQUIREMENTS**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. This Section covers general provisions and requirements for the Work and is supplementary to the Conditions of the Contract. Requirements stated in this Section are general and may be further detailed in subsequent Specification Sections.

##### **1.02 REFERENCE STANDARDS**

- A. Whenever references are made in the Specifications to published standards or specifications, the latest standards or specifications of the respective issuing agencies that have been published as of the date that the Work is advertised for bids shall apply, except as otherwise specified herein and except to the extent that the standards or specifications may be in conflict with applicable laws, regulations, ordinances, or governing codes. No requirement set forth in these Specifications shall be waived because of any provision thereof, or omission from, the standards or specifications. All Work shall comply with applicable laws and regulations.
- B. The Contractor shall obtain copies of necessary reference standards directly from the publications' sources. SLVWD shall not be responsible for providing reference standards to the Contractor.
- C. This article summarizes, without limitation, the laws and codes by which the Work has been designed and to which the Contractor shall conform in the prosecution of the Work. The Contractor shall make available for use at the site such copies of laws, regulations, or codes applicable to the Work as the District Engineer may request of him.
- D. Laws and Regulations. As specified in the General Provisions.
- E. Codes.
  - 1. California Building Code.
  - 2. Title 8, Industrial Relations, California Administrative Code, Chapter 4, Division of Industrial Safety, Safety Orders.
  - 3. Title 19, Public Safety, California Administrative Code, State Fire Marshal.

4. Title 22, Environmental Health, California Administrative Code, Chapter 3, Division 4, Water Reclamation Criteria.
5. Title 24, California Administrative Code, Electrical Safety Orders.
6. Local Plumbing Code.
7. National and Local Electrical Codes.
8. National Fire Protection Association.
9. Applicable State and Local Public Health Codes.

F. Hazardous Materials

1. Without limiting the general acceptance criterion of this specification, work and equipment shall conform to applicable requirements of municipal, state and federal codes, laws and an ordinance governing the work, San Lorenzo Valley Water District requirements, Society of Protective Coating requirements, American Water Works Association recommendations, and Coating Manufacturer's printed instructions, subject to the District Engineer's approval.
2. The District Engineer's decision shall be final as to interpretation and/or conflict between any of the referenced code, laws, ordinances, specifications and standards contained herein.
3. Exterior coatings are known to contain Heavy Metals in the dried film; the following regulatory requirements shall be applicable at a minimum:
  - a. 29 CFR 1910 "OSHA General Industry Standards"
  - b. 29 CFR 1910.134, "Respiratory Protection"
  - c. 29 CFR 1910.1000, "Air Contaminants - Permissible Exposure Limits"
  - d. 4. 29 CFR 1910.1020, "Employee Access to Exposure and Medical Records"
  - e. 20 CFR 1926, OSHA Construction Industry Standards"
  - f. 29 CFR 1926.59, "Hazard Communication"
  - g. 29 CFR 1926.62, "Lead Exposure in Construction; Interim Final Rule"
  - h. 40 CFR 261, "Identification and Listing of Hazardous Waste"
  - i. 40 CFR 262, "Standards Applicable to Generators of Hazardous Waste"
  - j. 40 CFR 263, "Standards Applicable to Transporters of Hazardous Waste"
  - k. 40 CFR 264, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, & Disposal Facilities"

Unknown quantities of lead and possibly other Heavy Metals are present on the

structure. On this basis, the successful Vendor must employ regulatory compliant procedures throughout this project and these procedures must be incorporated into the Vendor's base bid. The exact determination of the concentrations of Heavy Metals is the sole responsibility of the Vendor.

In accordance with the state law a Vendor possessing an "A" General Engineering License shall be the prime Vendor for this project.

4. All onsite Vendor personnel shall possess and be prepared to exhibit proof of current certification in the following areas of safety training:
  - a. OSHA Fall Prevention
  - b. First Aid / CPR

G. Specifications.

1. These Project Specifications.
2. Standard Specifications for Public Works Construction ("Greenbook").

**1.03 ABBREVIATIONS**

- A. Abbreviations used in the Contract Documents shall be interpreted according to their recognized and well-known technical or trade meanings. Such abbreviations include, but are not limited to, the following:

AASTHO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
APWA	American Public Works Association
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials



AWS	American Welding Society
AWWA	American Water Works Association
CLFMI	Chain Link Fencing Manufacturers Institute
CS	Commercial Standard, US Department of Commerce
FedSpec	Federal Specification
HI	Hydraulics Institute
IBC	International Building Code
IEEE	Institute of Electrical and Electronic Engineers
IFC	International Fire Code
IPCEA	Insulated Power Cable Engineers Association
MIL-	Military Specification (leading symbol)
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
OSHA	Occupational Safety and Health Administration, US Department of Labor, as defined in the General Conditions
PCA	Portland Cement Association
PS	Product Standard, US Department Commerce UBC Uniform Building Code
SSPWC	Standard Specifications for Public Works Construction
UBC	Uniform Building Code
UL	Underwriter's Laboratories

#### 1.04 TEMPORARY FACILITIES AND CONTROLS

- A. Storage and Parking Areas. The Contractor shall coordinate and arrange for their own storage and parking areas necessary to complete the Work.
- B. Construction Utilities. The Contractor shall furnish temporary piping, wiring, and other services necessary to distribute utilities to the places where Work is performed. The Contractor shall install construction lighting where Work is performed at night or under deficient daylight conditions to ensure correct performance and to provide for inspection and safe working conditions.
- C. Construction Aids. The Contractor shall comply with all OSHA requirements and applicable laws, ordinances, rules, regulations, and orders pertaining to construction machinery and equipment, hoists, cranes, scaffolding, shoring, temporary supports, staging, materials handling facilities, tools, appliances and other construction aids. Where OSHA requirements are in conflict with other applicable regulations, OSHA requirements shall govern, where mandatory; otherwise the Contractor shall comply with the most stringent applicable requirements.
- D. Transportation Facilities. The Contractor shall investigate the availability of transportation facilities and make necessary arrangements for delivery of materials to the site. All transportation shall be the sole responsibility of the Contractor.
- E. Noise Control. The Contractor shall comply with all OSHA requirements concerning allowable noise levels throughout construction. All internal combustion engines in vehicles and construction equipment shall be equipped with effective mufflers to produce a maximum sound level of 70 dB at 50 feet from the source. Noise disturbance to adjoining property owners shall be minimized in accordance with all applicable federal, state, and local regulations.
- F. Dust Control. The Contractor shall provide dust control during construction operations, and shall be responsible for all damage resulting from dust produced by construction operations.
- G. Water Control. The Contractor shall perform grading and other operations to maintain site drainage. Surface water shall not be allowed to accumulate in excavations or under structures. Surface water shall be controlled by means of ditches, dams, temporary pumps and piping, and other necessary methods. The Contractor shall legally dispose of surface and subsurface water. Mud, silt, or debris shall not be allowed to flow on or into adjoining or public property.
- H. Air Pollution Control. The Contractor shall comply with all applicable federal, state and local laws, ordinances, rules, regulations, and orders pertaining to air pollution.

I. Sanitary Facilities

Toilet and Washing Facilities. The Contractor shall provide temporary chemical toilets for the use of all workers at the site as necessary for completion of the Work.

Drinking Water. The Contractor shall maintain a supply of cool, pure drinking water at the site, readily available to workers, with individual disposal drinking cups or a sanitary bubbler fountain as necessary for the duration of the Work.

J. Preservation of Property. The Contractor shall exercise care to avoid injury to existing improvements, adjacent property, and trees and shrubbery. Trees and shrubbery that are not to be moved, poles, fences, signs, property corners, all underground pipe and conduit, and other improvements within or near the Work shall be protected from injury or damage. If such objects, or improvements, are injured or damaged by reason of the Contractor's operations, they shall be replaced or restored, at the Contractor's expense, to a condition equal to or better than the condition prior to construction operations.

K. Survey Monuments. The Contractor shall not disturb any monuments or survey markers without permission from the District Engineer, and shall bear the expense of resetting any monuments or survey markers which may be disturbed without permission in accordance with applicable federal, state, and local requirements.

L. Historical and Archaeological Resources. Should any items having historical or archaeological significance be discovered in the course of any construction activities, Work shall be halted, and the District Engineer shall be notified immediately. Under direction of the District Engineer, an archaeologist shall make an on-site inspection. The on-site inspection shall be used to make recommendations to SLVWD and other agencies having jurisdiction for determination of mitigation actions to be taken.

M. Utilities. The Contractor shall furnish and pay for utility service at the site and elsewhere as required for performing the Work.

## **1.05 UTILITIES**

- A. The location and existence of substructures were determined from a search of records maintained by their respective owners. No guarantee is made or implied that the information is complete or accurate. It shall be the Contractor's responsibility to determine the exact location of substructures and to protect them from damage.
- B. It shall also be the Contractor's responsibility to locate and protect service laterals, conduits, and appurtenances of any underground facility, the presence of which can be inferred from the presence of visible facilities such as buildings, meters, and junction boxes, prior to doing any Work that may damage any such facilities, or interfere with their service.

END OF SECTION 01015

## **SECTION 01025**

### **MEASUREMENT AND PAYMENT**

#### **PART 1 – GENERAL**

##### **1.01 SUMMARY**

- A. This Section defines the Lump Sum Prices, Unit Prices and Allowances listed in the Bid Schedule in Section 00301, and the manner in which they will be used to determine measurement and payment for all items included in the Bid Schedules.
- B. Prices stated for Work shall remain fixed for a 2-year duration following the acceptance of Work.
- C. Upon Contract award, the accepted Bid Schedule will become the Payment Schedule.
- D. Contractor shall refer to the Technical Specifications for definitions of Bid Items, to include all required work for each Bid Item.

##### **1.02 BID PROPOSAL**

- A. Measurement and payment will be made for each Payment Schedule item independently and in accordance with the provisions as follows:
  - 1. Lump Sum Prices: The Contractor shall provide Lump Sum Prices in the Payment Schedule for all Work in the Contract Documents, except items of Work listed in the Payment Schedule as Unit Price Items. For Lump Sum items, only the total amount shall be provided.
  - 2. Unit Price Items: Unit Price Items are provided for additive or deductive Work not presently quantified in the Contract Documents. Each unit price shall contain all costs and charges, including, without limitation, materials, labor, fabrication, delivery, installation or application, supervision, tools, equipment, incidentals, subcontractors, indirect costs, bonds, insurance, overhead, profit, and taxes. Unit Prices shall be the exact amount per unit to be applied to the units of Work actually provided or not provided for the purpose of modifying the Contract Price or establishing the payment due the Contractor, as applicable.
    - a. Unit Prices provided shall be held good and in effect until the Work is completed and accepted by SLVWD. Contractor-proposed Unit Prices which are so unbalanced as to be detrimental to the SLVWD's interest may be rejected or cause rejection of the

Bidder's entire bid at the discretion of the SLVWD.

- b. All Unit Price Items are included in the scope of the Contract without specific locations for the Work provided. SLVWD reserves the right to direct that these items of Work be performed when they are encountered, and the Contractor is obligated to accommodate this work within the original contract duration. The Contractor will not be entitled to additional time regardless of where Work is encountered.
- c. Allowance Quantities are provided by SLVWD as an estimate. SLVWD reserves the right to vary the total individual item total cost by +/- 25% by varying the Allowance Quantities.
- d. When SLVWD's use of a Unit Price item exceeds 200% of the Payment Item Allowance Quantity, the Contractor or SLVWD may demand that the Unit Price Item be renegotiated for quantities in excess of 200%, whether the price is stipulated or bid. This provision is to prevail over any conflicting general condition provision.

- 3. Retention: Payment for all bid items is subject to the retention provisions.

### **1.03 SCHEDULE OF VALUES**

- A. The Contractor shall submit a schedule of values to the District Engineer for review and approval. The schedule of values shall be submitted within 10 work days after receipt of the Notice to Proceed.
- B. The schedule of values shall include a detailed and itemized breakdown of subtasks, material, labor, equipment, etc. for each individual line item of the bid schedule. The schedule of values shall be complimentary to and serve as a basis to substantiate the bid schedule.
- C. The schedule of values shall serve as the basis for progress payments.

### **1.04 MEASUREMENT AND PAYMENT**

- A. This article defines the manner and method to develop the Lump Sum, Unit Price, and Allowance bid amounts of all items identified in the Payment Schedule. Bid amounts will include all plant, equipment, tools, materials, labor, service, and all other items required to complete the Work included in the Contract unless specifically excluded by this Section.
- B. Payment for all items of the Payment Schedule, whether lump sum or unit price, shall include all compensation to be received by the Contractor for furnishing all

labor, materials, tools, equipment, supplies, transportation, subcontract work, incidentals, indirect costs, overhead, consulting services, manufactured articles, plant establishment and operations, taxes, insurance, bonds, profit, permits, and costs of compliance with public agency regulations having jurisdiction over the Work.

- C. No separate payment will be made for any item that is not specifically set forth in the Payment Schedule. All costs shall be included in the individual bid items identified in the Payment Schedule for the various items of Work.
- D. Work required for which no separate bid item is identified will be considered as a subsidiary obligation of the Contractor, and the cost therefore shall be included in the most applicable bid item.
- E. Compensation for completion of the Work will be determined by the updated construction schedule. Payment amounts for each item will be the basis for development of budget values for activities included in the updated construction schedule.
- F. All quantities shall be measured in accordance with industry standard practices, and as specified herein. The Contractor shall compute all quantities of Work performed for payment purposes. The District Engineer will verify measurements. Except for time, all quantities shall be measured to the nearest rounded off whole number. Time shall be measured to the nearest tenth of an hour.
- G. The following quantities shall not be included for payment:
  - 1. Quantities of material wasted or disposed of in a manner not called for under the Contract or a consequence of the construction method used to perform the Work.
  - 2. Rejected loads of material, including material rejected after it has been placed, by reasons of the failure of the Contractor to comply with the Contract provisions.
  - 3. Materials placed outside the Contractor's storage and staging or lines established by the District Engineer.
  - 4. Materials not incorporated into the final Work.
  - 5. Materials remaining after the completion of Work.
- H. No payment will be made for loading, hauling, and disposing of rejected materials.
- I. Final payment for Work covered by Unit Price Items will be made on the basis of

the actual measured quantities accepted by the District Engineer multiplied by the Unit Price in the Payment Schedule.

## **PART 2 – PROGRESS PAYMENT APPLICATIONS**

### **2.01 PROGRESS PAYMENT REQUIREMENTS**

- A. Monthly progress payment requests are due on a certain day of each month (to be determined by SLVWD). Payment requests will be accepted prior to the submittal date; however, payment request processing will not begin until this date for purposes of meeting SLVWD's pay request processing obligations under the California Public Contract Code. Failure of the Contractor to submit pay requests by the submittal date may be cause for rejection of the payment request. If rejected, the Contractor may have to resubmit his payment request the next month. Should the submittal date fall on a holiday or weekend day during the month then the Contractor shall consider the next work day as the due date.
- B. Partial payment for Work performed shall be in accordance with the updated construction schedule. The District Engineer will verify measurements and quantities. Each activity necessary to manage and complete the Work is identified on the construction schedule. Each activity will be assigned its respective value, a portion of the contract price.

Payment for all Lump Sum item costs and services incurred on this Contract shall be based on the earned value of Work accomplished during the reporting period. Earned value is determined by the completion percentage of each activity applied to the total value of the activity. No construction activity shall be deemed 100% complete until the Contractor has completed the Work and the Work has been inspected and approved by the District Engineer.

- D. Unit Price items will be paid based on quantities installed.
- E. Earned value is derived from the current status of the updated construction schedule as determined by the monthly schedule status submittal. Each schedule status submittal is reviewed and approved by the District Engineer prior to the Contractor obtaining approval for the Summary of Earned Values or quantities installed and the Payment Application.
- F. The Contractor shall not take advantage of any apparent error or omission in the Specifications, and the District Engineer shall be permitted to make corrections and interpretations as may be deemed necessary for fulfillment of the intent of the Contract Documents at no additional cost to the SLVWD.



## **2.02 PAYMENT APPLICATION**

- A. The Payment Application shall be submitted according to the format and instructions provided by SLVWD and is based on Work completed through the last day of the previous month or through the date established by the District Engineer.
- B. One copy of the Payment Application shall be submitted.
- C. Payment Application shall be submitted monthly.
- D. The Payment Application shall contain all necessary references and attachments that substantiate the invoice for progress payment, (e.g., certified payrolls, labor reports, updated construction progress schedule, and Summary of Earned Values).
- E. Payment Application shall be submitted with updated construction schedule and project status report.

## **PART 3 - PAYMENT**

### **3.01 MONTHLY REVIEW OF PAYMENT APPLICATION**

- A. Monthly review meetings between the Contractor and the District Engineer will be held within 7 work days prior to the payment application date designated by the District Engineer.
- B. Prior to the monthly review meeting, the Contractor shall submit an updated construction schedule and a Payment Application showing a Summary of Earned Values for the reporting and payment period. The District Engineer will compare Contractor submitted earned values to available data.
- C. The Contractor shall make any adjustments to the updated construction schedule and payment application, as deemed necessary based on the District Engineer's review. Upon the Contractor's completion of the adjustments, the District Engineer will forward the Payment Request to SLVWD. The District Engineer will determine payment amounts if agreement with Contractor is not reached.

### **3.02 PAYMENT FOR PRODUCTS STORED ON SITE**

- A. The Contractor may request payment for products (material and/or equipment) which will be incorporated in the Work and which will be delivered and stored on-site.
- B. Payments for products stored at the site shall be based upon the cost of all acceptable materials and equipment not incorporated in the Work but delivered and suitably stored at the site; provided each such individual item has a value of more than \$5,000 and will become a permanent part of the Work.

- C. The Payment Application shall contain a bill of sale, invoice, or other documentation warranting that the Contractor has received the materials and equipment free and clear of all liens, charges, secured interests, and encumbrances and evidence that the materials and equipment are covered by appropriate property insurance as specified in the insurance provisions and other arrangements to protect the SLVWD's interest.

END OF SECTION 01025

## **SECTION 01040**

### **PROJECT COORDINATION**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. This Section includes provisions related to overall project coordination. Additional provisions are included within individual Specification sections.

##### **1.02 SUBMITTALS**

- A. The Contractor shall submit a statement of qualifications of its proposed superintendent to the District Engineer for review. The statement of qualifications shall include the superintendent's name, the name of each project that is the basis of the qualifications, each project site location, a brief description of each project, and the name and mailing address for each project owner.

##### **1.03 SUPERINTENDENT**

- A. The Contractor shall assign a duly authorized and competent person continually on the site during the Work. The superintendent shall have not less than 4 years' experience as a contractor's general superintendent on similar projects with complexity and configuration comparable to the Work described in the Contract Documents.
- B. If the superintendent is not deemed qualified or if the superintendent's performance on the Project is determined to be unsatisfactory by the District Engineer, the superintendent shall be immediately removed from the Project pursuant to the Specifications Division 0, General Conditions.
- C. The Contractor shall furnish to the District Engineer a written statement of the qualifications of the proposed substitute superintendent if a substitute superintendent is required.
- D. A substitute superintendent shall meet the same requirements and shall be subject to approval by the District Engineer.

##### **1.04 CONCURRENT CONSTRUCTION AND OPERATIONS**

- A. SLVWD facilities in and around the site of the Work are operating facilities that are necessary to continue SLVWD's function of delivering water to SLVWD's service area. It is necessary that these facilities be kept operational at all times except as may be scheduled for tie-ins or other work. Concurrent with work

performed under this Contract, SLVWD will perform routine operation and maintenance activities in and around the site. The Contractor shall maintain the work area to provide full access to all facilities so as not to compromise the ability of SLVWD to operate the facilities and so that the operators and maintenance personnel may perform their duties.

- B. The Contractor shall cooperate with other contractors and SLVWD forces performing work at the site, shall conduct its operations in a manner to prevent unnecessary delay or hindrance to their work, and shall coordinate its work with theirs to permit proper and timely completion of all projects in the area.

#### **1.05 RESTRICTED AREAS**

- A. The Contractor's personnel, agents, and subcontractors shall be restricted from entry to existing buildings and structures except as may be required by the Work.

#### **PART 2 - PRODUCTS (Not Used)**

#### **PART 3 - EXECUTION (Not Used)**

END OF SECTION 01040

## **SECTION 01050**

### **CONSTRUCTION SURVEYING**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. This Section includes provision required by the Contractor for construction surveying as specified herein for the construction of the Work.
- B. Contractor shall be responsible for any monumentation and/or benchmarks which will be disturbed or destroyed by construction. Such points shall be referenced and replaced with appropriate monumentation by a Licensed Surveyor or Registered Civil Engineer authorized to practice Land surveying in the State of California. A Corner Record or Record of Survey, as appropriate, shall be filed by the Licensed Land Surveyor or Registered Civil Engineer as required by the Land Surveyor's Act.
- C. Contractor shall provide all surveying necessary for completion of Work as defined by the Contract Documents.

##### **1.02 DEFINITIONS**

- A. Surveyor: The Surveyor will be an approved licensed Land Surveyor or Registered Civil Engineer authorized to practice Land Surveying in the State of California.

##### **1.03 CONTROL**

- A. When a change is made in the finished elevation of the pavement of any roadway in which a permanent survey monument is located, the Contractor shall adjust the monument cover to the new grade at the Contractor's expense unless otherwise specified in the Contract Documents.

##### **1.04 QUALITY CONTROL**

- A. All surveying work will be performed under the direction and supervision of an approved licensed Land Surveyor or Registered Civil Engineer authorized to practice Land Surveying in the State of California employed or retained by the Contractor.

##### **1.05 SUBMITTALS**

- A. Submittals shall be made in accordance with Specifications Section 01300, Submittals, and the following special provisions herein. Prior to beginning any phase of the survey work, the Contractor shall submit to the District Engineer for approval, the Contractor's projected requirements for construction surveying of the Project, including timetable for required survey data.
- B. All survey data will be recorded in accordance with standard methods approved by the District Engineer. All original field notes, computations, and other records for the purposes of layout will be recorded in field books, or other methods acceptable to the District Engineer. All "Cut Sheets" will be forwarded to the District Engineer prior to staking and/or excavation. Any changes to the cut sheets shall be recorded as changes and a complete set of "Record Cut Sheets" shall be submitted to the District Engineer.
- C. The Surveyor shall submit to District Engineer, full descriptions and surveying, location, and elevation information for all monuments established as a part of this Project.

**PART 2 - MATERIALS – (Not Used)**

**PART 3 - EXECUTION**

**3.01 LINE AND GRADE**

- A. Three consecutive points set on the same slope shall be used together so that any variation from a straight grade can be detected. Any such variation shall be reported to the District Engineer. In the absence of such report, the Contractor shall be responsible for any error in the grade of the finished Work.
- B. Grades for underground conduits will be set at the surface of the ground. The Contractor shall transfer them to the bottom of the trench.

END OF SECTION 01050

## **SECTION 01060**

### **SAFETY, ENVIRONMENTAL, AND REGULATORY REQUIREMENTS**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. The Contractor shall submit a site-specific Injury and Illness Prevention Program (IIPP) covering all work and Contractor and subcontractor employees at the site.
- B. Permits: The Contractor shall submit copies of permits required by regulatory authorities and shall retain copies of the permits at the site.

##### **1.02 REGULATORY REQUIREMENTS**

- A. The citation or listing of specific laws, ordinances, or regulations in this and other sections of the specifications is not a complete inventory of the laws, ordinances, or regulations that apply to those engaged or employed on the work, materials used in the work, the conduct of the Work, or the safety and protection of persons, property, and the environment. These citations shall not limit or diminish the Contractor's responsibility to keep fully informed of and observe and comply with laws, regulations, ordinances, codes, orders, rules, standards, or decrees of public bodies having jurisdiction.
- B. In the event a law, regulation, ordinance, code, order, rule, standard, or decree conflicts with a requirement of the Contract, the Contractor shall make a written request for direction from the District Engineer.

##### **1.03 PUBLIC SAFETY**

- A. Whenever the Contractor's operations create a condition hazardous to the public, flagmen and guards shall be furnished as necessary to give adequate warning to the public of the hazard. The Contractor shall furnish, erect, and maintain fences, bridges, railings, barriers, lights, signs, and other devices as necessary to prevent accidents and avoid damage or injury to the public.

##### **1.04 AIR QUALITY**

- A. The Contractor shall perform the work in accordance with the requirements of all federal, state, and local regulatory agencies including:

Monterey Bay Air Resources District (MBARD)

California Air Resources Board (CARB)

**1.05 SAFETY, HEALTH, AND PROTECTION**

- A. The Contractor shall comply with safety standards established within the Cal/OSHA CCR Construction Safety Orders (CSO) and General Industry Safety Orders (GISO) that are applicable to the work. The Contractor shall have a complete copy of the CSO at the work site.
- B. A copy of the Contractor's IIPP and Code of Safe Practices, prepared in accordance with CCR Title 8 shall be kept at the site. Upon request, such documents shall be made available to the District Engineer for review.
  - 1. The Contractor shall identify in writing to the District Engineer the Contractor's "competent person" responsible for performing inspections of excavations and protection at excavations required by CCR Title 8.
  - 2. The Contractor shall revise the IIPP and Code of Safe Practices during the work as often as necessary to fit the operations and possible hazards.
- C. The Contractor shall ensure the safety of SLVWD employees. SLVWD's employees will not be permitted to enter unsafe places for the purpose of making inspections except where an inspection is required to determine if previously detected unsafe conditions have been corrected. Where work is required to be inspected by the District Engineer and the inspection is not performed due to the existence of an unsafe condition, the work shall be subject to rejection, or the work may be suspended in accordance with Section 13(a) of Document 00700, "General Conditions."
- D. The Contractor shall be responsible for preventing health hazards arising from work-related activities of employees.
- E. When possible, the Contractor shall notify the District Engineer in advance of safety inspections by OSHA or other governmental safety agencies. The District Engineer will attend safety inspections when notice is given sufficiently in advance for the District Engineer to be present. When the District Engineer is not present during a safety inspection, the Contractor shall immediately report to the District Engineer that a safety inspection has taken place and shall advise the District Engineer of violations, citations, or salient events arising from the inspection and of the Contractor's abatement actions.
- F. The Contractor shall ensure the availability of emergency medical services to workers on the site.



1. Appropriately Trained Personnel: The Contractor shall ensure that a suitable number of appropriately trained personnel are available to render first aid. The names of these persons shall be made available to the District Engineer upon request.
  2. First Aid Kit: The Contractor shall provide and maintain adequate first aid kits for the use of all persons employed on the work. The first aid supplies shall be in accordance with CCR Title 8 as a minimum.
- G. Material Safety Data Sheets (MSDSs) shall be in accordance with Federal Standard 313C.
- H. Head Protection: All persons shall be required to wear ANSI-standard hard-hats while at the worksite; no bump caps will be permitted.

#### **1.06 ACCIDENT REPORTING**

- A. The Contractor shall report in writing to the District Engineer on or before the 10th of each month stating:
1. The number and character of all accidents during the previous month that resulted in loss of work time
  2. The total workforce employed on the Contract during the previous calendar month
  3. Other information that may be required by the District Engineer relating to project injuries or accidents
- B. Accidents or incidents that cause property damage or personal injury shall be reported to the District Engineer in writing as soon as possible, but in every case less than 24 hours after the incident.

#### **1.07 ENVIRONMENTAL PROTECTION**

- A. Hazardous Materials Storage: Hazardous materials shall be stored in covered, leak-proof containers when not in use, away from storm drains and heavy traffic areas, and shall be protected from rainfall infiltration. Hazardous materials shall be stored separate from non-hazardous materials, on a surface that prevents spills from permeating the ground surface, and in an area secure from unauthorized entry at all times. Incompatible materials shall be stored separately from each other.
- B. Disturbance of vegetation shall not exceed the minimum necessary to complete project implementation.
- C. All vehicle fueling and maintenance shall occur at least 100-feet from waterways, if possible. If this distance cannot be achieved, install fiber rolls and apply plastic liner secured in place with gravel filled sandbags.

- D. Dewatering shall be consistent with the approved diversion and dewatering plan.
- E. All concrete within the high flow line shall be placed prior to August 31, 2023 to comply with RWQCB requirement that uncured or still curing concrete must be excluded from wetted channel for a period of 30 days. Sealants may be used.
- F. Within 48 hours prior to the start of project activities, a qualified biologist will survey the project area for special status species. CDFW reserves the right to provide additional measures to this Agreement designed to protect special status species.
- G. The qualified biologist and biological monitors have the ability to stop or restrict work if they determine that project activity is not in compliance with the agreement.
- H. At all times during pouring or working with wet concrete, a designated monitor will be onsite to inspect containment structures.
- I. No erosion control measures containing synthetic monofilament netting are allowed.
- J. No petroleum based geotextile material or filter fabric is allowed.
- K. Stockpiled materials will not be stored where they can wash into waters of the state and must be covered when rain events are forecasted.
- L. Equipment shall be positioned over drip pans.
- M. Spill kits must be on-site and all field personnel shall know the location and be trained in their appropriate use.
- N. Equipment cleaning to remove noxious weed seeds and invasive species. Contractor shall adequately clean equipment to remove dirt and plant materials prior to bringing to the project site. This includes all heavy equipment (e.g., excavators and loaders), pickup trucks, off-road vehicles and hand operated equipment (e.g., chainsaws and string trimmers/weed whackers). All exposed elements shall be cleaned, as necessary, to ensure noxious weed seeds and fungal spores are removed. This includes, but is not limited to, the vehicle/equipment undercarriage, bumpers, wheel wells, wheels, tires, tracks, buckets, chains on saws, air filters, and any other portion of a vehicle or piece of equipment where weed seeds and fungal spores may be present.

## **1.08 QUALIFIED BIOLOGIST**

- A. A qualified biologist will survey the project area for California red-legged frogs no more than 48 hours prior to the start of construction activities.
- B. If California red-legged frogs are observed during preconstruction surveys, the USFWS will be contacted immediately and construction will be postponed until formal consultation is completed or the animal(s) moves from the area on its own accord.
- C. A qualified biologist will be present during installation of the coffer-dam and dewatering, and will remain on-call or on-site until the project is completed.
- D. Pump intakes will be completely screened with mesh no larger than 0.25-inch unless otherwise required for compliance with the NMFS BO.
- E. If a California red-legged frog is observed in a work area at any time, all activities that could adversely affect the species will cease until the animal moves from the

- area on its own accord, and the Service will be immediately contacted for instructions on how to proceed.
- F. Pacific giant salamanders (*Dicamptodon ensatus*), if observed in impacts areas, would be captured and relocated to suitable habitat that would not be affected by project activities.
  - G. SLVWD will ensure that a biologist monitors the construction sites during placement and removal of cofferdams and channel diversions to ensure that any adverse effects to salmonids are minimized. A biologist will be on site during all dewatering events to capture, handle, and safely relocate salmonids to an appropriate location. Contractor shall coordinate with SLVWD and the Biologist to ensure access for observation.
  - H. Construction equipment used within the river channel will be checked each day for leaks prior to work within the creek channel (top of bank to top of bank).

#### **1.09 PERMITS**

- A. The Contractor shall obtain all other permits and pay permit fees required by agencies and authorities having jurisdiction. The costs for the permits inspections shall be included in the price entered in the Bidding Sheet.
- B. When the terms of permits obtained by either the Contractor or SLVWD require inspections by agencies or authorities other than SLVWD, the Contractor shall schedule the inspections and notify the District Engineer a minimum of 24 hours prior to the inspection being performed.

#### **PART 2 - PRODUCTS (Not Used)**

#### **PART 3 - EXECUTION (Not Used)**

END OF SECTION 01060

## **SECTION 01200**

### **PROJECT MEETINGS**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. This Section includes provisions for project meetings to be regularly conducted during construction.

##### **1.02 PRE-CONSTRUCTION MEETING**

- A. After notification of award and prior to the start of any Work, a pre-construction meeting will be held at a time and place selected by SLVWD to discuss the Work, construction schedule, mobilization for the start of Work, and details of administrative procedures to be used during the progress of the Work.
- B. Attending the meeting will be SLVWD representatives, the Contractor's site superintendent, Contractor's QA/QC Manager, and any other key members of the Contractor's staff, subcontractors and any other parties that may be deemed necessary by SLVWD. In addition to the attendees named herein, the meeting may be attended by representatives of regulatory agencies having jurisdiction of the Project, if required, and such other persons the District Engineer may designate. The District Engineer shall be the person who coordinates with the representatives of the regulatory agencies.
- C. At the pre-construction meeting, the District Engineer will discuss details of procedures for site access, operational necessities at the facilities, procedures for payment applications, safety, schedule of project meetings, and other subjects as determined by SLVWD or requested by the Contractor.
- D. The Contractor shall submit to the District Engineer emergency telephone numbers listing where the Contractor can be reached day or night, including weekends and holidays.
- E. At the pre-construction meeting the Contractor shall submit a copy of the "Notice to Proceed" as issued by SLVWD and show proof that all permits incidental to the Work or made necessary by his operations have been successfully secured.
- F. Agenda matters to be discussed or resolved and the instructions and information to be furnished or given by the Contractor at the pre-construction conference include, but are not limited to, the following:

1. Project meeting schedule.
2. Construction plans, progress schedule, and payment schedule of values.
3. Communication procedures between the parties.
4. The names and titles of all persons authorized by the Contractor to represent and execute documents on behalf of the Contractor.
5. The names, addresses, and telephone numbers of all those authorized by the Contractor to act on the Contractor's behalf in emergencies.
6. Construction permit requirements and procedures.
7. Access and rights-of-way to be furnished by SLVWD.
8. Forms and procedures for the Contractor's submittals.
9. Change Order forms and procedures.
10. Payment procedures.
11. First-aid and medical facilities to be furnished by the Contractor.
12. Construction equipment and methods proposed by the Contractor.
13. Other administrative and general matters, as necessary.

### **1.03 PROJECT MEETINGS**

- A. To enable orderly review of progress during the performance of the Work and to provide for systematic discussion of problems, SLVWD will conduct regularly scheduled project meetings throughout the performance of the Work. Project meetings will be held at a minimum once a week at the jobsite in accordance with a mutually acceptable schedule. More frequent meetings may be called after due notice is given to the Contractor.
- B. The purpose of the project meetings is to analyze and resolve problems that might arise relative to execution of the Work, to discuss potential impact the Contractor's operations may have on facility operations, and to review the Contractor's look-ahead schedule. The Contractor shall advise the District Engineer at least 24 hours in advance of the project meeting regarding items the Contractor would like added to the agenda.
- C. Attendees. Unless otherwise required by SLVWD, meetings shall be attended by the District Engineer, the Contractor, the Contractor's Construction Manager, and

the Contractor's Superintendent. Subcontractors may attend when involved in the matters to be discussed or resolved, but only when requested by the District Engineer or Contractor. Persons designated by the Contractor to attend and participate in project meetings shall have the authority to commit the Contractor to the resolution of problems as agreed upon in the project meetings.

- D. Subcontractors, materials suppliers, and others may be invited to attend project meetings when their aspects of the Work are involved, but the Contractor shall remain wholly responsible for its obligations under the Contract.
- E. The meeting agenda will include a review, evaluation, and discussion of each construction schedule item and Contractor submittals.
- F. The Contractor shall designate persons to attend these schedule meetings who are familiar with the construction schedule, current construction problems and activities, and with the logic of the Work sequences used in preparing the construction schedule and updates.
- G. Project Meeting Records. The District Engineer will prepare meeting minutes of each meeting and will furnish copies to the Contractor within 5 work days thereafter. If the Contractor does not submit written objection and proposed corrections to the contents of such meeting minutes within 5 work days after distribution, it shall be understood and agreed that the Contractor accepts the meeting minutes as a true and complete record of the meeting.

#### **1.04 REGULATORY AGENCIES**

- A. When requested, the Contractor shall attend meetings held or required by governmental or regulatory agencies having jurisdiction over the Work.

#### **1.05 OTHER MEETINGS**

- A. Occasionally, as dictated by the Work progress and concerns, the District Engineer may call separate meetings to discuss specific topics. The Contractor's authorized representative is required to attend these meeting as requested by the District Engineer.

#### **1.06 POST-CONSTRUCTION CONFERENCE**

- A. A post-construction conference shall be held prior to final inspection of the Work to discuss and resolve all unsettled matters. Bonds and insurance are to remain in force, and other documents required to be submitted by the Contractor will be reviewed and any deficiencies determined. Schedules and procedures for the final inspection process and for the correction of defects and deficiencies shall be discussed and agreed upon.

**PART 2 - PRODUCTS** (Not Used)

**PART 3 - EXECUTION** (Not Used)

END OF SECTION 01200

## **SECTION**

### **01300**

## **SUBMITTALS**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. This Section includes provisions for Contractor submittals. Additional provisions may be included in specific Specifications Sections.
- B. This Section contains general information pertaining to the processing of submittals. Additional detailed submittal requirements are contained within the individual technical Specification Sections.
- C. All Contractor submittals shall be submitted to SLVWD electronically via email. Electronic submittals shall be in PDF format and transmitted to SLVWD as email attachments. Electronic submittals shall be returned to the Contractor via email with submittals as attachments.
- D. For those submittals which cannot be prepared electronically and submitted by email (material samples), hard copies shall be submitted in accordance with the following:
  - 1. Contractor shall furnish minimum of (8) copies of submittal unless specified otherwise. SLVWD will return (3) copies of submittal to the Contractor with comments noted thereon.
  - 2. Submittals shall be mailed to:

San Lorenzo Valley Water District  
13060 CA-9  
Boulder Creek, CA 95006  
Attn: District Engineer

#### **1.02 REQUIREMENTS FOR SUBMITTALS**

- A. Submittals will be required for all fabricated articles and/or coatings/paints/solvents.
- B. SLVWD's approval of submittals shall not relieve the Contractor of the entire responsibility for the correctness of the work covered by the submittal. The Contractor shall assume all responsibility for misfits and deficient work due to errors in the submittals.
- C. Submittals required by the Specification Sections shall be in accordance with this



Section unless otherwise specified. Submittals not in accordance with this Section and with the technical Sections requiring the submittals will be returned to the Contractor as unsatisfactory.

Prior to the Contractor's submittal transmission to SLVWD, the Contractor shall carefully review each submittal to confirm that it is complete and to verify whether or not the proposed items or Work conform to Contract requirements. Each submittal shall be dated, signed, and certified by the Contractor as being correct and in conformance with the Specifications. SLVWD will not review any items which have not been certified by the Contractor. All non-certified submittals will be returned to the Contractor without action taken by SLVWD, and any delays caused thereby shall be the responsibility of the Contractor.

E. Items that are not in accordance with the Contract requirements shall be conspicuously noted as such. The Contractor shall identify each proposed deviation on the corresponding transmittal letter and include a written explanation of the necessity for each deviation with the transmittal letter. Deviations that are not conspicuously marked on both the transmittal letter and the corresponding submittal drawing or data will be deemed to have been disapproved by SLVWD or not reviewed by SLVWD.

F. Transmittal Format

1. A separate transmittal letter, in a form acceptable to SLVWD, shall be used to transmit submittals for each specific item or class of material or equipment. Submittal of multiple items using a single letter of transmittal will be permitted, except only when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates review of the group or package as a whole.
2. Each submittal shall show the transmittal number, date of transmittal, project title, contract number, and Specification Section(s) to which the submittal pertains, brief description of the material or equipment submitted, and the company name or the originator of the submittal. Each transmittal letter shall be clearly marked to indicate the cases when the material is being submitted as a variation.
3. The transmittal number shall be indicated on every page of each copy of each submittal, and shall correspond to the number given in the transmittal letter. Only the first sheet of a bound set of originally published or printed brochures or catalogs shall be numbered.
  - a. Submittals shall be consecutively numbered beginning with the number 1.
  - b. Multiple-page submittals shall be collated into sets and each set shall be stapled or bound.

- c. For submittals that are resubmitted for any reason, a new transmittal letter shall have the original submittal number followed by a hyphen and a number corresponding to the number of resubmittal. An example is 50-2, where 50 is the submittal number and 2 is the number of times submittal 50 has been resubmitted. The transmittal letter shall indicate that it is a resubmittal.

### **1.03 ACTIONS BY SLVWD AND SUBSEQUENT CONTRACTOR ACTIONS AND RESPONSIBILITIES**

- A. SLVWD will reject incomplete submittals as not complying with the Contract requirements.
- B. After receipt of a complete submittal and within the time limits described below, the District Engineer will transmit the submittal back to the Contractor marked with one of the following review status:
  1. “Reviewed, No Exceptions Taken”
  2. “Make Corrections Noted, Do Not Resubmit”
  3. “Revised and Resubmit”
  4. “Rejected”
- C. For items marked “Make Corrections Noted, Do Not Resubmit,” the revisions will be marked on the submittal or will be described as comments in the response letter. The submittal will be considered approved without formal revision. The Contractor shall, within 5 work days, submit (2) corrected record copies to the District Engineer for record purposes.
- D. If the submittal is returned to the Contractor marked “Revised and Resubmit,” the submittal will be transmitted to the Contractor with a statement of the deficiencies. The Contractor shall promptly revise the submittal and resubmit to the District Engineer.
- E. If the submittal is returned to the Contractor marked “Rejected,” the Contractor shall revise said submittal and shall resubmit to the District Engineer.
- F. Revisions indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents or Specifications. Submittal revisions shall not be taken as the basis of claims for extra work. The Contractor shall have no claim for damages or extension of time due to any delay resulting from making required revisions to the submittals. The review of submittals by SLVWD shall in no way relieve the Contractor of responsibility for errors or omissions contained

therein nor will such review operate to waive or modify any provisions or requirements contained in the Contract Documents or Specifications.

- G. After approval of submittals, the Contractor shall not deviate from the approved submittal without the prior written consent from the District Engineer. Commencement of production Work performed in advance of the receipt of approved submittals shall be entirely at the Contractor's risk.

#### **1.04 REVIEW SCHEDULE**

- A. The sequencing and scheduling of submittals shall be in accordance with the priority established in the approved construction schedule. Submittals that affect the critical path and near-critical path work items and large equipment submittals shall be scheduled to provide the greatest amount of float possible.
  - 1. Submittals shall be made far enough in advance of scheduled dates of installation to provide the time for reviews, for securing necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery.
  - 2. When delays are caused by the need for resubmission of submittals, the Contractor will not be entitled to damages or extension of time on account of the delay.
- B. Submittal Review and Return Duration Requirements
  - 1. The Contractor shall allow (10) work days for SLVWD's review of each submittal, and shall allow (10) work days for SLVWD's review of each resubmittal.

#### **1.05 SUBMITTAL LOG**

- A. The Contractor shall prepare and maintain an accurate submittal log for the duration of the Project. The submittal log shall contain a listing of submittals and shall include the following information for each listed item:
  - 1. Specification Section number reference
  - 2. Projected submittal submission date
  - 3. Actual submittal submission date to SLVWD
  - 4. Projected need approval date
  - 5. Actual return date from SLVWD

## **1.06 SUBMITTAL FORMAT REQUIREMENTS**

- A. Product Data: Product data shall be annotated or highlighted to show the particular item(s) and option(s) that are proposed for use in the Work.
- B. Drawings
  - 1. Drawings shall be submitted in complete sets together with required data so that sufficient information will be available for a thorough evaluation.
  - 2. Each Contractor submittal drawing shall include as minimum identification for checking:
    - a. Contractor name
    - b. Project name
    - c. Applicable subcontractor name, if any
    - d. Preparer name
    - e. Submittal number
    - f. Drawing number and date
    - g. Drawing title and appropriate subtitles
    - h. Contract number and specification number
  - 3. Submittal drawings shall have sufficient blank spaces for making corrections and for SLVWD's review stamp. The minimum blank space for stamping shall be a 3 inch square located at the lower right corner above the title block. Submittal drawings submitted without sufficient information or sufficient spaces for making corrections and stamping will be returned without review or approval.
  - 4. Printed material such as catalog sheets, brochures, or other printed sheets may be submitted in place of submittal drawings, provided that the printed material fully describes the manufactured articles to be installed. If in the opinion of the District Engineer the printed material does not adequately describe the item, the printed material will be rejected and a submittal drawing shall be submitted.
  - 5. Substitution of tabular computer printouts for layout drawings will not be acceptable; however, the Contractor may submit computer printouts along

with the mandatory submittal drawings. CAD drawings are acceptable for submittal.

C. Samples

1. Samples of fabricated items shall conform to the specified requirements for tolerance and finish for the work they represent.
2. Samples of fabricated items shall be full-size, physically identical prototypes of the fabricated item proposed for incorporation in the Work.
3. Samples of materials shall be physically identical to the size, type, color, pattern, and texture of the materials proposed for incorporation in the Work.
4. When selection from a range of choices is specified, samples for selection of color, pattern, texture, or other characteristic shall include a full set of the standard range of choices for the material or product.

**1.07 SUBSTITUTIONS**

- A. Whenever materials or equipment are specified or described in the Specifications by using a name of a proprietary item or the name of a particular manufacturer, fabricator, supplier, or distributor, the name of the item is intended to establish the type, function, and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials, or equipment of other manufacturers, fabricators, suppliers, or distributors may be accepted by the District Engineer if sufficient information is submitted by the Contractor to allow the District Engineer to determine that the material or equipment proposed is equivalent to that named. No substitute shall be ordered or installed by the Contractor without the District Engineer's prior written acceptance
- B. Submittals of substitutions, changes, and deviations shall be in accordance with this Section and may be permitted subject to the following requirements:
1. If the Contractor wishes to furnish or use a substitute item, material, or equipment, the Contractor shall make written application to the District Engineer for acceptance. The Contractor shall submit a request for such substitution and pertinent data substantiating the request to the District Engineer no later than 20 work days prior to the required material order date to maintain the project on schedule
  2. Contractor shall review Section 00700, General Conditions, Article 9.4, Substitutions and Equals, for administrative procedures and requirements prior to proceeding with substitutions. The Authorization of Engineering Costs for Evaluation for Substitutes and Equals form shall be submitted and

- approved prior to SLVWD proceeding with the evaluation of any substitution.
3. Request for review of substitute items, materials, or equipment will not be accepted by the District Engineer from any party other than the Contractor.
  4. The proposed substitution, change, or deviation is conspicuously marked on the submittal drawings and/or data.
  5. The corresponding line item on the transmittal letter is conspicuously marked as a substitution or variation.
  6. The Contractor shall provide proof of the comparative quality and suitability of alternative items, materials, or equipment for proposed substitutions. Description, information, performance data, and other information as may be required by the District Engineer shall be submitted showing the equality of the items, materials, or equipment offered to those originally specified. The Contractor shall certify that the proposed substitute will perform adequately and the functions called for by the general design shall be similar and of equal substances to that specified, and the proposed substitute shall be suited to the same use and capable of performing the same use and function as that specified.
  7. The application will state whether or not acceptance of the substitute or use of it in the Work will require a change in the Specifications to adapt the design to the substitute and whether or not incorporation or use of the substituting connection to the Work is subject to payment of any license, fee or royalty.
  8. All variations of the proposed substitute from that specified shall be identified in the application and available maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other Contractors affected by the resulting change, all which will be considered by the District Engineer in evaluating the proposed substitute.
  9. The burden of proving the proposed substitute is "an equal" is solely the Contractor's responsibility and such proof should include sufficient factual and comparative data to establish that the request for the substitution is equal in: quality, utility, structural strength, mechanical, and technical performance, finish, arrangement of plan, repair and maintenance, compatibility with other existing and specified items, and any other relevant data.
  10. A written explanation of the necessity for the proposed change or deviation

shall be indicated in the Contractor's submittal transmittal letter.

11. The specified Contract completion time shall not be affected by any circumstance developing from the provisions of this Section.
12. The Contractor shall have the proposed substitution tested as required by the District Engineer to determine that the quality, strength, physical, chemical, or other characteristics, including durability, finish, efficiency, dimensions, service, and suitability are such that the item, material, or equipment will fulfill the specific intended function. Test methods shall be subject to the approval of the District Engineer. Test results shall be reported promptly to the District Engineer, who will evaluate the results and determine if the substitute item is equivalent. Installation and use of a proposed substitute item shall not be made until approved by the District Engineer.
13. SLVWD may require the Contractor to furnish at the Contractor's expense a special performance guarantee or other surety with respect to the proposed substitute.
14. The District Engineer will be the sole judge as to the comparative quality and suitability of alternative items, materials, or equipment. The District Engineer's decision will be final. If a proposed substitution item, material, or equipment offered by the Contractor is not found to be equal to the originally specified item, material, or equipment, the Contractor shall furnish and install the originally specified item, material, or equipment.

**PART 2 - PRODUCTS** (Not Used)

**PART 3 - EXECUTION** (Not Used)

END OF SECTION 01300

## **SECTION 01312**

### **CONSTRUCTION SCHEDULES**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. This Section includes provisions for Contractor developed and maintained construction schedules.

##### **1.02 SUBMITTALS**

- A. Submittals shall be made in accordance with Specifications Section 01300, Submittals, and the following special provisions provided herein.
- B. Construction schedule submittals shall consist of electronic pdf copies formatted to 8.5-inch x 11-inch or 11-inch x 17-inch, and an electronic copy in a file format readable by Microsoft Project.
- C. Baseline Construction Schedule
  - 1. The Contractor shall submit the baseline construction schedule within 10 work days after receipt of the Notice to Proceed.
  - 2. The District Engineer will meet with the Contractor to review and discuss the proposed construction schedule within 10 work days after receipt of the submittal. At this meeting, the District Engineer will inform the Contractor if the construction schedule is acceptable or if it must be revised and resubmitted.
  - 3. Contractor shall include any assumed overtime and specifically identify such overtime hours and days. SLVWD and Contractor shall discuss proposed overtime hours and days. SLVWD may require that contractor revise proposed overtime hours or days due to neighborhood traffic and quality of life concerns.
  - 4. In the event that correction of the baseline construction schedule is required, the Contractor shall resubmit the revised construction schedule within 10 work days of the meeting. The District Engineer will meet with the Contractor to review and discuss the construction schedule within 10 work days after receipt of the resubmittal. At this meeting, the District Engineer will inform the Contractor if the construction schedule is acceptable or if it must be revised and resubmitted.
- D. Construction Schedule Updates



1. The updated construction schedule shall be submitted to the District Engineer at the end of each month, with the Contractor's progress payment application.
- E. Narrative Progress Report
  1. A written narrative progress report shall be submitted to the District Engineer at the end of each month, with the Contractor's progress payment application.
- F. Failure to submit each package by the required date may result in a reduction in progress payment by SLVWD for the corresponding month.
- G. Look-Ahead Schedule: Look Ahead Schedule shall be submitted weekly and a regular agenda item in the project coordination meetings. The Contractor shall submit the Look Ahead Schedule at least 24 hours prior to the project coordination meeting. The number of copies submitted and the layout and format of the look-ahead schedule shall be acceptable to the District Engineer.

### **1.03 CONSTRUCTION SCHEDULE**

- A. The Contractor shall provide a computer-generated construction schedule using, Microsoft Project, or equal software that has the capability of producing a Gantt chart and identify critical path.
- B. The construction schedule shall show in detail the Contractor's plan for construction of the Work. The degree of detail shall be to the satisfaction of the District Engineer and shall include, as a minimum:
  1. The means, methods, and sequences for performing the Work.
  2. Mobilization of equipment.
  3. Submission and approval of critical submittals.
  4. Fabrication and delivery of critical equipment and materials.
  5. Approvals and permits required by regulatory agencies or other third parties.
  6. Access to and availability of work areas.
  7. Identification of interfaces and dependencies with preceding, concurrent, and follow-on contractors and subcontractors.
  8. Specified project phasing, milestones, and completion dates.

9. Testing.
10. The activities of the District Engineer that may affect progress or affect required dates for completion of all or part of the Work, including delivery of SLVWD-furnished equipment.
11. SLVWD dewatering, startup, and testing.

C. Revisions to the Baseline Construction Schedule

1. The Contractor shall immediately advise the District Engineer of proposed or required changes in the construction schedule logic or delays to the progress of the Work.
2. The Contractor shall furnish a revised schedule within 10 work days of the adoption of a change. The revised schedule shall be accompanied with a written narrative description of the change, the necessity for the change, the impact of the change to the specified schedule milestones, and the cost to SLVWD if the revised schedule is accepted.
3. The Contractor shall furnish a revised schedule within 10 work days of the award by the District Engineer of an adjustment in the time of completion of the Work.

D. Monthly Construction Schedule Updates

1. The Contractor shall update the current construction schedule monthly to indicate:
  - a. Actual activity-start dates
  - b. Actual activity-completion dates
  - c. Estimated duration, in work days, to complete each activity that is started but not completed
  - d. Actual total progress achieved to date on each activity in percent
  - e. Non-working days granted by the District Engineer

**1.04 NARRATIVE PROGRESS REPORT**

- A. As part of the monthly update process, the Contractor shall prepare a narrative progress report. The report shall describe the physical progress during the report period, the Contractor's plans for continuing the Work during the forthcoming

report period, and actions planned to correct Work that is behind schedule. The report shall also provide a discussion of potential delays and problems and their impact on performance and the overall project completion date.

- B. If the project falls behind schedule by more than 20 work days, the report shall contain proposed alternatives for schedule recovery.

**PART 2 - PRODUCTS** (Not Used)

**PART 3 - EXECUTION** (Not Used)

END OF SECTION 01312

## **SECTION 01400**

### **INSPECTION OF WORK**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. This Section includes provisions for SLVWD's inspection of the Work.

##### **1.02 SUBMITTALS**

- A. Submittals shall be made in accordance with Specifications Section 01300, Submittals, and the following special provisions provided herein.
- B. When requested by SLVWD, the Contractor shall furnish the District Engineer such additional information as may reasonably be required regarding the character of the materials and the progress of their procurement, including copies of invoices, bills of lading, and shipping lists on all articles and materials for use on the Work.

##### **1.03 RESPONSIBILITIES**

- A. The Contractor shall be responsible for full compliance with every requirement of the Contract Documents and Specifications and shall ensure that the Work is in full accordance with the Contract Documents and Specifications. At all times, the Contractor's Work will be subject to rigid inspection by the District Engineer. Whether discovered by the Contractor or the District Engineer, nonconforming Work shall be corrected or replaced by the Contractor.
- B. For convenience, materials or equipment to be incorporated in the Work may be designated in the Specifications by a trade name or the name of a manufacturer and the manufacturer's catalog item number information. Materials, articles, or equipment, even if supplied by a manufacturer designated in the Specifications, shall be accepted only if the items meet all other Specification requirements.
- C. The Contractor shall furnish all tools, equipment, materials, supplies, and manufactured articles necessary or required for the performance and completion of the Work included in the Contract Documents, except for materials and equipment specified to be furnished by SLVWD. The materials, articles, and equipment provided for permanent installation in the Work shall be new and shall be in accordance with the Specifications.
- D. The Contractor shall perform quality control on suppliers, manufacturers, products, services, site conditions, and workmanship to ensure that Work conforms to the Contract Documents. The Contractor shall document its quality control activities.

- E. The Contractor shall require and ensure conformance with specified standards as a minimum quality for the Work. When more stringent tolerances, codes, or specified requirements are required by a particular manufacturer or a particular Work item, the higher standards or more precise workmanship shall be provided.
- F. The District Engineer's inspections and tests are for the sole benefit of SLVWD and shall not:
  - 1. Relieve the Contractor of responsibility for providing adequate quality control measures.
  - 2. Relieve the Contractor of responsibility for damage to or loss of the material before acceptance.
  - 3. Relieve the Contractor of the responsibility for proper execution of the Work in accordance with the Contract Documents and Specifications.
  - 4. Constitute or imply acceptance.
  - 5. Affect the continuing rights of SLVWD after acceptance of completed Work.
- G. The Contractor shall be responsible for adjustments, corrections, or repairs found necessary after the delivery or installation of materials and articles.
- H. Unidentified materials shall not be used in the Work, including work at fabrication plants.
- I. The District Engineer will be responsible for performing all inspections on a timely basis to not impede the Contractor's Work.

#### **1.04 SEQUENCING AND SCHEDULING OF INSPECTIONS AND TESTS**

- A. The Contractor shall fully advise the District Engineer regarding progress of the Work in its various parts.
- B. The Contractor shall furnish and prepare the required samples and test specimens ready for testing in time for the necessary tests and analysis.
- C. The District Engineer shall be given timely notice of the Contractor's readiness for inspection and testing. The length of advance notice shall be appropriate for the complexity of the inspection or test, the availability of the District Engineer, and the location of the inspection or testing, but in no case shall less than 24 hours' advance notice be given.

## **1.05 TESTING**

- A. Materials and articles that are to be included in the Work shall be subject to testing for conformance with the Specifications.
- B. The Contractor shall be responsible for conducting and coordination of all testing stated in the Specifications, unless specifically stated otherwise.
- C. When not otherwise specified, sampling and testing shall be in accordance with the methods prescribed in the current standards of ASTM applicable to the class and nature of the articles or materials considered. However, the District Engineer will have the right to use any generally accepted method of testing that will ensure that the quality of materials, articles, or Work is in full accord with the Specifications.
- D. The District Engineer will have the right to select, test, and analyze, at the expense of SLVWD, additional test specimens of the materials to be used. Results of these tests and analyses will be considered with the results of other tests or analyses, whether performed by SLVWD or the Contractor, to determine compliance with the applicable specifications or standards for the materials.

## **1.06 INSPECTION BY THE DISTRICT ENGINEER**

- A. Materials and articles that are to be included in the Work shall be subject to rigid inspection by the District Engineer for conformance with the Specifications. The Contractor shall plan for the inspections to be continuous, repetitive, and detailed.
- B. Any Work or testing done in the absence of the District Engineer may be subject to rejection.
- C. Orders for materials, articles, and equipment shall note that the articles, materials, and equipment are subject to inspection and acceptance by the District Engineer, both during manufacture or fabrication and after delivery to the site.
- D. When practicable and convenient for the District Engineer, inspections will be made during the manufacture of the articles and equipment.
- E. The location, alignment, grade, plumb, and other physical characteristics of formwork for concrete, items to be embedded in concrete and permanent improvements shall be subject to rigid survey verification.
- F. Materials or articles shall not be incorporated in the Work until they have been inspected and approved by the District Engineer.
- G. The Contractor shall not proceed with any subsequent phase of Work until the previous phase has been inspected by the District Engineer.

- H. After testing, Work shall be covered or backfilled only with the approval of the District Engineer.
- I. Inspection of the Work as well as other required services will be provided by the District Engineer between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday only. Any inspections or other services provided by SLVWD requested by or made necessary as a result of the actions of the Contractor beyond the hours stated above shall be paid for by the Contractor at the prevailing rate of 1½ times the regular hourly rate plus any applicable equipment or incidental costs. Additional SLVWD inspection services shall be designated on monthly payment applications as credits to SLVWD.
- J. Inspections or other services by SLVWD requested by or made necessary as a result of the actions of the Contractor on Sundays or Holidays must be scheduled and approved by the District Engineer.
- K. The need for overtime inspection or other services by SLVWD shall be determined by the District Engineer, and whose decision shall be final.

#### **1.07 FACILITIES FOR INSPECTION AND TESTING**

- A. The Contractor shall furnish the facilities, utilities, and assistance necessary for the safe and convenient performance of inspections and tests required by the Specifications or by SLVWD.
- B. The Contractor shall provide adequate lighting, access, and ventilation for a safe working environment for inspections and tests.
- C. The Contractor shall cooperate with SLVWD personnel in the performance of their respective duties and the Contractor shall provide qualified personnel to assist with the performance of tests and inspections by SLVWD.
- D. The Contractor shall provide qualified personnel to perform such tests or inspections.

#### **1.08 REJECTION OF WORK**

- A. The District Engineer will have the right, at all times and in all places, to reject articles or materials to be furnished for the Work that fail to meet the requirements of the Contract Documents, or Specifications. This shall be regardless of whether the defects in these articles or materials are detected at the point of manufacture or after completion of the Work at the site.
- B. The District Engineer will be the sole judge as to the acceptable quality of materials, articles, and Work. Compliance with the requirements of the Contract Documents and Specifications is distinctly a duty of the Contractor and said duty

shall not be avoided by any act or omission on the part of the District Engineer. Where the District Engineer, through an oversight or otherwise, accepts material, articles, or Work that is defective or that is contrary to the Specifications, the material, article, or Work, no matter in what stage or condition of manufacture, delivery, or erection, may be rejected by the District Engineer.

- C. Promptly after notification of rejection by the District Engineer, the Contractor shall remove rejected portions or items of materials, articles, or Work to a satisfactory distance from the vicinity of accepted items and shall replace them.
- D. All costs of removal and replacement of rejected articles or materials as specified herein shall be borne by the Contractor.

#### **1.10 FINAL INSPECTIONS AND ACCEPTANCE**

- A. Final inspections for acceptance of materials, articles, equipment, and Work will be made at the completion of all Work.
- B. A minimum of 10 work days prior to the estimated completion of Work, the Contractor shall notify the District Engineer in writing of the pending completion of Work. The Contractor shall include with the "Application for Acceptance of Work" a complete list of Work items remaining to be completed.
- C. On or about the Contractor's estimated completion date, the District Engineer will make a thorough inspection of all Work. Defects or deficiencies noted during this inspection will be reported to the Contractor in writing.
- D. The Contractor shall notify the District Engineer in writing when all items on the defect and deficiency list are corrected. The District Engineer will make a thorough final inspection of Work.
- E. If the District Engineer determines the Work to be complete, it will be accepted. If defects or deficiencies are noted during this inspection, they will be reported in writing to the Contractor. When the Contractor notifies the District Engineer of the correction of these items, another final inspection will be scheduled.
- F. If, in the District Engineer's judgment, all Work has been completed and is ready for acceptance the District Engineer will generate a Notice of Completion for recording the date the Work was completed. This will be the date when the Contractor is relieved from responsibility to protect the Work.

#### **PART 2 - PRODUCTS (Not Used)**

#### **PART 3 - EXECUTION (Not Used)**

END OF SECTION 01400



## **SECTION 01500**

### **CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. This Section includes provisions for the construction facilities and temporary controls to be provided and maintained by the Contractor.

##### **1.02 SUBMITTALS**

- A. Submittals shall be made in accordance with Specifications Section 01300, Submittals, and the following special provisions provided herein.
- B. The Contractor shall submit drawings showing the methods of temporary support and protection, along with calculations for any of support structures of pipelines, utilities, temporary shoring, and structures to remain in place or whose initial or subsequent alignment will be temporarily changed during construction.

##### **1.03 CONTRACTOR'S WORK AND STORAGE YARD AREA**

- A. The Contractor shall provide, at their own expense, a storage area, approved by the District Engineer, at the booster station site for storage and staging all materials and equipment.
- B. The Contractor shall locate offices, employee parking, storehouses, and storage areas for materials and equipment in the work and storage area.
- C. The Contractor shall be responsible for the care of materials and equipment stored in the work and storage yard areas, and for the proper maintenance of fencing and structures.
- D. Construction equipment shall not be stored at the work and storage area before its actual use on the Work nor for more than 5 work days after it is no longer needed. Time necessary for repair or assembly of equipment may be authorized by the District Engineer.
- E. Construction materials shall not be stored in streets, roads, or highways.
- F. Construction materials and equipment shall be stored in currently developed or disturbed areas outside of sensitive vegetation communities. Sensitive vegetation communities to avoid include annual grassland, chamise chaparral, coastal sage

scrub, open water, southern mixed chaparral, and southern willow scrub.

- G. If the Contractor requires work and storage area, the Contractor shall propose location(s) to the District Engineer for approval. Consideration shall be based on SLVWD's operational activities and avoidance of sensitive vegetation.

#### **1.04 SURFACE AND STORM WATER CONTROL**

- A. The Contractor shall conform to the applicable requirements of the Santa Cruz County Code, Chapter 16, Environmental and Resource Protection.
- B. The Contractor shall divert or otherwise control surface water and waters flowing from existing projects or structures from coming onto its work areas. The method of diversions or control shall be adequate to ensure the safety of stored materials and of personnel using these areas. Following completion of Work under the Contract, ditches, dikes, or other ground alterations made by the Contractor shall be removed and the ground surfaces shall be returned to their former condition, or as near as practicable, in SLVWD's opinion.
- C. Surface and storm water that enters the Contractor's work area shall be controlled, treated, and disposed in a lawful manner.
- D. The Contractor shall conform to the applicable requirements of the California Regional Water Quality Control Board for Discharges of Hydrostatic Test Water and Potable Water to Surface Waters and Storm Drains or Other Conveyance Systems.
- E. Water drained from pipelines and water used for flushing during cleaning operations shall be piped or conveyed into local drainage inlet catch basins, or storm drains where practical. Water will be allowed to flow in the street only in areas where drainage facilities do not exist and only under approved energy dissipation measures. The Contractor shall obtain a discharge permit from the Regional Water Quality Control Board (RWQCB), Central Coast Region, for discharge of water. Water shall be dechlorinated in accordance with RWQCB permit requirements.

#### **1.05 FIRE PROTECTION AND PREVENTION**

- A. All parts of the Work shall be adequately protected against damage by fire. Hose connections and hose, water casks, chemical equipment, and other equipment required by local jurisdictions shall be provided for fighting fires.
- B. The exhaust pipes of internal combustion engines used in the Work shall be equipped with approved spark arresters.

## **1.06 DUST CONTROL**

- A. The Contractor shall provide effective measures to prevent operations from producing dust in amounts damaging to personnel, property, SLVWD operations, plants, or animals, and to prevent causing a nuisance to persons living or occupying buildings in the vicinity.
- B. Areas used by the Contractor for construction roads or other purposes in connection with the Work shall be given an approved dust inhibiting surface treatment to avoid production of dust. This surface condition shall be continuously maintained during the entire construction period. The Contractor's construction facilities shall be operated in a manner ensuring minimum dust production.
- C. Trucks transporting soil, or cement, or debris shall be covered to suppress the dispersion of dust.
- D. During construction operations the Contractor shall take each of the following actions to reduce fugitive dust emissions:
  - 1. Replace ground cover in disturbed areas as quickly as possible.
  - 2. Enclose, cover, water daily or apply non-toxic soil binders according to manufacturers' specifications, to exposed piles (i.e., gravel, sand, dirt) with five percent or greater silt content.
  - 3. Water active sites at least twice daily.
  - 4. All trucks hauling dirt, sand, soil, or other loose material are to be covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer) in accordance with requirements of CVC Section 23114.
  - 5. Apply water three times daily along unpaved roads or apply non-toxic soil stabilizers according to manufacturers' specifications to all unpaved staging areas and unpaved road surfaces.
  - 6. Traffic speeds on all unpaved roads to be reduced to 15 miles per hour or less.

## **1.08 AIR POLLUTION CONTROL**

- A. The Contractor shall not discharge smoke, dust, or other air contaminants into the atmosphere in a quantity as will violate the regulations of any legally constituted authority.

- B. The Contractor shall maintain equipment in proper mechanical adjustment to minimize the volume of exhaust emissions.

#### **1.09 WATER POLLUTION CONTROL**

- A. The Contractor shall exercise every reasonable precaution to protect channels, storm drains, and bodies of water from pollution and shall conduct and schedule his operations so as to minimize or avoid muddying and silting of said channels, drains, and waters. Water pollution control work shall consist of constructing those facilities which may be required to provide prevention, control, and abatement of water pollution.

#### **1.10 NOISE CONTROL**

- A. The Contractor shall conduct operations to abate noise wherever possible and to minimize noise where complete abatement is not possible. The Work shall be carried on as quietly as possible to prevent possible annoyance to adjacent residential property. Unnecessary noise shall be avoided at all times.
- B. The Contractor shall maintain all construction vehicles and equipment in proper working order for the duration of the construction activities.
- C. All equipment shall have effective muffling/silencing devices in good working order.
- D. The Contractor shall restrict work hours to the requirements of SLVWD and permits for each jurisdiction, whichever is more stringent.
- E. The Contractor shall comply with the noise requirements of any jurisdictional agencies. Particular consideration shall be given to allowable working hours.

#### **1.11 ENVIRONMENTAL NOISE CONTROL**

- A. Portions of the project may be in or adjacent to coastal sage scrub, which is habitat for the federally listed threatened California gnatcatcher; and eucalyptus woodland, which is habitat for a variety of raptors and nesting songbirds.
- B. The Contractor shall provide noise control provisions during the breeding seasons and in accordance with the provisions below. SLVWD will conduct nesting surveys and monitor noise levels.

## **1.12 PROTECTION OF NEW AND EXISTING IMPROVEMENTS**

- A. The Contractor shall be responsible for the safeguarding of all utilities. At least 2 work days before beginning work, the Contractor shall call the Underground Service Alert (USA) in order to determine the location of substructures. The Contractor shall immediately notify the District Engineer and the utility owner if the Contractor disturbs, disconnects, or damages any utility or substructure.
- C. Where existing piping, utilities, and structures are to remain in place, these facilities shall be temporarily supported and protected until the Work has been completed, and compacted backfill has been placed to fully support said improvements. Facilities adjacent to the Work shall be protected in place when excavating in their vicinity. The support system shall prevent movement, dislocation, and deflection of the piping, utilities, and structures at all times. Supports and protection shall be designed, stamped, and signed by a civil engineer currently registered in the State of California and shall be acceptable to the owner of the improvement.
- D. The Contractor shall pothole to determine depth and location of existing pipelines and utilities underground. The Contractor shall determine clearance for aboveground utilities. The Contractor shall be responsible for coordinating the potholing with SLVWD. No extension of time or additional compensation will be made for delays caused by the failure of the Contractor to complete the potholing in a timely manner.
- E. The Contractor shall provide a typed pothole report. The report shall include a separate line item for each potholed utility identifying the utility, the utility size, the utility depth and the exact station of the potholed utility based on the stationing of the surveyed pipeline alignment.
- F. All costs incurred in exposing and locating the existing utilities including all labor, tools, equipment for excavation, backfill, and restoring existing surface improvements, shall be included in the bid price. The Contractor shall bear the cost of repairing or replacing any existing utility damaged by potholing work.
- G. Except as otherwise specified, the pipelines and utilities whose initial or subsequent alignment will be temporarily changed during construction shall be supported and maintained in operation throughout the Work period.
- H. The Contractor shall cover and protect finished surfaces of new or existing improvements with plywood, falsework, or other protective temporary works, as necessary.

### **1.13 RESTORATION OF IMPROVEMENTS**

- A. The Contractor shall broom clean paved surfaces; rake clean other surfaces or grounds.

### **1.14 SECURITY**

- A. The Contractor shall prevent unauthorized personnel or vehicular entry into the Project site.
- B. The Contractor shall be responsible for providing security within the Work site as the Contractor deems necessary for the protection of its own equipment, materials, or Work from vandalism or theft. SLVWD will not be responsible for theft or damage to the Contractor's equipment, materials, or Work.

### **1.15 CLEAN UP**

- A. During all phases of construction, including suspensions of Work, and until final acceptance of Work, the Contractor shall keep the site clean and free from rubbish and debris and shall promptly remove from any portion of the site, or from property adjacent to the site, all unused materials, surplus earth and debris. The Contractor shall provide for the disposal of all surplus materials, waste products, debris, etc., and shall make necessary arrangements for such disposal. The Contractor shall obtain written permission from the District Engineer prior to disposing of any surplus materials, waste products, debris, etc. on private property, and shall obtain the approval of the District Engineer prior to such disposal.
- B. After completion of all Work, and before making application for acceptance of the Work, the Contractor shall clean the site of their operations, including all areas under the control of the District Engineer that have been used by the Contractor in connection with the Work, and shall remove all debris, surplus material, and equipment, and all temporary construction or facilities of whatever nature, unless otherwise approved by the District Engineer. Final acceptance of the Work by SLVWD will be withheld until the Contractor has satisfactorily complied with the foregoing as well as the following requirements for final cleanup of the project area.
- C. If the Contractor fails to maintain the premises in a neat and clean condition or fails to remove and dispose of rubbish or materials at the completion of the Project, the areas may be cleaned and materials, equipment, and rubbish may be removed and disposed of by the District Engineer at the Contractor's expense.
- D. Surplus and all material removed which is not suitable for reuse in this Project shall be disposed of by the Contractor in a manner and at a location meeting the regulations of any legally constituted authorities.

- E. The Contractor will not be permitted to use SLVWD trash bins for disposal of trash or rubbish. The Contractor shall provide containers for collection and disposal of waste materials, debris and rubbish.

**PART 2 - PRODUCTS** (Not Used)

**PART 3 - EXECUTION** (Not Used)

END OF SECTION 01500

## **SECTION 01505**

### **MOBILIZATION AND DEMOBILIZATION**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. This Section includes provisions for the Contractor's mobilization and demobilization.

##### **1.02 MOBILIZATION**

- A. Mobilization shall include moving onto the site; payment for bonds, ordering major equipment; furnishing construction equipment; and furnishing and erecting plants, temporary buildings, and other construction facilities for the performance and completion of the Work.
- B. Mobilization shall include the acquisition of all permits; moving onto the site of all equipment, and other construction facilities, all as required for the proper performance and completion of the Work. Mobilization shall include, but not be limited to, the following principal items:
  - 1. Installing temporary construction power, wiring, and lighting facilities.
  - 2. Developing construction water supply, as required.
  - 3. Providing all on-site communication facilities, including telephones and radios for Contractor personnel.
  - 4. Providing on-site sanitary facilities and potable water facilities for Contractor personnel.
  - 5. Arranging for erection of Contractor's storage yard, as required.
  - 6. Obtaining all required permits.
  - 7. Payment of bonds.
  - 8. Obtaining all OSHA required notices and establishment of safety programs.
  - 9. Ordering major equipment.



10. Submitting initial submittals.
11. Other construction facilities for the performance and completion of the Work.

Prior to commencement of any on-site Work, the Contractor shall submit a Construction Facilities Plan to the District Engineer for approval. Construction Facilities Plan shall show the layout, equipment, materials, and procedures that Contractor proposes for construction of temporary electrical, telephone, lighting, water, sanitation, field offices, sheds, and other similar site facilities.

D. The Contractor's construction facilities shall be of a temporary nature. The Contractor at all times, shall be wholly responsible for the security of storage and staging area(s), lay down area(s), and for all materials, equipment, and tools.

### **1.03 DEMOBILIZATION**

- A. Demobilization shall include moving off the site; disassembling and removing construction plant, equipment, temporary buildings, and other construction facilities; and cleanup of the site.

### **1.04 PAYMENT FOR MOBILIZATION AND DEMOBILIZATION.**

- A. As soon as practicable after receipt of the Notice to Proceed, the Contractor shall submit a breakdown showing the relative value of each major component of mobilization and demobilization, including furnishing bonds, where the total of all these values is equal to the amounts stated on the Bid Schedule. This breakdown, when approved by the District Engineer, shall be the basis for determination of percentage completion and progress payments for mobilization and demobilization.
- B. Progress payments for mobilization and demobilization will be made on a percentage completion basis of the amounts stated on the Bid Schedule.

### **PART 2 - PRODUCTS (Not Used)**

### **PART 3 - EXECUTION (Not Used)**

END OF SECTION 01505

## **SECTION 01510**

### **TEMPORARY UTILITIES AND SERVICES**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. This Section includes provisions for temporary utilities and services to be provided by the Contractor.

##### **1.02 SUBMITTALS**

- A. Submittals shall be made in accordance with Specification Section 01300, Submittals, and the following special provisions provided herein.
- B. The Contractor shall prepare a plot plan drawing showing temporary utility layouts and a single line diagram of the temporary construction power system. Temporary utility layouts and services shall be submitted to the District Engineer for review and approval.
- C. The Contractor shall obtain and pay for all permits for temporary utilities and shall submit one copy of each permit to the District Engineer.

##### **1.03 WATER**

- A. The Contractor shall arrange for all necessary water required for construction of the Work. The Contractor shall not make connection to, or draw water from any on-site or off-site fire hydrant without first obtaining permission from the District Engineer.
- B. SLVWD will furnish reasonable quantities of water for use in construction to the Contractor at locations designated by the District Engineer and under the following terms and conditions:
  - 1. The Contractor shall conserve water supplies and shall install SLVWD provided water meters to provide the District Engineer with records of the volume of water used. Undue waste of water will be reason for the District Engineer to close these sources to further use by the Contractor.
  - 2. The method of pumping and the capacity and condition of pumps used by the Contractor shall be subject to the District Engineer approval.
  - 3. The water source(s) to be designated by SLVWD.

- C. The Contractor shall be solely responsible for the adequate functioning of water supply systems and shall be solely liable for claims or damage resulting from its use.
- D. The Contractor shall provide and operate pumping plants, pipelines, valves, hydrants, storage tanks, and other equipment necessary to store and convey an adequate supply of water from the source to each work area. The design of the storage and conveyance system shall include consideration of the Contractor's plan for fire protection. A reduced- pressure-principle backflow prevention device shall be installed by the Contractor at each connection point of the Contractor's water supply system to the source. The backflow prevention device shall be tested by a certified backflow prevention device assembly tester, and a copy of the report shall be provided to the District Engineer.
- E. Treated and untreated water supply outlets shall be labeled in accordance with applicable laws and regulations.

#### **1.04 ELECTRICITY**

- A. The Contractor shall provide the power required for their operations. The Contractor shall provide and maintain, in good order, power equipment and installations to perform the Work.
- B. When Work is permitted to be conducted at night or under conditions of deficient light, the work area shall be suitably lighted to afford adequate illumination for performance and inspection of the Work. Lighting for construction activities shall be directed away from residential areas, public highways, and roads. The Contractor shall be responsible for all construction lighting.
- C. Construction electrical wiring and equipment shall be in accordance with CCR Title 8 and NEC. All temporary connections for electricity shall be subject to the approval of the District Engineer and PG&E representative, and shall be removed in the like manner at the Contractor's expense prior to final acceptance of the Work.

#### **1.05 TELEPHONE**

- A. The Contractor shall provide and maintain the telephone equipment and service required for its operations. At all times during the progress of the Work, not less than one telephone shall be maintained in good order. If the Contractor elects to provide wireless telephone service, the area code of the wireless service shall be the same as the area code where the project is located.
- B. The Contractor shall provide and maintain the telephone and Internet equipment in SLVWD's field office as specified in Section 01590, Field Offices.

## **1.06 SANITATION**

- A. The Contractor shall provide and maintain sanitary conveniences for the use of all persons employed on the Project. Sanitation facilities shall be in sufficient number and at such places as ordered or approved by the District Engineer and shall be in accordance with CCR Title 8.
  - 1. Enclosed fixed or portable chemical toilets shall be provided wherever needed for the use of employees.
  - 2. Washing facilities shall be provided wherever needed for the use of employees.
- B. Sanitary fixtures, receptacles, toilet rooms, washrooms, and lavatories shall be kept clean and shall be frequently disinfected. The cleaning and disinfection of sanitary conveniences shall not be less than twice a week.
- C. The Contractor shall provide for their employees an adequate supply of clean, potable drinking water, which shall be dispensed through approved sanitary facilities.
- D. The Contractor shall obey and enforce such sanitary regulations as may be prescribed by the State Department of Health or other authorities having jurisdiction.
- E. The District Engineer may from time to time prescribe rules and regulations for maintaining sanitary conditions at the site and the Contractor shall enforce observance of the same by his employees and the employees of the subcontractors, and if the Contractor fails to enforce these rules and regulations, the District Engineer shall have the authority to enforce them.
- F. Wastewater shall not be interrupted. Should the Contractor disrupt existing sewer facilities, sewage shall be conveyed in closed conduits and disposed of in a sanitary sewer system. Sewage shall not be permitted to flow in trenches or be covered by backfill.

## **1.07 OTHER UTILITIES**

- A. The Contractor shall provide and maintain all other utilities required for its operations under the Contract.

## **1.08 REMOVAL OF TEMPORARY UTILITIES**

- A. Before final acceptance of the Work on the Project, all temporary connections and piping installed by the Contractor shall be entirely removed, and all affected improvements shall be restored to their original condition, or better, to the

satisfaction of the District Engineer.

- B. The Contractor shall remove the Contractor's field office promptly upon written direction from the District Engineer. Utility services shall be disconnected and capped. The area shall be restored, clean and free of any evidence of scarred landscape or damage to the surrounding vegetation.

**PART 2 - PRODUCTS** (Not Used)

**PART 3 - EXECUTION** (Not Used)

END OF SECTION 01510

**SECTION**

**01530**

**SECURITY**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. This Section includes provisions for the Contractor's security provisions.

**1.02 GENERAL**

- A. The Contractor shall safeguard all Work, materials, equipment and property from loss, theft, damage, and vandalism. Contractors' duty to safely guard property shall include SLVWD's property and other private property from injury or loss in connection with the performance of the Work.
- B. The Contractor shall employ watchmen, as needed, to provide the required security and prevent unauthorized entry.
- C. The Contractor shall make no claim against SLVWD for damage resulting from trespassing, vandalism, or theft.
- D. The Contractor shall be responsible for security and shall be liable for damage to SLVWD property and damage to other parties, arising from failure to provide adequate security.
- E. If existing fencing or barriers are breached or removed for purposes of construction, the Contractor shall provide and maintain temporary security fencing equal to the existing in a manner satisfactory to the District Engineer.
- F. Security measures taken by the Contractor shall be at least equal to those usually provided by SLVWD to protect the existing facilities during normal operation.
- G. A security program shall be maintained throughout construction until final acceptance of the Work.

**1.03 CONTRACTOR'S ACCESS TO THE SITE**

- A. Access to the site for Contractor's employees, material, tools, and equipment shall be as directed by the District Engineer.
- B. The Contractor shall ensure that each of its employees, representatives, material suppliers and others acting for the Contractor shall be subject to the following:
  - 1. Contractor employees shall park personal vehicles only in the Contractor designated parking area(s) identified by the District Engineer. The Contractor shall prepare and maintain this area as required.

**PART 2      PRODUCTS** (Not Used)

**PART 3      EXECUTION** (Not Used)

END OF SECTION 01530

**SECTION 01540**

**LOAD RESTRICTIONS**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. This Section includes provisions for load restrictions during construction activities.

**1.02 REFERENCES**

- A. The publications and standards referenced herein form a part of this Specification.
- B. When a date is given for reference standards, that edition shall be used. Where no date is given, the latest edition shall be used.

**1.03 SUBMITTALS**

- A. Submittals shall be made in accordance with Specification Section 01300, Submittals, and the following special provisions provided herein.
- B. Specifications for equipment to be used at existing or newly constructed pipelines, utilities, and structures shall be submitted to and approved by the District Engineer before use.
- C. If the Contractor desires to exceed the specified load restrictions, the Contractor shall submit the request to the District Engineer for approval. The Contractor shall provide supporting technical data and engineering calculations prepared, stamped, and signed by a civil engineer currently registered in the State of California.
- D. The Contractor shall provide design of all temporary supports in accordance with Section 01500, Construction Facilities and Temporary Controls. The Contractor shall not exceed the specified load restrictions until the District Engineer has reviewed and approved the request.



**1.05 DAMAGE**

- A. The Contractor shall be liable for all damage caused by excessive loads and shall repair or restore damaged facilities at no additional cost to SLVWD.

**PART 2 - PRODUCTS** (Not Used)

**PART 3 - EXECUTION** (Not Used)

END OF SECTION 01540

**SECTION 01550**

**ACCESS, PARKING, AND TRAFFIC**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. This Section includes provisions for the Contractor's site access, parking and traffic controls.

**1.02 REFERENCES**

- A. The publications and standards referenced herein form a part of this Specification.
- B. When a date is given for reference standards, that edition shall be used. Where no date is given, the latest edition shall be used.

**1.03 SUBMITTALS**

- A. Submittals shall be made in accordance with Specifications Section 01300, Submittals, and the following special provisions provided herein.
- B. The Contractor shall submit a copy of haul route permit.

**1.04 ACCESS TO THE WORK SITE**

- A. Primary access to the site shall be via Redwood Drive. No cross-country access is allowed.
- B. The Contractor shall coordinate with the District Engineer to determine appropriate routing of vehicles and personnel to and from the Project.
- C. In case of need to enter the site after normal working hours, access shall be arranged in advance with the District Engineer.
- D. The Contractor shall confine its activities and operations within the work area described in the Specifications except as otherwise permitted by the District Engineer.
- E. Site access and material delivery traffic shall consider school bus routes and

pick-up /drop-off time of day to minimize impacts.

- F. All truck staging areas shall be on site and coordinated by the Contractor. No truck staging will be permitted on public streets.

#### **1.05 TRAFFIC CONTROL**

- A. The Contractor shall be responsible for the safe movement of vehicular traffic to and from the site, including traffic control measures required to ensure safe passage of vehicles and equipment and delivery of materials.
- B. Traffic control shall be in accordance with CCR Title 8.
  - 1. At least (1) flagman shall be provided at each intersection during periods when the Contractor's vehicular activity may conflict with other traffic along roads.
  - 2. The flagman shall ensure that the right-of-way is granted to loaded vehicles and shall provide for safety of all users of the road.
- C. Traffic control and signage shall be in accordance with Manual of Traffic Controls for Construction and Maintenance Work Zones.

#### **1.06 HAUL ROUTES**

- A. If a permit is required by local authorities for off-site hauling of materials or material deliveries, the Contractor shall prepare the truck-routing plan, obtain the permit, and submit a copy of the permit to the District Engineer before construction begins.
- B. The plan shall include provisions for cleaning debris and sediment from the truck route.
- C. Consideration shall be given to weight restrictions on all roads.
- D. The Contractor shall obtain approval of the local authority for construction signage along the haul route to notify the public of the potential for delays.
- E. The Contractor shall inform the District Engineer and local authorities when hauling operations are to begin and end.

#### **1.07 ACCESS ROADS**

- A. Throughout the entire Contract period, the Contractor shall share access roads, both those constructed by the Contractor or otherwise provided for Contractor's use, with SLVWD and other contractors whose work is adjacent to the Contractor's

Work.

1. Coordination with other contractors shall be the responsibility of the Contractor. In case of conflicts or disputes, the District Engineer's decision will be final.
2. The Contractor shall be responsible for the maintenance and upkeep of access roads.
3. The Contractor shall provide dust control on access roads used in the Contractor's operations and on those roads subject to dust because of conditions created by the Work.
  - a. Roads shall be sprayed by water truck at least daily or more frequently during actual haul operations.
  - b. Once per week, or more frequently if necessary, the Contractor shall provide a sweeper to maintain existing SLVWD roads.
4. If on-site paved access roads become damaged during the Work, the Contractor shall promptly repair them with equivalent surfacing.

#### **1.08 PUBLIC & PRIVATE ROADS**

- A. The Contractor shall be responsible for repairs to all damaged induced to public or private roads as a result of performing the Work and at no additional cost to SLVWD.
- B. Repairs to damaged public or private roads shall be performed in accordance with local jurisdictional public works standards.
- C. Prior to the start of Work, the Contractor shall document the conditions of all public and private roads to be used for site access. Documentation shall include videos and/or photos.

#### **1.09 PARKING**

- A. On-site parking areas for Contractor personnel shall be limited to the Contractor's storage and staging area.
  1. Parking areas required in excess of those areas shown shall be developed by the Contractor, off-site, at the Contractor's expense.
  2. The Contractor shall provide transportation for personnel from parking areas to the Work areas.

3. At the Contractor's option, the Contractor's personnel may park in the area designated for Contractor storage.

**PART 2 - PRODUCTS** (Not Used)

**PART 3 - EXECUTION** (Not Used)

END OF SECTION 01550

## **SECTION 01560**

### **TEMPORARY ENVIRONMENTAL CONTROLS**

#### **PART 1 - GENERAL**

##### **1.01 SUBMITTALS**

- A. Submittals shall be made in accordance with Specifications Section 01300, Submittals, and the following special provisions provided herein.

##### **1.02 EXPLOSIVES AND BLASTING**

- A. The use of explosives on the work will not be permitted.

##### **1.03 AIR QUALITY**

- A. General: The Contractor shall not create significant direct air quality impacts during the performance of the Work. The Contractor shall take corrective measures, as required by the District Engineer, to prevent significant air quality impacts during the work period.
- B. Dust Control: The Contractor shall furnish all labor, equipment, and means required and shall carry out effective measures wherever and as often as necessary to prevent its operation from producing dust in amounts damaging to property, cultivated vegetation, or domestic animals, or causing a nuisance to persons living in or occupying buildings in the vicinity. The Contractor shall be responsible for damage resulting from any dust originating from its operations. The Contractor shall provide adequate watering or other dust control measures to control dust on the work site. Dust control shall prevent fugitive dust from leaving the work area. Dust control or ground cover on graded areas left exposed for more than 90 days shall be provided by the Contractor. If necessary, the Contractor shall wash or sweep the adjacent access roads on the construction site to keep adjoining public roads clean.

##### **1.04 RUBBISH CONTROL**

- A. During the progress of the work, the Contractor shall keep the site of the work and other areas used by it in a neat and clean condition, and free from any accumulation of rubbish. The Contractor shall provide sufficient dumpsters and trash containers for collection of rubbish. The Contractor shall dispose of all rubbish and waste materials of any nature occurring at the work site, and shall establish regular intervals, at least weekly, for collection and disposal of such materials and waste. The Contractor shall also keep all roads free from dirt, rubbish, and unnecessary obstructions resulting from its operations. Disposal of all rubbish and surplus materials shall be off the site of construction in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with

all applicable safety laws, and to the particular requirements of Part 1926 of the OSHA Safety and Health Standards for Construction. The Contractor shall not dispose of rubbish or debris into storm drains or stream channels.

#### 1.05 SANITATION

- A. Toilet Facilities: Fixed or portable chemical toilets shall be provided wherever needed for the use of employees. Toilets at construction job sites shall conform to the requirements of Part 1926 of the OSHA Standards for Construction.
- B. Sanitary and Other Organic Wastes: The Contractor shall establish regular collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the Contractor or organic material wastes from any other source related to the Contractor's operations shall be disposed of away from the site in a manner satisfactory to the District Engineer and in accordance with all laws and regulations pertaining thereto.

#### 1.06 CHEMICALS

- A. All chemicals used during project construction or furnished for project operation, whether defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, reactant or of other classification, shall be stored in accordance with the manufacturer's instructions. The Contractor shall maintain copies of Material Safety Data Sheets for all chemicals used or furnished by the Contractor. Use of all such chemicals and disposal of residues shall be in strict accordance with the printed instructions of the manufacturer.
- B. All chemicals used during the project construction or furnished for project operation, whether defoliant, soil sterilant, herbicide, pesticide, fertilizer, disinfectants, polymers, reactants, fuel, oil, hydraulic fluid, detergent, paint, solvent, glue, or any other classification, shall be stored within a containment area that minimizes contact of the chemicals and the storage containers with precipitation and surface water flows due to precipitation or flows from adjacent areas. If precipitation or surface water flows contact the chemicals or the storage containers, the Contractor shall notify the District Engineer to determine if the surface water has been contaminated or may be allowed to be discharged to the storm drains or stream channels. If the surface water flows have become contaminated due to contact with the chemicals or the storage containers, the Contractor shall provide for removal and/or treatment of the surface water flows at no additional costs to SLVWD. If spills occur in the containment area, the Contractor shall immediately notify the District Engineer and shall contain and clean up the spill to prevent spilled material from entering storm drains, stream channels, or groundwater or from being absorbed by the underlying pavement or soil.
- C. All chemicals shall be stored, handled, and used in compliance with the

appropriate regulatory agency requirements.

#### **1.07 HAZARDOUS MATERIALS**

- A. The Contractor shall collect waste oil, used oil filters, other waste petroleum materials, and any other Contractor generated hazardous materials. Remove and legally dispose of all waste petroleum products and any other Contractor generated hazardous materials at suitable disposal facilities off of the job site at the Contractor's expense.
- B. On site temporary fuel storage facilities shall be constructed to comply with current regulations. Such facilities shall be diked to contain any fuel spills. Fuel tanks shall be properly grounded.
- C. The Contractor shall park construction vehicles in locations designated by the District Engineer.

#### **1.08 EROSION AND SEDIMENT CONTROL**

- A. The Contractor shall implement effective wind erosion control and provide effective soil cover for inactive areas and all finished slopes, open space, utility backfill, and completed areas. Inactive areas of construction are areas of construction activity that have been disturbed and are not scheduled to be re-disturbed for at least 14 days.
- B. The Contractor shall limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist. Where plastic materials are deemed necessary, the Contractor shall consider the use of plastic materials resistant to solar degradation.
- C. The Contractor shall establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from the site.
- D. The Contractor shall effectively manage all run-on, all runoff within the site and all runoff that discharges off the site. Run-on from offsite shall be directed away from all disturbed areas.

#### **1.09 CULTURAL RESOURCES**

- A. The Contractor's attention is directed to the National Historic Preservation Act of 1966 (16 U.S.C. 470) and 36 CFR 800 which provides for the preservation of potential historical architectural, archaeological, or cultural resources (hereinafter called "cultural resources").



- B. The Contractor shall conform to the applicable requirements of the National Historic Preservation Act of 1966 as it relates to the preservation of cultural resources.
- E. In the event potential cultural resources are discovered during subsurface excavations at the site of construction, the following procedures shall be instituted:
  - 1. The Construction Manager will issue a Stop Work Order directing the Contractor to cease all construction operations at the location of such potential cultural resources find.
  - 2. Such Stop Work Order shall be effective until such time as a qualified archaeologist can be called to assess the value of these potential cultural resources.

#### 1.10 TRAFFIC CONTROL

- A. Work Hours: Normal work hours shall be from 8:00 a.m. to 5:00 p.m.
- B. Truck Traffic: The Contractor shall schedule truck deliveries and hauling to and from the construction site prior to 2:30 p.m. on weekdays. Truck deliveries or hauling on weekends or holidays shall require prior approval by the District Engineer.

#### 1.11 PROGRESS CLEANING

- A. The Contractor shall maintain areas free of waste materials, debris, and rubbish. The site shall be maintained in a clean and orderly condition. Broom all concrete or other finished work areas at least once per month, prior to each progress payment request. Where material or debris has washed or flowed into or has been placed in existing watercourses, ditches, shoreline areas or elsewhere, remove such material or debris and legally dispose of it during the progress of the work.
- B. Remove debris and rubbish from channels, wet wells, clarifiers, pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

#### 1.12 SITE MAINTENANCE

- A. The Contractor is responsible for site maintenance in the Contractor's work area, laydown area, and in all areas impacted by the Contractor's work activities. Such site maintenance activities include but are not limited to dust control, rubbish control, fence repair, maintenance of construction access roads and parking lots,

and maintenance of erosion and sediment control facilities.

- B. The District Engineer may direct the Contractor to perform site maintenance activities in other areas of the project site. The cost of such site maintenance activities in areas other than those identified in Paragraph 1.11A will be reimbursed to the Contractor in accordance with the Contract Documents.

**PART 2 - PRODUCTS** (Not applicable)

**PART 3 - EXECUTION** (Not applicable)

END OF SECTION 01560

## **SECTION 01610**

### **DELIVERY, STORAGE, AND HANDLING**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. This Section includes the delivery, storage, and handling of materials. Additional provisions may be included in specific Specification sections for individual products or materials.
- B. Materials, articles, and equipment shall be delivered, stored, and handled in accordance with these Specifications and the printed recommendations of the manufacturer; using means and methods that will prevent damage, deterioration, and loss, including theft.

##### **1.02 SUBMITTALS**

- A. Submittals shall be made in accordance with Specifications Section 01300, Submittals, and the following special provisions provided herein.
- B. Test Reports and Certifications: Items requiring certification or mill test reports shall not be delivered or unloaded until 3 copies of the certification or mill test report have been submitted to the District Engineer.

##### **1.03 DELIVERY**

- A. Delivery shall be scheduled to minimize long-term storage at the site and to prevent overcrowding of construction spaces. Special emphasis shall be placed on ensuring minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, or other losses.
- B. Items shall be delivered to the site in the manufacturer's original sealed container or packaging system, complete with legible and intact labels and instructions for handling, protecting, storing, and unpacking. The label shall include the manufacturer's name, product name, manufacturing batch number (if appropriate), expiration date, ANSI hazard classification and ANSI handling precautions, if applicable.

##### **1.04 STORAGE**

- A. Items subject to damage by the elements shall be stored in a warehouse or within a weatherproof enclosure or wrap that has adequate ventilation to prevent

condensation.

- B. Materials and equipment that are to be included in the Contractor's estimate for partial payment shall be stored in a manner that will facilitate inspection and inventory. Items requiring periodic maintenance or inspection shall be stored in a manner that will facilitate these operations.
- C. If the District Engineer determines that satisfactory storage of an item is not being provided by the Contractor, the District Engineer may direct the Contractor to provide additional protection. If the Contractor fails to provide the additional protection, protection may be provided by the District Engineer. The cost for providing the protection may be charged to the Contractor or deducted from payment due the Contractor.
- D. Installed items shall have protection provided equivalent to that specified above, with additional regard for possible damage or loss due to continuing construction operations.

#### **1.05 HANDLING**

- A. The Contractor shall supply appropriate equipment and personnel to handle materials, articles, and equipment in a safe manner and in a manner that will not cause damage to the product, to the environment, to Work in progress, or to be completed Work.

#### **PART 2 - PRODUCTS (Not Used)**

#### **PART 3 - EXECUTION (Not Used)**

END OF SECTION 01610

**SECTION 01710**

**PROJECT CLOSEOUT**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. This Section defines the overall transfer process from construction by the Contractor to operations by SLVWD. The Section defines the terms in this process, and outlines the responsibilities of the Contractor and SLVWD.
- B. Project closeout is the process that commences as the Work nears Substantial Completion. It continues through Substantial Completion, and Final Acceptance of the Work.
- C. Project closeout described herein shall be performed for the Work.

**1.02 PROJECT CLOSEOUT SEQUENCE OF EVENTS**

- A. The sequence of events and their description listed below represent the order of activities as the Contract proceeds from construction, through testing, Substantial Completion, and the Notice of Completion. Not all Work will proceed in this exact order. Adjustments may be made, after approval by the District Engineer for the mutual benefit of the Contractor and SLVWD. Any adjustments made in the sequence of events, to accommodate the Contractor, shall be at no additional cost to the SLVWD.
- B. Closeout Sequence of Events and Description:
  - 1. Project Closeout Deliverables: The Contractor shall provide the following:
    - a. Final Record Statement of Work in Conformance with these Specifications.
    - b. Written guarantees and warranties, where required.
    - c. Operations and maintenance data.
    - d. Certificates of inspection and acceptance by local governing agencies having jurisdiction.
  - 2. Pre-Final Inspection and Discrepancy List: The District Engineer will conduct a pre-final inspection of the Work prior to substantial completion. The District Engineer will prepare a discrepancy list (punch list). The discrepancy list includes items of Work which does not conform to the

Contract Documents or Specifications, plus any additional items found to be missing, incomplete, damaged, incorrect, or constructed in an unworkmanlike manner. The Contractor shall correct all items on the discrepancy list.

3. Substantial Completion: Following correction of items on the discrepancy list, and successful completion of the operation demonstration, the Contractor shall notify the District Engineer in writing that the Work is substantially complete. Refer to the Contract Documents for other requirements for Substantial Completion.
4. Final Inspection: Following written notice from the Contractor that the entire Work is complete, the District Engineer, SLVWD, the Contractor, and the Design Consultant will conduct a final inspection to verify that the Work is complete. The District Engineer will prepare a final discrepancy list of all outstanding items.
5. Final Payment: After the Contractor has completed all final discrepancy list items, and completed all other requirements, the Contractor shall submit a final application for payment to the District Engineer. The final payment application will include all necessary documentation, in addition to waivers or releases of all liens filed in connection with the Work. The Contractor shall specifically release SLVWD from any claims not specifically renewed on the final application for payment. After acceptance by the District Engineer and SLVWD, SLVWD will make final payment to the Contractor after deducting all amounts to be retained under the provisions of the Contract Documents.
6. Notice Of Completion:
  - a. Upon the completion and acceptance of Work, and the Operational Interim Period, SLVWD will file a Notice of Completion with the County Recorder to begin the 30-day stop notice filing period.
7. Release Of Retention: Not more than 35 days after filing the Notice of Completion, SLVWD will release to the Contractor all retainage, less any deductions to cover pending third party claims against SLVWD.

### **1.03 SUBSTANTIAL COMPLETION**

- A. Substantial Completion includes compliance with the following requirements:
  1. The Contractor has substantially completed the construction of all Work in conformance with the Contract Documents and Specifications.
  2. The Contractor has installed, adjusted, and successfully tested products,

equipment, and systems.

3. The Contractor has provided and completed the following items as approved by the District Engineer.
  - a. Contract Closeout Deliverables.
  - b. Special Warranties.

#### **1.04 PRE-FINAL AND FINAL INSPECTIONS**

- A. Pre-final and final inspections are surveys of the Contractor's Work by the District Engineer, SLVWD, and the Design Consultant in order to create the list of incomplete or unsatisfactory items of Work.
- B. Prior to the pre-final and final inspections, the Contractor must complete the following:
  1. Clean equipment and fixtures by removing temporary labels, stains, dirt, and other foreign substances.
  2. Clean site; sweep paved areas, rake clean unpaved surfaces.
  3. Remove waste and surplus materials, rubbish, fencing, equipment, temporary utilities, and construction facilities from the site.
  4. Repair all areas damaged during the course of the Contractor performing the Work. Damaged areas shall be repaired to a condition equal to or better than Work was performed.
- C. The discrepancy lists will include all items of Work found to be unsatisfactory, missing, incomplete, damaged, incorrect, or improperly installed or constructed. Prior to Final Acceptance the Contractor shall correct the discrepancy list items by re-work, modification, or replacement, at the option of the District Engineer and at no additional cost to SLVWD. The District Engineer will re-inspect discrepancy list items upon written notice by the Contractor that discrepancy list items are complete.

#### **PART 2 - PRODUCTS (Not Used)**

#### **PART 3 - EXECUTION**

##### **3.01 CLEANUP**

- A. The Contractor shall promptly remove from the Work area and vicinity all rubbish,

unused materials, concrete forms, construction equipment, and temporary structures and facilities used during performance of the Work. Final acceptance of the Work by SLVWD will be withheld until the Contractor has satisfactorily complied with the forgoing requirements for final cleanup of the Project site.

END OF SECTION 01710



## **SECTION 01720**

### **RECORD DOCUMENTS**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. This Section includes requirements for the Contractor to provide record documents at the completion of Work.

##### **1.02 SUBMITTALS**

- A. Submittals shall be made in accordance with Specifications Section 01300, Submittals, and the following special provisions provided herein.

##### **1.03 REQUIREMENTS**

- A. Upon completion of the work on the booster station structure, a comprehensive narrative and photographic report ("Record Documents") shall be provided to the District that depicts all equipment, methods and procedures used in the satisfactory completion of this work. Before and after photographs shall be included along with in process photographic documentation. In-process photographs shall include photographs taken of each portion of the work on a daily basis, intended to demonstrate daily progress on each portion of the work.
- B. Comprehensive photographic and narrative reports shall also be provided to the District upon completion of the 11-month warranty inspection.
- C. Record documents shall be available to the District Engineer at all times. Final payment by SLVWD shall not be made until the marked up record documents are delivered to and approved by the District Engineer.

##### **1.04 MAINTENANCE OF DOCUMENTS**

- A. The Record Documents shall be updated by the Contractor with as-constructed record information. The District Engineer will review the accuracy and verify the on-going documentation at a minimum on a monthly basis and in conjunction with the Contractor's partial payment application. The progress and completeness of Record Documents shall be a pre-condition of the partial payment application approval.
- B. The following shall be maintained in the Contractor's field office in clean, dry, legible condition and shall be considered part of the Record Documents:

1. Specifications
  2. Addenda
  3. Approved Shop Drawings and Submittals
  4. Samples
  5. Photographs
  6. Change Orders
  7. Other Modifications of to the Contract
  8. Test records
  9. Survey data
  10. Field Orders
  11. All other documents pertinent to Contractor's Work
- C. Documents shall be available at all times for inspection by the District Engineer.
- D. Record documents shall not be used for any other purpose and shall not be removed from the Contractor's field office.
- E. The Contractor may submit additional sheets up to 24-inch x 36-inch detailing record Work as approved by the District Engineer.
- F. The Contractor shall not conceal any Work until the required Record Drawing information has been recorded by the Contractor. The District Engineer may direct the Contractor to expose concealed Work if Work was not recorded on the Record Drawings.

**PART 2 - PRODUCTS - (Not Used)**

**PART 3 - EXECUTION - (Not Used)**

END OF SECTION 01720

## **SECTION 01730**

### **OPERATIONS AND MAINTENANCE DATA AND MANUALS**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. This Section includes provisions for Contractor provided operations and maintenance data and manuals.

##### **1.02 SUBMITTALS**

- A. Submittals shall be made in accordance with Specifications Section 01300, Submittals, and the following special provisions provided herein.
- B. Technical Documents
  - 1. Two complete sets of Technical Documents shall be submitted in draft form to the District Engineer not later than the date of the Contractor's partial payment estimate that indicates the project is 75% or more complete.
  - 2. After the draft Technical Documents have been approved by the District Engineer, (10) complete sets of the Technical Documents shall be submitted in final form to the District Engineer not later than the 90% of construction completion point.
  - 3. Failure to submit the draft Technical Documents by the 75% construction completion point or failure to have the manuals complete in final form by the 90% completion point shall be sufficient justification for the District Engineer to find the Contractor has failed to comply with the intent of the Contract and to therefore reduce partial payment estimates in accordance with the Payment Schedule.

##### **1.03 FORMAT OF DOCUMENTS**

- A. The set of manuals to be provided shall be for the Project as a whole. Manuals shall be organized into volumes of manageable size that can be readily transported by hand.
- B. Form of Manuals
  - 1. Binding and Labeling

Binders for each manual shall be heavy-duty, 3-ring, loose-leaf and shall have dimensions necessary to accommodate contents and 8½-inch by 11-inch paper. The binder spine shall have a clear plastic sleeve to insert binder titles or other identifying information.

- b. When 2 or more binders are necessary, each binder shall be clearly identified with a volume number. Each binder shall be identified on the front and spine with the typed or printed title, "Operations and Maintenance Manual," together with the Project title or name.
  - c. Dividers with tabs shall be provided for each section. Each tab shall be marked with the section number and title.
  - d. Clear plastic pocket sheets shall be provided to receive small items or large folded drawings.
  - e. Software diskettes included with the manuals shall have protective transparent plastic jackets specifically designed to enclose and protect the diskettes.
2. Text Material: When written material is required as part of the manual, the manufacturer's standard printed material may be used, or typewritten text shall be printed on 8½-inch by 11-inch white bond paper.
3. Drawings: When practical, drawings required as part of the manual shall be bound with the text. Punched holes on drawings shall be reinforced to prevent tearing.
- a. When oversize drawings are necessary, the drawings shall be folded to 8½-inch by 11 inch and used as foldouts. Foldouts shall be inserted in the 3-ring binder together with text pages.
  - b. If a drawing is too large to be used as a foldout, the drawing shall be neatly folded and placed in a clear plastic pocket and collated as closely as possible with the related text. A reference indicating the drawing title, description of contents, and drawing location shall be inserted at the appropriate location in the text of the manual. A label indicating the drawing number and title shall be affixed to the plastic pocket.

#### **1.04 OPERATIONS AND MAINTENANCE MANUALS**

- A. Operations and Maintenance Manuals shall be provided for all operations apparatus and equipment furnished under this Contract. Operations and

maintenance manuals shall include the contents identified herein and the information required by the individual Specification sections.

- B. Manuals shall contain full information for each item of equipment including instructions for installation, start-up, operation, inspection and maintenance, lubrication schedules, parts lists, control or power circuitry, and other pertinent data as applicable. If literature covers more than one model, the Contractor shall neatly identify appropriate provisions.
- C. Manuals shall include:
  - 1. Title Page: A title page with the following information shall be provided as the first sheet of each manual or each volume of a multi-volume manual.
    - a. Project title and site name
    - b. Name and address of project site
    - c. Date of submittal
    - d. Name, address, and telephone number of the Contractor
    - e. Name, address, and telephone number of the manufacturer's representative
    - f. Cross-reference to related systems in other operations and maintenance manuals or sections within the same manual
  - 2. Table of Contents
    - a. After the title page, a table of contents shall be included for each volume.
    - b. Where more than one volume is required to accommodate the data for a particular system, a summarized table of contents for all volumes shall be provided in each volume of the set.
  - 3. General Information: A general information section shall be provided immediately following the table of contents, with a list, by product name, of each product included in the manual. Under each product, the name, address, and telephone number shall be listed for the subcontractor or installer.
  - 4. Contents of the Manual: In each manual, the following information shall be included for each major component of the equipment and controls.

- a. List of all coating products or systems furnished for project with names, addresses, contact persons and telephone numbers of manufacturer.
  - b. General coating system description
  - c. Coating system identification, including:
    - (1) Name of manufacturer
    - (2) Product identification numbers
    - (3) Serial number of each component
  - d. Operation instructions. These instructions shall include equipment manufacturer's recommended step-by-step procedures for maintenance of exterior coating.
  - e. Inspection and test procedures for interior and exterior coating systems.
  - f. Special tools, accessories, or instrumentation needed for proper inspection or servicing of the coatings.
  - g. Preventive maintenance procedures and schedules.
  - h. Repair instructions for damage to coatings.
5. Product Data: Where manufacturer's standard printed data is included in the manuals, only the sheets that are pertinent to the part or product installed shall be inserted. Each sheet shall be marked to identify the part or product included in the installation. Where more than one item is included in a tabular format, each item shall be identified using appropriate references from the contract documents. Data that is applicable to the installation shall be identified, and references to information that is not applicable shall be deleted or clearly marked out.
6. The text shall be organized in a consistent format under separate headings for different procedures. A logical sequence of instructions shall be provided for each operations and maintenance procedure.
7. Warranties and Service Contracts: When the Specifications require a separate warranty or service contract for a particular portion of the project, a copy of the warranty or service contract shall be included in the manual. The warranties coating system components shall be listed and terms and conditions described. Servicing and safety precautions prescribed by the manufacturer to keep warranties in force shall be described. Written

procedures to be followed in the event of product failure shall be provided. Circumstances and conditions that affect validity of the warranty or bond shall be included.

#### **1.05 INSTRUCTION OF SLVWD PERSONNEL**

- A. Instruction of SLVWD personnel shall be provided when required by specific Specification sections. Instruction shall include both classroom instruction and instruction at the site, as needed. Instruction shall cover all facets of maintenance, inspection, and repair of all coating systems provided as part of the Work.
- B. The location of the instruction shall be as defined in the specific Specification section.
- C. Instruction shall be scheduled at mutually agreed times. When the length of the instruction is specified as a certain number of days, the instructor shall be available to provide instruction and discuss the equipment with SLVWD personnel for a full 8 hours of each instruction day.
- D. Data available from the manufacturer shall be used for instruction. Handout copies shall be provided.

#### **PART 2 - PRODUCTS (Not Used)**

#### **PART 3 - EXECUTION (Not Used)**

END OF SECTION 01730

## **SECTION 01740**

### **GUARANTEE AND WARRANTY**

#### **PART 1 - GENERAL**

##### **1.01 SUMMARY**

- A. This Section includes provisions for Contractor's guarantee and warranty for Work performed.
- B. Additional provisions may be included in specific specification sections for individual products or materials.

##### **1.02 GUARANTEE AND WARRANTY REQUIREMENTS**

- A. The Contractor shall warrant and guarantee that the entire Work constructed under the Contract fully meets all requirements of the Contract, and material furnished by Contractor shall be new and of specified quality, shall be free from defects, shall conform to the Contract Documents and Specifications, and will be free from any security interest, lien or other encumbrances.
- B. The Contractor shall further warrant and guarantee that all Work, including materials, articles, and equipment furnished by the Contractor under the Contract, shall be free of deficiencies and defects for the guarantee period of 1 year, unless otherwise specified in specific Specification sections, after the date of the recording of the Notice of Completion, unless otherwise specified in the Contract. Any defective Work corrected during the warranty period shall be similarly warranted for 1 year following its corrections, or for such other period as specified in the Contract.
- C. The Contractor shall further warrant and guarantee to make or have made at Contractor's expense repairs, adjustments, replacements, or other corrective work necessary to restore or bring into full compliance with the requirements of the Specifications any part of the Work which during the guarantee period is found to be deficient with respect to any provision of the Specifications.
  - 1. If a defect or deficiency is of a kind which in the opinion of the District Engineer requires immediate correction to avoid injury to SLVWD or adversely impacts SLVWD's operations, SLVWD may make or have made such repairs, adjustments, replacements, or other corrective work and the Contractor agrees to promptly pay SLVWD invoice for the corrective work.
  - 2. If a defect or deficiency is of a kind which in the opinion of the District



Engineer does not require immediate correction but the Contractor has failed to undertake corrective work within 10 work days of receipt of written notice from SLVWD, SLVWD may make or have made such repairs, adjustments, replacements, or other corrective work without waiving any other rights or remedies it may have, at law or otherwise and the Contractor agrees to promptly pay SLVWD invoice for the corrective work.

3. SLVWD will have the right to use deficient material and equipment after installation until it can be taken out of service without expense to SLVWD.
- D. The guarantees and agreements set forth herein shall be secured by the "Faithful Performance Bond" furnished by the Contractor to SLVWD at the time of execution of the Contract, which bond shall be deemed to continue in effect during the period of guarantee.
- E. The express warranty set forth in the Specifications is exclusive and no other warranties of any kind, whether statutory, oral, written, express or implied, including any implied warranty of merchantability or fitness for a particular purpose, shall apply.
- F. When guarantee and warranty provisions are started in other sections of the Specifications, the more stringent provisions shall govern.
- G. This guarantee is not the exclusive remedy for SLVWD in the event of any breach of this Contract.

**PART 2 - PRODUCTS** (Not Used)

**PART 3 - EXECUTION** (Not Used)

END OF SECTION 01740

# **Technical Specifications**

**For**

## **Fall Creek Fish Ladder Improvement Project**

**Prepared for  
San Lorenzo Valley Water District**

**100% Submittal**

**September 9, 2022**

**FOR USE IN CONNECTION WITH  
STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION STANDARD  
SPECIFICATIONS, CURRENT EDITION**

The following sets forth a general description of the type of work for each bid item listed in the schedule but is not intended to be all inclusive. All work specifically shown, called for, or indicated in the Contract Documents shall be performed regardless of whether it is specifically listed under an item description.

# **Technical Specifications For Fall Creek Fish Ladder Improvement Project**

All of the Specifications, other than the ones indicated below, have been prepared by or under the direction of the following registered person(s): Matt Weld

Sections 015800, 312300, 400501, 432362 of these Specifications have been prepared by or under the direction of the following registered person(s): Rob Natoli

Sections 260500, 260526, 260533, 260543, 260574, 260620, 260800, 262419, 262726, 264850, 271000, 271006 of these Specifications have been prepared by or under the direction of the following registered person(s): John C. Calton

**Fall Creek Fish Ladder Improvement Plan  
Technical Specifications  
100% Submittal**

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Waterways Consulting, Inc.

01 50 00	Construction Facilities and Temporary Controls
01 56 26	Temporary Fence – Type ESA
01 57 13	Temporary Erosion Control & BMP's
01 57 13.01	Fiber Roll
01 57 13.02	Silt Fence
01 71 23.16	Construction Surveying
02 41 00	Demolition
03 30 00	Cast in Place Concrete
05 51 100	Miscellaneous Metal
31 11 00	Clearing and Grubbing
31 23 16	Stripping and Excavation
31 23 19	Dewatering
31 35 19.16	Slope Protection Fabric
32 92 19	Seeding
35 42 37	Rock Slope Protection

Water Systems Consulting, Inc.

01 58 00	Temporary Creek Intake System
26 05 00	Electrical Work General
26 05 26	Grounding
26 05 33	Electrical Raceway Systems
26 05 43	Underground Raceway Systems
26 05 74	Protective Device Studies
26 06 20	Wires and Cables
26 08 00	Electrical Testing
26 24 19	Utility Meter and MCC
26 27 26	Wiring Devices
26 48 50	Local Control Stations
27 10 00	Process Control and Instrumentation Systems
27 10 06	Level Measuring Systems
31 23 00	Trenching, Backfill, Compacting
40 05 01	Ductile Iron Pipe and Appurtenance
43 23 62	Submersible Vertical Turbine Pumps

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## **SECTION 015000 MOBILIZATION**

### **1. GENERAL**

#### **1.1 DESCRIPTION**

- A. The work covered by this Shall consist of compensation for bonds, insurance, required permits and fees, shop drawings, project phasing, supervision, traffic control, temporary chain link fencing, coordination of concurrent work with other contractors, meetings, pre-construction documentation of project area (photos and video), "as-built" plans or record drawings, cleanup of the work area, , movement of personnel, equipment, supplies, and incidentals to and from the project site; for the establishment of all other facilities necessary for work on the project; for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items of work on the project site; and work and improvements called for or implied by the Contract Documents, which are not included in the other bid items but are required to complete the Work.
- B. Demobilization shall consist of work and operations necessary to disband all mobilized items and cleanup the site. The removal of all temporary crossings, ramps, access ways, roads, signs, and fencing; dewatering facilities; and temporary facilities or works, and the restoration of surfaces to an equal or better than existing condition shall also be included as part of demobilization.

#### **1.2 RELATED SECTIONS**

- 1. Section 015626, Temporary Fence – Type ESA
- 2. Section 015713.02, Silt Fence

### **2. PRODUCTS**

#### **2.1 TEMPORARY CHAIN LINK FENCING**

- A. Unless otherwise indicated, type of temporary chain link fencing shall be Contractor's option. Following types are acceptable:
  - 1. New materials or previously used salvaged chain link fencing in good condition.
  - 2. Posts: Galvanized steel pipe of diameter to provide rigidity. Post shall be suitable for setting in concrete footings, driving into ground, anchoring with base plates, or inserting in precast concrete blocks.
  - 3. Fabric: Woven galvanized steel wire mesh. Provide in continuous lengths to be wire tied to fence posts or prefabricated into modular pipe-framed fence panels.

#### **2.2 GATES**

- A. Provide personnel and vehicle gates of the quantity and size required for functional access to site.
- B. Fabricate of same material as used for fencing.
- C. Vehicle gates: minimum width of 20 feet to allow access for emergency vehicles. Capable of manual operation by one person.

### **3. EXECUTION**

### **3.1 CONTRACTOR'S PLANT AND EQUIPMENT**

- A. Security. Contractor shall, at all times, be responsible for security of their plant and equipment. Owner shall not be responsible for missing or damaged equipment, tools, or personal belongings.
- B. Water & Power. Contractor shall provide all water and electrical power necessary for construction as specified.
- C. Communication Facilities. Contractor shall be responsible for providing sufficient communication facilities to construct the work.
- D. Storage Facilities.
  - 1. Provide storage facilities for the protection of materials and supplies from weather, and shall keep the facilities clean and in proper order at all times.
  - 2. Provide a storage area for lubricants, oils, and hazardous materials with sufficient means to contain spills. Facilities, handling, and any required cleanup will comply with all current local, state, and federal standards. Petroleum products stored on the site shall be secured from vandalism.
- E. Sanitary Facilities. Maintain adequate toilet facilities at or near the work site.
- F. Solid Waste Handling. Provide sufficient solid waste handling facilities to maintain site in a clean, orderly condition.

### **3.2 MOBILIZATION AND DEMOBILIZATION**

- A. General. Perform mobilization and demobilization activities in accordance with the Drawings, and as specified.

### **3.3 PROJECT SIGNS**

- A. General. Erect project, safety and hard hat signs at each work site within five (5) days after commencement of work at that site.

### **3.4 EXCAVATION**

- A. The Contractor, and any subcontractor, is required to notify U.S.A. forty-eight hours in advance of performing excavation work, by calling the toll free number (800) 642-2444.

### **3.5 PROTECTIVE BARRIERS**

- A. Protective barriers shall be erected around sensitive areas as designated on the Drawings or as directed by the Engineer. Barriers shall be constructed using bright orange plastic safety fencing (type ESA), per Section 015626, Temporary Fence – Type ESA.
- B. Temporary chain link fencing shall be maintained to isolate the work area from the roadway during construction, as shown on the Drawings.

### **3.6 BULLETIN BOARD**

- A. Provide a bulletin board at the project site, or in a location approved by the Engineer. The bulletin board shall be easily accessible at all times and shall contain wage rates, equal opportunity notice, and other items required to be posted.

### **3.7 CHAIN LINK FENCING**

- A. Chain link posts:

1. Space as 10 foot on center, maximum.
  2. Drive posts, set in holes and backfill, or anchor in precast concrete blocks.
  3. For soft and unstable ground conditions, cast concrete plug around post.
  4. Posts over pavement: Use steel post plates or precast concrete blocks.
  5. Gate posts: Use bracing or concrete footings to provide rigidity for accommodating size of gate.
- B. Fabric: Securely attach to posts.
- C. Gates: Install with required hardware.
- D. Maintain fencing in good condition. If damaged, immediately repair.
- E. Removal:
1. When Temporary Fence is no longer required, as determined by the Engineer, it shall be removed and disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Specifications, except when reused as provided in this section.
  2. Holes caused by the removal of Temporary Fence shall be backfilled in conformance with the provisions in Section 15-1.02, "Preservation of Property," of the State Specifications.

### **3.8 STAGING AREAS**

- A. General. Staging areas at the project site are provided for the Contractor's use. By making this area available to the Contractor, the Engineer, and any other person or agency connected with the properties shall in no way be responsible or liable for any activity of the Contractor, subcontractors, or any individual or organization connected with the project.
- B. Alternative Staging Areas. Alternative sites must be acceptable to Owner, and the Contractor must make all arrangements for their use at the Contractor's expense, and in accordance with all local, State and Federal regulations.
- C. Additional Storage Areas. Should the Contractor require space in addition to that available on-site, the Contractor shall make arrangements for storage of materials and equipment in locations off the construction site, and shall provide the Engineer a copy of the letter of authorization for storage from the Owner.
- D. Spoils. Permittee shall not place spoil where it could enter a stream or other sensitive habitat, such as riparian, or place over vegetation except as specifically noticed to and accepted by CDFW, in writing. Spoil shall be hauled offsite or stockpiled in an upland location where it shall be covered with plastic sheeting whenever it is evident that rainy conditions threaten to erode loose soils into sensitive habitats.

### **3.9 PARKING**

- A. General. Limited parking shall be available alongside the roadway in the vicinity of the work area. Parking shall be restricted to only those spaces identified by the District during the pre-bid walk.

### **3.10 DUST CONTROL**

- A. General. The Contractor shall be responsible for the control of dust within the limits of the project at all times. The Contractor shall take whatever steps are necessary to eliminate the nuisance of blowing dust. Responsibility for any damage to property, crops, or orchards from dust caused by the Contractor's operations shall be borne by the Contractor.



- B. Dust Control. Periodically, water or otherwise treat access roads, or graded areas as required to suppress dust. Cover or control water content of earthen materials being hauled, as required to control dust emissions. Cover or otherwise stabilize soil stockpiles to prevent erosion by wind.
- C. Cleanup. The Contractor shall keep all streets, roadways, and easements, as well as all ground adjacent to the project site, clean and free of dust, mud and debris resulting from the Contractor's operations. Daily cleanup throughout the project shall be required as the Contractor progresses with the work. Spillage of earth, gravel, concrete, asphalt, or other materials resulting from hauling operations along or across any public street or private driveway or access road shall be removed immediately by the Contractor.

### **3.11 HAZARDOUS MATERIALS CONTROL AND SPILL PREVENTION PLAN**

- A. General. Before starting work on the project, the Contractor shall submit for acceptance by the Engineer a Hazardous Materials Controls and Spill Prevention Plan. The Plan shall include provisions for preventing hazardous materials from contaminating soil or entering water courses and shall establish a Spill Prevention and Countermeasure Plan.
- B. Facilities. Provide staging and storage areas for equipment, as required to contain contaminants away from water courses. Provide a contained, locked storage facility for fuels, lubricants, construction chemicals and other hazardous materials and supplies stored at site.
- C. Concrete. Provide a lined pit for concrete washdown, located where spills or overflow cannot enter nearby watercourses or storm drains. The pit shall be located a minimum of 40 feet from any flowing watercourse, or as specified in the permit conditions.
- D. Equipment Maintenance. Clean and maintain equipment to prevent any leakage of fuel and lubricants. Establish a designated equipment refueling area. All fueling and maintenance of vehicles and other equipment and staging area shall occur at least 75 feet from any riparian habitat or water body.
- E. Spills Countermeasures. Isolate work areas during in-water construction activities by using oil containment booms. Maintain a supply of oil booms, sorbent pads and other supplies to contain and clean spills. Contain and cleanup any hazardous material spills immediately and notify Engineer.
- F. Equipment over Drip Pans. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream and riparian areas shall be positioned over drip-pans.
- G. Check Equipment for Leaks. Any equipment or vehicles driven and/or operated adjacent to the stream and riparian corridor shall be checked and maintained daily to prevent leaks of materials that if introduced to water could be deleterious to aquatic life, wildlife or riparian habitat. Vehicles shall be moved away from the stream prior to refueling and lubrication.

### **3.12 CONSTRUCTION SITE HOUSEKEEPING**

- A. Remove rubbish, trash, and debris from site on a regular basis. Transport and dispose of all rubbish and debris in accordance with all local regulations. Maintain staging area in an orderly manner. Regularly clean mud and debris, resulting from work at the site, from roadways. Cleanup and dispose of all concrete debris and washings when concrete work is complete.

### **3.13 PROTECTION OF EXISTING IMPROVEMENTS**

- A. Existing facilities, utilities, and property shall be protected from damage resulting from the Contractor's operations. Roadways and other improved surfaces shall be protected from damage by vehicles with tracks or lugs. Any damage resulting from the Contractor's operations shall be repaired by the Contractor to the condition which existed prior to the damage, and to the satisfaction of the Engineer, at no additional cost to the Owner.

#### **3.14 RESTORATION OF STRUCTURES AND SURFACES**

- A. Structures, Equipment, and Pipework. The Contractor shall remove such existing structures, equipment, and pipework as may be necessary for the performance of the work, and shall rebuild, or replace, the items thus removed in as good a condition as found. Contractor shall repair any existing structures that were damaged as a result of the Work.
- B. Roads and Streets. Roadways used by the Contractor for hauling materials, equipment, supplies, etc., shall be cleaned and repaired if the condition of the roadway is damaged, or otherwise affected, due to the Contractor's operations.
- C. Curbs, Gutters, Driveways, and Sidewalks. All curbs, gutters, driveways, sidewalks, and similar structures that are broken, or damaged, by the installation of the work shall be reconstructed by the Contractor. Reconstruction shall be of the same kind of materials with the same finish, and in not less than the same dimensions as to original work. Repairs shall be made by removing and replacing the entire portions between joints or scores, and not merely refinishing any damaged part. All restoration work shall match the appearance of the existing improvements, as nearly as possible.
- D. Cultivated Areas and Other Surface Improvements. All cultivated and natural areas, either agricultural or lawns, and other surface improvements which are damaged by actions of the Contractor, shall be restored, including roadside drainage ditches, as nearly as possible, to their original conditions.

#### **3.15 STORAGE OF MATERIALS AND EQUIPMENT**

- A. Materials and equipment shall be stored so as to ensure the preservation of their quality and fitness for the work. Stores of equipment and materials shall be located so as to facilitate inspection. The Contractor shall be responsible for all damages that occur in connection with the care and protection of all materials and equipment, supplied by the Contractor, until completion and final acceptance of the Work by the Owner.

#### **3.16 TRAFFIC CONTROL**

- A. General. The Contractor shall be responsible for public safety and traffic control at all times.
- B. The Contractor shall furnish, install, and maintain temporary construction warning signs, flaggers, barricades, and other devices necessary to safeguard the general public and the work, and to provide for the safe and proper routing of all vehicular and pedestrian traffic within and through the limits of the project during the performance of the work.
- C. Maintain Access. Contractor shall generally maintain access to existing driveways and State Park entrance at all times. Temporary road closures for materials or equipment delivery shall be limited to 20 minutes.
- D. All work shall comply with NRCS Specification "CS 009 – Traffic Control" and the 2010 Caltrans Manual on Uniform Traffic Control Devices, available on the internet at:
- E. [http://www.nrcs.usda.gov/Technical/ENG/construction\\_specs.html](http://www.nrcs.usda.gov/Technical/ENG/construction_specs.html)
- F. <http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/pdf/camutcd2010/Part6.pdf>

#### **4. MEASUREMENT AND PAYMENT**

##### **4.1 MEASUREMENT**

- A. Work under this section will be measured for payment on a lump sum basis.

##### **4.2 PAYMENT**

- A. The lump sum contract price for Mobilization will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for mobilization; demobilization; and temporary facilities and controls.
- B. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Mobilization & Demobilization	Lump Sum

**END OF SECTION**

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**TEMPORARY FENCE – TYPE ESA**

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## **SECTION 015626**

### **TEMPORARY FENCE – TYPE ESA**

#### **1. GENERAL**

##### **1.1 DESCRIPTION**

- A. Work under this section includes furnishing all labor, materials, equipment, and incidentals to install, maintain, and remove Temporary Fence – Type ESA , as shown on the Drawings, as specified, or as otherwise directed by the Engineer.

##### **1.2 RELATED SECTIONS**

- 1. Section 015000, Mobilization
- 2. Section 015713, Temporary Erosion Control and BMPs
- 3. Section 311100, Clearing and Grubbing
- 4. Section 312316, Stripping and Excavation

##### **1.3 REFERENCES**

- A. State of California, Department of Transportation (CALTRANS) State Standard Specifications, current edition

##### **1.4 SUBMITTALS**

- A. Submit to the Engineer, for review, the following:
  - 1. Manufacturer's data for proposed fencing fabric.
  - 2. Manufacturer's data or descriptive literature for proposed fence posts.

#### **2. PRODUCTS**

##### **2.1 MATERIALS**

- A. High Visibility Fabric. High visibility fabric shall be machine produced, orange colored mesh manufactured from polypropylene or polyethylene. High visibility fabric may be made of recycled materials. Materials shall not contain biodegradable filler materials that can degrade the physical or chemical characteristics of the finished fabric. High visibility fabric shall be fully stabilized ultraviolet resistant and a minimum of four feet in width with a maximum mesh opening of 2" x 2". High visibility fabric shall be furnished in one continuous width and shall not be spliced to conform to the specified width dimension.
- B. Posts. Posts for temporary fence (Type ESA) shall be of one of the following:
  - 1. Wood posts shall be fir or pine, shall have a minimum cross section of 2" x 2", and a minimum length of 5.25 feet. The end of the post to be embedded in the soil shall be pointed. Wood posts shall not be treated with wood preservative.
  - 2. Steel posts shall have a "U," "T," "L," or other cross sectional shape that resists failure from lateral loads. Steel posts shall have a minimum weight of 0.75 pounds per linear foot and a minimum length of 5.25 feet. One end of the steel post shall be pointed and the other end shall have a high visibility colored top.

- C. Fasteners. Fasteners for attaching high visibility fabric to the posts shall be as follows:
  - 1. The high visibility fabric shall be attached to wooden posts with commercial quality nails or staples, or as recommended by the manufacturer or supplier.
  - 2. Tie wire or locking plastic fasteners shall be used for attaching the high visibility fabric to steel posts. Maximum spacing of tie wire or fasteners shall be 24 inches along the length of the steel post.
- D. Used materials may be installed provided the used materials conform to these Specifications.

### **3. EXECUTION**

#### **3.1 INSTALLATION**

- A. All fence construction activities shall be conducted from the work side of the ESA as shown on the Drawings or as flagged in the field by the Engineer.
- B. Posts shall be embedded in the soil a minimum of 16 inches. Post spacing shall be eight feet maximum from center to center and shall at all times support the fence in a vertical position.
- C. Temporary fence (Type ESA) shall be constructed prior to clearing and grubbing work, shall enclose the foliage canopy (drip line) of protected plants, and shall not encroach upon visible roots of the plants.
- D. Temporary fence (Type ESA) shall be located so that it is clearly visible, as determined by the Engineer.

#### **3.2 MAINTENANCE**

- A. Temporary fence (Type ESA) that is damaged during the progress of the work shall be repaired or replaced by the Contractor the same day the damage occurs.

#### **3.3 REMOVAL**

- A. When Type ESA fence is no longer required, as determined by the Engineer, it shall be removed and disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Specifications, except when reused as provided in this section.
- B. Holes caused by the removal of temporary fence (Type ESA) shall be backfilled in conformance with the provisions in Section 15-1.02, "Preservation of Property," of the State Specifications.

### **4. MEASUREMENT AND PAYMENT**

#### **4.1 MEASUREMENT**

- A. Temporary Fence – Type ESA will not be separately measured for payment.

#### **4.2 PAYMENT**

- A. No separate payment will be made for Temporary Fence – Type ESA. Full compensation for all costs associated with this work shall be included in the contract price paid for Temporary Erosion Control and BMPs, in accordance with Section 015713.

**END OF SECTION**

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## **SECTION 015713**

### **TEMPORARY EROSION CONTROL AND BMP'S**

#### **1. GENERAL**

##### **1.1 DESCRIPTION**

- A. This work shall consist of temporary erosion control and water or air quality control measures, devices, and BMPs that may be shown on the Drawings, specified in the Contract Documents, Project Permit(s), Standard Specifications, these Technical Specifications, or as directed by the Engineer during the life of the contract. Temporary erosion control measures and other BMP's will also be required at staging/storage areas utilized during project construction. Said work is intended to provide prevention, control, and abatement of water and air pollution within the limits of the project and to minimize damage to the work, adjacent properties, streams or other bodies of water. Temporary fencing – type ESA, silt fence, fiber rolls, tree protection measures, construction entrance, concrete washouts, and other temporary BMPs are included herein. Diversion and dewatering are separately covered under Section 02140.
- B. Installation, maintenance, and removal of temporary erosion control measures, devices and BMPs shall conform to the requirements as shown on the Drawings stated within this section, and permit requirements.

##### **1.2 RELATED SECTIONS**

- 1. Section 015626, Temporary Fence – Type ESA
- 2. Section 015713.02, Silt Fence
- 3. Section 015713.01, Fiber Roll
- 4. Section 312319, Dewatering
- 5. Section 015000, Mobilization & Demobilization

#### **2. EXECUTION**

##### **2.1 GENERAL**

- A. The Contractor shall install temporary soil stabilization materials for water pollution control in all disturbed work areas that are considered inactive (i.e., excess of 14 days) or before forecast storm events. Should any temporary erosion control of this nature be required elsewhere as directed by the Engineer and/or regulatory agencies, the Contractor shall install them within 48 hours of notification. Where applicable and upon acceptance of the Engineer, the Contractor shall furnish and apply/install temporary mulch, temporary hydraulic mulch, temporary erosion control blankets, or temporary covers in conformance with the Standard Specifications and these Technical Specifications. Materials and construction methods shall comply with the Standard Specifications and these Technical Specifications.
- B. The Contractor shall maintain a temporary cover on all stockpiles at all times; and shall install and maintain appropriate BMPs (sediment logs, filter fence, check dams, etc.) around the perimeter at the base of stockpile to control the potential runoff of any loose sediments and pollutants. Whenever a temporary cover is removed to perform other work, the temporary cover shall be replaced and secured within one (1) hour of stopping work.



- C. No New Project Phase without Erosion Control. No phase of the project may be started if that phase and its associated erosion control measures cannot be completed prior to the onset of a storm event if that construction phase may cause the introduction of sediments into the stream. Erosion control measures shall be inspected frequently to minimize failure and conduct any necessary repairs. All non-structural related and non-biodegradable erosion control measures shall be removed from the project area upon cessation of construction activities.

## **2.2 MAINTENANCE**

- A. The Contractor shall maintain all temporary erosion control measures, devices, and/or BMPs placed in the work, for the duration of the project. Maintenance includes all Manufacture's recommendations, and includes but is not limited to the following:
1. Damage to any temporary erosion control devices and/or BMPs during the course of the project shall be repaired by the Contractor immediately upon discovery and at his expense.
  2. Temporary erosion control devices and/or BMPs shall be inspected routinely and immediately after each rainfall event and at least daily during prolonged rainfall events. Any required repairs shall be made immediately.
  3. Construction (ESA) and tree protection fencing shall be inspected daily and repaired, secured, and/or replaced as necessary to maintain and preserve its intended purpose.
  4. All signage as required for the project shall be routinely inspected and repaired or replaced upon discovery of damage, vandalism, and/or missing parts.
  5. Should the filter fence fabric decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly.
  6. Should a sediment log decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the sediment log shall be replaced promptly.
  7. Any single or group of gravel bag(s) shall be replaced when the bag material is ruptured or when the yarn has failed, allowing the bag contents to spill out.
  8. Any stakes and/or rope used to secure a sediment log in place shall be routinely inspected and repaired as necessary if found to be loose or ineffective.
  9. Damage to any temporary gravel bag berm (or other measures which require gravel bags per the Project Plans, Project Permits, or these Technical Specifications) shall be repaired or replaced on the same day when the damage occurs or is discovered.
  10. Sediment deposits and other debris shall be removed when they reach approximately one-half the height of the sediment barrier (or as recommended by the Manufacture) and disposed of in a manner acceptable to the Engineer.
  11. Temporary gravel bag berm (or other measures which require gravel bags per the Project Plans, Project Permits, or these Technical Specifications) shall be maintained to provide a sediment holding capacity of approximately one-third the height of the gravel bag berm above the ground. When sediment exceeds this height or when directed by the Engineer, sediment shall be removed and disposed of in a manner acceptable to the Engineer.
  12. Any sediment deposits remaining in place after the temporary erosion control measure and/or BMPs is no longer required shall be removed and disposed of in a manner acceptable to the Engineer.

### **2.3 DISCHARGE OF GROUNDWATER**

- A. Use of any 'filter bag' or other similar sediment control filter bag device used in coordination with pumping of sediment laden waters for discharge shall conform to Section 312319, Dewatering, and the conditions of the Project Permits.
- B. Cutting open the filter bag and leaving the captured sediment/fines in place is prohibited. Removal and off-site disposal may be facilitated by placing the filter bag on pallets, crates, trailer, or some other small mobile device to dismiss the need for lifting the device by straps.

### **2.4 DUST CONTROL**

- A. General. The Contractor shall be responsible for the control of dust within the limits of the project at all times. The Contractor shall take whatever steps are necessary to eliminate the nuisance of blowing dust. Responsibility for any damage to property, crops, or orchards from dust caused by the Contractor's operations shall be borne by the Contractor.
- B. Dust Control. Periodically, water or otherwise treat access roads and haul roads, as required to suppress dust. Cover or control water content of earthen materials being hauled, as required to control dust emissions. Cover or otherwise stabilize soil stockpiles to prevent erosion by wind.
- C. Cleanup. The Contractor shall keep all streets, roadways, and easements, as well as all ground adjacent to the project site, clean and free of dust, mud and debris resulting from the Contractor's operations. Daily cleanup throughout the project shall be required as the Contractor progresses with the work. Spillage of earth, gravel, concrete, asphalt, or other materials resulting from hauling operations along or across any public street or private driveway or access road shall be removed immediately by the Contractor.
- D. Ensure water from dust control does not runoff to stream channel.

### **2.5 HAZARDOUS MATERIALS CONTROL AND SPILL PREVENTION PLAN**

- A. General. Before starting work on the project, the Contractor shall submit for acceptance by the Engineer a Hazardous Materials Controls and Spill Prevention Plan. The Plan shall include provisions for preventing hazardous materials from contaminating soil or entering water courses and shall establish a Spill Prevention and Countermeasure Plan.
- B. Facilities. Provide staging and storage areas for equipment, as required to contain contaminants away from water courses. Provide a contained, locked storage facility for fuels, lubricants, construction chemicals and other hazardous materials and supplies stored at site. Provide a lined pit for concrete washdown, located where spills or overflow cannot enter nearby watercourses or storm drains. The pit shall be located a minimum of 40 feet from any flowing watercourse, unless more stringent requirements are provided in the permit conditions.
- C. Equipment Maintenance. Clean and maintain equipment to prevent any leakage of fuel and lubricants. Establish a designated equipment refueling area. All fueling and maintenance of vehicles and other equipment and staging area shall occur at least 75 feet from any riparian habitat or water body.

- D. Spills Countermeasures. Isolate work areas during in-water construction activities by using oil containment booms. Maintain a supply of oil booms, sorbent pads and other supplies to contain and clean spills. Contain and cleanup any hazardous material spills immediately and notify Engineer.
- E. Equipment over Drip Pans. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream and riparian areas shall be positioned over drip-pans.
- F. Check Equipment for Leaks. Any equipment or vehicles driven and/or operated adjacent to the stream and riparian corridor shall be checked and maintained daily to prevent leaks of materials that if introduced to water could be deleterious to aquatic life, wildlife or riparian habitat. Vehicles shall be moved away from the stream prior to refueling and lubrication.

## **2.6 CONSTRUCTION SITE HOUSEKEEPING**

- A. Remove rubbish, trash, and debris from site on a regular basis. Transport and dispose of all rubbish and debris in accordance with all local regulations. Maintain staging area in an orderly manner. Regularly clean mud and debris, resulting from work at the site, from roadways. Cleanup and dispose of all concrete debris and washings when concrete work is complete.

## **3. MEASUREMENT AND PAYMENT**

### **3.1 MEASUREMENT**

- A. Temporary Erosion Control and BMP's will be measured on lump sum basis.

### **3.2 PAYMENT**

- A. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Temporary Erosion Control and BMP's	Lump Sum

**END OF SECTION**

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**FIBER ROLL**

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## **SECTION 015713.01**

### **FIBER ROLL**

#### **1. GENERAL**

##### **1.1 DESCRIPTION**

- A. Work under this Section includes furnishing all labor, materials, equipment, and incidentals to install, maintain, remove and dispose of Fiber Roll, as shown on the Drawings, as specified herein, or as otherwise directed by the Engineer.
- B. Fiber Roll shall be furnished, installed, and maintained at the locations shown on the Drawings, as specified, or as otherwise directed by the Engineer. Fiber Roll shall be installed on excavation and embankment slopes and other disturbed soil areas, active or non-active.
- C. Related Sections
  - 1. Section 015000, Mobilization
  - 2. Section 015713, Temporary Erosion Control and BMP's
  - 3. Section 312316, Stripping and Excavation
  - 4. Section 313519.16, Slope Protection Fabric

##### **1.2 SUBMITTALS**

- A. Submit to the Engineer, for review, the following manufacturer's data and Certification's:
  - 1. A certificate stating the name of the Fiber Roll manufacturer, product name, style compositions of filaments or yarns and other pertinent information to fully describe the geotextile, along with the manufacturer's certification of compliance with the material specifications contained herein.

#### **2. PRODUCTS**

##### **2.1 MATERIALS**

- A. Straw Roll. Straw Roll shall be:
  - 1. A pre-manufactured roll made from 100% weed free rice straw and wrapped in a 100% biodegradable tubular 7 oz. Plain Burlap liner. The burlap is Medium Weight Natural Burlap with a 9 X 8 Warp & Fill, and a minimum weight of 7 oz. per square yard. Plastic netting will not be accepted as an alternate. 8-10-inch rolls shall have a minimum weight of approximately 1.1 pounds per foot. 10-12-inch rolls shall have a minimum weight of approximately 3.0 pounds per foot.
- B. Wood stakes must be untreated fir, redwood, cedar, or pine and cut from sound timber. The ends must be pointed for driving into the ground. Notched stakes must be at least 1 by 2 by 24 inches in size. Stakes without notches must be at least 1 by 1 by 24 inches
- C. Rope. Rope shall be biodegradable, such as sisal or manila, with a minimum diameter of 1/4 inch.

#### **3. EXECUTION**

### **3.1 INSTALLATION**

- A. Fiber Roll shall be installed as follows:
- B. Type 1: Furrows shall be constructed to a depth between three inches and four inches, and to a sufficient width to hold the Fiber Roll. Soil excavated from the trench shall be placed on the uphill or flow side of the roll to prevent water from undercutting the roll. Stakes shall be driven through the center of the roll (perpendicular to the finished grade) at 36 inches apart along the length of the Fiber Roll and stopped at 12 inches from each end of the rolls. Stakes shall be driven to between two and three inches above the top of the roll.
- C. Type 2: Rope and notched stakes shall be used to restrain the Fiber Rolls against the slope. Stakes shall be driven into the slope until the notch is even with the top of the Fiber Roll. Rope shall be knotted at each stake and laced between stakes. After installation of the rope, stakes shall be driven into the slope such that the rope will hold the Fiber Roll tightly to the slope. Furrows will not be required.
- D. If soil conditions do not allow driving stakes into the soil, drill pilot holes to facilitate driving of the stakes.
- E. Fiber Roll shall be placed 10 feet apart along the slope for slope inclination (horizontal:vertical) of 2:1 and steeper, 15 feet apart along the slope for slope inclination between 2:1 and 4:1, 20 feet apart along the slope for slope inclination between 4:1.
- F. The bedding area for the Fiber Roll shall be cleared of obstructions including rocks, clods, and debris greater than one inch in diameter before installation.
- G. Fiber Roll shall be installed approximately parallel to the slope contour and the terminus of rows shall be angled up-slope at 45 degrees for a distance of three feet. Where fiber rolls meet, provide an overlap of two feet, with adjacent rolls tightly abutting each other.
- H. Fiber Roll shall be installed prior to seeding where used without slope protection fabric.
- I. Fiber roll shall be installed over fabric (after seeding) where slope protection fabric is specified.

### **3.2 MAINTENANCE**

- A. The Contractor shall inspect all Fiber Roll immediately after each rainfall, and at least daily during prolonged rainfall. Any deficiencies shall be immediately corrected by the Contractor.
- B. The Contractor shall also make a daily review of the location of Fiber Roll in areas where construction activities have altered the natural contour and drainage runoff to ensure that the Fiber Rolls are properly located for effectiveness. Where deficiencies exist as determined by the Engineer, additional Fiber Rolls shall be installed as directed by the Engineer.
- C. Damaged or otherwise ineffective Fiber Roll shall be repaired or replaced promptly. Fiber Roll shall be maintained to disperse concentrated water runoff and to reduce runoff velocities. Split, torn, or unraveling rolls shall be repaired or replaced. Broken or split stakes shall be replaced. Sagging or slumping Fiber Roll shall be repaired with additional stakes or replaced. Locations where rills and other evidence of concentrated runoff have occurred beneath the rolls shall be corrected. Fiber Roll shall be repaired or

replaced within 24 hours of identifying the deficiency.

### **3.3 REMOVAL**

- A. Fiber Rolls shown on the Drawings shall remain in place after project completion, unless otherwise specified, and be allowed to naturally degrade.

## **4. MEASUREMENT AND PAYMENT**

### **4.1 MEASUREMENT**

- A. Work under this section will not be separately measured for payment.

### **4.2 PAYMENT**

- A. No separate payment will be made for Fiber Roll. Full compensation for all costs associated with this work shall be included in the contract price paid for Temporary Erosion Control and BMPs, in accordance with Section 015713.
- B. Where Fiber Rolls are used over Slope Protection Fabric as a permanent installation, this work shall be included in the contract price paid for Slope Protection Fabric, in accordance with Section 313519.16.

**END OF SECTION**

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## **SECTION 015713.02**

### **SILT FENCE**

#### **1. GENERAL**

##### **1.1 DESCRIPTION**

- A. Work under this Section includes furnishing all labor, materials, equipment, and incidentals to install, maintain, and remove silt fence, as shown on the Drawings, as specified or as directed by the Engineer, or as otherwise necessary to comply with water quality requirements.
- B. This Specification is applicable to the use of a geotextile as a vertical, permeable interceptor designed to remove suspended soil from overland water flow. The function of a temporary silt fence is to filter and allow settlement of soil particles from sediment-laden water. The purpose is to prevent the eroded soil from being transported off the construction site by water runoff.

##### **1.2 RELATED SECTIONS**

- 1. Section 312319, Dewatering
- 2. Section 015000, Mobilization
- 3. Section 312316, Stripping and Excavation
- 4. Section 015713, Temporary Erosion Control and BMP's

##### **1.3 REFERENCES**

- A. American Society for Testing and Materials (ASTM):
  - 1. D 4355 - Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus).
  - 2. D 4491 - Test Methods for Water Permeability of Geotextiles by Permittivity.
  - 3. D 4632 - Test Method for Grab Breaking Load and Elongation of Geotextiles.
  - 4. D 4751 - Test Method for Determining Apparent Opening Size of a Geotextile.
  - 5. D 4833 - Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.
  - 6. D 4873 - Guide for Identification, Storage, and Handling of Geotextiles.

##### **1.4 SUBMITTALS**

- A. Submit to the Engineer for review, the following:
- B. Manufacturer's Data and Certification:
  - 1. The Contractor shall provide the Engineer a certificate stating the name of the silt fence manufacturer, product name, style, chemical compositions of filaments or yarns and other pertinent information to fully describe the silt fence fabric.
  - 2. The Manufacturer is responsible for establishing and maintaining a quality control program to assure compliance with the requirements of the Specification. Documentation describing the quality control program shall be made available upon request.
  - 3. Manufacturing Quality Control (MQC) test results shall be provided upon request.

##### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Silt fence fabric labeling, shipment and storage shall follow ASTM D 4873.

- B. Product labels shall clearly show the manufacturer or supplier name, style name, and roll number.
- C. Each shipping document shall include a notation certifying that the material is in accordance with the manufacturer's certificate.
- D. Each silt fence roll shall be wrapped with a material that will protect the silt fence from damage due to shipment, water, sunlight, and contaminants.
- E. The protective wrapping shall be maintained during periods of shipment and storage. If the wrapping is damaged prior to installation, the outer wrap of silt fence material must be discarded before installation.
- F. During storage, silt fence rolls shall be elevated off the ground and adequately covered to protect them from the following: Site construction damage, extended exposure to ultraviolet (UV) radiation, precipitation, chemicals that are strong acids or strong bases, flames, sparks, temperatures in excess of 71 deg C (160 deg F) and any other environmental condition that might damage the silt fence .

## 2. PRODUCTS

### 2.1 MATERIALS

- A. At the Contractor's option, temporary silt fence shall be prefabricated or constructed with silt fence fabric, posts, and fasteners.
- B. Silt Fence Fabric. Silt fence fabric shall be geotextile manufactured from woven polypropylene or polymer material. Silt fence fabric may be virgin, recycled, or a combination of virgin and recycled polymer materials. No virgin or recycled polymer materials shall contain biodegradable filler materials that can degrade the physical or chemical characteristics of the finished fabric. Silt fence fabric shall conform to the following requirements:

Specification	Requirements
Width, inches, min.	36
Grab tensile strength, KN (25 mm grip in each direction) ASTM Designation: D 4632*	0.45, min.
Elongation, percent minimum in each direction ASTM Designation: D 4632*	20, min.
Permittivity, 1/sec., min. ASTM Designation: D 4491	0.1-0.15
Ultraviolet stability, percent tensile strength retained after 500 hours, min. ASTM Designation: D 4355 (xenon-arc lamp and water spray weathering method)	90, min.
* or appropriate test method for specific polymer	

- C. Posts. Posts for temporary silt fence shall be one of the following:
  1. Untreated fir or pine, a minimum of 2" x 2" in size, and four feet in length. One end of the post shall be pointed.
  2. Steel and have a "U," "T," "L," or other cross sectional shape that can resist failure from lateral loads. The steel posts shall have a minimum weight of 0.8-pound per foot and a minimum length of 4 feet. One end of the steel posts shall be pointed and the other end shall be capped with an orange or red plastic safety cap which fits snugly to the steel post. The Contractor shall submit to the Engineer for approval a sample of the capped steel post prior to installation.

- D. Fasteners. Fasteners for attaching silt fence fabric to posts shall be as follows:
1. When prefabricated silt fence is used, posts shall be inserted into sewn pockets.
  2. Silt fence fabric shall be attached to wooden posts with nails or staples as shown on the Drawings or as recommended by the manufacturer or supplier. Tie wire or locking plastic fasteners shall be used to fasten the silt fence fabric to steel posts. Maximum spacing of fasteners shall be eight inches along the length of the steel post.

### **3. EXECUTION**

#### **3.1 FIELD ASSEMBLY:**

- A. The silt fence fabric shall be installed on the side of the posts facing the slope.
- B. The silt fence fabric at the bottom of the fence shall be buried in a "J" configuration to a minimum depth of 150 mm (six inches) in a trench so that no flow can pass under the silt fence. Mechanically pushing 12 inches of the silt fence fabric vertically through the soil may be allowed if the Contractor can demonstrate to the Engineer that the silt fence fabric will not be damaged and will not slip out of the soil resulting in sediment passing under the silt fence fabric.
- C. The trench shall be backfilled and the soil compacted over the upslope side of the silt fence fabric.
- D. When joints are necessary, filter fence fabric shall be spliced together only at a support post, with a minimum twelve (12) inches overlap and securely sealed or stitched.
- E. The Contractor must demonstrate to the satisfaction of the Engineer that the silt fence fabric can withstand a sediment load of 1/3 the height of the fence.
- F. The posts shall be placed at the spacing as shown on the Drawings. Post should be driven or placed a minimum of 450 mm (18 inches) into the ground. Depth shall be increased to 600 mm (24 inches) if fence is placed on a slope of 3:1 or greater. Where 450 mm (18 inches) depth is impossible to attain, the posts should be adequately secured to prevent overturning of the fence due to sediment loading.
- G. Support fence, if required, shall be fastened securely to the upslope side of the fence post. The support fence shall extend from the ground surface to the top of the silt fence fabric.
- H. When self-supported fence is used, the silt fence fabric shall be securely fastened to fence posts.
- I. Temporary silt fence shall be installed parallel with the slope contour in reaches not to exceed 500 feet. A reach is considered a continuous run of temporary silt fence from end to end or from an end to an opening, including joined panels. Each reach shall be constructed so that the elevation at the base of the fence does not deviate from the contour more than 1/3 of the fence height. The fence shall be placed such that water cannot runoff around the end of the fence; this may be accomplished by constructing end-returns that angle up the slope.
- J. The silt fence should be limited to handle an area equivalent to 90 square meters (100 sy) per three meters (ten feet) of fence. Caution should be used where the site slope is greater than 1:1 and water flow rates exceed three liters (0.8 gallons) per second per three meters (ten feet) of fence.

#### **3.2 INSPECTION**

- A. The Contractor shall inspect all temporary silt fences immediately after each rainfall, and at

least daily during prolonged rainfall. Any deficiencies shall be immediately corrected by the Contractor.

- B. The Contractor shall also make a daily review of the location of silt fences in areas where construction activities have altered the natural contour and drainage runoff to ensure that the silt fences are properly located for effectiveness. Where deficiencies exist as determined by the Engineer, additional silt fence shall be installed as directed by the Engineer. Damaged or otherwise ineffective silt fences shall be repaired or replaced promptly.
- C. Should the filter fence fabric decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly.
- D. Sediment deposits shall either be removed when the deposit reaches one third the height of the fence, or a second silt fence shall be installed as directed by the Engineer.

### **3.3 REMOVAL**

- A. The silt fence shall remain in place for the complete duration of the project as necessary to conform to the Project Permit(s) and SWPPP, or until the Engineer directs it be removed. Upon removal, the Contractor shall remove and dispose of any excess sediment accumulations, use hand tools to grade disturbed areas to drain in the pre-disturbance direction, and revegetate all bare areas in accordance with contract requirements. Trimming the silt fence fabric and leaving it in place will not be allowed.
- B. Removed silt fence may be used at other locations provided the silt fence fabric and other material requirements continue to be met to the satisfaction of the Engineer.
- C. Ground disturbance caused by the installation and removal of the temporary silt fence shall be backfilled and repaired in conformance with the provisions in Section 15-1.02, "Preservation of Property," of the Standard Specifications.

## **4. MEASUREMENT AND PAYMENT**

### **4.1 MEASUREMENT**

- A. Work under this section will not be separately measured for payment.

### **4.2 PAYMENT**

- A. No separate payment will be made for Silt Fence. Full compensation for all costs associated with this work shall be included in the contract price paid for Temporary Erosion Control and BMPs, in accordance with Section 015713.

**END OF SECTION**

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## **SECTION 01 58 00**

### **TEMPORARY CREEK INTAKE SYSTEM**

#### **1. GENERAL**

##### **1.1 SUMMARY**

- A. This specification covers includes:
  - 1. Temporary creek intake system requirements.

##### **1.2 SUBMITTALS**

- A. Temporary Creek Intake and Pumping Plan.
  - 1. Submit a prepared by a licensed California Professional Engineer to the Owner for review a minimum of 30 days prior to any planned temporary intake system operations.
  - 2. The Owner's approval of the plan shall be obtained a minimum of 7 days prior to use of the temporary intake system. The plan shall consist of the following information, at a minimum:
    - a. Sequence of shutdowns, isolation of existing system, and tie-ins.
    - b. Drawings indicating the location of temporary facilities, including intake screens, pumps, piping, flow metering and power. Drawings shall clearly indicate the connection point to the existing piping.
    - c. Capacities of pumps, intake screens and associated equipment.
    - d. Design calculations proving adequacy of the system and selected equipment.
    - e. Pump make, model, pump curve, design head (TDH) calculations, horsepower requirement, and noise rating.
    - f. Pipe materials
    - g. Detailed sequencing and coordination of temporary intake system with creek dewatering plan and cofferdams.
    - h. Electrical, controls, and instrumentation.

##### **1.3 JOB CONDITIONS**

- A. Temporary creek intake system is required to maintain water supply from Fall Creek.
- B. Constraints:
  - 1. The system shall be installed in coordination with the diversion and fish removal, in accordance with the approved Dewatering Plan Submittal, in a manner that reduces the total intake shut down time to a maximum of 8 hours.
  - 2. The system shall be installed and operational prior to any demolition work on the existing screens, pumping and piping occurs.
  - 3. The system shall remain operational until the new creek intake system, including the new pumps, screens, as associated piping and controls are online and have been accepted following functional testing.
- C. Schedule the order of work to minimize the length of time that the temporary creek intake system is in operation.

- D. The Contractor shall be provided two 6-hour duration shutdowns to:
  - 1. Establish temporary intake system mechanical and controls connections.
  - 2. Remove temporary intake system mechanical and controls connections.
- E. All shutdowns shall be approved by and coordinated with Owner in 7 calendar days in advance of shutdown.
- F. Contractor shall be responsible for maintaining and operating the temporary creek intake system that is fully operational for the extent required by the contractors work schedule.
- G. Temporary Creek Intake flow shall be discharged into the existing 8-inch ductile iron piping with a temporary wye connection and temporary isolation valves.
- H. Owner to provide temporary power for the Temporary Creek Intake system.

## **2. PRODUCTS**

### **2.1 DESIGN REQUIREMENTS**

- A. Required System Components:
  - 1. Intake Screen protection from creek debris. Intake screens to be located in Fall Creek upstream of the cofferdam.
  - 2. A minimum of one inch of water depth must be maintained above the intake screen at all times. Design and construction of the temporary diversion dam should take this requirement into consideration.
  - 3. Intake Screen (1 of the 2 existing screens may be used, or a screen equal may be provided). If an alternative screen is proposed, it must be compliant with current NOAA diversion screening criteria for the proposed use and must be approved by the Engineer.
  - 4. Two raw water intake pumps to operate in a duty/standby arrangement.
  - 5. Discharge piping and associated valving, supports, and restraints as required.
  - 6. Control system to operate system with ON/OFF control based on the existing AT&T signal controlling from the water treatment plant. AT&T Phone line and Tesco control panel may be relocated and maintained for control of temporary pumping system.
  - 7. All system components in contact with pumped water or the water of Fall Creek shall be NSF 61 certified.
- B. System Description:
  - 1. Design Condition for temporary Flow: 420 gallons per minute at 66 feet of total dynamic head plus the headloss in the temporary creek intake system. The static lift and other system dynamic losses are included in the 66-feet of total dynamic head.

### **2.2 PUMPING EQUIPMENT**

- A. Pumping equipment shall be suitable for handling raw water from Fall Creek.
- B. Engines shall be muffled in such a manner that the maximum noise level will not exceed 5 dBA above the background noise level at the nearest receptor. Implement sound damping measures.



## **2.3 TEMPORARY INTAKE PIPING**

- A. Temporary Intake piping shall be ductile iron, steel, PVC, or solid wall HDPE.
  - 1. Design intake piping to be reliable and minimize number of joints.
  - 2. Velocities in temporary intake piping and fittings shall not exceed the manufacturer's recommended velocity.

## **3. EXECUTION**

### **3.1 TEMPORARY INTAKE SYSTEM**

- A. Temporary Intake System Work Sequence:
  - 1. Obtain Engineer's approval of temporary creek diversion installation and fish relocation.
  - 2. Isolate one of the existing intake pumps remove the associated intake screen and install a temporary blind flange where the screen was installed.
  - 3. Install temporary creek intake system while remaining existing pump and screen are in operation.
  - 4. Install controls, electrical and mechanical connections.
  - 5. Test and gain approval to transition operations to the temporary intake system from Owner.
  - 6. Continue with replacement of screens, pumps and in channel work with the temporary intake system in operation.
  - 7. Test one of the new pumps using the single existing intake screen. After the pump with the existing screen is accepted, the screen being used for the temporary intake system can be relocated to the other pump for testing and commissioning of the other pump.
- B. Provide temporary pumps, piping, controls, fittings, valves and other equipment as required for a fully operational temporary bypass system. Furnish the necessary labor, tool, equipment, and supervision to set up, operate, and monitor the temporary intake system. Pumps and pipes shall be of adequate capacity and size to handle projected flows.
- C. Notify Owner, at least seven (7) working days prior to start of temporary intake system.
- D. Complete temporary intake system checklist prior to operation. The checklist will demonstrate the step-by-step inspection of the pumps, pipes, restraints connections and other equipment or appurtenances that will be used in the operation and sign the checklist.
- E. Damages
  - 1. Without cost to the Owner, repair any damage that may result from the installation, operation, maintenance, and removal of the temporary intake system. This includes but is not limited to damages resulting from inadequate or improper installation, operation and maintenance of the system, mechanical failures, or electrical failures.
  - 2. If Owner staff is called on to assist, the Contractor shall pay for all costs incurred by the Owner in assisting the Contractor.

### 3.2 APPLICATION

- A. The Contractor shall be responsible for all temporary intake system operations and for the design of system.

### 3.3 CLEANING

- A. Keep premises free from accumulations of waste materials, rubbish, and other debris resulting from the work.
- B. Remove waste materials, rubbish, and debris from and about premises.
- C. Remove tools, construction equipment and machinery, and surplus materials.
- D. Restore to original condition portions of site not designated for alterations by Contract Documents.

## 4. MEASUREMENT AND PAYMENT

### 4.1 MEASUREMENT

- A. Work under this section will be measured for payment on a lump sum basis.

### 4.2 PAYMENT

- A. The lump sum contract price for Temporary Creek Intake System will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for performing work within this Section.
- B. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Temporary Creek Intake System	Lump Sum

END OF SECTION

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## **SECTION 017123.16**

### **CONSTRUCTION SURVEYING**

#### **1. GENERAL**

##### **1.1 DESCRIPTION**

- A. The work required under this Section shall include, but is not limited to, all labor, tools, materials, equipment and incidentals required to perform construction surveying necessary to establish the lines and grades of the proposed work, as shown on the Drawings, as specified, or as directed by the Engineer.

##### **1.2 WORK INCLUDED**

- A. The Contractor shall preserve and protect all project survey control and reference points shown on the Drawings and located outside the limits of disturbance. Monuments disturbed by the Contractor shall be reestablished by the Contractor at their sole expense.
- B. The Contractor shall be solely responsible for the protection and maintenance of all existing and Contractor-established survey marks and monuments.

##### **1.3 REFERENCES**

- A. Section Not Used

##### **1.4 QUALITY ASSURANCE**

- A. All Work shall be performed to the satisfaction of the Engineer.
- B. The Engineer may, at his sole discretion, perform his own surveys for: verification of project control points, verification of lines and grades, and inspection of survey monument preservation.
- C. Contractor shall provide unrestricted access for the Engineer to spot-check the work. This does not relieve the Contractor of their responsibility to perform independent surveying, as need to complete the work.
- D. In the event that the construction staking reveals a design inconsistency or error, Contractor shall notify the Engineer immediately and shall not proceed with the work until directed by the Engineer.

#### **2. PRODUCTS (Not Used)**

#### **3. EXECUTION**

- A. The Engineer will establish a minimum of three survey control monuments, as shown on the Drawings. The Contractor will be provided with the northing, easting and elevation of the control points existing in the field as shown on the Drawings. In addition the Engineer of Record will also provide the Contractor with the final linework file developed in AutoCAD Civil 3D. The Contractor will be required to access AutoCAD in order to use the electronic files. Civil

3D information does not transfer to base AutoCAD or older versions of AutoCAD and therefore will not be available to Land Surveyors who do not have this program.

- B. From this information, the Contractor shall establish the baseline control points and reference points for horizontal and vertical control and make all additional detailed surveys and measurements and establish markings or monuments necessary for the construction of the work as dimensioned on the Drawings.
- C. At a minimum, construction staking shall include the following:
  - 1. Proposed weir alignments and grades;
  - 2. Proposed grades for earthwork;
  - 3. Proposed Rock Slope Protection Limits, and
  - 4. Any other items required for a full, complete and accurately built project.
- D. All stakes and survey markers will be conspicuously marked with flagging tape or paint by the Contractor. The Contractor shall be responsible for protecting and maintaining all stakes from destruction.

#### **4. MEASUREMENT AND PAYMENT**

##### **4.1 MEASUREMENT**

- A. Construction Surveying shall not be independently measured for payment.

##### **4.2 PAYMENT**

- A. No separate payment will be made for the work covered under this section. Full compensation for all costs in connection with Construction Surveying shall be included in the contract price for related work.
- B. The cost of resetting and verifying control points disturbed by the Contractor will be borne by the Contractor. The cost of any such verification or replacement of bench marks and/or control survey points will be deducted from any monies due to the Contractor. The Contractor will not be allowed any adjustment in working days for such verification or replacement of survey control points.

**END OF SECTION**

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**DEMOLITION**

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## **SECTION 024100**

### **DEMOLITION AND REUSE OF MATERIALS**

#### **1. GENERAL**

##### **1.1 DESCRIPTION**

- A. Perform all demolition and disposal work as shown on the Drawings, as specified herein, or as otherwise directed by the Engineer.
- B. Related Sections:
  - 1. Section 015000, Mobilization
  - 2. Section 311100, Clearing and Grubbing
  - 3. Section 312316, Stripping and Excavation

#### **2. PRODUCTS - Not Used**

#### **3. EXECUTION**

##### **3.1 GENERAL**

- A. Before beginning any work, carefully inspect the work and examine the Drawings and Specifications to determine the extent of the work to be performed. In the company of the Engineer, visit the site and verify the extent of the demolition and other work to be performed.
- B. Contact all appropriate utilities and agencies to coordinate and verify all abandonments and relocations.
- C. Provide a minimum of 48 hours of notice to any residences affected by a planned utility disruption.
- D. Use of explosives will not be permitted.
- E. Prevent dust from becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.
- F. Comply with all local regulations regarding dust generation, hauling and disposal.
- G. Materials projecting above-ground shall be cut off at a minimum of one foot below finished grade, unless otherwise specified. Backfill and compact all holes caused by removal of materials. Areas of site not detailed on the Drawings shall be filled and graded to drain, generally matching existing conditions.
- H. Rock removed from the site may be re-used if it meets the materials specifications of the work item for which it is proposed.

##### **3.2 PROTECTION OF EXISTING WORK**



- A. Take all necessary precautions to ensure against damage to existing work to remain in place, or to be salvaged. Any damage to such work shall be repaired or replaced as directed by the Engineer.
- B. Construct and maintain shoring, bracing, and supports, as required. Ensure that structural elements are not overloaded and increase structural supports, or add new supports, as may be required as a result of any cutting, removal, or demolition work performed.
- C. Existing signs and mailboxes shall be temporarily relocated and replaced at completion of work, at locations to be approved by the Engineer.

### **3.3 UTILITY DISCONNECTS**

- A. Coordinate utility disconnections with responsible utilities as designated on the Drawings.
- B. Coordinate water supply line disconnect, and temporary water supply intake screen, pump and piping installation, disinfection, testing, and maintenance with District, Per Section 015800, Temporary Creek Intake System.

### **3.4 DEMOLITION**

- A. General. Extent of removal of existing facilities shall be as shown on the Drawings. Materials identified for demolition and not identified as being salvaged by Owner shall be removed and disposed.
- B. Limits. The exact limits of required concrete demolition and removal cannot be known until the creek is dewatered and sediments and/or concrete are removed to reveal existing foundation limits. Where proposed concrete is shown conforming to existing concrete foundations, Contractor schedule Engineer's inspection and favorable review of proposed demolition limits, prior to demolition of commencing work on new concrete.
- C. The Drawings show approximate extents of known concrete within the project area based on surveys performed prior work. The exact extents of existing concrete required to be demolished may vary from those shown on the drawings.
- D. Hazardous Materials. Comply with all local rules, regulations, ordinances, and statutes for handling and disposal of hazardous materials encountered.
- E. Utilities. Remove all abandoned above and below ground utilities, of six inch diameter or greater, as shown on the drawings or as directed by the Engineer.
- F. Demolition. Demolish all specified structures in accordance with all local regulations. Completely remove footings, foundation, and above-ground construction, where indicated on the Drawings. Demolition includes all buildings, walkways, retaining walls, patios and associated structures, landscaping, utilities (and associated structures), posts,

pipng, conduits, access driveways, culverts, and other similar permanent improvements specified on the Drawings for removal.

### **3.5 SELECTIVE DEMOLITION**

- A. Pavement, Concrete and Masonry. Where portions of pavement, concrete or masonry facilities and foundations are to be selectively demolished, areas to be removed shall first be sawcut in neat and square lines for the full depth of the section. Pavement removal shall extend beyond limits of planned activities to extent required to maintain integrity of adjacent surfaces. If the straight edge or other immediate adjacent area of the saw cut concrete and/or asphalt pavement section is damaged prior to replacement of the structural section and surfacing, it shall be the Contractor's responsibility to re-cut any damaged, broken, or uneven portion prior to paving at his own expense. Under no circumstance shall the Contractor be allowed to pave against a joint with a broken, jagged, or uneven line.

### **3.6 PARTIAL WEIR DEMOLITION**

- A. Remove concrete with chipping tools and saws to reach limits of demolition shown on the Drawings or otherwise approved by the Engineer. Over-cut and remove concrete beyond finish surfaces of weir as shown on civil and structural drawings. Concrete removal in over-cut areas shall not be done using a larger than 20-lb chipping hammer. Take care to avoid damage to sound concrete and rebar adjacent to demolition areas.
- B. Create a clean, sound substrate by removing bond-inhibiting materials (e.g., debris, soil, loose concrete, oil) from the concrete substrate using high pressure water blasting or equivalent.
- C. Roughen existing concrete at bonding interface to a minimum ¼" amplitude.

### **3.7 Fences, Walls and Gates.**

- A. Preserve access control where fencing, walls and gates are removed during construction. Repair damage caused by work under this contract to the satisfaction of the Engineer.

### **3.8 DEBRIS REMOVAL**

- A. Remove all trash, rubble and debris generated by demolition activities from the site on a regular basis

### **3.9 DISPOSITION OF MATERIALS**

- A. Salvaged Materials. Salvage of materials for reuse by the Owner shall include removal of the material, equipment, etc., from its present location and transporting, bundling, protecting, cleaning, and storing it in a designated location on the work site, as approved by the Engineer. Items which are specified to be reused, and are damaged

during removal or storage, shall be repaired to the Engineer's satisfaction or replaced with new matching materials, at no cost to the Owner.

- B. Wasted Materials. Title to all debris to be wasted and demolished materials is vested to the Contractor upon receipt of the Notice-to-Proceed. Contractor shall assume responsibility for any loss or damage to such property after the Notice-to-Proceed. Condition of such material is not guaranteed and the Contractor shall assume all liability for reuse of any such material.
- C. Disposal. All materials removed under this section which are not salvaged by the facility owner for reuse or otherwise recycled, shall be disposed of off-site at appropriate disposal areas approved in advance by the Owner. The material shall be removed from the job site before completion of the contract. Material shall not be sold on the site. All loading, hauling, dumping, and disposal fees are the responsibility of the Contractor.
- D. Hauling. Debris shall be removed and transported by approved haul routes in a manner as to prevent spillage on streets or adjacent areas.

#### **4. MEASUREMENT AND PAYMENT**

##### **4.1 MEASUREMENT**

- A. Work under this section will be measured for payment on a lump sum basis.

##### **4.2 PAYMENT**

- A. Demolition will be paid for at the lump sum contract price, which price will be payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the demolition, salvage, disposal, and reuse of materials, as specified, including all concrete removal.
- B. No additional payment will be made for concrete removal performed beyond the limits shown on the Drawings.
- C. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Demolition	Lump Sum

**END OF SECTION**

**SECTION 033000**  
**CAST IN PLACE CONCRETE**

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## **SECTION 033000 CAST IN PLACE CONCRETE**

### **1. GENERAL**

#### **1.1 DESCRIPTION**

- A. The work within this Section includes providing cast-in-place concrete and shotcrete, grouted soil anchors, weirs, slabs, retaining walls, equipment pads, post bases, piers, foundations, weep drains, and minor miscellaneous concrete work, including formwork, reinforcing steel, curing, complete, in place, as specified herein, as shown on the Drawings, and as otherwise directed by the Engineer.
- B. Related Sections
  - 1. Section 312316, Stripping and Excavation
  - 2. Section 312319, Dewatering

#### **1.2 SUBMITTALS**

- A. Submit to the Engineer, for review, the following:
  - 1. Submittal requirements as listed on the Structural Drawings by Streeter Group, Inc.

#### **1.3 PRODUCT HANDLING**

- A. General. Comply with the notes on the Structural Drawings.
- B. The Civil Drawings provide general layout and dimensions, as well as guidelines on limits of demolition of existing concrete to provide conforms for new work. Where conforms to existing concrete are shown, dimensions are approximate, and subject to change based on field conditions, at the Direction of the Engineer.
- C. Poured concrete and any runoff exposed to poured concrete shall be excluded from stream flows and the wetted channel for a period of 30 days after it is poured. Sealant or curing accelerant may be applied to the poured concrete surface or slurry where difficulty in excluding water flow from the uncured concrete surface for a long period may occur, however pH testing of water exposed to uncured concrete shall be performed to ensure that the pH range shall remain between 6.5 and 8.3. Any sealant, accelerant or plastic resin to be used shall first have the material safety data sheets (MSDS) for all active chemical ingredients submitted and accepted by CDFW before application in construction. All MSDS shall include environmental toxicity information.

#### **1.4 QUALITY ASSURANCE**

- A. Inspection. Comply with the inspection and observation requirements specified on the Drawings and project permit conditions of approval.

- B. A formwork inspection by the Engineer must occur during installation and before any concrete is poured to check forms and ensure design specifications are met.
- C. The project shall be built as described in the final designs approved by the California Department of Fish and Wildlife.
- D. Tolerances. Weir crest elevations shall be within (+/-0.03) feet of design grade.
- E. Materials Testing. Comply with the testing requirements specified on the Structural Drawings

## **2. PRODUCTS**

### **2.1 MATERIALS**

- A. Comply with the material specifications and standards listed on the Structural Drawings.

## **3. EXECUTION**

### **3.1 GENERAL**

- A. Comply with the notes and reference standards provided on the Structural Drawings and with these Specifications.
- B. All concrete washouts must occur off-site, to allow adequate setback from the creek.

## **4. MEASUREMENT AND PAYMENT**

### **4.1 MEASUREMENT**

- A. Work under this section will be measured for payment on a lump sum basis.

### **4.2 PAYMENT**

- A. The lump sum contract price for Cast in Place Concrete will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for performing work within this Section.

### **4.3 PAYMENT WILL BE MADE UNDER:**

<u>Pay Item</u>	<u>Pay Unit</u>
Cast in Place Concrete	Lump Sum

**END OF SECTION**

**SECTION 055100**  
**MISCELLANEOUS METAL WORK**

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## **SECTION 05 5 100 MISCELLANEOUS METAL WORK**

### **1. GENERAL**

#### **1.1 DESCRIPTION**

- A. The work within this Section includes providing Access Stairway and Catwalks, Entrance Gate and Cyclone Fence replacement, Manhole Steps, Pipe Railings and Ladders, and associated miscellaneous metal work, including anchor bolts and fasteners, complete, in place, as specified herein, as shown on the Drawings, and as otherwise directed by the Engineer.
- B. Related Sections.
  - 1. Section 033000, Cast in Place Concrete

#### **1.2 SUBMITTALS**

- A. Submit to the Engineer, for review, the following:
  - 1. Submittal requirements as listed on the Structural Drawings.
  - 2. Prior to fabrication, submit shop drawings for all catwalks, gates, ladders, railings, and support structures for favorable review of the structural engineer. If layout varies from the Drawings, provide revised layout schematic.

#### **1.3 PRODUCT HANDLING**

- A. General. Comply with the notes and reference standards on the Structural Drawings and with manufacturer's recommendations.

#### **1.4 QUALITY ASSURANCE**

- A. Inspection. Comply with the inspection and observation requirements specified on the Structural Drawings and project permit conditions of approval.
- B. Testing. Comply with the testing requirements specified on the Drawings.
- C. Catwalks, railings, and supports shall be designed to meet all applicable OSHA Standards, including loading criteria.

### **2. PRODUCTS**

#### **2.1 MATERIALS**

- A. Catwalks.
  - 1. Comply with OSHA Section 1910, and other applicable codes and regulations.

2. Comply with the material specifications and standards listed on the Drawings.
  3. All Catwalk components shall be hot dip galvanized in accordance with ASTM A123 or ASTM A153.
  4. Catwalks. Top traffic surface shall be welded steel bar grating, serrated for slip resistance.
  5. Catwalks shall have a clear width of 36 inches, with a railing height of 42 inches.
  6. Structural supports for catwalks may be fixed to the concrete walls and weirs. However, the center fifteen feet of the fish ladder -measured 7.5 feet left and right of the weir centerline – must be free of obstructions. All posts or other anchorages must be placed outside of this zone.
  7. Continuous toe boards of 3.25-inch minimum height shall be included on all open sides.
  8. Self-closing safety gates shall be installed at all ladders, rail openings, and at additional locations shown on the Drawings.
- B. Ladders.
1. Ladder material shall comply with the notes on the drawings.
  2. Install self-closing safety gate with top and mid rails at all ladder openings, per OSHA 1910.29. Safety gates shall be attached to adjacent railings to provide continuous fall protection.
  3. Final ladder geometry shall be fabricated to conform to final concrete dimensions, which may vary from those shown on the Drawings.

### **3. EXECUTION**

#### **3.1 GENERAL**

- A. Comply with the notes and reference standards provided on the Drawings and with these Specifications.
- B. Location of Manhole Steps is roughly depicted on the Civil Drawings. Final location and type steps (i.e., foot vs. handhold) shall be coordinated with the District in the field after removal of forms.
- C. Final height of ladders and lengths of pipe railing sections and catwalks should be field-verified and confirmed with the Engineer, prior to fabrication.
- D. Contractor shall provide shop drawings for Catwalks, ladders, gates, and railings. Shop drawings shall specify all materials, finishes, dimensions, connection details and anchorage points.

### **4. MEASUREMENT AND PAYMENT**

#### **4.1 MEASUREMENT**

- A. Manhole Steps. Manhole Steps will be measured by the number of Manhole Steps installed, as shown on the Drawings, as specified, and as directed by the Engineer.
- B. Access Stairway, Railings and Ladders. Access Stairway, Railings and Ladders will be measured for payment on a lump sum basis.
- C. Catwalk. Catwalk will be measured on a lump sum basis.

#### 4.2 PAYMENT

- A. Manhole Steps. Manhole Steps will be paid for at the contract unit price for each Manhole Step installed including all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing each Manhole Step, complete in place, including layout, drilling, and installing each Manhole Step as shown on the Drawings, as specified herein, or as directed by the Engineer
- B. Access Stairway, Railings and Ladders. The lump sum contract price for Access Stairway, Railings and Ladders will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for performing associated work.
- C. Catwalk. The contract Lump Sum price for Catwalk will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for performing associated work, including, railings, gates, supports and ladders.
- D. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
MANHOLE STEPS	EA
ACCESS STAIRS, RAILINGS & LADDERS	Lump Sum
CATWALKS	LS

**END OF SECTION**

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**SECTION 26 05 00**  
**ELECTRICAL WORK, GENERAL**

**1. GENERAL**

**1.1 SECTION INCLUDES**

- A. The **Contractor** shall provide electrical work, complete and operable, in accordance with the Contract Documents.
- B. The provisions of this Section apply to all sections in Division 26, except as indicated otherwise. The work of this Section is required for operation of electrically-driven equipment provided under specifications in other Divisions. The **Contractor's** attention is directed to the requirement for proper coordination of the work of this Section with the work of all other equipment specifications.
- C. All concrete, excavation, backfill, and steel reinforcement work required for encasement, installation, or construction of the work of the various sections of Division 26 is included as a part of the work under the respective sections, including ductbanks, handholes, and equipment slabs on grade.
- D. **Contractor** shall provide all utility work shown on Contract Drawings, and per utility's Specifications and Standards. This includes the following utilities: electric (PG&E), telephone (AT&T - leased line), cable (Comcast - internet). The **Contractor** is responsible for coordination with, and obtaining permits, including fees as required by utilities for relocation and reconnection of the permanent services.
  - 1. Electrical utility includes, but is not limited to, relocation and reconnection of overhead service, new electrical service drop pole with weatherhead, pole mounted Utility Meter with main disconnect, and required grounding and bonding.
    - a. While waiting for permanent electrical utility service described above, the **District** is obtaining a temporary electric service drop with a temporary meter and main disconnect. **Contractor** shall wire this temporary service into relocated automatic transfer switch, along with generator connection, and continue power to the new Motor Control Center (MCC). When permanent power is available, **Contractor** shall cutover ATS to new power source.
  - 2. Telephone utility includes, but is not limited to, relocation and reconnection of service, new MPOE, new Telephone Enclosure with conduit and weatherhead, terminal blocks and fused leased line protector, and required grounding and bonding.

3. Cable utility includes, but is not limited to, relocation and reconnection of service, new CATV Enclosure with conduit and weatherhead, connectors, and required grounding and bonding.
- E. **Contractor** shall include MCC complete with PLC Cabinet (Control Section), that includes **District** standard Tesco LIQ5 programmable logic controller (PLC) hardware with integral operator interface. **Contractor**, thru the services of Tesco Controls, Inc. shall include configuration of LIQ5 controller as well as modifications of exiting **District** SCADA system to incorporate new datapoints as part of this project. MCC shall be connected to existing 10 hp motors for interim period. Ultimately, MCC shall be connected to new 15 hp motors; therefore, MCC and equipment shall be sized for ultimate loads.
- F. **Contractor** shall remove and protect the following existing installed equipment for relocation and reinstallation at later time, unless noted differently: Automatic Transfer Switch (ATS), Security CCTV Enclosure (DVR) and cables and cameras, Comcast Enclosure, Balance Panel (rain gauge and stream flow) and cables and equipment.
  1. Balance Panel and cables and equipment will require to be temporary installed, after demolition and prior to installation on MCC, to monitor stream flow. **Contractor** to provide temporary mounting and power source.
  2. **Contractor** to wire relocated ATS to existing Standby Generator for start and stop controls, as well as connect Standby Generator common alarm and ATS position statuses, to new PLC within MCC. Existing ATS and existing Standby Generator are both manufactured by Generac.
- G. The **Contractor** is responsible for daily redlining of drawings subject to review by **District** or **Engineer**.
- H. Electrical equipment shall not be energized until sequence steps 1 through 6 of Section 26 05 74-3.01.C are completed and approved by **District** and **Engineer**.

## 1.2 APPLICABLE CODES AND REQUIREMENTS

- A. The work of this Section and all sections in Division 26 shall comply with the latest editions of the following:
  1. NEC (NFPA 70) – National Electrical Code
  2. NETA – International Electrical Testing Association
  3. NEMA 250 – Enclosures for Electrical Equipment (1000 Volts Maximum)
  4. Title 8, Subchapter 5, California Administrative Code – Electrical Safety Orders
- B. All electrical equipment shall be listed by and shall bear the label of Underwriters' Laboratories, Inc. (UL), or by an independent testing laboratory acceptable to the local code enforcement agency having jurisdiction.

- C. Installation of electrical equipment and materials shall comply with Occupational Safety and Health Administration (OSHA) Safety and Health Standards, state building standards, and applicable local codes and regulations.
- D. Where the requirements of the specifications conflict with UL, National Electrical Manufacturers Association (NEMA), National Fire Protection Association (NFPA), or other applicable standards, the more stringent requirements shall govern as approved by the local authority having jurisdiction.

### 1.3 SIGNAGE

- A. Provide danger, caution, and warning signs and equipment identification markings in accordance with applicable federal, state, OSHA, and NEC requirements. The **Contractor** shall provide the following signage at a minimum, unless otherwise stated in individual equipment specifications sections.
  - 1. Arc Flash Labels – Provide Arc Flash labels as required per NEC Article 110.16 and these Specifications. Inscribe the label with the maximum available fault current at MCC main breaker with the date of calculation, per NEC Article 110.24.
  - 2. Equipment Nameplates – Provide engraved phenolic equipment nameplates on all electrical and instrumentation equipment. Nameplate to be inscribed with equipment name and equipment tag number, at a minimum. Submit listing of equipment nameplates complete with inscriptions for review.
  - 3. Warning Signs:
    - a. Provide signs at MCC that warns of shock hazard. Provide minimum of three signs.
    - b. Provide signs at site fence, MCC and at bottom of stairs to Fall Creek that area is under camera surveillance. Provide minimum of three signs.
    - c. Submit signs for acceptance. Include proposed sign installation locations on site map.

### 1.4 PERMITS AND INSPECTION

- A. Permits shall be obtained and inspection fees shall be paid by **Contractor**.

### 1.5 INSPECTION OF THE SITE AND EXISTING CONDITIONS

- A. Before submitting a bid, visit the site and determine conditions at the site and at all existing structures in order to become familiar with all existing conditions and electrical systems which will, in any way or manner, affect the work required under this **Contract**. No subsequent increase in **Contract** cost will be allowed for additional work required because of the **Contractor's** failure to fulfill this requirement.

- B. Protect all existing aboveground and underground utilities during construction. Pay for all repairs without increase in **Contract** cost should damage to underground utilities occur during construction.

## 1.6 RESPONSIBILITY

- A. The **Contractor** shall be responsible for:
  - 1. Complete systems functionally operational in accordance with the intent of these Contract Documents.
  - 2. Coordination, scheduling and providing all required materials and work per utilities.
  - 3. Coordinating the details of facility and process equipment layouts and construction for all Specification Divisions which affect the work covered under Division 26.
  - 4. Furnishing and installing all incidental items not actually shown or specified, but which are required by good practice to provide complete functional systems. This includes supplied submersible pump motor moisture and temperature monitoring and protection systems and related pump schematic controls.
  - 5. Coordination with other Division for equipment electrical, wiring and cable requirements.
  - 6. Satisfying all requirements of **District's** Standards.
  - 7. **Contractor** shall submit to the **District** a complete copy of red line as-builts every month after the Notice to Proceed date for **District** information and review.

## 1.7 INTENT OF DRAWINGS

- A. The Contract Drawings indicate the extent, general location, and arrangement of equipment. Conduit runs are diagrammatic and may not show the exact locations for installation. The **Contractor** shall verify the locations of conduit stub-ups based upon conduit entry space of equipment furnished from the manufacturer's certified shop drawings and by inspection of the actual equipment to be installed. Coordinate with serving utilities and **District** for exact location of proposed equipment. Include in bid all costs to modify locations shown on Drawings by ten feet in any direction.
- B. In general, where the background on Contract Drawings has been screened, the area screened is work other than electrical, unless otherwise noted. Work under Division 26 is shown heavier for contrast.
- C. Standard details are typical for all locations which apply, regardless of whether a callout is shown on the Drawing.



- D. Electrical design is based on minimum horsepower and current ratings. If the manufacturer and/or the **Contractor** provides equipment with a larger horsepower or current rating, the **Contractor** shall be responsible for making all necessary changes to accommodate the larger unit, with the approval of the **Engineer**. **Contractor** shall pay for all such changes, including engineering design by a professional electrical engineer currently registered in the state of California.
- E. Number and size of wires which shall be installed in runs of conduit where not shown on the Contract Drawings shall be determined from the one-line, schematics, connection, interconnection, and control diagrams of actual equipment furnished.

## 1.8 RACEWAY ROUTING DRAWINGS

- A. The **Contractor** shall submit, prior to installation, Raceway Routing Drawings for all conduits. This includes all exposed conduits as well as conduits routed below ground and below equipment slabs.
- B. The drawings shall be to the same or larger scale as the Contract Drawings and shall show the conduit routing, size, type, and raceway identification number accurately dimensioned. All spare conduits shall be shown and so indicated. Coordinate size of pump motor conduits based on diameter of pump motor cable; no splices allowed between pump motor and MCC.
- C. Electrical “trenches” contain three or less conduits and shall have sand backfill and concrete cap; refer to Detail TD.
- D. Site drawing shall accurately show location of ductbank and trenches, depth of ductbank and trenches, location and orientation of pull boxes, and below grade conduit penetrations into structures. Show cross-section details for all ductbanks and trenches. Cross-sections shall show the number of conduits, size, type, wiring information and cover.
- E. As-built the Raceway Routing Drawings. As-built drawings shall include surveyed locations of handholes, trenches and ductbank routing.

## 1.9 CONTRACTOR SUBMITTALS

- A. General
  - 1. Provide manufacturers' descriptive information and shop drawings for all equipment, material, and devices furnished under Division 26, including raceway routing drawings, schematic (elementary) diagrams, equipment dimensional drawings, interconnection diagrams, grounding diagrams, catalog cut sheet information, and calculations. Device designations and symbols for schematic diagrams shall conform to the latest edition of NEMA ICS 1.
  - 2. Provide separate submittals for the following equipment: Raceway Routing Drawings, Utility Meter and Main Disconnect, MCC (including PLC Cabinet)

Elevation Drawings with Schematic Drawings, Interconnect Drawings, conduits, cables, grounding equipment, and field instrumentation.

3. Submit complete electrical drawings for all equipment furnished in accordance with other Divisions that interface with electrical equipment. These drawings shall include MCC elevations (external, internal swing panel, internal back panel), bill of materials, schematic diagrams (complete with terminal numbers, device names, field equipment tag numbers – coordinate with District, cable colors, ladder rung numbers, etc.) to provide complete identification of the circuits and provide coordination between the equipment.
  4. Both AutoCAD and PDF files are required.
  5. Check submittals for proper number of copies, adequate identification, correctness and compliance with Drawings and Specifications, and initial all copies indicating this has been done.
  6. If the equipment installed during construction is not the exact same equipment that was approved by the **Engineer** before construction, then the **Contractor** shall resubmit all documentation related to the installed equipment as required herein for the **Engineer's** approval.
  7. Review of submittal information by the **Engineer** shall not relieve the **Contractor** from responsibility for deviations from Contract Drawings and/or Specifications, unless he has received written approval from the **Engineer** for specific deviations at the time of the submission request. Review of submittal information shall not relieve the **Contractor** from responsibility for errors and omissions in shop drawings or literature.
  8. Manufacturer's standardized schematic diagrams will not be acceptable unless applicable portions of the diagram have been clearly identified and non-applicable portions deleted or crossed out.
  9. Catalog cut sheets shall be highlighted to designate the exact model number of proposed equipment. Cross out all non-applicable equipment on submitted sheets.
  10. Operation and Maintenance (O&M) Manuals per specification.
- B. Submit certified shop drawings and diagrams as follows:
1. General dimension, outline, and panel, section, and structure layout drawings showing the principal dimensions of the equipment, the location of all devices therein, and the size of electrical conduit windows and cable connections. Include front, rear, side elevations and top view. Include front and rear access requirements. Provide finish and materials, temperature limitations, and grounding requirements. Provide nameplate inscription schedule. Include bills of material (description of item, manufacturer, model number complete with applicable options).

2. Detailed anchoring requirements, including stamped and signed seismic calculations confirming anchor type, size and depth.
  3. Assembly drawings in sufficient detail to identify every part of the specified equipment.
  4. Installation details for the following: Weir level transmitter with stilling well, Intake low level switches with stilling wells.
  5. In AutoCAD format and PDF format, submit the following: Raceway Routing Drawings, MCC and PLC Cabinet Elevation Drawings, Single Line Drawings and Schematic Diagrams, and Interconnection Drawings. Drawings shall be 11 inches x 17 inches.
- C. Submit manufacturer's certified shop drawings and information on the following:
1. Utility Meter with Main Disconnect per PG&E and EUSERC.
  2. Telephone Enclosure per AT&T.
  3. CATV Enclosure per Comcast.
  4. MCC including all components including but not limited to: breakers, variable frequency drives, PLC Cabinet components, surge protection, power meter, control devices, interior lights, receptacles, and level relays. PLC Cabinet to include shelves for installation of existing equipment including existing DVR, existing ethernet switch and existing Comcast modem. Provide means of attaching existing Balance Panel to outside of MCC with low profile strut; **Contractor** to field measure Balance Panel so MCC strut are located accordingly. Submit Factory Acceptance Testing (FAT) procedures and results for MCC complete.
  5. In addition to submittals for the specific items mentioned above, furnish shop drawings and catalog cut information on the following items:
    - a. PG&E service equipment Utility Meter and service pole.
    - b. AT&T service equipment for service modification (leased line)
    - c. Comcast service equipment for service modification (cable internet).
    - d. Conduits, spacers, fittings, device boxes, motor junction boxes, warning tape, pull tape, and conduit labels.
    - e. Wires, cables, and wire labels. Motor connectors.
    - f. Site light pole installation detail and concrete base design with anchors.
    - g. Level transmitter with stilling well.
    - h. Level switches with stilling wells - typical.
    - i. Protective Device Studies: Arc Flash, and Short Circuit
    - j. Grounding system components.

- k. Stanchion details for ATS, phone and CATV service equipment.
    - l. Provide hardcopy of all **Contractor** configurations of equipment. This applies to power quality monitoring configuration, VFD configurations, instrumentation settings and calibrations, and all other configured devices.
    - m. Submit NETA Testing agency, NETA testing procedures and NETA testing results for approval.
  - D. Seismic
    - 1. Submit proof of compliance that the following electrical equipment items are seismically anchored: MCC, site light pole.
    - 2. Proof of compliance shall include complete anchorage details coordinated with equipment mounting provisions showing weights, calculations, anchoring points, anchor bolts size and type, and any special considerations. Proof of compliance for each listed piece of equipment is to be prepared, stamped and signed by a licensed structural engineer in the state of California. Listing is not inclusive and is applicable for all electrical equipment 400 pounds and greater that is floor-mounted, and equipment 50 pounds and greater that is stanchion supported.
  - E. Operation and Maintenance Manuals shall be submitted per Specifications.

## 1.10 AREA DESIGNATIONS

- A. General
  - 1. Raceway system enclosures shall comply with Sections 26 05 33 and 26 05 43.
  - 2. Electric work specifically indicated in sections within any Division of the Specifications shall comply with those requirements.
  - 3. Other electrical work not included in 1.10.A.1 and 1.10.A.2 shall comply with this Paragraph 1.10.A.4.
    - a. The following (**Table 1**) lists the type of electrical equipment and materials to be used based on applied area.

<b>Table 1</b> <b>Electrical Equipment and Materials</b>					
<b>Applied Area Classification</b>	<b>Enclosure, Pullbox or JBox NEMA Rating</b>	<b>Device Box or Small Enclosure</b>	<b>Strut and Mounting Hardware</b>	<b>Exposed Conduit System</b>	<b>Concrete Encased Conduit System</b>
Exterior Wet	NEMA 3R or NEMA 4	Cast Steel or 304 Stainless Steel	304 Stainless Steel	PVC Coated Galvanized Rigid Steel (Malleable Iron)	PVC Sch 40

- b. The following (**Table 2**) identifies area classification.

Table 2 Areas Classifications By Building/Facility and Room		
Building/Facility	Room	Area Classification
General Site	All exterior Site Areas	Exterior Wet

B. Material Requirements

1. MCC exterior shall be painted tan.
2. NEMA 3R and NEMA 4 enclosures shall be steel coated with ANSI 61 light grey paint, unless otherwise noted.
3. NEMA 4X shall be 304 stainless steel.

**1.11 TESTS**

- A. The **Contractor** shall be responsible for all factory and field tests required by specifications in Division 26 and by the **Engineer** or other authorities having jurisdiction. The **Contractor** shall furnish all necessary testing equipment and pay all costs of tests, including all replacement parts and labor, due to damage resulting from damaged equipment or from testing and correction of faulty installation.
- B. Factory Acceptance Testing (FAT), NETA Field Testing, Pre-Demonstration Testing and Demonstration Testing shall be per Specifications.
- C. Any equipment or material which fails a test shall be removed and replaced at no additional cost to the **District**.
- D. Submit all test forms for approval four weeks prior to testing.
- E. Provide a minimum of two weeks notification of Field Tests to the **Engineer**. Field Tests shall be witnessed and signed off by the **Engineer** in order to be considered valid. Any test results without the **Engineer's** signature is considered invalid. NETA testing results shall be approved by **Engineer** prior to energizing equipment.

**1.12 TEMPORARY LIGHTING**

- A. The **Contractor** shall provide temporary lighting for all trades. The average lighting level (foot-candle) shall meet OSHA and CAL-OSHA.

**1.13 DEFINITIONS (APPLICABLE TO SPECIFICATIONS AND DRAWINGS)**

- A. Above Grade – Not buried in ground and not embedded in concrete slab on ground.
- B. Below Grade – Buried in ground and below floor slab as applicable, and not embedded in concrete slab on ground.
- C. Certified – Confirmed to be accurate, or as represented, or as meeting standards.
- D. Concealed – Inside building above grade and located within walls, furred spaces, crawl spaces, attics, above suspended ceiling, etc. In general, any item not visible or directly accessible.
- E. Connect – Complete hookup of item with required services, including conduits, wires, and other accessories.
- F. Exposed – Either visible or subject to mechanical or weather damage, indoor or outdoor, include areas such as mechanical and storage rooms. In general any item that is directly accessible without removing walls, panels, ceilings or other parts of structure.
- G. Underground – Buried in ground, including under concrete slabs.
- H. Wiring – Electrical conduit, raceway, conductors and connections.

#### **1.14 WARRANTY**

- A. The warranty for all provided equipment shall be not less than one year after approved and witnessed startup and receipt of approved as-built drawings and O&M Manuals, or **District** beneficial use, whichever is later. Warranty shall include all costs for repairs, parts, travel and living expenses, and labor. This warranty, provided by the **Contractor**, shall cover all equipment, including but not limited to: MCC, wires and cables, miscellaneous panels, motors, controls, grounding systems, and instrumentation.
- B. **Contractor** is responsible to reimburse **District** for all materials, labor, and indirect costs incurred by **District** to support warranty repairs.

## **2. PRODUCTS**

### **2.1 GENERAL**

- A. All equipment and materials shall be new, shall be listed by UL, and shall bear the UL label where UL requirements apply. All equipment and materials shall be the products of experienced and reputable manufacturers in the industry. Similar items in the work shall be products of the same manufacturer. All equipment and materials shall be of industrial grade standard of construction.
- B. Where a NEMA enclosure type is indicated on Drawings, the **Contractor** shall utilize that type of enclosure, despite the fact that certain modifications such as cutouts for control devices may negate the NEMA rating.

## 2.2 MOUNTING HARDWARE

### A. Miscellaneous Hardware

1. All struts, nuts, bolts, and washers shall be 304 stainless steel.
2. Where contact with concrete or dissimilar metals may cause galvanic corrosion, suitable non-metallic insulators shall be utilized to prevent such corrosion.
3. Anchors for attaching equipment to concrete shall be 304 stainless steel anchors unless Contract Drawing details call for cast in place anchorage. Anchor size, type and embedment requirements shall be per approved seismic calculations.

## 2.3 ELECTRICAL IDENTIFICATION

- A. **Contractor** is responsible to submit list of electrical equipment with associated tag inscription and tag materials for approval by **District** and **Engineer**.
- B. All conduits, cables and individual wires shall be labeled. All terminal blocks shall be labeled.
- C. All equipment, control devices, and panels shall include nameplate with description and tag number.

## 2.4 EQUIPMENT FINISH

- A. Provide materials and equipment with manufacturers, standard finish application system with ANSI 61, light grey color, except MCC which shall be tan. Provide two quarts of touchup paint, for each color. Some exterior equipment shall have further finish applied, refer to individual specifications.

## 2.5 OUTDOOR EQUIPMENT

- A. Provide equipment and devices capable of continuous operation within an ambient temperature range of 0° C to 40° C. Equipment must be capable of proper operation at rated output continuously in this ambient temperature range.
- B. Provide any additional equipment such as heaters, ventilation fans, and filtered louvers, so that this performance requirement can be met. MCC shall include sunshades on top and back as a minimum.

## 3. EXECUTION

### 3.1 GENERAL

- A. Incidentals: The **Contractor** shall provide all materials and incidentals required for a complete and operable system, even if not required explicitly by the Specifications or the Drawings. Typical incidentals are terminal lugs not furnished with vendor supplied equipment, compression connectors for cables, splices, junction and terminal boxes.

- B. Field Control of Location and Arrangement: The Drawings diagrammatically indicate the desired location of instrumentation, conduit runs, equipment, and other items. Exact locations shall be determined by the **Contractor** in the field based on the physical size and arrangement of equipment, finished elevations, and other obstructions.
  - 1. Where "home runs" are shown, the **Contractor** shall route the conduits in accordance with the indicated installation requirements. Routings shall be exposed or encased as approved on Raceway Routing Drawing submittal.
  - 2. All conduit and equipment shall be installed in such a manner as to avoid all obstructions and to keep openings and passageways clear.
- C. Workmanship: All materials and equipment shall be installed in strict accordance with the printed recommendations of the manufacturer. Installation shall be accomplished by workers skilled in the work. Installation shall be coordinated in the field with other trades to avoid interferences.
- D. Protection of Equipment and Materials: The **Contractor** shall fully protect all materials and equipment against damage from any cause. All materials and equipment, both in storage and during construction, shall be covered in such a manner that no finished surfaces will be damaged, marred, or splattered with water, foam, dust, dirt, plaster, or paint. All moving parts shall be kept clean and dry. The **Contractor** shall replace or refinish all damaged materials or equipment, including face plates of panels, at no additional expense to the **District**.
- E. Cap and label all spare conduits. Include pull tape in all spare conduits.

### **3.2 CONCRETE SLABS ON GRADE AND CONDUIT CURBS**

- A. Concrete slabs on grade shall be provided for all outdoor free-standing electrical equipment. Slabs on grade shall be four inches above the surrounding grade and a minimum of six inches larger on each side and back of the equipment, or greater if required by anchoring calculations or shown on Contract Drawings. Provide forty-eight inches of concrete slab in front of MCC for working clearance.

### **3.3 EQUIPMENT ANCHORING**

- A. Floor-supported equipment and conduits shall be anchored in place by methods that will meet project seismic requirements.
- B. Anchoring methods and leveling criteria specified in the printed recommendations of the equipment manufacturers are a part of the work of this **Contract**. Such recommendations shall be submitted as shop drawings.

### **3.4 EQUIPMENT IDENTIFICATION**

- A. General: Equipment and Devices shall be Identified as Follows:



1. Nameplates shall be provided for all equipment and instruments. Equipment description and equipment tag number (as assigned by **Contractor** and/or noted on Drawings), and electrical power source shall be utilized on all nameplates. If no tag number is given, the **Contractor** shall assign and submit a number for approval.
2. All conduits and cables shall be labeled. It is the **Contractor's** responsibility to provide conduit tag, cable tag and wire tag label inscriptions. If no tag number is given, the **Contractor** shall assign and submit a number for approval.

### **3.5 CUTTING AND PATCHING**

- A. Lay out work carefully in advance. Do not cut, drill, or notch any structural member without the specific approval of the **Engineer**. Carefully carry out any cutting, channeling, chasing, or drilling of walls, or other surfaces required for the installation, support, or anchorage of conduit, raceways, or other electrical materials and equipment. Following such work, restore surfaces neatly to original condition. Use skilled craftsmen of the trades involved.

### **3.6 LOAD BALANCE**

- A. The Contract Drawings and Specifications indicate circuiting to electrical loads and distribution equipment. Balance electrical load between phases as nearly as possible on panelboards.

### **3.7 MOTOR ROTATION**

- A. After final service connections are made, check and correct the rotation of all motors.
- B. Coordinate rotation checks with the **Engineer** and supplier responsible for the driven equipment for their witnessing.

### **3.8 CLEANING AND TOUCHUP PAINTING**

- A. Keep the premises free from an accumulation of waste material or rubbish. Upon completion of the work, remove all materials, scraps, and debris from the premises and from the interior and exterior of all devices and equipment. Touch up scratches, scrapes, or chips in interior and exterior surfaces of devices and equipment with finishes matching as nearly as possible the type, color, consistency, and surface of the original finish. If extensive damage is done to equipment paint surfaces, refinish the entire equipment in a manner that provides a finish equal to or better than the factory finish, that meets the requirements of the Specifications, and that is acceptable to the **Engineer**.
- B. The interior of all electrical equipment and panels and enclosures shall be vacuumed and wiped free of dust just before final acceptance. Shutting off equipment to clean and wipe down shall be done at times as approved by the **Engineer**.

### **3.9 INSPECTION**

- A. Allow materials, equipment, and workmanship to be inspected at any time by the **Engineer** and **District** or their representatives.
- B. Correct the work, materials, or equipment not in accordance with these Contract Documents or found to be deficient or defective in a manner satisfactory to the **Engineer**.

### **3.10 STANDARDS, CODES, PERMITS, AND REGULATIONS**

- A. Perform all work; furnish, install, and test all materials and equipment in full accordance with the latest applicable rules, regulations, requirements, and specifications of the following:
  - 1. Local Laws and Ordinances.
  - 2. State and Federal Laws.
  - 3. National Electrical Code (NEC).
  - 4. National Fire Protection Association (NFPA).
  - 5. Local and State Fire Marshal.
  - 6. Underwriters' Laboratories (UL).
  - 7. National Electrical Safety Code (NESC).
  - 8. American National Standards Institute (ANSI).
  - 9. National Electrical Manufacturer's Association (NEMA).
  - 10. National Electrical Contractors' Association (NECA) Standard of installation.
  - 11. Institute of Electrical and Electronics Engineers (IEEE).
  - 12. Insulated Cable Engineers Association (ICEA).
  - 13. Occupational Safety and Health Act (OSHA).
  - 14. National Electrical Testing Association (NETA).
  - 15. American Society for Testing and Materials (ASTM).
  - 16. California Electrical Code (CEC).
  - 17. All applicable utility requirements and codes.
  - 18. San Lorenzo Valley Water District Standards (District).
- B. Conflicts that may exist between the above items will be resolved at the discretion of the **Engineer** at no extra cost by the **Contractor**.
- C. Wherever the requirements of the Specifications or Drawings exceed those of the above items, the requirements of the Specifications or Drawings govern. Code compliance is mandatory. Construe nothing in the Contract Documents as permitting work not in compliance with these codes.

- D. Obtain all permits and pay all fees required by any governmental agency or utility having jurisdiction over the work. Arrange all inspections required by these agencies. On completion of the work, furnish satisfactory evidence to the **Engineer** that the work is acceptable to the regulatory authorities having jurisdiction.

### **3.11 OPERATION AND MAINTENANCE MANUALS**

- A. Provide Operation and Maintenance Manuals in hard cover, 3-ring binders, separately bound volumes, number as required to accommodate material 8½-inch x 11-inch for text and 11-inch x 17-inch half-sized drawings and also in accordance with provisions of specifications. Provide the number of copies specified. Electrical and Instrumentation O&Ms shall include the following as a minimum:
1. Operation, maintenance, recommended spare parts, and renewal parts information for all equipment furnished under this Section.
  2. Provide separate O&M Manual for each electrical specification section.
  3. Set of complete, final, as-reviewed and accepted manufacturer's or vendor's descriptive information.
  4. As-built electric schematics, equipment, elevations, layouts, and installation drawings showing equipment as it was actually installed and connected. Provide PDF and AutoCAD formats on portable thumb drive within O&Ms.
  5. Index of all equipment suppliers with a list of current names, addresses, and telephone numbers of those who should be contacted for service, information, and assistance.
  6. All Factory and Field test results that include signature of witness and tester.
  7. Information listed under individual specification submittal requirements.
  8. Complete facility Interconnection Diagrams for all equipment except lighting and receptacles. Show field wiring from equipment origin numbered terminal to destination numbered terminal in block diagram format. Include wire labels, cable labels, conduit numbers, handholes, junction boxes, etc.
  9. Submit preliminary O&M Manuals to the **Engineer** for review prior to delivery of the final O&M Manuals to the **District**. O&M Manuals to be approved prior to start-up and 10 days prior to training. Make additions or changes required by the reviewer.

### **3.12 DEMOLITION**

- A. Demolition of electrical products shall include:
1. Removal of all enclosures, equipment, anchors, wires and cables.
  2. Removal of all exposed conduits.
  3. Removal of all conduit stub ups down to 12" below final grade.

4. Removal of all substructures, as applicable. Backfill with engineered fill and compact to 95%.
5. Properly dispose of all demolished materials per local, state and federal laws.

### **3.13 RECORD DRAWINGS**

- A. Provide two sets of full-sized marked-up as-built Contract Drawings in accordance with specifications. Show all departures from original Drawings, underground cable, conduit, or duct runs dimensioned from established building lines, and all electrical work revisions. As-built drawings shall be initialed by the **Engineer** prior to submission for drafting. Obtain two new, clean sets of Contract Drawings for as-built production after each as-built submittal. **Contractor** shall pay all costs for as-built drawing reproduction.

### **3.14 SERVICE CONTINUITY, START-UP AND SHUTDOWNS**

- A. Make no outages without the prior written authorization of the **Engineer**. Include all costs for temporary wiring and overtime work required in the **Contract** price. Remove all temporary wiring at the completion of the work. Shutdowns and startups shall be scheduled two weeks in advance, upon approval from the **Engineer** and the **District**. Schedule of shutdowns and startups shall be limited between Tuesday and Thursday from 9:00 a.m. to 3:00 p.m., unless prior approval has been given from the **Engineer** and the **District**.

### **3.15 TRAINING**

- A. All Training shall take place on Tuesday thru Thursday between the hours of 9:00 am and 2:00 pm. Provide two identical classes for each training session.
- B. Provide training on: variable frequency drives operation and configuration settings, PLC interface for controls and setpoint adjustments, and SCADA modifications.

### **3.16 TESTING**

- A. All testing shall be witnessed by the **Engineer** and/or **District**. All testing sheets shall be signed off by the **Engineer** and/or **District** to be considered valid.
- B. Pre Demonstration period for electrical work shall include Factory Acceptance Testing, Manufacturer certification, Instrumentation Supplier certification, NETA Field Testing, equipment start-up, instrumentation simulation, PLC inputs/outputs and SCADA verification, approval of electrical and instrumentation O&M Manuals, and electrical and instrumentation training.
- C. Demonstration period for electrical work shall include 7 day functional testing of intake pumping system, including SCADA modifications.

## **4. MEASUREMENT AND PAYMENT**

#### **4.1 MEASUREMENT**

- A. Work under this section will be measured for payment on a lump sum basis.

#### **4.2 PAYMENT**

- A. The lump sum contract price for Electrical Work will include full compensation for the furnishing of all labor materials, tools, equipment, administrative costs, and incidentals for performing all work within Division 26 and Division 27 of these specifications.

- B. Payment will be made under:

Pay Item	Pay Unit
Electrical Work	Lump Sum

**\*\*END OF SECTION\*\***

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**SECTION 26 05 26**  
**GROUNDING**

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## SECTION 26 05 26

### GROUNDING

#### 1. GENERAL

##### 1.1 THE REQUIREMENT

- A. The **Contractor** shall provide the electrical grounding system, complete and operable, in accordance with the Contract Documents.
- B. The requirements of Section 26 05 00 – Electrical Work, General apply to this Section.
- C. Single Manufacturer: Like products shall be the end product of one manufacturer in order to achieve standardization of appearance, operation, maintenance, spare parts and manufacturer's services.
- D. The grounding system is intended to provide a low resistance path to earth ground. Acceptable ground system resistance is 5 ohms or less. **Contractor** shall provide and install additional ground rod and well.
- E. Provide and install grounding system per each serving utility requirements; electrical, telephone, and cable.

##### 1.2 CONTRACTOR SUBMITTALS

- A. General: Submittals shall be in accordance with the requirements of Section 01300 – Submittals and Section 26 05 00 – Electrical Work, General.
- B. Shop Drawings: Manufacturer's product information for connections, clamps, and grounding system components, showing compliance with the requirements of this Section.

#### 2. PRODUCTS

##### 2.1 GENERAL

- A. All components of the grounding electrode system shall be manufactured in accordance with American National Standards Institute (ANSI)/UL 467 – Standard for Safety Grounding and Bonding Equipment, and shall conform to the applicable requirements of National Electrical Code (NEC) Article 250 and local codes. The minimum size shall be as outlined in National Electrical Code.
- B. There shall be an equipment grounding conductor in each raceway.

##### 2.2 GROUNDING ELECTRODE SYSTEM

- A. Grounding loop conductors shall be bare annealed copper conductors suitable for direct burial. Conductors shall be #2 unless indicated otherwise.

- B. Ground rods shall be copper-clad steel, 3/4-inch diameter and 10 feet long conforming to UL 467, unless shown otherwise. Electrolyte copper 10 mils thick shall be mechanically bonded to the rigid steel core. Ground rod clamps shall be cast high strength copper alloy with hex head screw. Furnish T&B Blackburn 7510 rod and, JAB34H clamp, or equal.
- C. Cable-to-cable connections and all concealed connections shall be made using exothermic type welds. Exothermic connections shall consist of a molecular weld utilizing the reaction of copper oxide and aluminum powder in a semi-permanent graphite mold. Exothermic connectors shall be as manufactured by Erico Products Cadweld, Thermoweld, or equal.

## **2.3 GROUND ROD BOXES (WELLS)**

- A. Boxes, or wells, shall be precast, high density, reinforced concrete, measuring a 10-inch interior diameter at the top and 12 inches deep. Covers shall be cast iron. All covers shall include special markings: "GROUND".
- B. Boxes and covers shall be manufactured by Christy Concrete G03, or equal.

## **3. EXECUTION**

### **3.1 GROUNDING**

- A. General: When sizes are not specifically indicated on the drawings, grounding cable shall be sized by the **Contractor** in accordance with all applicable code requirements. The location of ground rods shall be as indicated. The grounding system shall be in strict accordance with Article 250 of the NEC.
- B. Equipment Ground: Ground continuity throughout the facility shall be maintained by means of a ground conductor run in all conduits. Grounding conductors which are run in conduit shall be insulated copper conductors, sized in accordance with the NEC and the drawings. Conductors shall meet the requirements of Section 26 06 20 – Wires and Cables.
  - 1. Make connections of any grounding conductors to motors 10 hp and above or circuits 20 amps or above by a solderless terminal and a 5/16-inch minimum bolt tapped to the motor frame or equipment housing. Ground connections to smaller motors or equipment may be made by fastening the terminal to a connection box. Connect junction boxes to the equipment grounding system with a 3/8-inch machine screw.
  - 2. Completely remove all paint, dirt, or other surface coverings at grounding conductor connection points so that good metal-to-metal contact is made.
  - 3. Bond all exposed structural members and metallic enclosures of electrical equipment, including Utility Meter, MCC, ATS, existing Generator, magmeter water piping, fencing, to the ground ring by means of bare copper cable or strap. Unless otherwise indicated on the Contract Drawings, the ground connections direct to the ground mats shall be No. 2 AWG for equipment rated 240 volts; and No. 6 for 120-volt equipment. Route all exposed grounding conductors in galvanized rigid steel conduits.



- C. Grounding Electrode System: The **Contractor** shall install the grounding electrode system with all required components in strict accordance with National Electrical Code Article 250.
  - 1. Connection to ground electrodes and ground conductors shall be bolted pressure type where exposed or above grade. Bolted connectors shall be assembled wrench tight to manufacturer's requirements. Ground rings shall have a minimum buried depth of 36 inches below finished grade. Connections to ground conductors shall be exothermic where installed below grade.
  - 2. Insulated throat grounding fittings shall be employed for all grounding connections to steel conduits. Provide solid #10 AWG, bare copper wire, tying all insulated throat grounding fittings together, and to ground bus that is tied into ground grid.
  - 3. Within slab on grade the grounding cable shall be embedded in or installed beneath the slab. Provide exothermic weld between concrete encased grounding conductor and the slab on grade reinforcement bars.
  - 4. Bonding jumper shall be sized as shown and, if not shown, shall be sized per the requirements of National Electrical Code Article 250.
  - 5. Bond neutral at Utility Meter to grounding electrode system, refer to Contract Drawings.
  - 6. In ground rod boxes, install ground rods with one end exposed six inches above a sand backfill with bolted connections of grounding conductors fully visible and accessible.
- D. Shield Grounding
  - 1. Shielded instrumentation cable shall be grounded at one end only; this shall typically be at the "receiving" end of the signal carried by the cable.
  - 2. Termination of each shield drain wire shall be on its own terminal screw. All of these terminal screws in one rack shall be jumpered with No. 16 solid tinned bare copper wire. The connection to the ground shall be accomplished with a No. 12 green insulated conductor to the ground bus.

### 3.2 FIELD TESTS

- A. All grounding shall be installed prior to start of Pre Demonstration period.
- B. All tests to be witnessed and signed off by the **Engineer**.
- C. In the **Engineer's** presence, test the ground resistance of the grounding system using the Institute of Electrical and Electronics Engineers (IEEE) "Fall of Potential Method."
- D. Test all ground fault interrupter (GFI) receptacles and/or GFI circuit breakers for proper connection and operation with methods and instruments prescribed by the manufacturer.
- E. Provide copies of reports of all grounding system tests for inclusion in O&M Manuals and for review by the **Engineer**.
- F. Refer to Specification 26 08 00 – Electrical Testing for further testing requirements.

- G. Grounding tests shall be completed and approved prior to energizing electrical equipment.

**\*\*END OF SECTION\*\***

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**SECTION 26 05 33**  
**ELECTRICAL RACEWAY SYSTEMS**

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## SECTION 26 05 33

### ELECTRICAL RACEWAY SYSTEMS

#### 1. GENERAL

##### 1.1 SECTION INCLUDES

- A. The **Contractor** shall provide electrical raceway systems, complete and in place, in accordance with the Contract Documents.

##### 1.2 CONTRACTOR SUBMITTALS

- A. General: Submittals shall be furnished in accordance with Section 26 05 00 – Electrical Work, General.
- B. Shop Drawings: Complete catalog cuts of all raceways, fittings, boxes, supports, and mounting hardware, marked where applicable to show proposed materials and finishes.
- C. Tags and Inscriptions: **Contractor** to provide conduit tags and inscriptions. Submit tag materials and inscription schedules for approval.

##### 1.3 QUALITY ASSURANCE

- A. Seismic Design Requirements: All raceway systems to be furnished under this Section shall be designed and constructed to meet the seismic requirements of Section 26 05 00 – Electrical Work, General.
- B. The **Contractor** shall demonstrate to the **Engineer** that the approved manufacturer's recommended installation tools and methods are being utilized on the job site by all persons engaged in the installation of PVC-coated rigid steel conduit, elbows, nipples, and fittings. These tools and methods shall include, but not be limited to, clamp inserts for use on power-driven units of chain vises, new die heads and enlarged pipe guides in conduit threading machines, and strap wrenches and extra wide wrench jaws for use in conduit assembly.

#### 2. PRODUCTS

##### 2.1 GENERAL

- A. Pull and junction boxes, fittings, and other indicated enclosures which are dedicated to the raceway system, shall comply with the requirements of this Section.
- B. Set screw type couplings, bushings, elbows, nipples and other fittings are not allowed.
- C. No conduit shall be smaller than ¾-inch. All underground conduits shall be a minimum of one inch.
- D. Conduits containing manufacturer cables shall be sized based on approved manufacturer cable at minimum 40-percent fill, unless approved by the **Engineer**.

## 2.2 CONDUIT

- A. Rigid Galvanized Steel (RGS) Conduit
  - 1. Rigid steel conduit shall be mild steel, hot-dip galvanized inside and out.
  - 2. Rigid steel conduit and all appurtenances shall be manufactured in accordance with ANSI C80.1 – Rigid Steel Conduit, Zinc Coated, and UL-6.
  - 3. Manufacturers, or equal:
    - a. Allied Conduit
    - b. Western Tube and Conduit
- B. Rigid Non-Metallic (PVC) Conduit
  - 1. Rigid non-metallic conduit shall be Schedule 40 PVC, sunlight resistant, UL listed for concrete encasement. Conduit shall have factory-formed bell on one end.
  - 2. Rigid PVC conduit shall be manufactured in accordance with NEMA TC-2 – Electrical Plastic Tubing and Conduit, and UL-651 – Standard for Rigid Non-metallic Conduit standards.
  - 3. Conduit shall be marked for use with conductors having 90° C insulation.
  - 4. Provide PVC conduits for primary and secondary electrical service as required by the Sacramento Municipal Utility District.
  - 5. Manufacturers, or equal:
    - a. Carlon Plus Rigid PVC
    - b. PW Pipe
- C. Rigid PVC Coated Galvanized Steel (PVCRGS) Conduit
  - 1. The conduit, prior to PVC coating, shall meet the requirements for RGS conduit above.
  - 2. A PVC coating shall be bonded to the outer surface of the galvanized conduit. The bond between the coating and the conduit surface shall be greater than the tensile strength of the coating.
  - 3. PVC coating thickness shall be not less than 40 mils. Interior coating shall be minimum 2 mil urethane. All male threads on conduit, elbows and nipples shall be protected by urethane coating.
  - 4. PVCRGS shall be manufactured in accordance with the following standards:
    - a. UL-6
    - b. ANSI C80.1
    - c. NEMA RN1 – PVC Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit
    - d. Federal Specification WW-C-581E.

5. Conduits shall be suitable for conductors with 75° C insulation.
6. Manufacturers:
  - a. Robroy Plasti-Bond Red
  - b. Occidental Coating Company OCAL-Blue Double-Coat
  - c. Perma-Cote Industries Supreme Conduit
- D. Liquidtight Flexible Metal Conduit
  1. Liquidtight flexible metal conduit shall be constructed of a flexible galvanized metal core with a sunlight resistant thermoplastic outer jacket.
  2. Liquidtight flexible metal conduit shall be manufactured in accordance with UL-360 - Steel Conduits, Liquid-Tight Flexible.
  3. Conduits shall have insulated throat and stainless steel sealing O-ring.
  4. Manufacturers, or equal:
    - a. Anaconda, "Sealtite" Type UA
    - b. Electriflex, "Liquatite" Type LA

## **2.3 FITTINGS AND CONDUIT BODIES**

- A. General
  1. All cast and malleable iron fittings for use with metallic conduit shall be the threaded type with five full threads.
  2. All fittings and conduit bodies shall have neoprene gaskets and non-magnetic stainless steel screws. All covers shall be attached by means of holes tapped into the body of the fitting. Covers for fittings attached by means of clips or clamps will not be allowed.
  3. Conduit, fittings, and conduit bodies in hazardous locations shall be suitable for the Class and Division indicated.
- B. Fittings and Conduit Bodies for Rigid Steel Conduit
  1. Use insulated throat grounding bushings for all rigid steel conduit ends. Bushings shall be threaded zinc-plated malleable iron grounding bushings with bonding screw and insulated throat rated for 150 degrees C. Acceptable products include: Thomas & Betts Grounding and Bonding Bushings, OZ Gedney Type BLG, Appleton Threaded Grounding Bushings, or equal.
  2. Watertight hubs for rigid steel conduit shall be male thread type zinc-plated malleable iron with recessed "O" ring sea, insulated throat and ground bonding locknut. Acceptable products: OZ Gedney Type CHM-T, Myers STG series, or equal.
  3. For conduits bodies for rigid steel conduit sized as required by the NEC, use cast iron conduit bodies and covers with captive stainless steel screws and neoprene gaskets.

Acceptable products include: Crouse-Hinds Form 8 threaded condulets, OZ Gedney Form 8 threaded conduit bodies, or equal.

C. Fittings for Liquidtight Flexible Metal Conduit

1. Liquidtight flexible metal conduit fittings shall have cadmium-plated malleable iron body and gland nut with cast-in lug, brass grounding ferrule threaded to engage conduit spiral and o-ring seals around the conduit and box connection and insulated throat. Straight, 45 degree and 90 degree fittings shall be used where applicable.
2. For areas designed as wet, use galvanized steel-insulated throat connectors for liquid-tight flexible metal conduit, suitable for use in wet locations, with a minimum 40 mil PVC exterior coating and pressure sealing sleeves. Acceptable products include: Robroy Plasti-Bond Red Liquid-tight Connectors, Occidental Coating Company OCAL-Blue Double-Coat Sealtight Connectors, Perma-Cote Industries Supreme Liquid-tight Connectors, or equal.

D. Fittings and Conduit Bodies for PVC

1. All fittings for use with rigid non-metallic conduit shall be PVC, solvent welded type.
2. Provide all welding solvent as required for installation of non-metallic conduit and fittings.
3. Manufacturers, or equal:
  - a. Carlon
  - b. Crouse-Hinds

E. Fittings and Conduit Bodies for PVC Coated Rigid Steel Conduit

1. Use insulated throat grounding bushings for PVC Coated Rigid Steel conduit. Provide threaded zinc-plated malleable iron grounding bushings with bonding screw and insulated throat rated for 150° C. Acceptable products include: Thomas & Betts Grounding and Bonding Bushings, OZ Gedney Type BLG, Appleton Threaded Grounding Bushings, or equal.
2. Watertight resistant hubs for PVC Coated Rigid Steel conduit shall have a minimum 40 mil PVC exterior coating, a urethane interior coating, and pressure sealing sleeves. Acceptable products include: Robroy Plasti-Bond Red Type ST Hub, Perma-Cote Industries Supreme Type ST Hub, Occidental Coating Company OCAL-Blue Double-Coat Type ST Hub, or equal.
3. For conduit bodies for use with PVC Coated Rigid Steel conduit, sized as required by the NEC, use cast iron conduit bodies and covers with captive stainless steel screws, a 40 mil minimum PVC exterior coating and nominal 2 mil internal urethane coating, and pressure sealing sleeves on all conduit openings. Acceptable products include: Robroy Plasti-Bond Red Form 8 Conduit Bodies, Occidental Coating Company OCAL-Blue Double-Coat Form 8 Conduit Bodies, Perma-Cote Industries Supreme Form 8 Conduit Bodies, or equal.

## **2.4 JUNCTION AND PULL BOXES**

- A. Junction and pull boxes shall be provided by the **Contractor** as required to make the installation in accordance with NEC. Size junction and pull boxes in accordance with the NEC for the number of conductors enclosed in the box.
- B. Where outlet boxes are used as junction or pull boxes, use materials as specified in Section 26 27 26 – Wiring Devices.
- C. Where boxes larger than outlet or device boxes are required for junction of pull boxes, provide the following:
  - 1. Utilize NEMA 4 watertight and raintight enclosures for outdoor locations or where the subscript WP (weatherproof) is indicated at the box location on the Drawings. Furnish 14-gauge or 16-gauge steel enclosures with continuously welded seams, continuous door hinge, external fast operating clamp cover, external mounting feet, oil-resistant gasket and adhesive, and a polyester powder coating inside and outside. Acceptable products include: Hoffman Bulletin A51NF Boxes, or equal.
  - 2. Utilize NEMA 4X watertight and raintight enclosures for corrosive locations. Provide boxes similar to NEMA 4 above, except 304 stainless steel. Acceptable products include: Hoffman Bulletin A51S Boxes, or equal.

## **2.5 CONDUIT TAGS**

- A. Provide permanent, stainless steel, 1-1/2" diameter, conduit tags with conduit numbers as designated on the conduit schedule drawings, pressure stamped onto the tag and painted red. Tags relying on adhesives or taped-on markers are not acceptable. Attach tags to conduits with 316 stainless steel tie wire. Tag required at each end of the conduit and at intermediate pull boxes.
- B. Acceptable products include: Seton Style #MA0220 with red paint on stainless steel 1-1/2" diameter tags, or equal.

## **2.6 CONDUIT STRAPS AND SUPPORTS**

- A. All conduit straps and supports shall be of same material as conduit, including pipe straps, clamp back spacers, beam clamps, and other supports and fittings. For example if conduits are PVC coated galvanized rigid steel, all conduit clamps shall be PVC coated galvanized rigid steel.
- B. Strut and mounting hardware shall be per Table 1 in Section 26 05 00 – Electrical Work, General.

## **2.7 DUCT SEAL**

- A. Duct seal shall be a non-hardening compound designed as a waterstop and moisture barrier for sealing the annular space between conduit and electrical conductors and cables.
- B. Acceptable products include: O-Z Gedney DUX, or equal.



## 2.8 PULL TAPE

- A. Pull tape shall be ½-inch in width, suitable for 1,250 pounds of pull strength.
- B. Acceptable products include: Neptco Muletape WP1250P, or equal for non-detectable pull tape.

## 3. EXECUTION

### 3.1 GENERAL

- A. **Contractor** to have approved Raceway Routing Drawings prior to installation of conduits.
- B. Raceway systems shall be electrically and mechanically complete before conductors are installed. Bends and offsets shall be smooth and symmetrical, and shall be accomplished with tools designed for this purpose. Factory elbows shall be utilized wherever possible.
- C. Raceway sizes shown on Drawings are minimum dimensions based on designed equipment. **Contractor** to provide conduits as shown or larger based on submitted and approved equipment; at no extra cost to the **District**. **Contractor** is responsible to provide conduits large enough for submitted and approved intake pump motor leads, per NEC.
- D. Conduits located underground shall be concrete capped where three or less conduits in common trench, or encased in non-reinforced concrete. Conduits shall be supported with conduit spacers installed every five feet, refer to Section 26 05 43 for specification. Provide a minimum cover of two feet over the top of conduit for all underground raceways.
- E. Where raceways are indicated but routing is not shown, such as home runs or on conduit schedules; raceway routing shall be the **Contractor's** choice and in strict accordance with the NEC.
- F. Routings shall be adjusted to avoid obstructions. Coordinate with all other trades prior to installation of raceways. Lack of such coordination shall not be justification for extra compensation, and removal and re-installation to resolve conflicts shall be at no extra cost to the **District**.
- G. All exposed raceways shall be installed at least ½-inch from walls by the use of clamp backs or struts.
- H. Wherever contact with concrete or dissimilar metals can produce galvanic corrosion of equipment, suitable insulating means shall be provided to prevent such corrosion.
- I. Support
  - 1. Support raceways at intervals not exceeding NEC requirements unless otherwise indicated. Support all raceways from structural members only.
  - 2. Support flexible metal conduit with conduit clamps, except where the flexible metal conduit is fished and where sections less than four feet in length are used in concealed areas and as approved by **Engineer**.

J. Bends

1. Make changes in the direction of runs with symmetrical bends or cast metal fittings. Make bends and offsets of the longest practical radius. Avoid field-made bends and offsets where possible; but, where necessary, make with an acceptable hickey or conduit bending machine.
2. For PVC non-metallic conduits, use factory made elbows for all bends 30 degrees or larger.

K. Insulated Throat Grounding Bushings and Conduit to Enclosure Connections

1. Where conduit enters metal enclosure, install an insulated throat grounding bushing on the end of each conduit. Install a #10 AWG bonding jumper from the bushing to equipment ground bus or ground pad. Interconnection of bonding jumpers from each conduit grounding bushing to the equipment ground bus or ground pad is acceptable. If neither a ground bus or ground pad exists, connect the bonding jumper to the metallic enclosure with a bolted-lug connection.
2. All NEMA 4 and 4X enclosures without integral watertight hubs shall be connected with insulated throat grounding hubs. The conduit connections shall maintain the integrity of the enclosure NEMA rating.
3. Liquid-tight PVC jacketed flexible metal conduit connections shall be corrosive resistant, watertight hub.

L. PVC Schedule 40 Conduit: Solvent weld PVC conduit joints with solvent recommended by the conduit manufacturer. Follow manufacturer's solvent welding instructions and provide watertight joints. Use acceptable PVC terminal adapters when joining PVC conduit to metallic fittings. Use acceptable PVC female adapters when joining PVC conduit to galvanized rigid metal conduit or PVC coated rigid steel conduit.

M. PVC Coated Rigid Steel Conduit: Install in strict accordance with the manufacturer's instructions. Touch up any damage to the coating with conduit manufacturer acceptable patching compound. PVC boot shall cover all threads. Leave no metallic threads uncovered. Clean field threads with solvent and coat with urethane touch-up.

N. Penetrations

1. Conduits shall not be cast as part of cast-in-place structures. Cast-in-place structures shall include sleeves, and conduits shall pass through the sleeves to penetrate the structures. Coordinate sleeve installation with structural work.
2. All conduits leaving an above ground panel or enclosure or MCC, and routed underground, shall be sealed with duct seal compound.

O. Final Connection to Certain Equipment: Make final connection to motors, instrumentation and other equipment where flexible connection is required to facilitate removal or adjustment of equipment with liquidtight flexible metal conduit. Liquidtight flexible metal conduit shall be of 12-inch minimum to 24-inch maximum lengths, unless otherwise approved by the **Engineer**.

### 3.2 CONDUIT

- A. All exposed conduit shall be as noted in Area Designations per Specification 26 05 00.
- B. Exposed conduits shall be 3/4-inch minimum trade size. Below grade conduits shall one-inch minimum trade size, unless shown otherwise.
- C. All threads shall be coated with a conductive lubricant before assembly. Acceptable products include: Appleton Type TLC, Thomas & Better KOPR-Shield, or equal.
- D. Joints shall be tight, thoroughly grounded, secure, and free of obstructions in the pipe. All conduits shall be adequately reamed to prevent damage to the wires and cables inside. Strap wrenches and vises shall be used to install conduits to prevent wrench marks on the conduits. Conduits with wrench marks shall be replaced at no additional cost.

### 3.3 PREPARATION FOR PULLING IN CONDUCTORS

- A. Ream all raceways, remove burrs, and clean raceway interiors. Immediately after installation, plug or cap all raceway ends with watertight and dust-tight seals.
- B. Pull a bristle brush and rag through each raceway to remove any debris and clean raceway prior to pulling conductors. For conduits one inch and less, pull a rag through to clean and remove debris prior to pulling conductors.
- C. For all raceways which contain less than 50 percent of the NEC allowed fill, install a pull tape along with the conductors.

### 3.4 EMPTY RACEWAYS

- A. Certain raceways will have no conductors pulled in as part of this **Contract**. Identify with conduit tags at each end and at any intermediate pull point of each such empty raceway. Provide a removal cap over each end of empty raceways. Provide a pull tape in each empty raceway.

### 3.5 JUNCTION AND PULL BOXES

- A. Where indicated on the Contract Drawings, and where necessary, redirect multiple conduit and cable runs and provide and install appropriately-sized junction boxes. Furnish and install pull boxes where necessary in the raceway system to facilitate conductor installation.
- B. Make all boxes accessible. Do not install boxes in finished areas unless accepted in writing by the **Engineer**. Mount all boxes plumb and level.
- C. Conduit bodies maybe used for junction or pull boxes as long as sized for installation and only where approved by **Engineer**.

### 3.6 ELECTRICAL CONTINUITY

- A. The entire electrical raceway system shall form a continuous metallic electrical conductor from the service point to every outlet and shall be grounded by connection to the main service ground.

- B. Rigid steel conduits shall have threads coated with conductive sealant before screwing into fittings.
- C. A ground wire shall be installed in all conduits. Conduits shall not be substituted for the grounding wire. Bond together the conduit system, enclosures, grounding system, and equipment bus bars.

### **3.7 CONDUIT IDENTIFICATION**

- A. All conduits shall be identified with minimum of two labels, one at either end. Labels shall be permanent, waterproof, legible, and attached with stainless steel wire.
- B. All conduit labels shall be provided with submitted and approved inscription. Conduits shall be labeled prior to pulling cables and prior to beginning Pre Demonstration period.

**\*\*END OF SECTION\*\***

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**UNDERGROUND RACEWAY SYSTEMS**

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## SECTION 26 05 43

### UNDERGROUND RACEWAY SYSTEMS

#### 1. GENERAL

##### 1.1 SECTION INCLUDES

- A. The **Contractor** shall provide underground raceway systems, complete and in place, in accordance with the Contract Documents.
- B. All substructures utilized for utility service shall be per serving utility standards.

##### 1.2 CONTRACTOR SUBMITTALS

- A. General: Submittals shall be furnished in accordance with Section 26 05 00 – Electrical Work, General.
- B. Shop Drawings: Complete catalog cuts of all underground raceway systems, including conduits, ductbanks, trenches, etc.
- C. Tags and Inscriptions: **Contractor** to provide handhole labels and conduit tags with inscriptions. Submit label and tag materials and inscription schedules for approval. Refer to Section 26 05 33 – Electrical Raceway Systems for conduit tag information.
- D. Underground raceway system shall be documented on Raceway Routing Drawings to be submitted and approved prior to installation and as-built for record drawings. Refer to Section 26 05 00 – Electric Work, General. Provide surveyed as-built drawings of all installed ductbanks providing top-of-ductbank elevation, ductbank width, and routing. Include cross-section information for all ductbank sections.

#### 2. PRODUCTS

##### 2.1 GENERAL

- A. Handholes, conduits and fittings which are dedicated to the underground raceway system shall comply with the requirements of this Section.

##### 2.2 UTILITY EQUIPMENT AND SUBSTRUCTURES

- A. Provide all substructure preparation and compaction as required per applicable utility standards.
- B. Provide and install riser pole with weatherhead, conduits, pulltape and grounding per utility standards.
- C. Provide and install conduits per applicable utility standards.
- D. Provide and install grounding and bonding system at applicable utility standards.

## **2.3 HANDHOLES**

- A. Handholes and special marking covers shall be designed for AASHTO M309 H-20 traffic loading. Handhole covers shall be checker plate, hot-dip galvanized after fabrication and provided with security "Penta" style bolts. Provide handholes as required for pulling conductors based on field installed conduit routing; no more than 270 degrees total per underground conduit run without a handhole.
- B. Handholes for electrical or control shall have identification letters one-inch high and ¾-inch wide minimum, indicating "ELECTRIC" or "SIGNAL", as applicable. Handhole identification shall be inscribed on one-inch high and ¾-inch wide plastic phenolic nameplates. Nameplates shall be epoxy glued to cover.
- C. Acceptable products include: Christy Concrete B1017, B1730 with extensions, check plate hot dipped galvanized cover, and security bolts, or equal. Provide with identification lettering and inscribed handhole tag number nameplate on cover.

## **2.4 DUCTS, SPACERS AND CONCRETE**

- A. Underground ducts shall be Schedule 40 PVC. Refer to Section 26 05 33 – Electrical Raceway Systems for PVC conduit specification. Provide end bells on all conduit ends.
- B. Conduit spacers shall be Carlon Snap-Loc Spacers, or equal, with minimum 1-½" duct separation and installed at five foot on center intervals.
- C. Concrete shall be Class E type.

## **2.5 WARNING TAPE**

- A. Provide heavy-gauge, red, non-adhesive polyethylene tape of six-inch minimum width, four-mils nominal thickness, with black lettering, for use in trenches containing electric circuits. Use tape with the following printed warning: "CAUTION-ELECTRIC LINE BURIED BELOW".
- B. Acceptable products include: Harris Industries, Inc. Underground Tape Catalog No. UT-29, or equal.

## **3. EXECUTION**

### **3.1 GENERAL**

- A. Underground conduits and substructures for utilities shall be inspected by utility representative.
- B. Include ductbanks with 1-½" conduit spacers at five foot on center intervals. Provide a minimum cover of two feet over the top of conduit for all underground raceways.
- C. Do not install concrete or backfill above underground raceways until they have been inspected by the **Engineer**.
- D. Warning Tapes: Bury warning tapes approximately 16 inches above top-of-conduits in all underground conduit ductbanks. Align parallel to and within six inches of the centerline

of runs that are 12 inches wide or less. Provide two tapes and align parallel to and within six inches of the centerline of each side of runs that are more than 12 inches wide.

### **3.2 TRENCHING**

- A. Verify the location of all existing cables, conduits, piping, and other equipment in or near the areas to be trenched, prior to starting trenching. Repair any equipment damaged during trenching. Call an Underground Service firm before trenching. Trenches shall not be left unattended unless the area is fenced or barricaded to restrict entry to the area.

### **3.3 DUCTBANKS AND TRENCHING**

- A. Separation and Support
  - 1. Support raceways installed in fill areas to prevent accidental bending until backfilling is complete. Tie raceways to supports, and raceways and supports to the ground and sides, so that raceways will not be displaced when concrete or earth backfill is placed.
- B. Arrangement and Routing
  - 1. Make minor changes in the location or cross-section as necessary to avoid obstructions or conflicts. Where raceway runs cannot be installed substantially as shown on submitted and approved layout drawings because of conditions not discoverable prior to digging of trenches, refer the condition to the **Engineer** for instructions before further work is done. Determine exact alignment and depth as required to avoid other utilities.
  - 2. Where other utility piping systems are encountered or being installed along a raceway route, maintain a 12-inch minimum vertical separation between raceways and other systems at crossings. Do not place raceways over valves or couplings in other piping systems. Refer conflicts with these requirements to the **Engineer** for instructions before further work is done.
  - 3. Ductbank alignments shown on Drawings are diagrammatic. Actual alignments shall contain no sharp bends and shall be installed with minimum radius bends as required in the NEC or installed cable, whichever requires a larger radius bend.
  - 4. Provide bell-ends on all PVC conduits entering handholes or stubbing up into freestanding equipment.
- C. Concrete Cap
  - 1. Encase or cap all underground conduits with Class E concrete.
  - 2. Hold conduits for concrete-encased raceways securely in place by conduit spacer supports.
  - 3. Envelopes may be poured directly against the sides of trenches if the cut is clean, even, and free of loose material. Remove loose material from trenches before and during the pouring of concrete to ensure sound envelopes. Carefully spade concrete during pouring



to eliminate all voids under and between raceways and honeycombing of the exterior surface.

4. Do not use power-driven tampers or agitators unless they are specifically designed for the application.
5. Backfill material or above concrete envelope of concrete-encased conduit or concrete cap, may be selected from the excavated material if it contains no particles larger than three inches in diameter and is free from roots or debris. Imported material meeting these same requirements may be used in lieu of material from the excavation. Compact backfill in maximum 12-inch layers to at least 95 percent of the maximum density at optimum moisture content as determined by AASHTO T 180.

### **3.4 HANDHOLES**

- A. Provide excavation, backfilling, compaction and grading, etc., in accordance with requirements specified in Contract Documents.
- B. Do not install handholes until final conduit grading, including field changes necessitated by underground interferences, has been determined. Set frames just above final grade so that the site drains away from the handholes.
- C. Make the installation so that raceways enter handholes at nearly right angles and as near as possible to one end of a wall, unless otherwise indicated.
- D. Provide for over-excavation of the handhole foundation area and furnish minimum of one-foot depth of  $\frac{3}{4}$ -inch drain rock below the handhole and six inches on all sides.

### **3.5 CONDUIT IDENTIFICATION**

- A. All underground conduits shall be identified with minimum of two labels, one at either end.
- B. Conduits shall be labeled prior to pulling cables and prior to beginning Pre Demonstration period. All conduit labels shall be provided with submitted and approved inscriptions.

### **3.6 PREPARATION FOR PULLING IN CONDUCTORS**

- A. Ream all raceways, remove burrs, and clean raceway interiors. Immediately after installation, plug or cap all raceway ends with watertight and dust-tight seals.
- B. Pull a bristle brush and rag through each raceway to remove any debris and clean the raceway prior to pulling conductors. For conduits of one inch and less, pull a rag through to clean and remove debris prior to pulling the conductors.
- C. For all raceways which contain less than 50 percent of the NEC-allowed fill, install a pull tape along with the conductors.

### **3.7 EMPTY RACEWAYS**

- A. Certain raceways will have no conductors pulled in as part of this **Contract**. Identify them with conduit tags at each end and at any intermediate pull point of each such empty

raceway. Provide a removal cap over each end of empty raceways. Provide a pull tape in each empty raceway.

### **3.8 TRENCH SETTLING**

- A. If, at any time during a period of one year dating from the date of final acceptance of the project, there shall be any settlement of conduit trenches, the **Engineer** may notify the **Contractor** to immediately provide additional fill and to make such repairs or replacements in paving, planting, or structures, as may be deemed necessary at the **Contractor's** expense.

**\*\*END OF SECTION\*\***

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**SECTION 26 05 74**  
**PROTECTIVE DEVICE STUDIES**

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## SECTION 26 05 74

### PROTECTIVE DEVICE STUDIES

#### 1. GENERAL

##### 1.1 SECTION INCLUDES

- A. The **Contractor** shall perform the following protective device studies for the electrical power system in accordance with the Contract Documents: Short Circuit Study, and Arc Flash Study.
- B. The studies shall cover the maximum available 3-Phase Faults and line-to-ground faults to calculate minimum equipment ratings, to establish personnel protective wear and for Arc Flash label information.
- C. It is the responsibility of the **Contractor** to obtain from PG&E the information required to perform all of the studies. The **Contractor** shall contact PG&E and obtain the short circuit contribution and impedance values in writing for these facilities that are needed for these studies and submit to the **Engineer**. Information from PG&E shall be for permanent service, not temporary electrical service.
- D. It is the responsibility of the **Contractor** to obtain from appropriate vendors the information required to perform all the studies. The **Contractor** shall contact the protective device manufacturers and obtain the ratings and time current curves for all protective devices including circuit breakers, motor circuit protectors, and overload protective elements.
- E. The **Contractor** shall perform all needed field investigation and inspections to properly identify equipment including motors and any appropriate settings and nameplate data to get the correct information to work with including impedance values, voltage ratings, base kVA ratings, cable lengths, and/or current ratings for final studies submittal.
- F. A Preliminary Short Circuit Study shall be prepared and submitted early in the project to verify the suitability of submitted equipment short circuit and arc flash ratings and allow for **Engineer** approval. The **Contractor** shall use the first named supplier for the preliminary studies. The **Contractor** may estimate cable lengths for the preliminary study.
- G. Arc Flash labels must be installed prior to energizing. Install arc flash label with fault calculations at main breaker of Utility Meter. Install additional arc flash label at MCC main disconnect, and on door of VFD section of MCC.
- H. After the facilities are built and operating, all comments on the studies and studied equipment shall be addressed and all corrections made to input data and the two studies submittal for Record Set. The Record Set of the studies shall include all calculations rerun, copies of arc flash labels, tabulations corrected, reports adjusted reflecting the post Field Tested as-built equipment with as left settings. Provide electronic files of study from SKM

software. Submit per O&M Manual guidelines per Section 26 05 00 – Electric Work, General.

## **1.2 QUALIFICATIONS**

- A. Studies shall utilize the latest SKM software for making 3-Phase Fault duty calculations.
- B. The Preliminary, Final and Record Set of studies shall be thoroughly reviewed, stamped and signed by an electrical engineer who is registered in the state of California, who has experience performing short circuit studies, and who directly supervised the collection of information, the creation of the studies and the furnishing of reports.

## **1.3 CONTRACTOR SUBMITTALS**

- A. Studies shall be submitted and approved prior to final project acceptance in accordance with Section 26 05 00 – Electric Work, General.
- B. Preliminary Short Circuit Study shall be submitted and approved prior to approval of MCC.
- C. Copy of Arc Flash labels inscriptions with a description of the installed location. Labels shall meet NEC requirements.
- D. The protective device studies, reports, settings, calculations, plots and tabulations shall be performed, including two rounds of submittals (Final and Record Set), in addition to the Preliminary Study to allow approval of distribution equipment short circuit protective devices. The Final Studies (after the Preliminary Study) as a part of normal construction, setup and startup of the facilities to be approved prior to Field Testing. The Record Set with the O&M Manual submittal process as a separate submittal after all comments, corrections, updated input data, and as left settings have been inserted into the software programs to produce an as-built set of studies, reports, settings, calculations, labels, plots and tabulations.
- E. A portable thumb drive of the as-built set of studies, reports, settings, calculations, plots and tabulations utilizing SKM software.
- F. A separate portable thumb drive of the original source format of input data used as direct input to the selected software to perform the calculations, generate the reports, generate the tabulations, plot the curves and graphs, and list the device settings for the as-built facilities.

## **1.4 SERVICES OF MANUFACTURERS**

- A. **Contractor** shall furnish the services of a third party InterNational Electrical Testing Association (NETA) testing firm to set all over-current protective devices. This shall include circuit breaker trip unit settings, motor VFD overcurrent settings, all as recommended in the protective device coordination study.

## **2. PRODUCTS (NOT USED)**

## **3. EXECUTION**

### 3.1 GENERAL

- A. The study shall include single-line and impedance diagrams of the power system. This diagram shall identify all components considered in the study and the ratings of all power devices, including circuit breakers, relays, fuses, busses, and cables. The resistances and reactances of all cables shall be identified in the impedance diagram. The study shall contain all written data from the electric utility company regarding maximum available short circuit current, voltage, and X/R ratio of the utility power system.
- B. The study shall include all protective devices and feeders included under this **Contract**. The PG&E short circuit information and overcurrent protective device and ground fault protective device shall be used as a fixed reference and starting point for these studies.
- C. The work shall be performed in the following sequence:
  - 1. A Preliminary Short Circuit Study, approved by the **District** and the **Engineer**.
  - 2. Submit electrical equipment with short circuit rating greater than maximum available fault current per Preliminary Short Circuit Study.
  - 3. Final Protective Device Studies submitted: Short Circuit Study and Arc Flash Study, as approved by the **District** and the **Engineer**.
  - 4. Set all adjustable protective devices, as applicable to project equipment.
  - 5. Install approved arc flash labels on equipment.
  - 6. Provide Electrical Testing per Section 26 08 00 – Electrical Testing.
  - 7. Energize equipment. Equipment shall not be energized until Sequence Steps 1 through 6 above are completed and approved by the **District** and the **Engineer**.
  - 8. Provide further testing including, but not limited to manufacturer recommended field testing, Pre Demonstration testing, Demonstration 7 day functional testing, and as required by the Specifications.
  - 9. Update and replace arc flash labels on equipment if protective device settings are modified during testing and start-up phase.
  - 10. Complete Record Set of Protective Device Studies, approved by the **District** and the **Engineer**.

### 3.2 SHORT CIRCUIT STUDY

- A. The Short Circuit Study shall be performed with the aid of a digital computer program, and shall be in accordance with:
  - 1. ANSI/IEEE 141 – Recommended Practice for Electrical Power Distribution for Industrial Plants
  - 2. ANSI/IEEE 242 – Recommended Practice for Protection, and Coordination of Industrial, and Commercial Power Systems
  - 3. ANSI/IEEE C 37.13 – Low-Voltage AC Power Circuit Breakers Used in Enclosures

- B. The Short Circuit Study shall be performed to determine the adequacy of circuit breakers and fuses. Any problem areas or inadequacies in the equipment due to prospective short-circuit currents shall be promptly brought to the **Engineer's** attention.
- C. Do not utilize series-rated circuit breakers to meet short circuit requirements for this project. Devices shall be fully rated to withstand available fault currents.
- D. The **Contractor** shall as-built the Short Circuit Study and rerun and adjust all the reports, calculations, device settings and output tabulations for all the protective devices reflecting the as-built facilities after all corrections have been inserted into the input data and all previous comments have been addressed.

### 3.3 ARC FLASH STUDY

- A. The Arc Flash Study shall be performed with the aid of a digital computer program to cover the whole power distribution system. The Arc Flash Study shall calculate, determine and report the "Arc Flash Boundary" incident energy at 18 inches expressed in cal/sq-cm, voltage shock hazard, limited shock approach boundary, restricted shock approach boundary, prohibited shock approach boundary and "Personal Protective Equipment" (PPE) level. The Arc Flash Study shall calculate and determine these items for electrical equipment in the power distribution system study. The Arc Flash Study shall be performed in conjunction with short circuit calculations and protective device coordination. The Arc Flash Study shall be done for worst-case analysis, considering minimum/maximum utility fault current and with motors either on or off. The Arc Flash Study shall be in accordance with the latest version of:
  - 1. NFPA 70E – Standard for Electrical Safety Requirements for Employee Workplaces
  - 2. IEEE 1584 – Institute of Electrical and Electronics Engineers (IEEE) guide for performing Arc Flash Hazard Calculations
  - 3. OSHA (29 CFR PART 1910) – Occupational Safety and Health Standards for General Industry
  - 4. ANSI Z535.1 – Safety Color Code
  - 5. ANSI Z535.3 – Criteria For Safety Symbols
  - 6. ANSI Z535.4 – Product Safety Signs and Labels

All calculation shall be performed in accordance with IEEE 1584. The use of thumb rules is not acceptable in place of a calculated value as shown in IEEE 1584.

- B. The study shall determine and report the following: The recommended values for the "Arc Flash Boundary" incident energy at 18 inches expressed in cal/sq-cm, voltage shock hazard, limited shock approach boundary, restricted shock approach boundary, prohibited shock approach boundary and PPE levels, based on the Arc Flash Study results. These results shall be tabulated with all identified equipment or short circuit interrupting items in the short circuit and coordination study.
- C. The study shall recommend the Personal Protective Equipment (PPE) that the **District** should wear for standard maintenance and operations expected to be conducted for this

electrical system. The study shall recommend the safety label design that should be posted on electrical equipment; Contractor shall provide and install safety labels. The study shall recommend the specific information that should be typewritten as part of the safety label. Label information shall also be coordinated with **District** requirements during submittal period. These recommendations shall be based on the National Electrical Code (NEC) requirements, Occupational Safety and Health Administration (OSHA) standards, and National Fire Protection Association (NFPA) recommended practices. The **Contractor** shall furnish and install the field markings required by the NEC for Flash Protection on all power distribution equipment. The field marking shall be the approved recommended safety label.

- D. The **Contractor** shall as-build the Arc Flash Study and rerun and adjust all the reports, calculations, and adjust the PPE recommendation reflecting the as-built facilities after all corrections have been inserted into the input data and all previous comments have been addressed.

### 3.4 RECORD SET

- A. The results of the power system studies shall be summarized in a Record Set. Submittal shall follow guidelines of O&M Manual and as described below. The Record Set shall include the following:
1. Single-line diagram.
  2. Impedance diagram for 3-Phase Faults.
  3. Impedance diagram for line to ground faults.
  4. Tabulation of all protective devices for 3-Phase Faults, which shall be identified on the single line diagram.
  5. Tabulation of all protective devices for line to ground faults, which shall be identified on the single line diagram.
  6. Computerized 3-Phase Fault current calculations.
  7. Computerized line to ground fault current calculations.
  8. Recommended settings to achieve  $< 8 \text{ cal/sq-cm}$ ; or specific recommendations on how to mitigate all locations to  $< 8 \text{ cal/sq-cm}$  (Item 13 below).
  9. Motor starting inrush current plotted on the associated time current protective curves.
  10. Sensing instrumentation, condition, and connections, as applicable, for each study.
  11. Arc Flash Study report including tabulations, label design and recommendations.
  12. Tabulation of all power distribution device settings.
  13. Specific recommendations shall include how to potentially reduce the arc-flash incident-energy levels for each location having more than  $8 \text{ cal/sq-cm}$  present. Include a budgetary estimate for implementing any proposed change.



- B. The Record Set shall include information concerning the computer program used for the study and also shall include a general discussion of the procedure, items, and data considered in preparing the study.
- C. The Record Set shall include portable thumb drive as well as hard paper copy form of all input data, all calculation reports, all plotted curves, all drawings, all output data, and all device settings in tabulated organized form. The **Contractor** shall submit the final model with scenarios in original source format on a separate portable thumb drive that can be utilized by the **District**.

**\*\*END OF SECTION\*\***

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**SECTION 26 06 20**  
**WIRES AND CABLES**

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## SECTION 26 06 20

### WIRES AND CABLES

#### 1. GENERAL

##### 1.1 SECTION INCLUDES

- A. The **Contractor** shall provide wires and cables, complete and operable, in accordance with the Contract Documents.
- B. **Contractor** shall remove, protect, and then reinstall existing security CCTV cables for permanent installation. If cables get damaged during process, **Contractor** to provide new CCTV cables at no additional cost.
- C. **Contractor** shall remove and reinstall existing Balance Panel cables twice; during interim phase and permanent phase.

##### 1.2 REFERENCE SPECIFICATION, CODES, AND STANDARDS

- A. Reference Codes: All work specified herein shall conform to or exceed the applicable requirements of the National Electrical Code (NEC); provided that, where a local code or ordinance is in conflict with the NEC, the provisions of said local code or ordinance shall take precedence. For additional requirements, see Section 26 05 00 – Electrical Work, General.
- B. Commercials Standards
  - 1. ANSI/IEEE C2                      National Electrical Safety Code.
  - 2. ANSI/NFPA 70                      National Electrical Code.
  - 3. ICEA S-95-658                      Insulated Cable Engineers Association
  - 4. NEMA WC70                      National Electrical Manufacturers Association

##### 1.3 CONTRACTOR SUBMITTALS

- A. General: The **Contractor** shall submit Shop Drawings in accordance with Section 26 05 00 – Electrical Work, General.
- B. Shop Drawings
  - 1. Product Data: Provide complete catalog cuts of all cables, wires, terminations, splices, fittings, identification systems, and tape. This applies to vendor-supplied cables including level transmitter, and level switches.
- C. Tags and Inscriptions: **Contractor** to submit overall cable tag and individual wire tags. Submit tag materials and inscription schedules for approval.

## **1.4 QUALIFICATIONS**

- A. Manufacturer: Company specializing in manufacturing the products specified in this Section and with a minimum of 15 years of documented experience.

## **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, protect, and handle products to site under provisions of Section 26 05 00 – Electrical Work, General.
- B. Accept cable and accessories on site in manufacturer's packaging. Inspect for damage.
- C. Store and protect in accordance with manufacturer's instructions.
- D. Protect from weather. Provide adequate ventilation to prevent condensation.

## **2. PRODUCTS**

### **2.1 GENERAL**

- A. All conductors, including grounding conductors, shall be stranded copper. Aluminum conductor wire and cable will not be permitted.
- B. Insulation shall bear the UL label and the manufacturer's trademark, and shall identify the type, voltage, and conductor size. The use of the manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and general configuration desired
- C. All conductors (except flexible cords and cables, and conductors that form an integral part of equipment such as submersible motors) shall conform to the requirements of Article 310 of the National Electric Code, latest edition, for current carrying capacity. Flexible cords and cables shall conform to Article 400, and fixture wires shall conform to Article 402.

### **2.2 LOW VOLTAGE WIRE AND CABLE**

- A. Power and Equipment Grounding Conductors:
  - 1. All power and equipment grounding conductors shall be rated 600 volts, Class B stranded copper, UL-listed, with XHHW-2 insulation rated for 90°C in wet or dry locations.
  - 2. All equipment grounding conductors shall be rated 600 volts, Class B stranded copper, UL-listed, with XHHW-2 insulation rated for 90°C in wet or dry locations, and colored green.
  - 3. Acceptable products include: Okonite X-Olene XHHW-2, or equal.
- B. Control Conductors:
  - 1. Control conductors shall be rated 600 volts, Class B stranded copper, UL-listed, with XHHW-2 insulation rated for 90°C in wet or dry locations.

2. Acceptable products include: Okonite X-Olene XHHW-2, or equal.
  3. Control wires within panels or cabinets shall be as specified in Section 26 48 50 – Local Control Stations, respective to type of panel or cabinet.
- C. Instrumentation Cable:
1. Instrumentation cable shall be rated at 600 volts, 90°C wet or dry locations. Individual conductors shall be No. 16 AWG stranded copper. Insulation shall be color-coded polyethylene, black and white. Instrumentation cables shall be composed of the individual conductors, an aluminum polyester foil tape with 100-percent coverage, stranded tinned copper drain wire, and a PVC outer jacket with a thickness of 0.045 inches. Cable shall meet UL 1277 standards.
  2. Acceptable products include: Okonite Okoseal-N Type P-OS Type TC Instrumentation Cable, or equal.

## **2.3 COMMUNICATION CABLES**

- A. Provide Category 6 patch cables as required.

## **2.4 DIRECT BURIED GROUNDING ELECTRODE CONDUCTORS**

- A. Provide concentric stranded bare copper conductors conforming to ASTM B-8, size as indicated on the drawings, or minimum size as specified in Section 26 05 26 – Grounding, for the ground system at ground grids, transformers, motor control centers, ATS, standby generators, serving utilities, and where indicated on Contract Drawings.
- B. Acceptable Products: Southwire Bare Copper Wire, or equal.

## **2.5 TELEPHONE CABLE**

- A. Telephone cable shall be rated for underground use, 300 volts, solid bare copper conductors, minimum #24 AWG. Number of pairs as shown on Drawings or based on existing leased line service drop.
- B. Acceptable Products: Superior Essex, Inc, or equal.

## **2.6 COAXIAL CABLE**

- A. Provide underground rated coaxial cables, and connectors, for connection between DVR and pole mounted CCTV cameras as required. Coordinate cable requirements based on existing equipment in field prior to submitting.
- B. Coaxial cables shall be RG-11/U braided cable. Cable to be rated 80 degree C, No. 14 AWG solid copper conductor, gas injected insulation, Duofoil +95% tinned copper braid shield, with PVC jacket that has been 100% sweep tested.
- C. Acceptable Products: Belden No. 7731A, or equal.

## 2.7 600V CABLE TERMINATIONS

- A. Motor connections shall be one hole connectors with insulation, 3M #5300 Series, or equal.
- B. Compression connectors shall be Burndy "Hi Lug", Thomas & Betts "Sta-Kon,", or equal. Threaded connectors shall be split bolt type of high strength copper alloy.
- C. Pressure type, twist-on connectors are only acceptable for light and receptacle circuits.
- D. General purpose insulating tape shall be Scotch No. 33, Plymouth "Slip-knot", or equal. High temperature tape shall be polyvinyl as manufactured by Plymouth, 3M, or equal.

## 2.8 CABLE LABELS

- A. Labels relying on adhesives or taped-on markers are not acceptable for cable labels.
- B. Provide labels for individual conductors, at both termination ends. Labels shall be white heat-shrink with thermal transfer printing, 3-to-1 shrink ratio, two inches long, and meet UL 224.
- C. Acceptable products include: Raychem Tyco Shrink Mark Heat Shrinkable Sleeves, or equal.

## 2.9 ELECTRICAL TAPE FOR COLOR CODING

- A. Electrical tape shall be premium grade, not less than seven mils thick, rated for 90°C minimum, flame-retardant, weather resistant, and available in suitable colors for color coding. The tape shall be resistant to abrasion, ultraviolet rays, moisture, alkalies, solvents, acids, and suitable for indoor and weather-protected outdoor use. The tape shall be suitable for use with PVC and polyethylene jacketed cables, and meet or exceed the requirements of UL 510.
- B. Acceptable products include: 3M 35 Scotch Vinyl Electrical Tape for Color Coding, or equal.

## 3. EXECUTION

### 3.1 GENERAL

- A. The **Contractor** shall provide and terminate all power, control, telephone, CATV, and instrumentation conductors, unless indicated otherwise.

### 3.2 INSTALLATION

- A. No conductors shall be installed until conduits have been cleaned and labeled, and Interconnect Drawings have been submitted and approved.
- B. If mechanical means are used to pull cable, the pulling tension shall be monitored, recorded and submitted to the **Engineer**.
- C. Tighten terminal bolts using torque type wrenches and/or drivers to tighten to the inch-pound requirements of the NEC and UL.

- D. Single conductors and cables in handholes and other indicated locations shall be bundled with nylon, self-locking, releasable cable ties placed at intervals not exceeding 18 inches on centers.
- E. Instrumentation wire shall not be run in the same raceway with power and control wiring except where specifically indicated.
- F. Wire in panels, cabinets, and wireways shall be neatly grouped using nylon tie straps, and shall be fanned out to terminals.
- G. Install bare ground conductor 36 inches below finished grade as shown on the Drawings. Reference Specification Section 26 05 26 – Grounding for further requirements.

### **3.3 SPLICES AND TERMINATIONS**

- A. General:
  - 1. There shall be no cable splices without the approval of the **Engineer**, except for site lighting circuits, or as noted on Drawings.
  - 2. Stranded conductors shall be terminated directly on equipment box lugs making sure that all conductor strands are confined within the lug. Use forked-tongue lugs where equipment box lugs have not been provided.
  - 3. Excess control and instrumentation wire shall be properly taped and terminated as spares.
- B. Control Wire and Cable:
  - 1. Control conductors shall be terminated only at the locations indicated and only on terminal strips or terminal lugs of vendor furnished equipment.
  - 2. All control wire and spare wire shall be terminated to terminal strips in junction boxes, MCC, enclosures and control panels.
- C. Shielded instrumentation cables shall be grounded at one end only, preferably the PLC Cabinet at the receiving end on a 4-20 mA system.

### **3.4 CABLE IDENTIFICATION**

- A. All cables and conductors shall be identified. All cables shall be identified by a cable tag at each end and at every handhole, junction box, panels, pullbox, etc. All conductors shall be wire labels at each termination point. Labels shall be permanent, waterproof, legible, and securely attached.
- B. Cable labels and conductor labels shall match Interconnect Drawings. All cables and conductors shall be identified with minimum of two labels, one at either end.
- C. Cable labels located in handholes shall be engraved phenolic, red with white lettering, and attached with black nylon cable tie, Ty-Rap or equal.
- D. Cables and conductors shall be labeled prior to beginning Pre Demonstration period.

### 3.5 GROUPING OF WIRES AND CABLES

- A. All wires and cables shall be neatly grouped in pull boxes, junction boxes and handholes. Wires and cables shall be grouped so that the wires of the individual circuits are together and tagged with the cable number.

### 3.6 FIELD TESTING

- A. Cable Testing:
  - 1. Cables – shall be tested by **Contractor** after pulling and prior to termination:
    - a. Power and Control Conductor Test – After installation provide megger testing at 1000V for conductor to conductor, and conductor to ground. Acceptable insulation resistance result is 100 megohms or greater.
    - b. Instrumentation Conductor Test – After installation measure continuity between conductors with ohmmeter.
    - c. Provide cable testing per these specifications and the latest NETA standards.
  - 2. All field testing shall be done after cables are installed in the raceways and prior to energizing. Disconnect equipment that might be damaged by this test.
  - 3. Cable field testing shall be witnessed and signed off by the **Engineer**. Cable field testing results shall be submitted to the **Engineer** for review and acceptance.
  - 4. Provide cable testing results to third party NETA testing agency for review and final approval of cables and for insertion to Field Test submittal. Refer to Section 26 08 00.

**\*\*END OF SECTION\*\***



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**SECTION 26 08 00**  
**ELECTRICAL TESTING**

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## SECTION 26 08 00

### ELECTRICAL TESTING

#### 1. GENERAL

##### 1.1 SECTION INCLUDES

- A. This Section specifies the work necessary to test, commission and demonstrate that the electrical work satisfies the criteria of these specification and functions as required by the Contract Documents.

##### 1.2 GENERAL

- A. The work of this Section includes furnishing the labor, equipment, and power required to support the testing specified in this and other sections of the Specification. Electrical testing specified in Division 26 and functional testing of all power and controls not tested under Division 27 shall be completed before commencement of start-up testing. This scope of work may require the **Contractor** to activate circuits, shutdown circuits, run equipment, take electrical measurements, replace blown fuses, install temporary jumpers, etc.
- B. The **Contractor** shall provide support to disconnect and reconnect cables, and perform any other functions required to test electrical equipment at no extra cost to the **District**. The **Contractor** is responsible for all work, equipment damage, power interruptions and schedule delays caused by the testing agency.
- C. Electrical tests shall be performed by third party, NETA certified, testing agency hired by the **Contractor**. Testing Agency shall meet the qualifications of this Section. All electrical testing shall be witnessed by the **District** and **Engineer** to be considered valid.
- D. All electrical testing performed per this Section shall be done during Pre Demonstration period.

##### 1.3 SUBMITTALS

- A. Submit testing forms for approval. Testing forms shall be based on InterNational Electric Testing Association's (NETA) latest Acceptance Testing Specifications having a sign-off (tester and witness), pass/fail status, data filed for each line item covered by NETA's Acceptance Testing Specifications latest edition.
- B. Results of all testing shall be submitted to the **Engineer** prior to final project acceptance. Results to be included as part of final O&M Manuals. Results shall describe test conditions, weather (including temperature and humidity), test date, duration of test, test equipment, tested equipment, testing technician, "as found" and "as-left" results, expected results, actual results, pass/fail status based on listed testing standards and a registered Professional Engineers stamp and signature; registered in Electrical Engineering in the state of California.

- C. Testing agency Professional Electrical Engineering shall submit confirmation that “equipment is ready to be energized” based on testing results. Confirmation shall be on company letterhead with name, signature and stamp of responsible Professional Electrical Engineer of Testing Agency. Equipment shall not be operated without approval of confirmation letter.

#### 1.4 TESTING AGENCY QUALIFICATION

- A. NETA testing shall be performed by a separate and independent subcontractor who has been regularly engaged in the testing of equipment for a period of at least five (5) years. All testing shall be conducted under the direct supervision of a Professional Electrical Engineering, registered in the state of California. This Professional Electrical Engineering will prepare and sign test reports with values, recommendations, comments, pass/fail status, as well as ready for energization confirmation letter.
- B. Testing equipment required to conduct the specified tests shall be furnished by the NETA testing organization. Testing equipment shall be in good working condition and comply with the requirements of this Specification and applicable industry standards.
- C. Testing equipment shall have valid calibration sticker during testing.
- D. Tested breakers in field shall be provided with testing agency sticker with date of test and initials of tester.
- E. Testing shall be done in accordance with the manufacturer's instructions, these Specifications, and NETA Acceptance Testing Specifications, NEMA, ANSI, NFPA, and ASTM Standards. All testing shall be done in the presence of the **Engineer**, and forms shall include space for **Engineer** sign-off at time of test.
- F. Testing organization shall be Apparatus Testing and Engineering (Mr. Lee Madsen (916) 715-5906); or approved NETA certified testing agency.
- G. The testing organization shall be responsible for testing, and verification of results of **Contractor** performed testing, of equipment listed below:
  - 1. Utility Meter and Main Disconnect: Including bus, and breaker 100 amps or larger.
  - 2. MCC: Including bus, and breaker 100 amps or larger.
  - 3. Existing ATS.
  - 4. Existing Motors.
  - 5. Cables – shall be tested by **Contractor** after pulling and prior to termination. Refer to Section 26 06 20. Testing organization is responsible to review results, provide pass/fail evaluation and include results as part of final testing documentation submittal.
  - 6. Grounding System. Check grounding system at Utility Meter and MCC.

## 1.5 FIELD (NETA) TESTING

- A. The following test requirements are intended to supplement test and acceptance criteria that may be stated elsewhere:
  - 1. Utility Meter:
    - a. Perform Field Testing per applicable sections of NETA Standards. This includes bus resistance, thermal breaker tests (100 amps and larger).
  - 2. MCC:
    - a. Perform Field Testing per applicable sections of NETA Standards. This includes bus resistance, thermal breaker tests (100 amps and larger).
    - b. MCC supplier shall perform their own field testing on MCC prior to energizing.
  - 3. Existing ATS
    - a. Perform Field Testing per applicable sections of NETA Standards.
  - 4. Existing Motors:
    - a. Perform Field Testing per applicable sections of NETA Standards.
  - 5. Cables – to be performed by **Contractor**:
    - a. Refer to Section 26 06 20 – Wires and Cables for megger testing requirements.
  - 6. Grounding System:
    - a. Perform Field Testing per applicable sections of NETA Standards.
    - b. Provide two grounding system tests: Utility Meter and MCC.

## 1.6 TESTING SEQUENCE

- A. Refer to Section 26 05 74-3.01.C for sequence.

## 2. PRODUCTS (NOT USED)

## 3. EXECUTION

### 3.1 TESTING

- A. All testing shall be witnessed and signed-off by the **District** or the **Engineer**. Each test sheet must be signed-off prior to submittal.
- B. After equipment is tested and approved, testing organization shall apply sticker on equipment noting date of test and initial of tester.
- C. Pre-Demonstration period shall include all NETA Field Testing, and manufacturer recommended testing and testing requirements listed in equipment specification sections.

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**UTILITY METER AND MCC**

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## SECTION 26 24 19

### UTILITY METER AND MOTOR CONTROL CENTER

#### 1. GENERAL

##### 1.1 SECTION INCLUDES

- A. The **Contractor** shall provide the Utility Meter with main disconnect, and the Motor Control Center (MCC) complete and operable, in accordance with the Contract Documents. Proposed Utility Meter and MCC shall take place of existing overhead to underground metering panel and Tesco Control Panel (T-17526). Some existing equipment shall be relocated within and on new MCC, refer to Contract Drawings.
- B. **District** shall obtain ownership of existing equipment including but not limited to: LIQ5 controller. Prior to disposal of exiting Tesco Control Panel, allow the **District** to remove any or all components.
- C. The metering section of the Utility Meter shall meet PG&E and EUSERC service meter requirements for 100 amp, 120/240 VAC, three phase, four wire, 60 Hz service. Utility Meter shall be pole mounted, NEMA 3R, and include padlockable main breaker.
- D. The MCC shall be outdoor rated, 100 amps, 120/240 VAC, three phase, three wire, 60 Hz. MCC shall meet UL508A, and provided by UL-508A shop. MCC shall be full length dead-front with controls on interior swing panel doors.
- E. The requirements of Section 26 05 00 – Electrical Work, General, apply to the Work of this Section.
- F. The requirements of Section 26 27 26 – Wiring Devices, apply to the Work of this Section.
- G. The requirements of Section 27 10 00 – Process Control and Instrumentation Systems apply to the Work of this Section.
- H. In the event that motors provided are larger horsepower than motors indicated, raceways, conductors, starters, overload elements, and branch circuit protectors shall be revised as necessary to control and protect the increased motor horsepower according to Section 26 29 23 – Electric Motors.
- I. Provide arc flash labels with maximum available fault current (and date) above the Utility Meter main breaker. Include arc flash labels for the MCC main disconnect breaker, and the MCC's VFD feeder breakers on interior swing panel doors. Provide warning labels in addition to arc flash labels on each exterior door of the MCC.
- J. Panels shall be built by a UL-listed shop. Provide shop UL nameplate within panel.

##### 1.2 CONTRACTOR SUBMITTALS

- A. General: Submittals shall be in accordance with Section 26 05 00 – Electrical Work, General. Provide AutoCAD and PDF files for all drawings.

- B. Provide separate submittal for Utility Meter from MCC for PG&E approval. Provide proof to **Engineer** that PG&E has approved the Utility Meter.
- C. Shop Drawings for Utility Meter and MCC:
  - 1. Enclosure National Electrical Manufacturers Association (NEMA) rating and color.
  - 2. Bus ampacity, voltage rating and interrupting capacity. Include materials of construction.
  - 3. Ground bus size and material of construction.
  - 4. Conduit entrance provisions.
  - 5. Main incoming line entry provision (top) for Utility Meter, with load side exit provision (bottom).
  - 6. Utility Meter meeting PG&E standards, with proof of approval by PG&E.
  - 7. Short circuit rating of the complete assembly.
  - 8. Surge protection device
  - 9. Nameplate schedule.
  - 10. All circuit breaker types, frames and settings.
  - 11. Power Quality Meter
  - 12. Power Fail Relay.
  - 13. Variable frequency drives.
  - 14. Relays, timers, pilot devices, control transformer VA and fuse sizes.
  - 15. Level relays
  - 16. Leased line unit protector.
  - 17. Batteries and power supplies.
  - 18. Space for field mounted equipment.
  - 19. Schematics Drawings
  - 20. MCC (with PLC Cabinet) Elevation Drawings. Elevation Drawings to be scaled drawings that include exterior views, interior swing panel views and back panel views.
  - 21. Complete Bill of Materials with Replacement Parts lists.
  - 22. Seismic design certification of the anchoring system. Include anchoring calculations for minimum size anchor bolt with dimensions, embedment, materials and type.
- D. Operation and Maintenance Manual

### 1.3 APPLICABLE CODES AND REQUIREMENTS

- A. As specified in 26 05 00.
- B. IEEE - Institute of Electrical and Electronic Engineers.
- C. EUSERC – Electric Utility Service Equipment Requirements Committee
- D. NEMA – National Electrical Manufacturers’ Association.
- E. UL – Underwriters’ Laboratories.

### 1.4 SEISMIC CERTIFICATION

- A. The **Contractor** shall provide equipment anchorage calculations and details, coordinated with the equipment mounting provision, prepared and stamped by a licensed structural or civil engineer in the state of California.

### 1.5 DUTIES OF THE MANUFACTURER’S QUALIFIED FACTORY REPRESENTATIVE

- A. A manufacturer's engineering representative for the equipment specified herein shall be present at the jobsite for the frequency and minimum duration (travel time excluded) as specified below to perform the following manufacturer's services:
  - 1. A minimum of two trips for inspection, assistance during installation and alignment, configuration of VFDs, and certification of proper installation. The certificate of installation shall be submitted in accordance with the requirements of Section 01300 – Submittals.
  - 2. A minimum of one trip for assistance and witnessing of system testing by the **Contractor** and any required troubleshooting.
  - 3. A minimum of two trips individual four-hour sessions for operation and maintenance training of **Owner's** personnel. Each individual training session shall be conducted on a separate work day.
- B. The manufacturer's engineering representative shall provide a minimum of five separate trips to the jobsite to fulfill the above requirements.

## 2. PRODUCTS

### 2.1 GENERAL

- A. Devices of the same type shall be products of the same manufacturer and supplier. This requirement applies to all control devices, and insofar as practical, to equipment manufactured on a production basis. It also applies without exception to equipment custom fabricated for this project.
- B. MCC shall conform to the standards for NEMA Class IIS, type B diagrams and wiring.
- C. Utility Meter and MCC main breakers shall be rated for minimum of 24k AICS, or greater per the Preliminary Short Circuit Study.
- D. Utility Meter and MCC including all components shall be rated for 40° Celsius at full load.



- E. MCC wiring shall be labeled, color coded, and furnished per applicable codes and standards requirements.
- F. Quality Assurance:
  - 1. The construction and all interior wiring shall be in strict accordance with the National Electric Code (NEC), state and local codes, and in conformance with applicable specifications of NEMA, ANSI, UL, and ICEA.
  - 2. MCC shall be completely fabricated, and instruments installed, wired, and plumbed at the Instrument Suppliers shop.
  - 3. MCC shall bear a UL label stating "suitable for use as an industrial control panel" and built by a UL-listed shop, and a shop label is included within panel. MCC shall be per UL 508A.
- G. MCC shall be assembled by Tesco Controls, Inc., (Mr. Shain Thomas 916-395-8800), or approved equal. District shall approve equal based on proof of experience on three similar projects. Submit proof of experience including: plans and specifications and submittal information and owner contact information for each of three projects. Submit three weeks prior to award date.

## **2.2 UTILITY METER DESIGN, CONSTRUCTION, AND MATERIAL REQUIREMENTS**

- A. Utility Meter shall be 120/240-volt class suitable for operation on a three-phase, four-wire, 60-Hz system. Utility Meter shall contain PG&E incoming section and metering compartment. Utility Meter shall be per PG&E and EUSERC requirements.
- B. Power distribution from the Utility Meter shall be 120/240-volt, three-phase, four-wire; however, the Utility Meter shall include provision for termination of incoming neutral conductor in conformance to NEC requirements for service entrance, and be bonded and grounded.
- C. Enclosure:
  - 1. Structural members shall be fabricated of not less than 12-gauge steel and side and top panels and doors shall be not less than 14-gauge steel. Utility Meter section shall be rated NEMA 3R and suitable for pole mounting.
  - 2. Utility Meter shall be fitted with the manufacturer's nameplate which shall include the NEMA Standard electric rating and other pertinent data, including manufacturer, sales order number, date of manufacturer, and place of manufacture.
- D. Main breaker shall be 150 amp frame with 100 amp trip. The interrupting capacity shall be a minimum of 24,000 RMS symmetrical amperes at operating voltage. Circuit breaker shall be molded case type with thermal magnetic non-interchangeable, trip-free, sealed trip units. Circuit breaker shall be Eaton Series C F-Frame Type EDS, or equal.
- E. Utility Meter with main disconnect shall be Milbank, Eaton, or equal.

## 2.3 MCC DESIGN, CONSTRUCTION, AND MATERIAL REQUIREMENTS

- A. MCC shall be 120/240-volt class suitable for operation on a 100 amp, three-phase, three-wire, 60-Hz system.
- B. MCC shall be rated NEMA 3R. Outer doors shall be dead front, padlockable. Interior swing panel doors shall be utilized for controls, metering display, variable frequency drive operator interfaces. Provide space on interior swing panel doors for future motor protective relay, similar to Flygt MiniCAS.
- C. Provide a door-activated switch controlled light and a breaker protected 120-volt, 20-amp duplex receptacle within each MCC section.
- D. Wiring, methods and materials for all panels shall be in accordance with the NEC and UL requirements. Provide din rail mounted circuit breakers for AC power distribution.
- E. For grounding, panels shall be provided with a ¼-inch by 1-inch copper ground bus complete with solderless connectors for bare stranded copper cable with sizes as called out on Contract Drawings.
- F. Provide site lighting controls (hand switch, photocell) per Contract Drawings. Site light is existing with four spot lights on a single pole. Mount photocell on MCC.
- G. Provide enough space in PLC Control Section of MCC for future PLC equipment to replace the installed LIQ5. Future PLC equipment shall be Emerson Control Wave PLC with cablefast connectors, based on quantity and type of input and output PLC connections as shown on Contract Drawings. Coordinate with **District** for exact requirements, but Control Section of MCC shall be sized for future PLC installation.
- H. Provide shelves in PLC Control Section of MCC for existing equipment included CCTV DVR, ethernet switch and Comcast modem. **Contractor** to provide MCC supplier with existing equipment model numbers. Provide two plug strips for connection of power suppliers for above listed equipment and each existing (four) CCTV camera power supply and existing Balance Panel.
- I. Provide level transmitter vent filter in PLC Cabinet. Refer to Section 27 10 06 – Level Measuring Systems.
- J. Provide level switch relays in PLC Cabinet. Refer to Section 27 10 06 – Level Measuring Systems.
- K. MCC shall account for mounting of existing Balance Panel to exterior. Provide for splitting of Fall Creek level analog signal, with analog converter, to provide analog input to Balance Panel and to LIQ5 controller.
- L. All controls and devices and equipment shall have phenolic engraved nameplates with tag number and description.
- M. Size and Arrangement:
  - 1. The MCC shall contain main disconnect breaker, power quality meter, surge protection device, power fail relay, variable frequency drives, circuit breakers,

and PLC Cabinet. MCC shall be assembled into a lineup of sections, each with separate exterior and interior doors and side panels. Each section shall be nominally 60 inches tall by 30 inches deep.

2. Equipment within the MCC may be rearranged at the discretion of the manufacturer, as approved by **Engineer**.

N. Enclosure:

1. Structural members shall be fabricated of not less than 12-gauge steel and side and top panels and doors shall be not less than 14-gauge steel.
2. Each control unit, lights and devices shall be identified by an engraved nameplate.
3. Finish for entire MCC, including Utility Meter and PLC Cabinet sections, shall be tan. Submit standard color swatches for **District** approval. The panels shall be given two coats of primer inside and out and two coats of enamel finish.

## 2.4 VARIABLE FREQUENCY DRIVES

- A. Variable frequency drives shall be Baldor ABB drives, specific for pumping applications, no equal. Local sales representative is Barton Pump.
- B. VFDs to be rated for minimum of 115% of 15 hp motor full load amps, and for 50 degree C ambient. Mount drive faceplate of VFD on MCC interior swing panel door for operator access to faceplate controls.
- C. Provide complete configuration of drive based on connected motor nameplate information. Submit configuration settings for approval.

## 2.5 CIRCUIT BREAKERS

- A. General: The interrupting capacity of all main disconnect, and three phase feeder circuit breakers shall be a minimum of 24,000 RMS symmetrical amperes at operating voltage.
- B. Circuit breakers having a frame size of 225 amperes or less shall be molded case type with thermal magnetic non-interchangeable, trip-free, sealed trip units. Thermal magnetic molded case circuit breakers shall be Eaton Series C F-Frame Type EDS, or equal.
- C. The **Contractor** is responsible to provide correct motor circuit protector size and trip rating based on installed equipment nameplate data. The interrupting capacity of the motor circuit protector breakers shall be 24,000 RMS symmetrical amperes at operating voltage. Thermal breakers may be used for variable speed drive applications.

## 2.6 TRANSFORMER

- A. 240VAC to 120/240VAC transformer shall be sized as shown on Contract Drawings. Transformer shall have copper windings, 60 Hz, UL listed, NEMA 12 or better, suitable for panel mounting.
- B. Provide primary only side protection devices and mounting hardware.

## 2.7 POWER QUALITY METER

- A. Power Quality Meter shall be Eaton IQ150, or equal. Provide functionality and accuracies per Eaton IQ150 meter. Mount meter on interior swing panel door.
- B. Provide all required control transformers, power transformers, fuses and mounting hardware.

## 2.8 POWER FAIL RELAY

- A. Power Fail Relays (PFR) in MCC shall detect phase loss, phase reversal and low voltage. PFR shall be automatic reset type. Include base for relay. Wire contact to PLC per Contract Drawings.
- B. PFR shall be Timemark 258B, or equal.

## 2.9 SURGE PROTECTION DEVICE

- A. MCC shall have an UL 845, UL 1449 and UL 1283 listed integrated surge protection device installed and shall be UL labeled for such use.
- B. Surge protection device shall be installed with twelve inches or less of connecting cable from the bus to the surge suppressor electronics. Surge protection device shall be rated for 100 kA per phase. Surge protection device shall have a built-in diagnostic package with flashing trouble light, display for the status of each phase, and have a counter and display to indicate the number of surges that have caused the device to operate.
- C. Surge protection device shall be Eaton SPD-100-240D-4, or equal.

## 2.10 PLC HARDWARE

- A. Provide Tesco Controls Inc. LIQ5 controller with inputs and outputs as shown on Contract Drawings. Controller shall be configured for operation, monitoring and control of Intake Pump VFDs, associated alarms, levels, and site specific equipment.
- B. Provide LIQ5 leased line telephone modem and Ethernet capability.
- C. Controller shall be completely programmed. Provide all descriptions and labels.
- D. Provide Tesco Controls Inc. LIQ5 controller, no equal, to match **District** standards.
- E. Tesco Controls Inc. shall be responsible to modify existing **District's** SCADA system as part of this work. Modifications shall include new LIQ5 inputs and outputs as shown on Contract Drawings. Controller shall take place of existing RTU 11 as part of **District's** SCADA system. Existing Control Panel at Fall Creek Intake is Tesco #T-17526 (1996).

## 2.11 CONTROL DEVICES

- A. Relays
  - 1. General purposes relays shall be enclosed octal plug-in units. Relays shall be UL listed, indicating type, and push to test. Relay contact ratings shall be minimum 7.5 amps at 110 VAC, and minimum 5 amps at 30 VDC. Two- and three-pole relays

shall be IDEC Series RR, or equal. Four-pole relays shall be IDEC Series RH, or equal.

2. Where shown, time delay functions shall be accomplished with time delay relays. Units shall be adjustable time delay relays with the number of contacts and contract arrangements as shown. A neon status-indicating light shall be provided with each relay. Contacts shall be rated for 7.5 A at 120 VAC. Integral knob with calibrated scale shall be provided for adjustment of time delay. Initial setting shall be as shown with time delay range approximately three times the initial setting. Delay range ability shall be at least 10:1. Time delay relays shall be IDEC Series GT3, or equal.
3. All relays shall have a screw terminal interface with the wiring. Terminals shall have a permanent, legible identification. Relays shall be mounted such that the terminal identifications are clearly visible and the terminals are readily accessible.

B. Illuminated control indicating lights:

1. Shall be heavy duty, NEMA 4X, with round, plastic lens, and jumbo legend plate. Each shall be push-to-test, LED lamp, transformer type.
2. Colors shall be:
  - a. Power On - White
  - b. Motor Running - Green
  - c. Alarms or Fault - Red
3. Acceptable products: Allen-Bradley Bulletin 800H, or equal

C. Non-illuminated control pushbuttons:

1. Shall be heavy duty, NEMA 4X, bootless, flush head pushbutton, momentary contact, with jumbo legend plate.
2. Colors shall be:
  - a. Start - Green
  - b. Stop - Red
  - c. Reset - Black
3. Acceptable Products: Allen-Bradley Bulletin 800H, or equal.

D. 2-position, 3-position, and 4-position, selector switches:

1. Position switches shall be maintained contact type, rated 20 A minimum at 120 VAC. Control knob shall be black, NEMA 4X, and shall show clearly the control switch position.
2. Selector switch shall be complete with jumbo legend plate, and with contact blocks.
3. Acceptable Products: Allen-Bradley Bulletin 800H, or equal.

- E. Circuit breakers 10 amps and less shall be din rail mounted, thermal magnetic, tease-free, trip-free, snap action mechanism with two button operation. Circuit breakers shall be din rail mounted. Breakers shall be Phoenix Contact Model No. TMC 42-01, or equal.
- F. Corrosion Inhibitors
  - 1. For panels located outdoors, install corrosion inhibitors inside panels to protect the given enclosure volume. Corrosion inhibitors shall produce corrosion inhibiting vapors that provide a molecular film on metal surfaces. The film shall not affect electrical or mechanical operations of contacts, relays, or other devices.
  - 2. The corrosion inhibitors shall provide protection from humidity, salt and other corrosive agents for up to 24 months.
  - 3. The corrosion inhibitors shall be as manufactured by Cortec Corporation, Hoffman Engineering Co, or equal.
- G. Provide Elapsed Time Meters (ETMs) for all motor starters connected to motors larger than 2 horsepower, even if not shown on electrical schematics.

## **2.12 LEASED LINE UNIT PROTECTOR**

- A. Provide fused leased line station unit protector in PLC Cabinet of MCC.
- B. Provide connectors as required to terminate leased line to LIQ5 controller.

## **2.13 WIRING AND TERMINALS**

- A. Each source of foreign voltage shall be isolated by providing disconnecting or pull-apart terminal blocks and include yellow insulating conductors.
- B. PLC Cabinet shall have PLC discrete outputs with isolation relays wired to disconnecting terminal blocks, PLC analog inputs wired to fused terminal blocks and discrete inputs wired to disconnecting terminal blocks.
- C. Interior Panel Wiring:
  - 1. Wiring shall be supported independently of terminations by lacing to panel support structure or by slotted flame-retardant plastic wiring channels. Wiring channels shall comply with UL 94, Type V-1. Wiring channel fill shall not exceed 40 percent of cross-section area. Only one wire per terminal block with exception of a comb jumper in addition to the single wire.
  - 2. Power and control wiring shall be single conductor. Stranded copper, Type MTW, No. 16 AWG minimum.
  - 3. Wiring shall comply with the requirements of NEC as a minimum.
  - 4. Analog signal cables shall be No. 16 AWG, 7 x 28 stranded copper, twisted shielded pairs, rated 60°C, 600 V.
  - 5. Power and Control Insulation Colors: Power and control conductors in panels shall have the following insulation colors per NFPA 70 and NFPA 79:

Conductor	Insulation Color
AC Power and Control	Black and/or Red
DC Power and Control	Dark Blue
DC Power and Control Common	White with blue stripe
Neutral	White
Ground	Green

6. Signal Insulation Colors: Signal conductors in panels shall have the following insulation colors per NFPA 70 and NFPA 79:

Conductor	Insulation Color
Analog Signal (twisted shielded pair)	Black and White

7. Terminal blocks: Terminal blocks for panels, consoles, racks, and cabinets shall meet the following requirements:
- Provide sufficient terminations to accommodate both present and future needs. Wire all spare or unused panel mounted elements to their panels' terminal blocks. Provide the greatest of 10 percent of all connected terminals or four unused spare terminals.
  - Provide 600-volt spring type terminal blocks. Use yoke that guides all stands of wire into the terminal. All terminal blocks shall be the knife switch, disconnect type isolation terminal blocks. Supply terminals that allow connection of wire without any preparation other than stripping. Rail mount individual terminals to create a complete assembly. Provide terminals constructed such that jumpers can be installed with no loss of space on terminal or rail.
  - Each terminal strip shall have a unique identifying alphanumeric code at one end and a vinyl marking strip running the entire length of the terminal strip with a unique number of each terminal. Numbers shall be machine printed and 1/8-inch high. Terminal strip codes and terminal numbers shall comply with numbers listed on the wiring diagram.
  - Size all terminal block components to allow insertion of all necessary wire sizes and types. Supply terminal blocks with marking system allowing the use of preprinted or field-marked tags. Provide spring cage connection type terminal blocks manufactured by Wago, Weidmuller, or equal.

8. Field connections shall be to separate terminal blocks. Terminal blocks for field terminations shall be in a separate part of the panel close to where the field cables enter the panel. Provide sufficient space between terminal blocks and wireways to facilitate wire labels.
  9. Circuits shall be fused where shown, otherwise provide circuit breakers. Fuses shall be ¼ by 1¼ inch. Fuses on 120 VAC circuits shall be ceramic tube type with 25,000 amperes interrupting capacity at 125 volts and neon blown fuse indicator lamps. Fuses for 24 V DC shall be fast-acting glass tube type rated 1/8 or 1/10 amp for 4-20 and 10-50 mA loops and 3 amps for the power supply to individual instruments. Fuse holders for 120 VAC shall be draw out type and molded from melamine plastic.
  10. Two (2) ¼-inch-wide by 3-inch-long copper buses shall be provided: one for signal and shield grounding and one for equipment and cabinet grounding. The signal ground bus shall be mounted on insulated stand-offs and the entire signal ground system bonded to the cabinet ground system at a single point.
- D. Plug strips for existing equipment: Plug strips with grounding type receptacles shall be provided for 120 VAC power supply connections. Provide two plug strips with 6 outlets each, minimum.
- E. Signal distribution within panels:
1. 4 to 20 mA signals shall be distributed within panels as 4 to 20 mA signals.
  2. Signals distributed outside panels shall be isolated 4 to 20 mA signals.
  3. Instrument loop field wires shall terminate on panel terminal strips in the control panel

#### **2.14 DC POWER SUPPLIES**

- A. Furnish DC power supplies for LIQ5 supply voltage and for instrument loops. Power supplies to be equipped for back panel mounting. Power supplies to be adjustable output voltage, LED status, two-percent mV peak to peak maximum ripple, UL listed for overload protection. Provide DC Power Supply Fail alarm to PLC Power supplies to be wired redundant. Provide with 25-percent spare capacity.
- B. DC Power supplies to be IDEC, Phoenix Contact, or equal.

#### **2.15 SPARE PARTS**

- A. The **Contractor** shall furnish the following spare parts for MCC:
1. Three (3) fuses of each size.
  2. One (1) lamp and lens of each color.
  3. One control relay of each type provided.
- B. Spare parts shall be included in MCC with labels on outside of boxes.



### 3. EXECUTION

#### 3.1 GENERAL

- A. The **Contractor** shall install MCC in accordance with supplier's published instructions conforming to these contract documents. Conduit installation shall be coordinated with supplier's as-fabricated drawings so that all conduit stub-ups are within the area allotted for conduit. Conduit shall be stubbed up in the section that contains the devices to which conductors are terminated.
- B. If stored at the site, MCC shall be stored in a clean, dry space. Factory wrapping shall be maintained or an additional heavy plastic cover shall be provided to protect units from dirt, water, construction debris, and traffic. Provide temporary heaters to MCC.
- C. MCC shall be handled carefully to avoid damage to components, enclosure, and finish. Damage shall be repaired before installation.

#### 3.2 FACTORY ACCEPTANCE TESTS

- A. MCC, including PLC Cabinet, shall be given Manufacturer's standard electrical and mechanical production tests and inspections. The tests shall include electrical continuity check, schematic tests for each circuit, and inspection for proper functioning of all components including controls, protective devices, metering, and alarm devices.
- B. Factory Acceptance Testing procedures shall be submitted for approval. Factory Acceptance Testing may be witnessed by **Engineer** and **District**.
- C. A minimum of 10 working days' notification shall be provided to the **Engineer** prior to witnessed testing. No shipments shall be made without the **Engineer's** approval.
- D. PLC Cabinet shall be fully functional as part of MCC's Factory Acceptance Test (FAT). FAT to verify communication, and PLC inputs and outputs.

#### 3.3 INSTALLATION

- A. MCC shall be installed on slab on grade. The seismic calculations shall be approved prior to the installation anchor bolts.
- B. The **Contractor** shall:
  - 1. Torque all bus bar bolts to Manufacturer's recommendations; tighten all sheet metal and structure assembly bolts.
  - 2. Adjust Motor Circuit Protector (MCP) devices, configure VFD including overcurrent protection settings.
  - 3. Set Power Fail Relay.
  - 4. Configure power quality meter.
  - 5. Verify communication between PLC and **District** SCADA via AT&T leased line telephone.

6. Verify communication between CCTV system and **District** Office security system via Comcast internet.
7. After equipment is installed, touch up scratches and verify that nameplate, and other identification is accurate.

### 3.4 FIELD TESTS

- A. Submit all test forms for approval four weeks prior to testing.
- B. Provide two weeks (minimum) notification of Field Tests to **Engineer**. Field tests shall be witnessed and signed off by the **Engineer** to be considered complete. Any test results without the **Engineer's** signature are considered invalid and will be done again.
- C. Field Testing to be performed prior to energizing equipment.
- D. Visual and mechanical inspection after installation shall include:
  1. Inspect for physical damage, proper anchorage and grounding.
  2. Verify motor over load protection is configured properly.
  3. Check tightness of bolted connections.
- E. Electrical Tests
  1. NETA Testing of MCC. Refer to Section 26 08 00 – Electrical Testing.
  2. Verify proper operation of control logic in all modes of control.
- F. Pre Demonstration period for MCC testing shall not be considered complete until all the following is accepted by **District**: Factory Acceptance Testing, Manufacturer certification, NETA Field Testing, equipment start-up, approval of O&M Manuals, and training.

### 3.5 ACCEPTANCE OF WORK

- A. For the purpose of this Section, the following conditions shall be fulfilled before the Work is considered complete and start of Demonstration period:
  1. All submittals have been completed and approved.
  2. The PCIS has been calibrated, tested and demonstrated.
  3. Confirmation of all communication networks, including telephone leased line communication back to **District** SCADA system, and SCADA modifications have been accepted by the **District**.
  4. The training has been performed.
  5. All spare parts have been delivered to the **District**.
  6. All punch-list items have been corrected.
  7. Revisions to the O&M Manuals that may have resulted from the field tests have been made and reviewed.

8. All as-built and record drawings in both hard copy and electronic format have been submitted.
9. All debris associated with installation of MCC has been removed.
10. MCC interior and exterior has been cleaned and are in like-new condition. Cleaning to include vacuuming interior of panels, wipe down of exteriors, and paint touch up as required by the **District** and **Engineer**.

**\*\*END OF SECTION\*\***

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**WIRING DEVICES**

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## **SECTION 26 27 26**

### **WIRING DEVICES**

#### **1. GENERAL**

##### **1.1 SECTION INCLUDES**

- A. The **Contractor** shall provide wiring devices, complete and operable, in accordance with the Contract Documents.
- B. Single Manufacturer: Like products shall be the end product of one manufacturer in order to achieve standardization of appearance, operation, maintenance, spare parts, and manufacturer's services.

##### **1.2 CONTRACTOR SUBMITTALS**

- A. General: **Contract** submittals shall be in accordance with Section 26 05 00 – Electrical Work, General.
- B. Shop Drawings
  - 1. Complete catalog cuts of switches, receptacles, enclosures, covers, and appurtenances, marked to clearly identify proposed materials.
  - 2. Documentation showing that proposed materials comply with the requirements of NEC and UL.

#### **2. PRODUCTS**

##### **2.1 GENERAL**

- A. All devices shall carry the UL label.

##### **2.2 LIGHTING SWITCHES**

- A. Light switches shall be heavy duty, industrial, toggle type, 20-amp, 125 VAC-rated, self-grounding, and back and side wired. Light switch handles shall be brown. Contact arm spring and terminal plate shall be copper alloy. Contact points shall be silver cadmium oxide. Ground terminal shall be nickel-plated steel with brass screw.
- B. Switches shall conform to UL 20.
- C. Acceptable products: Hubbell 1221B, or equal.

##### **2.3 GENERAL PURPOSE RECEPTACLES**

- A. Duplex receptacles shall be 125 VAC, 20 amperes, polarized three-wire type, NEMA 5-20R confirming to UL 498. Receptacles shall be brown. Receptacles shall conform

to UL 498. External wiring shall be provided by side mounted terminal screws. Acceptable products: Hubbell 5362, or equal.

- B. Ground-fault circuit interrupting receptacles (GFCIs) shall be installed at outdoor locations. GFCIs shall be rated 125 V, 20 amperes NEMA 5-20R, conforming to UL 498 and UL 943, and brown. Acceptable products: Hubbell GF-5362, or equal.

## **2.4 OUTLET AND DEVICE BOXES**

- A. Outlet and Device boxes are specified in Section 26 05 33.

## **2.5 DEVICE COVERS**

- A. Outdoor switch covers shall be rated weatherproof and shall be cast malleable iron with external pushrod, stainless steel screws, and neoprene gasket. Covers shall be Appleton FSK-XVTS series, or equal.
- B. Outdoor receptacle covers shall be rated weatherproof and shall be die cast aluminum weatherproof lift covers for GFCI receptacles stainless steel screws, and neoprene gasket. Covers shall be Appleton FSK-WGF1 series, or equal.

## **3. EXECUTION**

### **3.1 GENERAL**

- A. Perform work in accordance with the National Electrical Code (NEC) and these contract documents.

### **3.2 CONNECTION**

- A. Rigidly attach wiring devices in accordance with manufacturer instructions.
- B. Securely fasten nameplates using epoxy glue centered under or on the device, unless otherwise indicated.

### **3.3 INSTALLATION**

- A. Locations indicated are approximate.
- B. Install boxes in a secure, substantial manner supported independently of conduit by attachment to the structural member.
- C. Open on more knockouts in boxes than are actually required. Seal any unused openings in any type box.

### **3.4 GROUNDING**

- A. Ground all devices, including switches and receptacles, in accordance with NEC and Section 26 05 26 – Grounding.

- B. Ground switches and associated metal plates through switch mounting yoke, outlet box, and raceway system.
- C. Ground flush receptacles and their metal plates through positive ground connections to the outlet box and grounding system. Maintain ground to each receptacle by spring-loaded grounding contact to mounting screw or by grounding jumper, each making positive connection to the outlet box and grounding system at all times.

### **3.5 FIELD TESTING**

- A. Provide checkout, field, and functional testing of wiring devices in accordance with Section 26 08 00 – Electrical Testing.
- B. Test each receptacle for polarity and ground integrity with a standard receptacle tester.
- C. Wiring Devices testing shall be completed during Pre Demonstration period.

**\*\*END OF SECTION\*\***

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**LOCAL CONTROL STATIONS**

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## SECTION 26 48 50

### LOCAL CONTROL STATIONS

#### 1. GENERAL

##### 1.1 SECTION INCLUDES

- A. Telephone Enclosure, CATV Enclosure shall meet requirements of this Specification.
- B. Control Stations, Panels, and Enclosures are used synonymously.
- C. Telephone Enclosure shall meet requirements of AT&T. **Contractor** to coordinate directly with utility.
- D. CATV Enclosure shall meet requirements of Comcast Cable. **Contractor** to coordinate directly with utility.
- E. Provide nameplates on all control panels, including panel mounted devices, and internal mounted devices. Nameplates to include equipment description and equipment tag number.

##### 1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Local control stations shall comply with the requirements of NEC, NEMA, and UL. Stations shall be built by UL listed panel shop, and contain shop sticker displaying such.

##### 1.3 CONTRACTOR SUBMITTALS

- A. The **Contractor** shall submit shop drawings in accordance with the requirements specified in Section 26 05 00 – Electrical Work, General.
- B. Provide catalog cuts of all enclosures, and all components.
- C. Submit proof of utility acceptance of enclosure design, materials and equipment.

#### 2. PRODUCTS

##### 2.1 GENERAL

- A. The **Contractor** shall provide the equipment to satisfy the serving utility requirements.
- B. Control conductors shall be provided in accordance with the requirements specified in Section 26 06 20 – Wires and Cables.
- C. Enclosures
  - 1. Exterior enclosures shall be NEMA 3R. All enclosures shall be hinged, with padlockable doors.
  - 2. Enclosures shall be mounted on “Large Pedestal” stanchion, refer to Contract Drawings.

3. Enclosure internal control components shall be mounted on a removable back panel, unless noted otherwise. Back panel shall be finished white.
- D. Identification of panel-mounted devices, conductors, and electrical components shall meet the requirements specified in Section 26 05 00 – Electrical Work, General.
- E. Provide tags for individual wires at each termination ends for wires. Tags shall be white heat shrink with thermal transfer printing, 3 to 1 shrink ratio, two inches long, and meet UL 224. Acceptable products include: Raychem Tyco Shrink Mark Heat Shrinkable Sleeves, or equal.

## 2.2 TELEPHONE ENCLOSURE

- A. Provide Telephone Enclosure, per AT&T requirements for MPOE demarcation point. **Contractor** required to size enclosure. Enclosure to be padlockable. Include nameplate and MPOE label. Enclosure to accept service drop telephone cable from top via weatherhead and distribute out bottom via underground conduits to MCC.
- B. Enclosure to include painted plywood back panel per utility requirements.
- C. Provide and install terminal blocks, fused leased line unit protector, and copper ground bus to back panel. Provide per AT&T requirements, and these Contract Documents.
- D. Telephone Enclosure shall be assembled by Tesco Controls, Inc., (Mr. Shain Thomas 916-395-8800), or equal.

## 2.3 CATV ENCLOSURE

- A. Provide CATV Enclosure, per Comcast requirements. **Contractor** required to size enclosure. Enclosure to be padlockable. Include nameplate. Enclosure to accept service drop coaxial cable from top via weatherhead and distribute out bottom via underground conduits to MCC.
- B. Enclosure to include back panel per utility requirements.
- C. Provide and install coaxial connectors, and ground bus mounted to back panel. Refer to Contract Drawings.
- D. CATV Enclosure shall be assembled by Tesco Controls, Inc., (Mr. Shain Thomas 916-395-8800), or equal.

## 3. EXECUTION

### 3.1 FIELD TESTING

- A. Functional testing of telephone leased line and internet service via cable are included in Section 26 24 19.

**\*\*END OF SECTION\*\***

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**PROCESS CONTROL AND INSTRUMENTATION SYSTEMS**

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## SECTION 27 10 00

### PROCESS CONTROL AND INSTRUMENTATION SYSTEMS

#### 1. GENERAL

##### 1.1 SECTION INCLUDES

- A. The **Contractor** thru the use of Instrumentation Supplier, shall provide all Process Control and Instrumentation Systems (PCIS) complete and operable, in accordance with the Contract Documents. Tesco Controls Inc. shall provide software programming for the programmable logic controller (PLC) and the required modifications of the District's SCADA system for inclusion of the pump variable frequency drives monitoring and controls.
- B. The requirements of Division 26 apply to all components of Division 27.
- C. Responsibilities:
  - 1. The **Contractor**, through the use of Instrumentation Supplier, Tesco Controls Inc., and qualified electrical and mechanical installers, shall be responsible to the **District** for the furnishing of the PCIS and the integration of the PCIS with other required instrumentation and control devices, including communication networks and verification of operation.
  - 2. Tesco Controls Inc. shall be responsible to the **Contractor** for the programming integration of the PCIS with devices provided under this and other sections, with the objective of providing a completely integrated control system and tying into the existing **District** SCADA system.
  - 3. As a minimum, the Instrumentation Supplier shall perform the following work:
    - a. Implementation of the PCIS.
      - 1) Prepare hardware and panel submittals. Include spare parts.
      - 2) Design, develop, and electronically draft Interconnect Diagrams, Loop Diagrams, Instrument Installation Details, Communication Block Diagram, and Control Panel drawings. Prepare drawings for submittal review and as-built record drawings. All drawings shall be done in PDF and AutoCAD format for all submittals.
      - 3) Interconnect Diagrams shall include information required for installation of field cables between equipment. Interconnect Diagrams shall include cable quantities, cable sizes, cable labeling information, termination block labels, conduit sizes and conduit labels information. Show all pull boxes, handholes, j-boxes, etc. No wiring shall be terminated prior to approval of Interconnection Drawings.

- 4) Loop Diagrams shall include information for each device connected to PLC input and output modules. Loop Diagrams shall be provided for all discrete and analog signals, complete from field device, thru intermediate panels as applicable to final destination of PLC module. Loop Diagrams shall include cable quantities, cable sizes, cable labeling information, termination block labels, conduit sizes and conduit labels information. Show all pull boxes, handholes, etc. If contact comes from MCC schematic, include reference of that as-built drawing number. Provide information for each instrument on Loop Diagrams including manufacturer, model number, options, ranges, power supply and source.
- 5) Procure hardware.
- 6) Fabricate control panels in UL-listed facility.
- 7) Prepare and submit the MCC Factory Acceptance Test procedures.
- 8) Prepare and submit Pre-Demonstration Testing procedures to confirm PLC inputs and outputs to field devices are functional.
- 9) Submit instrument installation details.
- 10) Perform instrumentation calibration and certify instrument installation/calibration by applying calibration sticker on instrument.
- 11) Submit certifications of field installation of Instrumentation and calibration (as required).
- 12) Configure, document and certify all PLC with integral display, PLC input and output testing, loop testing and system commissioning for readiness.
- 13) Confirm communication networks for telephone leased line and cable internet from site to **District** offices.
- 14) Prepare and submit Demonstration Testing (7 day) procedures to confirm pump station is functional, including SCADA.
- 15) Submit results for review and inclusion in O&M Manuals.
- 16) Work with **District** to verify PLC control, monitoring and commands from PLC to **District's** remote site SCADA system. Include 8 hours of electrical sub-contractor and 8 hours of Instrumentation Supplier in bid to cover this work.
- 17) Prepare as-built drawings.
- 18) Prepare Operation and Maintenance Manuals in hardcopy and electronic (PDF) formants. As-built drawings shall be provided in

PDF and AutoCAD formats. Include Factory and Field Test sheets in O&M Manuals.

- b. Integration of the PCIS with instrumentation and control devices being provided under other sections including all vendor supplied equipment and systems;
  - 1) Design, develop and electronically draft Interconnection Diagrams associated with equipment provided under this and other Divisions of these Specifications.
- 4. The Instrumentation Supplier shall be Tesco Controls, Inc., Mr. Shain Thomas (916) 395-8800, or equal.
- 5. The programming of the LIQ5 PLC and modifications to the existing **District** SCADA system shall be Tesco Controls, Inc., Mr. Shain Thomas (916) 395-8800, no equal. Tesco Controls Inc. is the **District's** integrator and programmer.

## 1.2 CONTRACTOR SUBMITTALS

- A. General: Submittals shall be furnished in accordance with Section 01300 – Submittals and the following:
  - 1. The **Contractor** shall coordinate the instrumentation work so that the complete instrumentation and control system will be provided and will be supported by accurate shop drawings and record drawings.
  - 2. Symbolology and Nomenclature: In these Contract Documents, all systems, all meters, all instruments, and all other elements are represented schematically, and are designated by symbolology as derived from Instrument Society of America Standard ANSI/ISA S5.1 – Instrumentation Symbols and Identification. The nomenclature and numbers designated herein and on the Drawings shall be employed exclusively throughout shop drawings, and similar materials.
- B. Shop Drawings
  - 1. General:
    - a. All shop drawings shall include the letter head or title block of the Instrumentation Supplier. The title block shall include, as a minimum, the Instrumentation Supplier's registered business name and address, project name, drawing name, revision level, and personnel responsible for the content of the drawing. The quantity of submittal sets shall be as indicated in Section 01300 – Submittals.
    - b. Organization of the shop drawing submittals shall be compatible with eventual submittals for later inclusion in the O&M Manual.
    - c. Shop drawing information shall be bound in standard size, 3-ring, loose leaf, vinyl plastic, hard cover binders suitable for bookshelf storage. Binder ring size shall not exceed three (3) inches.

- d. All shop drawings shall be in hardcopy and electronic PDF along with AutoCAD drawings. Electronic submittal shall have both PDF and AutoCAD versions of all drawings.
2. Hardware Submittal: The **Contractor** shall submit each PCIS hardware submittals including:
- a. A complete index which lists each device as developed by the **Contractor**. A separate technical brochure or bulletin shall be included with each instrument data sheet. The data sheets shall be indexed in the submittal by specification section.
  - b. Instrument installation, mounting, and anchoring details for each specific instrument shall be submitted in PDF format and an electronic AutoCAD version. Each instrument shall have a dedicated 8½-inch x 11-inch detail which only pertains to the specific instrument. Each detail shall be certified by the instrument manufacturer that the proposed installation is in accordance with the instrument manufacturer's recommendations and is fully warrantable.
  - c. Fully executed data sheets according to ISA-S20 – Specification Forms for Process Measurement and Control Instruments, Primary Elements and Control Valves, for each component, together with a technical product brochure or bulletin. The technical product brochures shall be complete enough to verify conformance to all Contract Document requirements. The data sheets, as a minimum, shall show:
    - 1) Component functional description.
    - 2) Manufacturer's model number or other product designation.
    - 3) Instrument tag number generated by the **Contractor** and approved by **District** during Submittal review.
    - 4) Project location or assembly at which the component is to be installed.
    - 5) Input and output characteristics.
    - 6) Scale, range, and units with stated accuracy.
    - 7) Materials of component parts to be in contact with or otherwise exposed to process media and corrosive ambient air.
    - 8) Special requirements or features.
    - 9) Local supplier including contact name, phone number, and address.
  - d. Priced list of manufacturer recommended spare parts for all instruments.

3. Submit Drawings including: Installation Details. All drawings shall be done in 11-inch x 17-inch PDF and AutoCAD. Refer to Section 26 24 19 – Utility Meter and MCC, for further submittal requirements on PLC Cabinet.
  4. Test Procedure Submittals: Submit the Factory Acceptance Test procedures, Pre-Demonstration testing procedures and Demonstration period testing procedures for approval. Submit results for review and inclusion in O&M Manuals. All testing results to include a **District** or **Engineer** signature as witness.
- C. Operation and Maintenance Manual
1. General: Information in the O&M Manual shall be based upon the approved shop drawing submittals as modified for conditions encountered in the field during the work.
  2. The O&M Manuals shall be organized and contain information as outlined in specifications.
  3. Signed results from all Testing shall be included in O&M Manuals.
- D. As-Built Drawings
1. All such drawings shall be submitted for review prior to beginning of Demonstration Testing.

## 2. PRODUCTS

### 2.1 GENERAL

- A. Code and Regulatory Compliance: All PCIS work shall conform to the National Electrical Code. Conflicts between the requirements of the Contract Documents and any codes or referenced standards or specifications shall be brought to the attention of the **Engineer**.
- B. Hardware Commonality: All instruments which utilize a common measurement principle (for example, level transmitters which monitor hydrostatic head) shall be furnished by a single manufacturer. All panel mounted instruments shall have matching style and general appearance. Instruments performing similar functions shall be of the same type, model, or class, and shall be from a single manufacturer.
- C. Instrument and Loop Power: Power requirements and input/output connections for all components shall be verified. Power for transmitted signals shall, in general, originate in and be supplied by the control panel devices. The use of "2-wire" transmitters is preferred.
- D. Loop Isolators and Convertors: Signal isolators shall be provided as required to ensure adjacent component impedance match where feedback paths may be generated, or to maintain loop integrity during the removal of a loop component. Dropping precision wire wound resistors shall be installed at all field side terminations in the control panels to ensure loop integrity. Signal conditioners and converters shall be provided where required to resolve any signal level incompatibilities or provide required functions.



- E. Environmental Suitability: All outdoor control panels and instrument enclosures shall be suitable for operation in the ambient conditions associated with the locations designated in the Contract Documents. Heating, cooling, and dehumidifying devices shall be provided in order to maintain all instrumentation devices 20 percent within the minimums and maximums of their rated environmental operating ranges. The **Contractor** shall provide all power wiring for these devices. Enclosures suitable for the environment shall be furnished; refer to Specification 26 05 00 for further requirements.

## 2.2 OPERATING CONDITIONS

- A. The PCIS shall be designed and constructed for satisfactory operation and long, low maintenance service under the following conditions:
  - 1. Environment – Outdoor creek water pump station
  - 2. Temperature Range – 32 through 104 degrees F
  - 3. Relative Humidity – 20 through 90 percent, non-condensing

## 2.3 INSTRUMENT IDENTIFICATION

- A. The **Contractor** is responsible to submit list of instruments and associated equipment, each with tag inscription and tag materials for approval by the **District** and the **Engineer**. Tags shall be engraved stainless steel plates, with 1/8-inch lettering.

## 3. EXECUTION

### 3.1 MANUFACTURER'S SERVICES

- A. The **Contractor** shall furnish the following manufacturer's services for the instrumentation listed below provided during the Pre-Demonstration period:
  - 1. Submit for approval installation details for all instruments. Verify criteria prior to installation which shall effect operation such as: stilling wells, length of level switch wiring, mounting hardware, etc.
  - 2. Oversee installation. Verify installation of installed instrument. Certify installation and reconfirm the manufacturer's accuracy statement. Apply company certification sticker on instrument and submit instrument installation certification letters. This applies to level transmitter and level switch.
  - 3. Coordinate and conduct testing, prepare testing sheets, and certify testing.

### 3.2 INSTALLATION

- A. General
  - 1. All instrumentation shall be installed under Division 27 and the manufacturers' instructions. All instruments and equipment shall be tagged.
  - 2. Equipment Locations: The monitoring and control system configurations indicated are diagrammatic. The locations of equipment are approximate. The exact locations

and routing of wiring and cables shall be governed by structural conditions and physical interferences and by the location of electrical terminations on equipment. All equipment shall be located and installed so that it will be readily accessible for operation and maintenance. Where job conditions require reasonable changes in approximated locations and arrangements, or when the **District** exercises the right to require changes in location of equipment which do not impact material quantities or cause material rework, the **Contractor** shall make such changes without additional cost to the **District**.

B. Conduit, Cables, and Field Wiring

1. All conduit shall be provided under Division 26 without delay to the Work of Division 27.
2. All 4-20 mA signal circuits, process equipment control wiring, signal wiring to field instruments, PLC input and output wiring and other field wiring and cables shall be provided under Division 26.
3. All conduits shall be sized accordingly to manufacturer cables being provided. No splices shall be allowed in cables between field instruments and PLC Cabinet.

C. Ancillary Devices: The **Contractor** shall be responsible for providing any additional or different type connections as required by the instruments and specific installation requirements at no additional cost to the **District** to provide a complete and operational system. All such additions and all such changes, including the proposed method of installation, shall be submitted to the **Engineer** for approval prior to commencing the work. Such changes shall not be a basis of claims for extra work or delay.

### 3.3 CALIBRATION

- A. General: All devices provided under Division 27 shall be calibrated and ranges set, according to the manufacturer's recommended procedures to verify operational readiness and ability to meet the indicated functional and tolerance requirements. Work shall be completed during Pre-Demonstration period.
- B. Calibration Points: Each instrument shall be calibrated at 0, 10, 50, 90 and 100 percent of span using test instruments to simulate inputs. The test instruments shall have accuracies traceable to National Institute of Testing Standards.
- C. Calibration Sheets: Calibration sheets to be submitted prior to start-up of any system or subsystem. Each instrument calibration sheet shall provide the following information and a space for sign-off on individual items and on the completed unit:
1. Project name.
  2. Tag number (coordinate with District).
  3. Manufacturer.
  4. Model number.
  5. Serial number.

6. Calibration range.
7. Calibration data: Input, output, and error at 10 percent, 50 percent and 90 percent of span.
8. Switch setting, contact action, and deadband for discrete elements. Confirm level switch trigger level.
9. Space for comments. Confirm conduit and cable tags are installed.
10. Space for approval sign-off by Instrumentation Supplier and date.
11. Provide sticker on instrument that it has been calibrated by supplier and ready for service.

### 3.4 FIELD TESTING

- A. Field shall be provided by the **Contractor** and approved by the **District** and **Engineer**. The **Contractor** shall notify the **Engineer** of scheduled tests a minimum of 10 calendar days prior to the testing date. The Field testing shall be witnessed by the **District** and **Engineer**. Field testing shall not begin until NETA Field Testing per Division 26 has been completed. Field Testing shall be completed during Pre-Demonstration period.
- B. Field Loop Testing shall be provided by the **Contractor** and Instrumentation Supplier and programming integrator. All control loops shall be checked under simulated operating conditions by simulating actual process using water, and observing appropriate responses of the LIQ5 display, and back to **District** SCADA.
- C. Loop Testing shall be provided for each instrument or device. Loop Testing shall also be provided for each PLC I/O hardwired point. Loop Testing shall be considered approved once forms have been initialed from **Contractor's** tester and the **District** or **Engineer**. Loop Testing shall utilize approved Loop Diagrams or PLC Schematics as part of testing procedures and verification process.

### 3.5 PRE-COMMISSIONING ACTIVITIES

- A. General: Pre-commissioning activities shall commence after acceptance of all Field Testing and all inspections have demonstrated that the instrumentation and control system complies with all **Contract** requirements. Pre-commissioning shall demonstrate proper operation of all systems with process equipment operating over full operating ranges under conditions as closely resembling actual operating conditions as possible.
- B. Pre-commissioning Operational Validation: Where feasible, pre-commissioning activities shall include the use of water to establish service conditions that simulate, to the greatest extent possible, normal final control element operating conditions in terms of applied process loads, operating ranges, and environmental conditions. All hardwired and software control circuit interlocks and alarms shall be operational. The control of final control elements and ancillary equipment shall be tested using both manual and automatic (where provided) control circuits. Testing shall utilize approved Schematic Drawings and provide rung by rung test and verification.

- C. Pre-commissioning Certification: The **Contractor** shall submit an instrumentation and control system pre-commissioning completion report which shall state that all **Contract** requirements have been met and shall include a listing of all instrumentation and control system maintenance and repair activities conducted during the pre-commissioning testing. Acceptance of the instrumentation and control system pre-commissioning testing must be provided in writing by the **Engineer** before the Demonstration Testing may begin.

### **3.6 ON-SITE SUPERVISION**

- A. The **Contractor** shall furnish the services of an on-site engineer or technician to supervise and coordinate installation, adjustment, testing, and start-up of the PCIS.

### **3.7 ACCEPTANCE OF WORK**

- A. For the purpose of this Section, the following conditions shall be fulfilled before the Work is considered complete and start of Demonstration period:
  - 1. All debris associated with installation of instrumentation has been removed.
  - 2. All probes, transmitters, and stilling wells have been cleaned and are in like-new condition.

**\*\*END OF SECTION\*\***

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**LEVEL MEASURING SYSTEMS**

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## SECTION 27 10 06

### LEVEL MEASURING SYSTEMS

#### 1. GENERAL

##### 1.1 SECTION INCLUDES

- A. The **Contractor** shall furnish and install all level measurement systems with associated stilling wells, instrumentation and controls as shown and specified herein, complete and operable, for functions including level measurement in accordance with the requirements of the Contract Documents.
- B. Level transmitter include:
  - 1. Fall Creek Weir Level Transmitter (two-inch stilling well).
  - 2. Provide level transmitter vent filter for mounting in PLC Cabinet section of MCC.
- C. Low Level Switches include:
  - 1. Intake Pump #1 Low Level – Low-Low Pump Shutoff (two-inch stilling well).
  - 2. Intake Pump #2 Low Level – Low-Low Pump Shutoff (two-inch stilling well).
  - 3. Provide low level relays for mounting in PLC Cabinet section of MCC.
- D. The requirements of Section 27 10 00 – Process Control and Instrumentation Systems apply to this Section.

##### 1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. ISA - S 5.1 Instrumentation Symbols and Identification

##### 1.3 CONTRACTOR SUBMITTALS

- A. Shop Drawings: The **Contractor** shall submit complete shop drawings of all instruments and installation details in accordance with Section 27 10 00 – Process Control and Instrumentation Systems.
- B. Operation and Maintenance Manuals that include installation details, ISA data sheets and Field Testing forms, warranty, etc.

##### 1.4 QUALITY ASSURANCE

- A. Inspection and Testing Requirements: After installation, the **Contractor** shall obtain the services of a technical representative to inspect and test all instruments for proper performance and installation. Verify accuracies.

##### 1.5 GUARANTEES, WARRANTIES

- A. After completion, the **Contractor** shall furnish to the **District** the supplier's written guarantees, that the metering systems will operate within the published accuracies and ranges and meet these Specifications. The **Contractor** shall also furnish the manufacturer's warranties as published in its literature, and submit within the O&M Manuals.

## 2. PRODUCTS

### 2.1 GENERAL

- A. All devices specified herein shall conform to the requirements of Section 27 10 00 – Process Control and Instrumentation Systems.
- B. Measured process is creek water.
- C. All instruments shall have stainless steel nameplates with tag number and description.

### 2.2 LEVEL TRANSMITTER

- A. The continuous level transmitter shall be of the hydrostatic pressure type, suitable for water applications. The transmitter shall be comprised of PTFE coated elastomeric diaphragm in durable 316 stainless steel housing with polyurethane cable. Provide vent filter in PLC Cabinet, connected via manufacturer cable installed complete from Fall Creek stilling well to MCC PLC Cabinet.
- B. Refer to Contract Drawings for stilling well and installation of level transmitter.
- C. Probe
  - 1. Probe shall be suitable for creek water. Probe shall be stainless steel with PTFE diaphragm, and vented.
  - 2. Output: 4-20 mA, loop powered, with range to match existing level instrument.
  - 3. Cable length to be field measured by the **Contractor**. Bid to include minimum of 150' of cable.
- D. Level transmitter shall be Measurement Specialties MEAS KPSI with model number: 705-S-1-4-C-4-B-YYY.yyy-000.000-B-1-XXXX-B; where YYY.yyy is maximum range and shall match existing level transmitter, and XXXX is cable length in feet as required based on conduit routing, no splices allowed.

### 2.3 LOW LEVEL SWITCH SYSTEMS

- A. Provide low level switch system for each Intake Pump permissive. Low level switch system shall include: wire suspended stainless steel probes with 20' suspension wire (cut to fit in field), stainless steel 2" threaded top mounting fixture, and 120 VAC level relay (to be located in PLC Cabinet section of MCC). Level relay to have 3 second time delay on decreasing level, and 60 second time delay on increasing level to reset, and test pushbutton.
- B. The **Contractor** shall be responsible for the correct length of suspension wires. Bid to include minimum 25' of cables.
- C. Low Level Switch Systems to be Gems Warrick 3E-2-C fitting, with Warrick 3W2 probes and 3Z1B adaptors and 3A1A suspension wire, and Series 26M-D-1-A-0-B-XX-60 low water cutoff plug in module with test pushbutton and 60 second time delay on increasing level for auto reset, base or approved equal.

### **3. EXECUTION**

#### **3.1 GENERAL**

- A. Level measuring systems shall be executed according to the requirements of Section 27 10 00 – Process Control and Instrumentation Systems.
- B. Installation of level transmitter to be approved by manufacturer such that rated accuracy and repeatability is met.
- C. Installation shall follow submitted and approved instrument installation detail.

#### **3.2 FIELD TESTING**

- A. Each item shall be subjected to an operating test over the total range of the equipment. All testing shall be witnessed by the **Engineer** and **District**.
- B. Low Level switch is used as pump shut-off; therefore the low level probe shall be set to stop pump just above minimum suction levels as determined by pump supplier. Verify and confirm switch trigger position with pump supplier and **Engineer** in field.
- C. Refer to Section 27 10 00 – Process Control and Instrumentation Systems for testing requirements.
- D. Confirm instruments have nameplates, and connected conduits and conductors are labeled.
- E. All Field Testing shall be completed during Pre-Demonstration period.

**\*\*END OF SECTION\*\***



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**CLEARING AND GRUBBING**

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## **SECTION 311100 CLEARING AND GRUBBING**

### **1. GENERAL**

#### **1.1 DESCRIPTION**

- A. The work covered by this section consists of furnishing all labor, equipment, and materials necessary to perform the clearing and grubbing, tree and stump removal, and the removal or disposal of all cleared and grubbed materials, and the filling of all grubbing holes, as specified, as shown on the Drawings, or as directed by the Engineer.
- B. Vegetation Disturbance. No disturbance or removal of vegetation, other than that described in the Project Description and non-native, invasive plant species, such as, but not limited to, Scotch or French broom shall occur as a result of Project activities. Vegetation outside the construction corridor shall not be removed or damaged without prior consultation and approval of CDFW. Vegetation may be disturbed only as specified in this measure.
- C. Related Sections
  - 1. Section 015000, Mobilization
  - 2. Section 312316, Excavation
  - 3. Section 312323, Engineered Fill
  - 4. Section 024100, Demolition and Reuse of Materials

#### **1.2 REFERENCES**

- A. State of California, Department of Transportation (CALTRANS) State Standard Specifications, current edition.

### **2. PRODUCTS - Not Used**

### **3. EXECUTION**

#### **3.1 CLEARING**

- A. General. All work shall comply with Section 16, Clearing and Grubbing of the Standard Specifications.
- B. Clear all trees, stumps, down timber, snags, brush, vegetation, old piling, stone, concrete rubble, abandoned structures, and similar debris within the limits of the construction extents, unless otherwise shown on the Drawings or directed by the Engineer.
- C. In areas where grubbing is not required, completely remove all obstructions above the ground surface.
- D. Flag all vegetation to be removed for approval by Engineer, prior to its removal. Once the flagging is completed, Engineer will walk the vegetation removal areas and approve them prior to Contractor initiating clearing and grubbing activities.

- E. Use hand-operated equipment for clearing and grubbing within creek channels, (except where mechanized equipment access is provided, as shown on the Drawings) and at any protected natural resource area or tree protection zone.
- F. Remove downed plant materials that extend into tree protection zones and protected natural resource areas by hand or with equipment located outside fencing. Extract debris by lifting the material out, not by skidding it across the soil surface.
- G. Trees. Where trees are approved by the Engineer for removal, fell trees in such a manner as to avoid damage to trees left standing, to the existing structures and installations, as well as with due regard for the safety of employees and others. Remove stumps to minimum depth of 4 feet, or to a point where remaining roots are less than 1.5 inches in diameter, whichever depth is greater. Trees located beyond the limits for clearing and grubbing that are not marked for removal, shall be protected from damage, as indicated on the Drawings and as specified.
- H. Vegetation. Remove heavy growth of brush and woody vegetation, unless shown otherwise on the Drawings or directed by the Engineer.
- I. Debris Removal. Remove and dispose of abandoned foundations, rip rap, drainage materials, debris, other unsuitable material, and any other debris designated for removal on the Drawings in accordance with this section. Remove and dispose of buried unsuitable debris encountered during excavations in accordance with Section 312316, Stripping and Excavation.

### **3.2 GRUBBING**

- A. General. Remove all stumps, roots, buried logs, old piling, old paving, concrete, abandoned utilities, timbers, fencing, and other objectionable matter encountered.
- B. Limits. Except as noted on the Drawings, thoroughly grub the entire area within the limits of the footprint of proposed grading areas.
- C. Filling of Holes. Excavate all holes caused by grubbing operations, except in borrow areas, with 3 to 1 (horizontal to vertical) side slopes in conformance with Section 312316, Stripping and Excavation. The excavation shall then be backfilled with compacted embankment material in conformance with Section 312323, Engineered Fill.

### **3.3 DISPOSAL OF DEBRIS**

- A. Cleared and Grubbed Materials. Except as hereinafter specified or otherwise indicated on the Drawings, dispose of all logs, brush, strippings, concrete, asphalt, timbers, slash, and other non-organic debris which are the products of the clearing and grubbing operations. Remove any or all of the products of clearing and grubbing operations from the site and dispose of the material at other locations or through other sources arranged for, by, and at the expense of the Contractor, in accordance with applicable laws and ordinances.
- B. Clean woody plant material products of the clearing and grubbing operations not designated for salvage may be chipped and disposed of on site at the location shown on the Drawings, or as specified by the Engineer, subject to approval of the Owner.

#### **4. MEASUREMENT AND PAYMENT**

##### **4.1 MEASUREMENT**

- A. Clearing and Grubbing will be measured as a lump sum pay item.

##### **4.2 PAYMENT**

- A. Clearing and Grubbing will be paid for at the lump sum contract price, which price will be payment in full for furnishing all labor, materials, tools, equipment and incidentals, and doing all work necessary to complete the clearing and grubbing operation as specified, including disposal or salvage of materials, and restoration of ground surfaces.
- B. Removal and disposal of buried debris, not encountered during grubbing operations, will be paid for in accordance with Section 312316, Stripping and Excavation.
- C. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Clearing and Grubbing	Lump Sum

**END OF SECTION**

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## **SECTION 31 23 00 TRENCHING, BACKFILL AND COMPACTING**

### **1. GENERAL**

#### **1.1 Description**

- A. This section includes materials, testing, and installation for pipeline trench and vault excavation, backfilling, and compacting.

#### **1.2 Submittals**

- A. Submit a report from a testing laboratory verifying that material contains less than 1% asbestos by weight or volume and conforms to the specified gradations or characteristics for granular material, imported sand, and water.
- B. Submit method(s) of compaction including removal sequence of shoring where used.
- C. Submit slurry backfill supplier's ready mix plant information, mix design, manufacturer's data, certificates of compliance, mill test reports and sources for cement, pozzolan, admixtures, and aggregates.
- D. Submit an Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect workers, excavations and adjacent structures and property; include structural calculations to support plan. The Contractor shall design sloping, sheeting, shoring, and bracing in accordance with Article 6 of CAL/OSHA, the California State Labor Code, and the General Conditions. The standards of design referred to in the Labor Code shall be those of CAL/OSHA. Comply with 29CFR Part 1926 Subpart P--Excavations.

#### **1.3 Testing for Compaction**

- A. The Contractor shall obtain the services of a certified testing laboratory to perform testing for compaction as described below. The testing shall be done under the supervision of a Registered Civil or Geotechnical Engineer in the State of California and all reports and certifications shall be stamped by said person. Contractor shall be responsible for all costs associated with the work required under this section.
- B. Determine the density of soil in place by the sand cone method, ASTM D1556 or by nuclear methods, ASTM D6938. Compaction tests shall be performed for each lift or layer and a compaction report shall be submitted to the Owner for review.

- C. Determine laboratory moisture-density relations of soils by ASTM D1557. If nuclear methods are used for in-place density determination, the compaction test results for maximum dry density and optimum water content shall be adjusted in accordance with ASTM D4718. This will be required for determination of percent relative compaction and moisture variation from optimum.
- D. Determine the relative density of cohesionless soils by ASTM D4253 and D4254.
- E. Sample backfill materials per ASTM D75.
- F. "Relative compaction" is the ratio, expressed as a percentage, of the in-place dry density to the laboratory maximum dry density.
- G. Where compaction tests indicate a failure to meet the specified compaction, the Contractor shall take additional tests in each direction until the extent of the failing area is identified. Rework the entire failed area until the specified compaction has been achieved.
- H. The Contractor shall pay the costs for any retesting or additional testing of work not conforming to the specifications.

## **2. PRODUCTS**

### **2.1 Native Backfill**

- A. Native backfill to be cleared of all trash, debris and deleterious matter prior to use in backfill applications. Native backfill may only be used where specifically noted.

### **2.2 Cement Sand Slurry for Backfill**

- A. Cement sand slurry for backfill used shall be Concrete Class 100-E-100 in accordance with SSPWC, Subsection 201-1.
- B. Backfill in the pipe zone to be sand cement slurry.
  - 1. The pipe zone is defined as the trench width extending 6" below the pipe invert to 12" above the crown of the pipe, unless noted otherwise on the drawings.

### **3. EXECUTION**

#### **3.1 Sloping, Sheet piling, Shoring, and Bracing of Trenches**

- A. When project conditions require it, provide sheet piling and shoring to protect workers and excavation as required by this section and CalOSHA.

#### **3.2 Work within Confined Spaces**

- A. Work within confined spaces is subject to applicable laws, regulations and safety orders including applicable California Tunnel Safety Orders and Regulations.

#### **3.3 Trench Excavation**

- A. Trench widths in the pipe zone shall be as shown in the drawings. If no details are shown, maximum width shall be 24 inches greater than the pipe outside diameter. Trench width at the top of the trench shall be the minimum reasonably required to perform the work. Limit the width of excavation where the width would undercut adjacent structures and footings. In such case, width of trench shall be such that the structure is behind a 1:1 line projected upward from the nearest bottom edge of a shored trench excavation, or the building is setback at least 10 feet horizontally from a properly sloped excavation.
- B. Dragging of trench shields will not be permitted unless provisions exist to emplace the shield tight against the sidewalls.

#### **3.4 Location of Excavated Material**

- A. During trench excavation, place the excavated material only within the working area. Do not obstruct any roadways or streets. Do not place trench spoil over pipe, buried utilities, manholes, or vaults. Conform to federal, state, and local codes governing the safe loading of trenches with excavated material.
- B. Stockpile excavated material at a distance away from excavation greater than a 1:1 line projected upward from the bottom edge of the trench or excavation.
- C. Surplus excavated material, including oversized material and concrete, shall be immediately removed and hauled offsite and will be disposed of in accordance with applicable ordinances and environmental requirements at the expense of the Contractor.
- D. Do not operate cranes and other equipment on the same side of the trench as the spoil piles.



### **3.5 Dewatering**

- A. Refer to section 312319 – Dewatering

### **3.6 Backfill Compaction**

- A. Unless otherwise shown in the drawings or otherwise described in the specifications for the particular type of pipe installed, backfill and compaction shall be in accordance with District Standards and with SSPWC Section 306-12, except for the following modifications:
  - 1. Jetting or flooding is not allowed within the trench zone.
  - 2. 90 percent relative compaction is required throughout the trench zone.
  - 3. A compaction report is required at each maximum lift thickness.
- B. Compact trench backfill to the specified relative compaction. Compact by using mechanical compaction, or hand tamping. Do not use high-impact hammer-type equipment except where the pipe manufacturer warrants in writing that such use will not damage the pipe. Do not use jetting or ponding of water to assist with compaction.
- C. Compact material placed within 12 inches of the outer surface of the pipe by hand tamping only.

### **3.7 Material Replacement**

- A. Remove and replace any trenching and backfilling material that does not meet the specifications, at the Contractor's expense.

### **3.8 Placing Cement Sand Slurry for Backfill**

- A. Place sand-cement slurry backfill in a uniform manner that will prevent voids in or segregation of the material. Remove foreign material that falls into the excavation or trench. Do not commence backfilling over or place any material over the slurry cement backfill until at least four hours after placing the sand-cement slurry.

**4. MEASUREMENT AND PAYMENT**

**4.1 Measurement**

- A. Work under this section will be measured for payment on a lump sum basis.

**4.2 Payment**

- A. The lump sum contract price for Trenching, Backfill and Compacting will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for performing work within this Section.
- B. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Trenching, Backfill and Compacting	Lump Sum

**END OF SECTION**

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## **SECTION 312316**

### **STRIPPING AND EXCAVATION**

#### **1. GENERAL**

##### **1.1 DESCRIPTION**

- A. The work covered by this section consists of furnishing all labor, equipment, materials, and performing all operations necessary to complete Stripping and Excavation, as specified, as shown on the Drawings, or as directed by the Engineer. Work includes, but is not limited to the following:
  - 1. Stripping for removal of vegetation and surface organics.
  - 2. Excavation for removal of unsuitable material.
  - 3. Channel and embankment excavation, including removal and off-site disposal of all accumulated sediment and excess materials.
  - 4. Structural excavation.
  - 5. Rock Excavation, including where rock is encountered in trenching.
  - 6. Construction Staking and layout for stripping and excavation.
  - 7. Other miscellaneous excavation incidental to the construction of the improvements.
- B. Over-excavation for placement of RSP is not separately measured for payment within this section, but is considered incidental to the work for which it is required.
- C. Related Sections
  - 1. Section 017123.16, Construction Surveying
  - 2. Section 311100, Clearing and Grubbing
  - 3. Section 312323, Engineered Fill
  - 4. Section 312319, Dewatering
  - 5. Section 024100, Demolition

##### **1.2 REFERENCES**

- A. State of California, Department of Transportation (CALTRANS) State Standard Specifications (current edition).
- B. Surveys. All construction staking shall be performed by the Contractor, in accordance with Section 017123.16, Construction Surveying. The Owner shall provide a minimum of 3 control points at locations shown on the Drawings. Control points disturbed by the Contractor shall be replaced by the Contractor, at his sole expense.

##### **1.3 QUALITY ASSURANCE**

- A. Comply with all applicable permits and regulations.

- B. Contractor shall provide necessary construction staking and references points, as required to meet the specified tolerances for the work.

## **2. PRODUCTS – SECTION NOT USED**

## **3. EXECUTION**

### **3.1 GENERAL**

- A. CALL UNDERGROUND SERVICE ALERT (1-800-642-2444) TO LOCATE ALL UNDERGROUND UTILITY LINES AT LEAST 2 BUSINESS DAYS PRIOR TO COMMENCING CONSTRUCTION.
- B. Locate and protect existing utilities in performing any excavation work.
- C. Comply with all permit conditions in performing any excavation work.
- D. Perform an independent earthwork estimate for the purpose of preparing bid prices for earthwork. The bid price shall include costs for any necessary import and placement of earth materials or the export and proper disposal of excess or unsuitable earth materials.
- E. Dispose of all excess or unsuitable materials off site at locations to be arranged and paid for by the Contractor.

### **3.2 STRIPPING**

- A. Stripping. Strip surfaces of excavations and fill foundations of heavy growth of crops, grass, weeds and other vegetation and organics, as specified in Section 311100, Clearing and Grubbing. Greater depths of stripping may be necessary in selected areas to remove vegetation, as determined by the Engineer.
- B. Unless otherwise specified, dispose of the stripped materials off-site at locations to be arranged and paid for by the Contractor

### **3.3 EXCAVATION**

- A. General. Excavations shall extend into firm, undisturbed native soils or bedrock. Excavation shall consist of removal of material for embankment foundation preparation, excavation of sediments accumulated within ladder bays, mass excavation and finish grading of the channel and slope improvements, and other miscellaneous excavations to the lines and grades shown on the Drawings, or as directed by the Engineer. If organic materials, yielding sub-grade (pumping) or other deleterious materials are encountered during foundation excavations, remove materials as directed by the Engineer.
- B. Control of Water. Water control shall be performed in accordance with project permit conditions and Section 312319, Dewatering of these Specifications. When either ground water or surface runoff is encountered, furnish, install, maintain, and operate all necessary machinery and equipment required to keep the excavation reasonably free from water, as approved by the Engineer, until the placement of concrete or backfill material has been completed,

inspected, and approved, and all danger of flotation and other damage is removed. Dispose of water pumped from the excavation in such manner as will not cause injury to public or private property, shall not violate water quality standards, or constitute a nuisance or menace to the public. The disposal method shall be subject to the approval of the Engineer. Control water until work is complete.

- C. Excess Excavation. Exercise caution to not excavate below the grades shown on the Drawings, except as specified herein, and as directed by the Engineer. Backfill all excavations in excess of the grades shown on the Drawings and not directed by the Engineer with compacted embankment at the Contractor's expense, per Section 312323, Engineered Fill.
- D. Temporary Excavations. With exposure and drying, on-site soils may experience progressive sloughing if excavated near vertical and left un-shored during construction.
- E. Tolerances. The allowable excavation tolerance is +0.1 feet to -0.1 feet from the finished grades shown on the Drawings, unless otherwise specified or directed by the Engineer.

### **3.4 UNCLASSIFIED EXCAVATION.**

- A. Unclassified Excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature, which is not otherwise classified and paid for under Excavation of Unsuitables as described below. Unclassified Excavation includes excavation required to reach finished grade. Over-excavation for the placement of materials below finished grade, or the removal of unsuitables (as described below under Excavation of Unsuitables) is not included in Unclassified Excavation.
- B. This work includes off haul and disposal of all excess materials at off-site at locations to be arranged and paid for by the Contractor.

### **3.5 EXCAVATION OF UNSUITABLES.**

- A. Excavation of Unsuitables. Areas of unsuitable in-place soils may be encountered outside the limits of proposed excavation. Anticipate having to over-excavate areas of unsuitables as directed by the Engineer and dispose of materials. The actual locations of these excavations will be determined in the field by the Engineer.
- B. The side slopes of the excavations shall be no steeper than 1 to 1 (horizontal to vertical). Backfill over-excavations with embankment materials in accordance with Section 312323, Engineered Fill.
- C. Material shall not be classified as unsuitable solely based on moisture content. Material within the limits of Excavation, as described above under Unclassified Excavation, or within the limits of over-excavation for the placement of materials (e.g., log structures and flood/retaining walls) shall not be classified as Unsuitable.
- D. Disposition of Unsuitable Materials. Process as necessary the excavated materials that are considered unsuitable based solely on moisture content to meet specification requirements for

suitability and used as embankment material. Materials which are unsuitable based on organic content will be ordered wasted and shall be disposed of off-site in accordance to Section 7-1.13, "Disposal of Material Outside the Highway Right of Way", of the State Standard Specifications.

### **3.6 ROCK EXCAVATION**

- A. Rock Excavation. Rock excavation consists of the removal of hard igneous, metamorphic, and/or sedimentary rock in solid beds or masses in original or stratified position which can be removed **ONLY** by continuous drilling, blasting or the use of pneumatic tools, and all boulders of 5 cubic yards in volume or larger. Material which can be loosened with a pick, frozen materials, soft laminated shale, and hardpan, which for convenience or economy is loosened by drilling, blasting, wedging or the use of pneumatic tools, removal of concrete pavement and retaining walls, shall not be classified as rock excavation. Blasting is not approved for this project. The need for specialized rock excavating equipment should be anticipated where dense sandstone bedrock is encountered throughout the work area.

## **4. MEASUREMENT AND PAYMENT**

### **4.1 MEASUREMENT**

- A. Stripping. Stripping will not be separately measured for payment.
- B. Unclassified Excavation. Unclassified Excavation will be measured as a lump sum pay item.
- C. Excavation - Unsuitable Materials. Excavation to remove materials that are designated by the Engineer as unsuitable for reuse will be measured by the cubic yard from the stripped foundation Dimensions shown on the Drawings. Removal of sediment from the channel bottom to reveal bedrock may vary from dimensions shown on the Drawings but will not be measured for payment under this pay item. This work will be considered incidental to the Lump Sum pay item for Unclassified Excavation. Measurement will be based on surveyed cross sections before and after the excavation.
- D. Rock Excavation. Rock Excavation is considered incidental to the contract price paid for Unclassified Excavation and will not be separately measured for payment.
- E. Other Miscellaneous Excavations. All other excavations will not be measured for payment.
- F. Surveys: Construction surveying will not be separately measured for payment.

### **4.2 PAYMENT**

- A. Stripping. No separate payment will be made for stripping. All costs in connection with this work will be considered incidental to the contract price for Unclassified Excavation.
- B. Unclassified Excavation, measured as specified above, will be paid for at the lump sum contract price, which price will be payment in full for furnishing all labor, materials, tools, equipment, and incidentals, and doing all work necessary to complete Unclassified Excavation, as specified,

including mass excavation and finish grading of channel banks and floodplains, to the lines and grades shown on the Drawings.

- C. Excavation - Unsuitable Materials, measured as specified above, will be paid for at the contract unit price per cubic yard, which price will be payment in full for furnishing all labor, materials, tools, equipment, and incidentals, and doing all work necessary to complete the excavation as specified, including dewatering, all handling of materials, and disposal of unsuitable materials.
- D. Rock Excavation. There will be no additional payment for Rock Excavation.
- E. No separate payment will be made for other miscellaneous grading incidental to the work. All costs in connection with this work will be considered incidental to the cost of construction of associated improvement.
- F. Surveys: No separate payment will be made for surveys or construction staking. All costs in connection with this work will be considered incidental to the contract price paid for related work.
- G. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Unclassified Excavation	Lump Sum
Excavation – Unsuitable Materials	Cubic Yard

**END OF SECTION**



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## **SECTION 312319 DEWATERING**

### **1. GENERAL**

#### **1.1 DESCRIPTION**

- A. Furnish all labor, materials, equipment, and incidentals necessary to design, construct, operate, maintain, and remove all cofferdams, flumes shoring, diversions, filtration systems and/or other measures, including pumping, to dewater the construction site and to divert streamflow and other surface waters through or around the project area 24 hours a day during the entire field construction period, as shown on the Drawings, as specified, or as directed by the Engineer.
- B. Dewatering details on the Drawings are schematic and have been provided to demonstrate the intent and general requirements. The final design and implementation of the Dewatering Plan is solely the responsibility of the Contractor. Contractor shall make their own independent evaluation of water sources (surface and groundwater) in preparing their Dewatering Plan.
- C. Dewatering and diversion shall comply with all project permit conditions, applicable laws and local ordinances.

#### **1.2 RELATED SECTIONS**

- 1. Section 015000, Mobilization
- 2. Section 015713, Temporary Erosion Control and BMP's
- 3. Section 015800, Temporary Creek Intake System

#### **1.3 SUBMITTALS**

- A. The Contractor shall submit the following for review and approval of the Engineer, a minimum of 30 days before dewatering is planned to begin:
  - 1. A Dewatering Plan, listing all proposed diversion and dewatering materials, methods of work, equipment to be used, methods for treatment and discharge of clean and turbid water, provisions to prevent sedimentation, scour or erosion.
  - 2. scaled site plan and elevations demonstrating layout of proposed diversion and dewatering components.
  - 3. Manufacturer's product data for:
    - a) pumps and screened intakes
    - b) silt control filter fabric
    - c) washed rock
    - d) impervious liners
    - e) cofferdam material
    - f) other materials used in dewatering

4. Proposed schedule and phasing plan demonstrating:
  - a) installation and removal procedures and sequencing,
  - b) coordination with fish removal (by others),
  - c) coordination with temporary intake system and controls, per Section 0158 00.

- B. Approval of the Engineer shall be required before the Contractor proceeds with water control measures.

#### **1.4 QUALITY ASSURANCE**

- A. Coordinate all work with the District's appointed biologist to allow for installation of block nets and removal of aquatic wildlife prior to and concurrent with installation of the diversion system.
- B. Comply with all applicable permits and regulations and NRCS Construction Specification 909 - *Control of Water*.
- C. Comply with approved Erosion and Sediment Control Plan and the Hazardous Materials Control and Spill Prevention Plan, in accordance with Section 015000 paragraph 3.11.
- D. Notify Engineer 48 hours in advance of installation of temporary cofferdam(s) or diversion.
- E. Notify Engineer 48 hours in advance of removal of temporary cofferdam(s) or diversion.

#### **2. PRODUCTS**

##### **2.1 MATERIALS**

- A. General. The Contractor shall be responsible for sizing and design of temporary cofferdams, well points, pumps, drains, pipes and other diversion and dewatering facilities. Comply with Drawings and regulatory requirements.
- B. Sand Bags. Sand bags shall be filled only with clean imported gravels. Sand is not allowed.
- C. Imported Rock. Use only clean washed rock. Other materials, if used, shall be removed from river channel when dewatering work is complete.
- D. Dewatering Facilities. Provide and operate dewatering facilities of suitable size and capacity. The use of equipment and materials shall be consistent with the manufacturer's recommendations.
- E. Primary Diversion Pipe. Pipe shall be manufactured with water-tight joints. Clamshell fittings on corrugated plastic pipe will not be accepted.
- F. Silt Fence. Comply with Section 015713.02, Silt Fence.

#### **3. EXECUTION**

### **3.1 GENERAL**

- A. Contractor is solely responsible for the design, construction, and maintenance and monitoring of the diversion and dewatering facilities. Comply with the Drawings, Specifications, and applicable permit conditions.

### **3.2 FISH REMOVAL**

- A. Fish relocation to be provided by others (NIC). Provide the the District a minimum of 96 hours of notice prior to dewatering operations to allow for removal of fish from the project area.
- B. Coordinate all work with the District's appointed biologist to allow for installation of block nets and removal of aquatic wildlife prior to and concurrent with installation of the diversion system.

### **3.3 SEDIMENT CONTROL**

- A. General. Comply with Section 401 Water Quality Certification
- B. Materials. Earthen materials shall not be used within the flowing channel, with the exception of clean, washed rock.
- C. Cofferdam Construction. During construction of the cofferdam, install silt barrier(s) along the water side of the installation, as necessary to minimize mobilization and entrainment of disturbed soils within the active flowing channel, to a level in accordance with the permit conditions.
- D. Discharge of diverted flow. Unless otherwise specified, a diversion must discharge into the same natural drainage way in which its headworks are located. Where feasible, discharge to existing pools or onto bedrock or otherwise erosion resistant surfaces. Construct energy dissipators at diversion outlets, where necessary to prevent scour at point of discharge.
- E. Discharge of Seepage/Groundwater. Discharge water from the dewatered construction site either by gravity or pumping in a manner that prevents excessive turbidity from entering the receiving waters and prevents scour and erosion outside of the construction site. Pumped water should be pre-filtered with sand/gravel pack around sumps for subsurface flows and a silt fence or hay bales around pumps for surface flow.
- F. Discharge pumped water into adjacent gravel bars, isolated local depressions, or temporary sediment basins, as shown on the Drawings. Where discharging water into the river will create excessive turbidity, route water through a sediment interceptor or other facilities to remove sediment from water.
- G. Isolation of Construction Area. Place silt fences, hay bale barriers, or cofferdams between construction area and flowing river channel, at all locations, in accordance with the approved Drawings and permit conditions.
- H. Cease Project for Elevation of Turbidity Levels. Upon CDFW or Permittee determination that turbidity/siltation levels resulting from project related activities constitute a threat

to aquatic life, activities associated with the turbidity/siltation shall be halted until effective CDFW approved control devices are installed or abatement procedures are initiated. The CDFW may take enforcement action if appropriate turbidity and siltation control measures are not deployed.

### **3.4 HAZARDOUS MATERIAL CONTROL**

- A. General. Comply with the approved Hazardous Materials Control and Spill Prevention Plan (HMC&SPP) in accordance with Construction Facilities and Temporary Controls, Section 015000.
- B. Equipment and Lubricants. Steam-clean all equipment prior to its use. Inspect all equipment for cleanliness and fluid leaks prior to use and monitor during its use. Maintain equipment as required. Equipment refueling shall only take place in a designated, contained area.
- C. Isolation of Construction Area. Prior to performing work within flowing water, outside of cofferdams, install oil containment booms downstream of the work area. Maintain booms until completion of the work within the channel is complete.
- D. Spills. Maintain a supply of oil spill booms, sorbent pads, and other supplies to contain and clean spills. Comply with approved HMC&SPP should spills occur.

### **3.5 COFFERDAMS**

- A. Cofferd Dams and Flow Diversion around Work Areas. If necessary, flow shall be diverted around the work site, either by pump or by gravity flow. If pumps are used, the suction end of the intake pipe shall be fitted with fish screens meeting CDFW design criteria to prevent entrainment or impingement of small fish. Details will depend on pumping rates.
- B. General. The Contractor is solely responsible for the design, construction, maintenance, and monitoring of cofferdams, dikes and other isolation facilities. Cofferdams with an exposed height greater than 10 feet shall be designed by a Professional Engineer registered in the State of California, based on available soil data.
- C. Configuration. Cofferdam alignments, as shown on the Drawings, reflect the maximum allowable encroachment into the channel. Construct cofferdam alignments as shown on the Drawings, unless otherwise approved by Engineer. Provide cofferdams high enough to account for water surface fluctuations.
- D. Secondary Dikes/Seepage Control. Secondary dikes within the isolated construction area can be used to control seepage and groundwater around excavations, provided all dike materials are removed from the exposed channel upon completion, prior to re-watering the work area.
- E. Upon completion of a project, sand bags and any sheet plastic shall be removed from the stream. Clean river run gravel may be left in the stream channel, provided it does not impede stream flow or fish passage, and conforms to natural channel morphology without significant disturbance to natural substrate.

- F. Daily Cofferdam Checks for Stranded Aquatic Life. A biological monitor shall check daily for stranded aquatic life as the water level in the dewatering area drops. A biological monitor under this Agreement is an individual experienced with construction level biological monitoring and who is able to recognize species in the Project area and who is familiar with the habits and behavior of those species. Biological monitors shall have academic and professional experience in biological sciences and related resource management activities as it pertains to this Project. All reasonable efforts shall be made to capture and move all stranded aquatic life observed in the dewatered areas. Capture methods may include fish landing nets, dip nets, buckets and by hand. Captured aquatic life shall be released immediately in the closest body of water adjacent to the work site. This measure does not authorize the take or disturbance of any State or federally listed species.

### **3.6 FLOW BYPASS**

- A. Capacity. Bypass water around construction site using a cofferdam and bypass pipe as shown on the Drawings or equivalent facility, as approved by the Engineer. The bypass system shall be capable of passing the flows present at the time construction begins, with a minimum of 12 inches of freeboard (measured vertically from water surface to lowest point on dam). Bypass pipes shall have a minimum diameter of 10 inches to minimize the likelihood of clogging by debris.
- B. Storm Events. During the designated period for instream work, the Contractor shall be solely responsible for the integrity of the dewatering system. If rain is predicted, the Contractor shall perform flood fighting activities as directed by the Engineer and regulatory agencies.
- C. The diversion system may require adjustment to accommodate the sequence of work. No additional compensation shall be provided for any adjustments, revisions, or reinstallations of diversion elements.
- D. The diversion shall result in conditions that allow the required compaction to be achieved and shall prevent sediment-laden water that exceeds the effluent discharge limits from entering the drainage ways.
- E. Unless otherwise specified, a diversion must discharge into the same natural drainage way in which its headworks are located.
- F. When bypassing stream flow around work area, stream flow below the construction site shall be maintained similar to the unimpeded flow at all times.

### **3.7 DEWATERING**

- A. General. Remove water from construction area using pumping, well points, drains, or other approved methods. Discharge of water shall comply with 3.3.D. Construction water shall be segregated from seepage water and routed through sediment interceptors or other facilities to remove contaminants and sediment. Excavated slopes in the saturated soils may need to be retained, tied back, or otherwise stabilized.

- B. Any turbid water pumped from the work site itself to maintain it in a dewatered state shall be disposed of in an upland location where it will not drain directly into any stream channel.
- C. Cofferdams and Work Area Seepage. The work area shall be periodically pumped dry of seepage. Place pumps in flat areas, away from the stream channel. Pumps shall be secured by tying off to a tree or staked in place to prevent movement by vibration. Pump intakes shall be covered with 0.125-inch mesh to prevent entrainment of fish or amphibians that failed to be removed. Pump intakes shall be periodically checked for impingement of fish or amphibians that shall be relocated according to the approved measured outlined for each species below.
- D. Well Points. Well points shall be designed to preclude the entrainment of fine soil by sand/gravel packing or other suitable means.
- E. Pumping Facilities. All pump intakes shall be screened to prevent the entrainment of fish, in accordance with project permit conditions. Pumps and discharge piping shall be suitable for the type of service provided and shall be a sufficient size and capacity to satisfactorily dewater work areas. Engines shall be muffled to avoid excess noise and pump intakes shall be fitted with screens as required.
- F. Power Supply. Consider the availability and reliability of power sources for dewatering operation in dewatering system design and make provisions for temporary or backup power supply as deemed necessary. Where the primary diversion is operated by pumping, provide a backup system with automatic controls capable of starting the backup upon failure of the primary system.
- G. Groundwater. Dewatering shall maintain water surfaces below the base of temporary excavations or trenches, to allow for visual inspection of the work, if requested by the Engineer. Lower groundwater tables within excavations for structures to a minimum of two (2) feet below foundations or as otherwise required to establish a firm, stable foundation. Control groundwater within excavation until completion of backfill operations.

### **3.8 WATER LEVELS DURING THE CONSTRUCTION PERIOD**

- A. The Contractor shall be responsible for making an independent evaluation of site conditions. The Contractor's dewatering plan shall address all potential sources of surface and groundwater, including but not limited to streamflow (natural or managed), backwatering of the channel from downstream blockages, domestic water lines, storm drain outfalls, irrigation tailwater, industrial discharges, seepage, and direct rainfall.

### **3.9 CLEANUP**

- A. Thoroughly clean up area to remove debris and contaminated materials. Remove fine sediments and restore disturbed area prior to removal of the dewatering facilities. Clean and round river run gravels or cobbles, if used in cofferdam construction, may be spread in the creek channel in lieu of removal, provided grading will not interfere with facility operation.

### **3.10 REMOVAL OF DEWATERING FACILITIES**

- A. Prior to removal of the dewatering facilities, complete the following activities:
  - 1. Complete required tests and inspections.
  - 2. Thoroughly cleanup work site.
  - 3. Perform final walkthrough with Engineer.
- B. Prior to removal of cofferdams and diversion, equalize the water surface levels on both sides of the dams.

### **3.11 REMOVAL OF BLOCK NETS**

- A. Block Nets will be removed by the fisheries biologist after the dewatering facilities are removed and the in channel work area is re-watered.

## **4. MEASUREMENT AND PAYMENT**

### **4.1 MEASUREMENT**

- A. Dewatering will not be separately measured for payment.

### **4.2 PAYMENT**

- A. Dewatering will be paid for at the lump sum contract price for Dewatering, which price will include payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the dewatering operations, as specified, including temporary cofferdams, pumping, silt control, filter fabric, sediment control, erosion control, removal of muck, disposal of materials, and removal of dewatering facilities.

<u>Pay Item</u>	<u>Pay Unit</u>
Dewatering	Lump Sum

**END OF SECTION**



**SECTION 313519.16**  
**SLOPE PROTECTION FABRIC**

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## **SECTION 313519.16**

### **Slope Protection Fabric**

#### **1. GENERAL**

##### **1.1 DESCRIPTION**

- A. Work under this section includes furnishing all labor, materials, equipment, and incidentals to install and maintain Slope Protection Fabric to protect newly constructed or excavated and seeded soil slopes, as shown on the Drawings, as specified herein, or as otherwise directed by the Engineer.
- B. The locations indicated on the Drawings are approximate. The final limits of Slope Protection Fabric shall be as directed by the Engineer in the field. The Engineer may remove from this work any areas where finish grade excavation exposes continuous bedrock.

##### **1.2 RELATED SECTIONS**

- 1. Section 015000, Mobilization
- 2. Section 015713, Temporary Erosion Control and BMP's
- 3. Section 015713.01, Fiber Rolls
- 4. Section 329000, Seeding
- 5. Section 312316, Excavation

##### **1.3 REFERENCES**

- A. American Society for Testing and Materials (ASTM):
  - 1. D 1117 – Standard Guide for Evaluating Nonwoven Fabrics
  - 2. D 6241 - Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe
  - 3. D 6475 - Test Method for Measuring Mass Per Unit Area of Erosion Control Blankets.
  - 4. D 6525 - Standard Test Method for Measuring Nominal Thickness of Rolled Erosion Control Products.
  - 5. D 6567 – Standard Test Method for Measuring the Light Penetration of a Turf Reinforcement Mat (TRM)
  - 6. D 6818 - Standard Test Method for Ultimate Tensile Properties of Rolled Erosion Control Products

##### **1.4 SUBMITTALS**

- A. Submit to the Engineer, for review and approval, the following manufacturer's data and certification's:
  - 1. A certificate stating the name of the Slope Protection Fabric manufacturer, product name, style, chemical compositions of filaments or yarns and other pertinent information to fully describe the geotextile.

2. A certificate stating that the furnished products meet requirements of the Specification as evaluated under the manufacturer's quality control program. The certificate shall be attested to by a person having legal authority to bind the Manufacturer.
- B. Independent Performance Test Results shall be provided upon request.
- C. The Manufacturer is responsible for establishing and maintaining a quality control program to assure compliance with the requirements of the Specification. Documentation describing the quality control program shall be made available upon request.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Comply with ASTM D 4873 for Slope Protection Fabric labeling, shipment and storage.
- B. Product labels shall clearly show the manufacturer or supplier name, style name, and roll number.
- C. Each shipping document shall include a notation certifying that the material is in accordance with the manufacturer's certificate.
- D. Each Slope Protection Fabric roll shall be wrapped with a material that will protect the geotextile from damage due to shipment, water, sunlight, and contaminants.
- E. The protective wrapping shall be maintained during periods of shipment and storage.
- F. During storage, Slope Protection Fabric rolls shall be elevated off the ground and adequately covered to protect them from the following: Site construction damage, extended exposure to ultraviolet (UV) radiation, precipitation, chemicals that are strong acids or strong bases, flames, sparks, temperatures in excess of 71 deg C (160 deg F) and any other environmental condition that might damage the Slope Protection Fabric.

#### **1.6 QUALITY ASSURANCE**

- A. Slope Protection Fabric shall be subject to sampling and testing to verify conformance with this Specification. Sampling for testing shall be in accordance with ASTM D 4354.
- B. Acceptance shall be in accordance with ASTM D 4759 based on testing of either conformance samples obtained using Procedure A of ASTM D 4354, or based on manufacturer's certifications and testing of quality control samples obtained using Procedure B of ASTM D 4354.
- C. Sewn Seams (if required):
  1. For seams that are to be sewn in the field, the Contractor shall provide at least a 2 meter (six-foot) length of sewn seam for sampling by the Engineer before the geotextile is installed.
  2. For seams that are sewn in the factory, the Engineer shall obtain samples of the factory seams at random from a roll of geotextile that is to be used on the project.
  3. If seams are to be sewn in both directions, samples of seams from both directions shall be provided.

4. For seams that are field sewn, the seams sewn for sampling shall be sewn using the same equipment and procedures as will be used for the production seams.
5. The seam assembly description shall be submitted by the Contractor along with the sample of the seam. The description shall include the seam type, sewing thread, and stitch density.

## 2. PRODUCTS

### 2.1 SLOPE PROTECTION FABRIC

- A. No Monofilament Netting. Contractor shall not use erosion control materials containing plastic monofilament netting (erosion control matting) or similar material containing netting within the Project area due to documented evidence of amphibians and reptiles becoming entangled or trapped in such material.
- B. Fabric. Slope Protection Fabric shall be North American Green C125BN, or equivalent, meeting the following Specifications:
  1. The Slope Protection Fabric shall meet requirements established by the Erosion Control Technology Council (ECTC) Specification and the U.S. Department of Transportation, Federal Highway Administration's (FHWA) Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-03 2003 Section 713.17 as a Type 4, Long-term Erosion Control Blanket.
  2. Slope Protection Fabric shall be a long-term erosion control blanket, constructed of 100% biodegradable materials containing a 100% coconut fiber matrix, with a functional longevity of up to 24 months. The coconut fiber shall be evenly distributed over the entire area of the blanket. The blanket shall be covered on the top and bottom with 100% biodegradable natural organic fiber netting woven into an approximate 0.50 x 1.00 inch (1.27 x 2.54 cm) mesh. The blanket shall be sewn together with biodegradable thread on 1.50 inch (3.81 cm) centers.

<b>Property</b>	<b>Test Method</b>	<b>Typical</b>
Thickness	ASTM D5199/ECTC	0.26 in (6.60 mm)
Resiliency	ECTC Guidelines	85%
Mass per Unit Area	ASTM D6475	8.83 oz/yd <sup>2</sup> (300 g/m <sup>2</sup> )
Water Absorption	ASTM D1117/ECTC	155%
Swell	ECTC Guidelines	40%
Stiffness/Flexibility	ASTM D1388/ECTC	0.11 oz-in (1,218 mg-cm)
Light Penetration	ECTC Guidelines	16.40%
Smolder Resistance	ECTC Guidelines	Yes**
MD Tensile Strength	ASTM D5035	342.00 lbs/ft (4.98 kN/m)

MD Elongation	ASTM D5035	7.60%
TD Tensile Strength	ASTM D5035	211.00 lbs/ft (3.08 kN/m)
TD Elongation	ASTM D5035	11.10%

**\*\*Material is smolder resistant according to specified test**

MD – Machine Direction

TD – Transverse Direction

## 2.2 STAKES

- A. Stakes shall be shaped hardwood pins designed to safely and effectively secure the slope stabilization fabric. The wood stake must exhibit ample rigidity to enable being driven into hard ground, with sufficient flexibility to resist breakage. The wood stake shall be the North American Green Eco-Stake or approved equal, with the following dimensions:

Leg Length:	11.00 in
Head Width:	1.25 in.
Head Thickness:	0.40 in.
Leg Width:	0.60 in. (tapered to a point)
Leg Thickness	0.40 in.
Total Length:	12.0 in

### EXECUTION

## 2.3 PREPARATION

- A. Grade and compact areas to be treated with Slope Protection Fabric as specified or as directed by Engineer.
- B. Remove large rocks, soil clods, vegetation, and other sharp objects that could keep Slope Protection Fabric from intimate contact with subgrade.
- C. Prepare seedbed by loosening 50 to 75 mm (two to three inches) of soil above final grade.
- D. Select and apply soil amendments, fertilizer, and seed in accordance with Section 02950 to scarified surface prior to installation of Slope Protection Fabric.
- E. Construct 150 x 150 mm (six-inch x 6-inch) anchor trench at top of slope.

## 2.4 INSTALLATION

- A. Install Slope Protection Fabric at elevation and alignment indicated.
- B. Extend Slope Protection Fabric two to three feet over crest of slope, secure into a six-inch x six-inch trench with a row of staples/stakes approximately 12 inches apart in the

bottom of the trench. Backfill and compact the trench after stapling. Apply seed to compacted soil and fold remaining 12 inch portion of Slope Protection Fabric's back over seed and compacted soil. Secure Slope Protection Fabric over compacted soil with a row of staples/stakes spaced approximately 12 inches apart across the width of the Slope Protection Fabric. Embed the entire perimeter within a key trench.

- C. Unroll Slope Protection Fabric downslope. Consecutive rolls spliced down the slope must be placed end over end (shingle style) with an approximate three inches overlap. Staple through overlapped area, approximately 12 inches apart across entire Slope Protection Fabric's width.
- D. Secure Slope Protection Fabric to slope with ground anchoring devices in accordance with the manufacturer's recommendations for the application (slope or channel).
- E. Where Slope Protection Fabric abuts against rock slope protection or other rock placements, the Slope Protection Fabric shall be placed under the first course of adjacent rock and also staked per section 3.2d.
- F. Alternate installation methods must be approved by Engineer prior to execution.

## **2.5 INSPECTION AND MAINTENANCE**

- A. The Contractor shall inspect Slope Protection Fabric immediately after each rainfall, and at least daily during prolonged rainfall. Any deficiencies shall be immediately corrected by the Contractor.
- B. The Contractor shall also make a daily review of the location of Slope Protection Fabric in areas where construction activities have altered the natural contour and drainage runoff to ensure that the Slope Protection Fabric is properly located for effectiveness. Where deficiencies exist as determined by the Engineer, repairs or replacement shall be performed as directed by the Engineer.
- C. Damaged or otherwise ineffective Slope Protection Fabric shall be repaired or replaced promptly.

## **3. MEASUREMENT AND PAYMENT**

### **3.1 MEASUREMENT**

- A. Slope Protection Fabric will be measured by the square yard of slope protection fabric installed as specified, at locations approved by the Engineer. Measurements will be taken parallel to the finished surface. No additional payment will be made for seams, overlaps, anchor trenches, or wastage.

### **3.2 PAYMENT**

- A. Slope Protection Fabric will be paid for at the contract unit price per square yard, which price will be payment in full for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing fabric, complete in place, including trench excavation and backfill, and maintenance, as shown on the Drawings, as specified herein, or as directed by the Engineer.

<u>Pay Item</u>	<u>Pay Unit</u>
Slope Protection Fabric	Square Yard

**END OF SECTION**

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**SEEDING**

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## **SECTION 329200**

### **SEEDING**

#### **1. GENERAL**

##### **1.1 DESCRIPTION**

- A. Work covered under this section consists of furnishing all labor, tools, materials, equipment and incidentals required to perform Seeding, as specified, as shown on the Drawings, or as directed by the Engineer.

##### **1.2 RELATED WORK**

- A. The work described under this section is related to the following sections of the Specifications:
  - 1. Section 312316, Stripping and Excavation
  - 2. Section 015713, Temporary Erosion Control
  - 3. Section 313519.16, Slope Protection Fabric

##### **1.3 SUBMITTALS**

- A. Submit to the Engineer, for review, the following:
  - 1. List of origin/collection location for each seed species.
  - 2. A representative one-ounce sample of each seed mixture supplied for the job, labeled as to content, purity, and germination percentage.
  - 3. Duplicate copies of invoices for all materials. Invoices for fertilizer shall show the grade furnished.

##### **1.4 QUALITY ASSURANCE**

- A. All seed shall be labeled in accordance with the California Food and Agricultural Code and shall be delivered to the site in sealed individual, unmixed bags with the vendor's certificate attached. Seed treated with mercury compounds shall not be used.
- B. Seed which has become wet, moldy, or otherwise damaged in transit or in storage, will not be acceptable.

#### **2. PRODUCTS**

##### **2.1 MATERIALS**

- A. Quantities shown on the Drawings represent pure live seed (pls).
- B. Seed shall be mixed on-site in the presence of the Engineer. At no time shall the seed mix contain noxious weed seed.

- C. Seed shall be maintained in optimal health and be protected at all times from animal damage; vandalism; inclement weather conditions, including drought, wind, and frost; toxic water; sunlight; moisture; or contact with vehicles, equipment, and tools and any other conditions that would damage or reduce the viability of the seed.
- D. Seed Mix. The seed mix and application rates are as shown on the Drawings. No substitutions are allowed without written consent of the Engineer.
- E. Conventional Fertilizer. Conventional Fertilizer shall contain 16 percent nitrogen, 20 percent phosphorus, 0 percent potash, uniform in composition, dry and free flowing. Fertilizer shall be delivered in containers labeled in accordance with applicable State regulations and bearing the warranty of the producer for the grade furnished.
- F. Straw Mulch. Straw mulch shall be derived from weed free wheat or barley. The Contractor shall furnish evidence that clearance has been obtained from the County Agricultural Commissioner, as required by law, before straw obtained from outside the county in which it is to be used is delivered to the site of the work. Straw that has been used for stable bedding shall not be used. Straw shall be free of mold. Straw shall be cured and dry with no water added after baling. Source must meet or exceed state certification standards for "weed free".
- G. Water. Water shall be furnished by the Contractor and shall be free of chemicals detrimental to the seed mixture.

### **3. EXECUTION**

#### **3.1 PREPARATION**

- A. General. Seed the areas disturbed by construction activities, as specified herein or as directed by the Engineer.
- B. Debris Removal. Prior to ground surface preparation operations remove and dispose of all wire, rubbish, stones, and other material which might hinder proper grading, and subsequent maintenance.
- C. Surface Preparation. Surfaces which are too hard or smooth to accept the seeding, as determined by the Engineer, shall be broken up to a minimum depth of 6 inches, by disking or other methods approved by the Engineer, until the condition of the soil is acceptable. When conditions are such, by reason of excessive moisture or other factors, that satisfactory results are not likely to be obtained, the work shall be stopped and shall be resumed only when directed. Slopes in excess of 25% shall be prepared by track-walking or equivalent method approved by the Engineer.

#### **3.2 APPLICATION OF SEED**

- A. Existing Features. During seeding operations, care shall be taken to avoid damaging existing facilities, vegetation to remain, or any other items on or around the planting areas.

- B. Seeding Areas: Apply seed to disturbed areas indicated on the Drawings, or as directed by the Engineer
- C. Time of Seeding: Perform all seeding between September 15th and October 1st of the year construction begins. The seeding operation shall be halted when, in the opinion of the Engineer, conditions of high winds, excessive moisture or other factors are not conducive to satisfactory results. Upon written request of the Contractor, and upon written approval of the Engineer, seeding may be done during off seasons provided that:
  - 1. The resulting stand of grass shall be at least equal to the stand that might be expected from planting during the normal season; and
  - 2. The establishment period shall be lengthened, as required, to produce the above specified stand at no additional cost to the Owner.
  - 3. Perform seeding prior to placement of erosion control fabric, where erosion control fabric is specified.
- D. Broadcast Seeding. Seed shall be dry-applied by the following method:
  - 1. Broadcast seed and fertilizer (if specified), at the rates specified on the Drawings, uniformly by hand, mechanical hand seeder, combination seed spreader and cultipacker, or other approved equipment. Where seed is broadcast by hand or mechanical hand seeder, half the seed shall be sown with the sower moving in one direction, and the remainder sown with the sower moving at right angles to the first sowing. Broadcast seeding shall not be done during windy weather.
  - 2. Rake seed into the soil to achieve a sowing depth of approximately 1/8 inch to 1/4 inch.
  - 3. Following the application of seed, straw mulch shall be pneumatically applied or hand broadcast at the rate of 3,000 pounds per acre (typically 1.5 to 2 tons/acre), where erosion control fabric is not specified, and 500 lbs for acre where erosion control fabric will be used.

### **3.3 ESTABLISHMENT**

- A. There will be no establishment period required for areas seeded as specified and approved by the Engineer.

### **3.4 FIELD QUALITY CONTROL**

- A. During the course of work or upon completion of the project, a check of the quantities of materials will be made against the areas treated, and if the minimum rates of application have not been met, the Engineer will require the distribution of additional quantities of those materials to make up the minimum applications specified.

## **4. MEASUREMENT AND PAYMENT**

#### **4.1 MEASUREMENT**

- A. Seeding will be measured on a lump sum basis.
- B. Areas disturbed by the Contractor and requiring seeding outside the designated limits of disturbance shall not be measured for payment.
- C. Areas seeded by the Contractor that are subsequently damaged by the Contractor or subcontractors and require reseeding will not be separately measured for payment.

#### **4.2 PAYMENT**

- A. Seeding will be paid for at the contract lump sum price, which price will include furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the Seeding as specified, as shown on the Drawings, or as directed by the Engineer.
- B. The cost of seeding areas outside the designated limits of disturbance shall be solely borne by the Contractor.
- C. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Seeding	Lump Sum

**END OF SECTION**

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## **SECTION 354237**

### **ROCK SLOPE PROTECTION**

#### **1. GENERAL**

##### **1.1 DESCRIPTION**

- A. Work within this section shall include furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing Rock Slope Protection (RSP), Engineered Streambed Material, Stream Substrate, backing layers, backfill and geotextile fabric, where shown on the Drawings, as specified herein, or as otherwise directed by the Engineer. Stone protection, rock slope protection, and riprap are interchangeable in these Specifications and Drawings.
- B. All loading, transport, temporary stockpiling, processing and mixing of stone materials to achieve designated gradations, washing, on-site hauling, excavation, preparation of sub-grade, placement, embedment, backfill, grading, compaction, finish grading, clean-up, and off-haul and disposal of excess materials needed to install all Rock Slope Protection work, where incorporated in the work, shall be considered as included in the applicable bid item unit price, and no additional compensation will be allowed.
- C. The Contractor is hereby notified that the Engineer may direct the Contractor to place additional RSP (not shown on the Plans) at select locations within the project work treatment areas to fit existing conditions at the time of construction. Any such additional stone materials and placement shall be considered as included in the unit prices paid for the designated stone materials as described elsewhere in these Technical Specifications and no additional compensation shall be allowed for.
- D. Related sections:
  - 1. Section 312319, Dewatering
  - 2. Section 312316, Stripping and Excavation

##### **1.2 SUBMITTALS**

- A. Submit to the Engineer, for review, the following:
  - 1. Manufacturer's product data and installation instructions for specified geotextile fabrics.
  - 2. Certified weights of the rock delivered to the site.
  - 3. Certificate(s) and other material testing data as necessary to validate the source of the Rock Materials and their conformance with the Standard Specifications and these Technical Specifications. Include all applicable test results for grading, specific gravity, resistance to degradation, absorption, durability index, and soundness (as described elsewhere in these Technical Specifications).
  - 4. A representative 5 cubic yard sample of each of the proposed Rock Materials specified herein shall be provided to the Engineer for approval, ten days prior to delivery of the remainder of material to the project site. The Engineer reserves to the right to reject said materials.

- B. Sampling and Testing Assistance. Any difference of opinion between the Engineer and the Contractor shall be resolved by dumping and checking the gradation of the two random truck loads of rock. Mechanical equipment, a sorting site and labor needed to assist in checking gradation shall be provided by the Contractor at no additional cost to the Client.

### **1.3 QUALITY ASSURANCE**

- A. Tolerances. Place rock to a vertical tolerance of minus 2 to plus 3 inches.
- B. Subgrade Preparation. Prior to placement of rock, Engineer shall verify subgrade preparation, and placement of fabric for rock. Where backing is shown on the Drawings, Engineer shall verify subgrade preparation and backing placement prior to placement of outer rock course.

## **2. PRODUCTS**

### **2.1 MATERIALS**

- A. Salvaged Rock Material. Native rock found on site may be salvaged for reuse, subject to compliance with the material requirements for the intended use, and subject to the approval by the Engineer. The Engineer may require the Contractor to provide testing (e.g. gradation curve, hardness, etc.) to ensure that materials are suitable for reuse. Salvaged creek bed material shall be placed on a hardened surface or other suitable material (i.e., steel plate, pavement, filter fabric) to protect the said material from contamination or mixing with other soils, earthen material and debris. The Engineer may, at his sole discretion, waive certain testing requirements to facilitate the Contractor's use of locally salvaged materials.
- B. Rock materials and gradation shall conform to Section 72-2.02 Materials of the State Standard Specifications. Stones shall be sound, durable, hard, resistant to abrasion and free from laminations, weak cleavage planes, and the undesirable effects of weathering. It shall be of such character that it will not readily disintegrate from the action of air, water, or the typical conditions experienced during handling and placing. All aggregate material shall be clean and free from deleterious impurities, including alkali, earth, clay, refuse, and adherent coatings.
- C. Rock size classes not designated below shall be as shown on the Drawings, or as directed by the Engineer. All stone, rock, aggregate materials, and soils imported to the site shall be from a certified "Weed Free" source.
  - 1. RSP. Comply with Section 72 of the State Standard Specifications for the rock size classes indicated on the Drawings. RSP shall be sub-rounded to angular.
  - 2. Backfill. Backfill within RSP voids shall consist of "Stream Substrate" material, as specified below
- D. Stream Substrate. Stream Substrate shall consist of locally derived alluvium, salvaged from the streambed or fish ladder bays during construction. Stream Substrate shall be predominantly granular material, free of organics, and ranging in size from 10 inches down to fines. If contractor is unable to salvage sufficient quantities of Stream

Substrate to perform the work as specified, imported Stream Substrate will be allowed and shall meet the following specifications.

<b>Table 2: Gradation requirements for Stream Substrate, inches or sieve size</b>					
<b>Size Class</b>	<b>100% passing</b>	<b>75-85% passing</b>	<b>45-55% passing</b>	<b>12-20% passing</b>	<b>10% passing</b>
<b>100</b>	10	4	1 3/4	0.530	No. 10

### **3. EXECUTION**

#### **3.1 GENERAL**

- A. Rounded and smooth gravel, cobbles, and boulders shall not be placed on slopes steeper than 2:1 (horizontal: vertical) unless otherwise directed by the Engineer.
- B. All rock materials shall be placed in such a manner as to smoothly conform to adjacent graded areas. Smaller rock shall be chinked into the margins of larger rock placements, as necessary to conform to earthwork and prevent migration of fines from adjacent graded areas into the rock matrix.

#### **3.2 ROCK SLOPE PROTECTION**

- A. Install Rock Slope Protection in accordance with Section 72 of the State Standard Specifications Method A, as modified below, and to the lines and the minimum dimensions shown on the Drawings. Use equipment to place rock on slopes, or below the water. Place rock so as to minimize the number of voids. Rock shall be placed in lifts with a thickness not exceeding the D100 of the specified stone. Each lift shall be backfilled to half its depth with "Stream Substrate", water-jetted in place, prior to placement of the subsequent lift. Backfill shall be placed in a manner that does not interfere with direct rock to rock contact of successive lifts. Backfill shall be placed to match the finished surface of the RSP and water-jetted to fill all voids, as directed by the Engineer.

#### **3.3 STREAM SUBSTRATE.**

- A. Stream Substrate shall be placed to the lines, grades and depths shown on the Drawings, or as directed by the Engineer. Uniformly distribute large stones to produce the required gradation of rock. Prevent contamination of rock materials by excavation and/or earth materials. Subgrade shall be uniform with no soil clumps or rocks greater than two inches.
- B. Following placement of the Stream Substrate, the finished surface shall be jetted with water until fines (material with a diameter less than 2mm) have been washed into the interstices of the mix to form a uniform plane of embedment, to the satisfaction of the Engineer. Turbid water resulting from jetting operations shall be pumped to a local depression or other sediment treatment facility, as necessary to comply with water quality requirements.

### **4. MEASUREMENT AND PAYMENT**



#### 4.1 MEASUREMENT

- A. Rock Slope Protection. Rock Slope Protection will be measured by the cubic yard of Rock Slope Protection, based on the dimensions of RSP (outer and inner “backing” courses) shown on the Drawings. Rock Slope Protection is a “Final Pay Item” in accordance with Section 9-1.015 “Final Pay Quantities” of the Standard Specifications. Where the dimensions of any portion of the work are revised by the Engineer, or a portion of the work is eliminated, the change will be measured by the cubic yard.
- B. Stream Substrate. Stream Substrate will not be separately measured for payment.
- C. Volumetric measurements will be determined from the dimensions as shown on the Drawings or the dimensions constructed as directed by the Engineer. Materials placed in excess of these dimensions, without prior approval of the Engineer, will not be included the measurement for payment.
- D. Excavation and backfill for rock slope protection will not be separately measured for payment.
- E. Rock Excavation required to achieve subgrade for RSP will not be separately measured for payment.

#### 4.2 PAYMENT

- A. Rock Slope Protection, measured as specified above, will be paid for at the contract price per cubic yard, which price will be payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the riprap placement, including subgrade preparation, geotextile fabric, processing work, backing, rock placement, backfill of voids, Planting Tubes, excavation and fill.
- B. Stream Substrate. No separate payment will be made for Stream Substrate or backing. Payment for Stream Substrate and backing will be considered incidental to the unit price paid for the related Rock Slope Protection work item.
- C. No separate payment will be made for excavation and backfill (including rock excavation) incidental to rock slope protection work. All costs in connection with this work will be considered incidental to the cost of construction of the associated slope protection work. Where embankment is shown to be placed over completed rock slope protection, the embankment shall be considered incidental to the cubic yard price paid for associated Rock Slope Protection work.
- D. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Rock Slope Protection	CY(F)

**END OF SECTION**

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**SECTION 40 05 01**  
**DUCTILE IRON PIPE AND APPURTENANCE**

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## **SECTION 40 05 01**

### **DUCTILE IRON PIPE AND APPURTENANCE**

#### **1. GENERAL**

##### **1.1 Description**

A. Section Includes:

1. Ductile Iron Pipe, Fittings and Joint Restraints
2. Bedding and cover materials.

B. Related Requirements:

1. Section 31 23 00 – Trenching, Backfill and Compaction

##### **1.2 References**

A. ASTM International:

1. ASTM A36 - Standard Specification for Carbon Structural Steel.
2. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.

B. American Water Works Association:

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings.
4. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. AWWA C115 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
6. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast.
7. AWWA C153 - Ductile-Iron Compact Fittings.
8. AWWA C208 - Dimensions for Fabricated Steel Water Pipe Fittings
9. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances.

##### **1.3 Submittals**

- A. Product Data: Submit data on pipe materials, pipe fittings, valves, and accessories.
- B. Shop Drawings: Layout drawings including all necessary dimensions, details, pipe joints, fittings, specials, valves, appurtenances, anchors, supports, guides and material lists. Fabrication drawings shall indicate all spool pieces, spacers, adapters, connectors, fittings and supports to accommodate the equipment and valves in a complete and functional system.
- C. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

#### **1.4 Closeout Submittals**

- A. Project Record Documents:
  - 1. Record actual locations of piping mains, valves, connections, thrust restraints, and invert elevations.
  - 2. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

#### **1.5 Delivery, Storage, and Handling**

- A. Block individual and stockpiled pipe lengths to prevent moving.
- B. Deliver and store valves in shipping containers with manufacturer's labeling in place.
- C. Prepare valves and accessories for shipment according to AWWA Standards and seal valve and ends to prevent entry of foreign matter into product body.
- D. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.

#### **1.6 Existing Conditions**

- A. Field Measurements: Verify field measurements prior to fabrication. Indicate field measurements on Shop Drawings.

### **2. PRODUCTS**

#### **2.1 General**

- A. All products in contact with potable water shall be certified to NSF-61 standards, and lead-free per California AB-1953.

#### **2.2 Ductile Iron Pipe**

- A. AWWA C151. Bituminous Outside Coating: AWWA C151.
- B. Pipe Mortar Lining: AWWA C104, double thickness.
- C. Pipe Class: AWWA C151, for nominal thickness, rated water working pressure, and maximum depth of cover.
- D. Fittings: Ductile iron, AWWA C110. Compact fittings AWWA C153.
  - 1. Coating and Lining:
    - a. Bituminous Coating: AWWA C110.
    - b. Cement Mortar Lining: AWWA C104, double thickness.
  - 2. For grooved or shouldered end fittings, use ductile iron fittings conforming to AWWA C110. Grooves or shouldered ends shall conform to AWWA C606.
- E. Joints:
  - 1. Mechanical and Push-on Joints: AWWA C111.
  - 2. Flanged Joints: AWWA C115. ASME B16.1, Class 125.

- a. Joints in above ground piping or piping located in vaults and structures shall be flanged, unless otherwise shown on the Drawings.
  - b. Use flat faced flanged fittings.
- 3. Restrained Joints: Restrained joint fittings and the restraining components shall be Ductile Iron in accordance with applicable requirements of AWWA C110 and/or C153. Push-on joints for such fittings shall be in accordance with AWWA C111. Joint restraint may be accomplished using any of the following:
  - a. Boltless, push-on type restraint with stainless steel locking segments, integral with joint seal. Restraint shall be Field Lok 350 Gasket as manufactured by US Pipe, or approved equal.
  - b. Mechanical joint restraint with stainless steel locking segments, integral with joint seal and ductile iron gland. Restraint shall be MJ Field Lok as manufactured by US Pipe, or approved equal.
  - c. Mechanical joint restraint consisting of multiple gripping wedges incorporated into a follower gland. Restraint shall be Series 1100 Megalug as manufactured by EBAA Iron, or approved equal
  - d. Restrained joint pipe and fitting system. System shall be U.S. Pipe's TR FLEX Pipe and Fittings or approved equal. Restraint of field cut pipe shall be provided with U.S. Pipe's TR FLEX GRIPPER® Ring, TR FLEX Pipe field weldments, or approved equal.
- F. Outlets:
  - 1. Outlets in above ground piping or piping located in vaults and structures:
    - a. Outlets smaller than 3" shall be shop fabricated using Class 3000 threaded couplings welded to the pipe cylinder before the exterior coating is placed on the pipe.
- G. Encasement: AWWA C105 polyethylene encasement.

## 2.3 Underground Pipe Markers

- A. Manufacturer List:
  - 1. Pipemarker.com; Brimar Industries
  - 2. Kolbi Pipe Marker Co.
- B. Plastic Ribbon Tape:
  - 1. Brightly colored, continuously printed with "water" and colored blue for water service.
  - 2. Minimum 6 inches wide by 4 mil thick.
  - 3. Manufactured for direct burial service.
- C. Trace Wire:
  - 1. Electronic detection materials for all piping products.
  - 2. Unshielded, 12 gage, THWN-insulated copper wire.

## 2.4 Accessories

- A. Bolts, Nuts and Gaskets:
  - 1. Bolts/Nuts:
    - a. Below Grade: Tripac 2000 or approved equal
    - b. Above Grade: 316 SST

2. Gaskets: EPDM
- B. Steel Rods, Lugs, and Brackets: ASTM A36 or ASTM A307, Grade A carbon steel.
- C. Protective Coatings:
  1. Buried Locations: Bituminous coating wrapped in polyethylene encasement
  2. Exposed Locations: High Performance Coating System.
    - a. Polyamidoamine Epoxy Primer with Polyamidoamine Epoxy or Aliphatic Acrylic Polyurethane Enamel Finish Coat(s).
      - 1) Prime coat:
        - a) P1=1 coat, 3 Mils, Series N69 Epoxoline (Polyamidoamine Epoxy), VOC=2.11
      - 2) Finish coats:
        - a) Finish Coat 1, 3 Mils, Series N69 Epoxoline (Polyamidoamine Epoxy)
        - b) Finish Coat 2, , 2.5 Mils, Series 1074 Endura-Shield (Aliphatic Acrylic Polyurethane Enamel), VOC=1.81
    - b. Apply coating and prepare surfaces in accordance with manufacturers recommendations.

### **3. EXECUTION**

#### **3.1 Preparation**

- A. Preconstruction Site Photos:
  1. Take photographs along centerline of proposed pipe trench
  2. Show existing site features.
  3. Include Project description, date taken, and sequential number on back of each photograph.
- B. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, remove burrs. Use only equipment specifically designed for pipe cutting. The use of chisels or hand saws is not permitted. Grind edges smooth with beveled end for push-on connections.
- C. Remove scale and dirt on inside and outside before assembly.
- D. Prepare pipe connections to equipment with flanges or unions.

#### **3.2 Bedding**

- A. Excavate pipe trench as specified in Section 31 23 00 – Trenching, Backfill, and Compaction. Hand trim excavation for accurate placement of pipe to elevations indicated on Drawings.
- B. Dewater excavations to maintain dry conditions and preserve final grades at bottom of excavation.
- C. Place bedding material at trench bottom, level fill materials in one continuous layer not exceeding 8 inches compacted depth; compact to 90 percent.

### **3.3 Installation**

- A. Pipe:
  - 1. Install pipe according to AWWA C600.
  - 2. Handle and assemble pipe according to manufacturer's instructions and as indicated on Drawings.
  - 3. Deflection shall be accomplished only with the use of approved ductile iron deflection fittings.
  - 4. Steel Rods, Bolt, Lugs, and Brackets: Coat buried steel with one coat of coal tar coating before backfilling.
  - 5. Maintain 10 feet horizontal separation of water main from sewer piping according to California Department of Drinking Water.
  - 6. Install ductile-iron piping and fittings according to AWWA C600.
  - 7. Install pipe with no high points. If unforeseen field conditions arise that necessitate high points, install air release valves as directed by Engineer.
  - 8. Install buried pipe to have bearing along entire length of pipe. Excavate bell holes to permit proper joint installation. Do not lay pipe in wet or frozen trench.
  - 9. Prevent foreign material from entering pipe during placement.
  - 10. Install pipe to allow for expansion and contraction without stressing pipe or joints.
  - 11. Close pipe openings with watertight plugs during Work stoppages.
  - 12. Establish elevations of buried piping with not less than 3.5 feet of cover, unless otherwise noted on the drawings. Measure depth of cover from final surface grade to top of pipe barrel.

### **3.4 Polyethylene Encasement**

- A. Encase buried piping in polyethylene to prevent contact with surrounding backfill material.
- B. Install according to AWWA C105.
- C. Terminate encasement 3 to 6 inches aboveground where pipe is exposed.

### **3.5 Thrust Restraint**

- A. Restrain all pipe joints.
- B. Install tie rods, clamps, setscrew retainer glands, or restrained joints. Protect metal-restrained joint components against corrosion by applying a bituminous coating or by concrete mortar encasement of metal area. Do not encase pipe and fitting joints to flanges. Provide joint restraint as indicated on the Drawings.
- C. Install restrained joints per manufacturer's recommendation.

### **3.6 Backfilling**

- A. Backfill around sides and to top of pipe as specified in Section 31 23 00 – Trenching, Backfill and Compaction.
- B. Maintain optimum moisture content of bedding material to attain required compaction density.

### 3.7 Field Quality Control

- A. Pressure test system according to AWWA C600:
  - 1. Test Pressure: Not less than 100 psig.
  - 2. Conduct hydrostatic test for a minimum duration of four hours.
  - 3. Test all piping, which include the mainline, blowoff and hydrant laterals, air release valve laterals, and water service laterals, either in sections or as a unit.
  - 4. Mortar-lined piping shall not be tested before mortar lining as attained an age of 14 days.
  - 5. Slowly fill section to be tested with water; expel air from piping at high points. Install corporation stops at high points. Close air vents and corporation stops after air is expelled. Raise pressure to specified test pressure.
  - 6. Observe joints, fittings, and valves under test. Remove and replace cracked pipe, joints, fittings, and valves showing visible leakage. Retest.
  - 7. Correct visible deficiencies and continue testing at same test pressure for an additional one hour to determine leakage rate. Maintain pressure within plus or minus 5 psi of test pressure. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of test.
  - 8. The water necessary to maintain this pressure shall be measured by the amount of water withdrawn from a fixed vessel, such as a barrel
  - 9. Leakage in buried pipe systems shall not exceed the rate of 30 gallons per inch of diameter per 24 hours per mile of pipe. No leakage shall be permitted in above ground or in-vault piping.
  - 10. When test of pipe indicates leakage greater than allowed, locate source of leakage, make corrections, and retest until leakage is within allowable limits. Correct visible leaks regardless of quantity of leakage.
- B. Compaction Testing for Bedding: According to ASTM D1557.
- C. When tests indicate Work does not meet specified requirements, remove Work, replace, and retest at Contractor's expense.

## 4. MEASUREMENT AND PAYMENT

### 4.1 Measurement

- A. Work under this section will be measured for payment on a lump sum basis.

### 4.2 Payment

- A. The lump sum contract price for Ductile Iron Piping and Appurtenances will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for performing work within this Section.
- B. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Ductile Iron Piping and Appurtenances	Lump Sum



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**SUBMERSIBLE VERTICAL TURBINE PUMPS**

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## **SECTION 43 23 62**

### **SUBMERSIBLE VERTICAL TURBINE PUMPS**

#### **1. GENERAL**

##### **1.1 Description**

- A. This section includes materials, testing, and installation of existing submersible pumps for water well service.

##### **1.2 References**

- A. AWWA Standards
  - 1. AWWA E102 – Submersible Vertical Turbine Pumps
- B. National Sanitation Foundation (NSF) Standards
  - 1. NSF Standard 61 - Drinking Water System Components – Health Effects
  - 2. NSF Standard 372 – Drinking Water System Components – Lead Content

##### **1.3 Submittals**

- A. Submit dimensional drawings, showing materials of construction by ASTM reference and grade. Show linings and coatings.
- B. Construction details and materials of pump column and casing. Outline dimensions and weights.
- C. Manufacturer data sheet for submersible pump cable including voltage, ampere, insulating and temperature ratings.
- D. Provide NSF 61 certification or confirmation that the supplied equipment complies with the requirements of NSF 372.

##### **1.4 Quality Assurance**

- A. NSF Certification
  - 1. All applicable components in contact with the water including materials, joint compounds and coatings shall have NSF Standard 61 Certification.

#### **2. PRODUCTS**

##### **2.1 General**

- A. Reuse existing Submersible Pump with new steel pump discharge column. Contractor to field verify length of new pump discharge column to ensure pumps meet minimum submergence of 8-ft.
- B. All bolts, nuts, washers, retainers, and wetted fasteners shall be 316 series stainless steel.

##### **2.2 Pump Construction**

- A. Pump Casing

1. The casing shall be ductile iron as specified in section 40 05 01 – Ductile Iron Pipe and Appurtenances
- B. Pipe Discharge Pipe
  1. Discharge pipe shall be steel (ASTM A53 Standard Weight) threaded column sections, furnished in maximum 20-ft lengths, connected by threaded sleeve type steel couplings. The ends of the pipes shall have ANSI B1.20.1 standard tapered pipe threads. The threaded column pipe shall be secured against unscrewing at every coupling. Inside diameter of the pipe shall be as shown on the Plans. The discharge pipe pump connection to be coordinated with the existing pump that will be reused.
- C. Pump Sled/Skid
  1. Reuse existing pump sled/skid.

### **3. EXECUTION**

#### **3.1 General**

- A. Care during storage and procedures for installation, lubrication, and startup of the pumps and motors.
- B. Field measurements of the existing pump and motor and coordinate with Owner to ensure minimum submergence depth is maintained.
- C. Review condition of the existing submersible turbine pump and provide feedback to the Owner should the recommendation be that the existing pumps cannot be reused due to their condition.
- D. Caution shall be given to not damage existing submersible turbine pump during removal. Existing submersible turbine pump shall be securely stored and protected from damage during construction. Damage to the existing submersible turbine pumps during removal or storage shall be at the Contractors sole expense for repairs.

#### **3.2 Pump Installation**

- A. Adjust pump assemblies for proper alignment. Flexible couplings will not be allowed to compensate for misalignment.
- B. All strain and forces from attached piping and appurtenances shall be eliminated from the pumps.
- C. Any evidence of pump misalignment, noisy operation, or other signs of improper setting shall be corrected.

### **3.3 Field Quality Control**

- A. Following completion of the installation of the equipment, coordinate with the Owner to ensure that the existing pumps are operating within the existing discharge head and flow parameters.
- B. Performance Testing
  - 1. Demonstrate operation of each pumping unit and assist Owner in the proper conduct of the following field acceptance tests. The operation shall be performed by the Contractor over four existing known flow condition. Operation shall be free of excessive vibration, noise or cavitation, overheating of the pump or motor bearings, and overloading the motor. Contractor shall provide all required testing equipment and shall perform said test at no additional cost to the Owner.
  - 2. Each pump's performance shall be documented by obtaining concurrent readings showing motor voltage and amperage, pump flow rate, pump suction head, estimated by creek level, and pump discharge head. Readings shall be documented at a minimum of four pumping conditions, including the specified design points, to ascertain the actual pumping curves. Another test shall be run at shut-off head. Each power lead to the motor shall be checked for proper current balance. Contractor shall furnish calibrated test gauge with diaphragm seal to measure discharge pressure. The test gauge shall be used by Contractor for all pumps during testing. Flow shall be measured at the water treatment plant. Pumping units (pump and motor) shall perform in the field substantially in accordance with existing known conditions. If, in the opinion of Owner, the equipment furnished does not perform in accordance with these Specifications, Contractor shall promptly make all necessary repairs or corrections so that the equipment fully complies with these Specifications. Contractor shall remove, restore, and replace the equipment if required and retest if necessary.

### **3.4 Measurement**

- A. Work under this section will be measured for payment on a lump sum basis.

### **3.5 Payment**

- A. The lump sum contract price for Submersible Vertical Turbine Pumps will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for performing work within this Section.
- B. All electrical and controls work for the Submersible Vertical Turbine Pumps also shall be included in this pay item.
- C. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Reuse of Submersible Vertical Turbine Pumps	Lump Sum

**END OF SECTION**