

THE CITY OF POWAY
San Diego County, California

SPECIAL PROVISIONS

For the

**BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2
REHABILITATION PROJECT**

Bid No. 21-009

NOVEMBER 2020

TABLE OF CONTENTS

Boulder Mountain Reservoirs No. 1 and 2 Rehabilitation Project

<u>SECTION NO.</u>		<u>PAGE NO.</u>
SECTION 1	NOTICE INVITING BIDS	1
SECTION 2	GENERAL PROVISIONS	3
SECTION 3	SPECIFICATIONS AND PLANS	7
SECTION 4	BEGINNING OF WORK, TIME OF COMPLETION, AND LIQUIDATION OF DAMAGES	9
SECTION 5	AWARD AND EXECUTION OF CONTRACT	12
SECTION 6	PROPOSAL REQUIREMENTS AND CONDITIONS	15
SECTION 7	PUBLIC CONVENIENCE AND SAFETY	21
SECTION 8	DOCUMENTS TO BE EXECUTED BY SUCCESSFUL BIDDER:	
	Construction Contract	23
	Public Work Bond for Material and Labor	32
	Letter of Credit Securing Payment of Materials and Labor	33
	Public Work Bond for Faithful Performance	35
	Letter of Credit Securing Contract Execution	36
	Guaranty	38
	Worker's Compensation Insurance Certificate	39
SECTION 9	DOCUMENTS TO BE EXECUTED BY BIDDER:	
	Background Information	40
	Contractor Licensing and Insurance Information	43
	Organization, History, Organizational Performance	45
	Previous Experience	55
	Additional Explanation Page	58
	Bid Schedule	59
	List of Subcontractors	70
	Worker Classifications	71
	Proposal, Bid Security Bond or Check	72
	Bid Bond	73
	Letter of Credit Securing Bid	75
	Non-Collusion Affidavit	77
SECTION 10	WAGE RATES AND LABOR CODE REQUIREMENTS	78
SECTION 11	CONSTRUCTION DETAILS AND MATERIALS	86
	Weather Triggered Action Plan	99
PART II	TECHNICAL SPECIFICATIONS	101
APPENDIX A	CONSTRUCTION BMPs	206
APPENDIX B	SEWER OVERFLOW PREVENTION PLAN	243

**THIS PAGE LEFT
INTENTIONALLY BLANK**

**CITY OF POWAY
NOTICE INVITING BIDS**

Sealed bids will be accepted at 13325 Civic Center Drive, Poway, CA 92064 until 4:00 p.m. on November 12, 2020. They shall be submitted in sealed envelopes marked on the outside with the project title:

**BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT
BID NO. 21-009**

Bid submissions can be made in person by calling (858) 668-4623 or (858) 668-4606. A Development Services staff member will accept the bid package at the front door. The City will be publicly opening the bids via conference call due to California Executive Order N-33-20 related to COVID-19 social distancing requirements. The Bid Opening Call-In instructions are as follows:

Dial-in Info:	+1 (858) 668-1220
Participant Code:	939-267-38

PROJECT DESCRIPTION:

The Work involves furnishing all labor, equipment and materials necessary to install guardrail, ladders, center vent, auxiliary vent, lateral bracing modifications, fall restraint system, inlet/outlet modifications, overflow modifications, rafter repairs, cathodic protection system, interior coating removal, recoating, exterior paint removal, and exterior painting of Boulder Mountain Reservoir No. 1 (40' diameter, 23' height, 0.2 MG) and Boulder Mountain Reservoir No. 2 (58' diameter, 23' height, 0.4 MG) potable water steel storage reservoirs located at 15615 Boulder Mountain Road.

No bid will be received unless it is made on a bid form which is included as part of the Special Provisions for the project. Each bid shall be accompanied by cash or a cashier's check or a certified check, or a satisfactory bid bond issued by a California admitted surety insurer in the form as included in the bid documents, in any event in an amount not less than 10% of the total amount of the bid.

Construction surveying and staking will be provided by the Contractor. The Contractor must obtain a Right-of-Way Permit from the City, at no cost, before construction begins.

Plans, Specifications, and other Contract documents are available to download for free from our website at www.poway.org, or you may contact the project manager, Brian Banzuelo at (858) 668-4623 to make arrangements to pick up a set for a non-refundable fee of \$15.00.

A pre-bid meeting is scheduled for November 5, 2020, at 9:00 a.m. at the project site located at 15615 Boulder Mountain Road, Poway, CA. The meeting is to answer bidders' questions on the construction project and will be the only time the project site is accessible before bid opening. Attendance at the pre-bid meeting is mandatory. Please note that due to social distancing requirements, face masks/coverings will be required at all times during the pre-bid meeting.

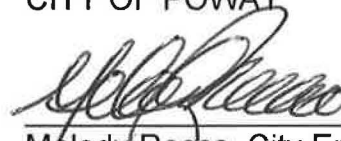
No contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)]. No contractor 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.

Please direct all questions during the bidding process to Brian Banzuelo, Associate Civil Engineer, at (858) 668-4623 or via email at bbanzuelo@poway.org.

PRELIMINARY ENGINEER'S ESTIMATE: \$862,100

CITY OF POWAY

Date: October 12, 2020



Melody Rocco, City Engineer

SECTION 2

GENERAL PROVISIONS

2-1 LEGAL RELATIONS AND RESPONSIBILITY - Attention is directed to Section 5, "Legal Relations and Responsibilities," of the Standard Specifications.

2-2 FAIR EMPLOYMENT PRACTICE COMMISSION CERTIFICATION - The Contractor's attention is directed to the requirement in Section 12940, et.seq. of the Government Code. The Contractor shall at all times comply with the applicable requirements of the California Fair Employment and Housing Act.

2-3 SOUND CONTROL REQUIREMENTS - The Contractor shall comply with all local sound control and noise level rules, regulations, and ordinances, which apply to any work performed pursuant to the Contract.

Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.

The noise level from the Contractor's operations, between the hours of 5:00 p.m. and 7:00 a.m., shall not exceed 86 d.b.a. at a distance of 50 feet. This requirement in no way relieves the Contractor from the responsibility of complying with local ordinances regulating noise levels.

Said noise level requirements shall apply to all equipment on the job or related to the job including, but not limited to, trucks, transit mixers or transient equipment that may or may not be owned by the Contractor. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel.

Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various items of work involved and no additional compensation will be allowed therefore.

2-4 CONSTRUCTION EQUIPMENT - The Contractor shall take all necessary precautions for safe operation of his equipment and the protection of the public from injury and damage from such equipment.

2-5 PERMITS - Attention is directed to Section 2-2 "Permits," of the Standard Specifications for Public Works Construction, 2018 Edition, the associated Regional Supplement Amendments, and these Special Provisions. The Contractor will be required to obtain a City of Poway Public Right-of-Way Permit, at no cost to the Contractor.

2-6 LICENSES - No bid will be accepted from a bidder who is not licensed to conduct business in the State of California and licensed to perform the class of work defined by these bid documents.

The Contractor is required to complete the License Certification contained in the Bid Proposal documents. The Contractor's license classification required for this project is: License Type A or C33.

The Contractor shall maintain a current City of Poway Business Certificate and State of California Department of Industrial Relations' Public Works Contractor Registration Number.

2-7 INCREASED OR DECREASED QUANTITIES - As per the Standard Specifications for Public Works Construction, 2018 Edition, and the associated Regional Supplement Amendments, Section 7-3, "Payment."

2-8 EQUIPMENT RENTAL RATES - The requirements associated with equipment rental rates for extra work items will be in compliance with Section 7-4, "Payment for Extra Work," of the Standard Specifications for Public Works Construction, 2018 Edition, and the associated Regional Supplement Amendments.

a. The following revisions are made to this section:

- i. Section 7-4.2.1 – Labor. Delete the first paragraph and replace it with the following: "The cost of labor shall be the actual cost for wages of workers performing the Extra Work at the time the Extra Work is done, plus payments to or on behalf of the workers for health and welfare, pension, vacation, and similar purposes. A labor surcharge rate will be added to the cost of labor and shall constitute full compensation for statutory payroll items imposed by Federal, State or local laws. The labor surcharge rate shall be determined from the State of California, Business, Transportation and Housing Agency, Department of Transportation, Division of Construction's Labor Surcharge and Equipment Rental Rates Book. The edition of this book in effect at the time the extra work was performed will govern the rate paid."
- ii. Section 7-4.2.3 - Tool and Equipment Rental. Delete the second paragraph and replace it with the following: "Regardless of ownership, the rates used to determine equipment rental rates shall be those listed in the State of California, Business, Transportation and Housing Agency, Department of Transportation, Division of Construction's Labor Surcharge and Equipment Rental Rates Book. The edition of this book in effect at the time the extra work was performed will govern the rate paid."
- iii. Section 7-4.2.3 - Tool and Equipment Rental. Revise the last sentence in paragraph 6 to read: "This time begins when the equipment is first put into actual operation on the extra work."
- iv. Section 7-4.3.1 – Work by the Contractor. Delete this section and replace with the following: "The Contractor shall be provided the following markup related to the extra work and shall constitute all delay costs, overhead costs, profit, and other expenses related to the extra work:

- a. Labor 15%
- b. Equipment 15%
- c. Materials 15%
- d. The Contractor will be compensated for the actual increase in the Contractor's bond premium caused by the extra work.

Section 7-4.3.2 – Work by the Subcontractor. Delete this section and replace with the following: "When all or any part of the extra work is performed by a subcontractor, the markup established in 7-4.3.1 shall be applied to the subcontractor's actual cost of such work as determined under 7-4.2.3, to which a markup of 5 percent on the first \$5,000 of the subcontracted portion of the extra work and a markup of 2.5 percent on work added in excess of \$5,000 of the subcontracted portion of the extra work may be added by the Contractor.

2-9 ANTI-KICKBACK - The Contractor shall comply with the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented in Department of Labor Regulations (29 CFR, Part 3).

2-10 WORK STANDARDS - The Contractor shall comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor Regulations (29 CFR, Part 5). Section 103 requires the Contractor to compute the wages of every mechanic and laborer on the basis of a standard workday of 8 hours and a standard workweek of 40 hours. Work in excess of the standard workday or workweek is permissible provided that the worker is compensated at a rate of not less than 1-1/2 times the basic rate of pay for all hours worked in excess of 8 hours in any calendar day or 40 hours in the work week. Section 107 of that act is applicable to construction work and provides that no laborer or mechanic shall be required to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to his health and safety as determined under construction, safety, and health standards promulgated by the Secretary of Labor.

2-11 PAYMENT RETENTION CLAUSE - In conformance with the Public Contract Code Section 22300, the Contractor may substitute securities for any moneys withheld by the City to ensure performance under the Contract.

At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the City of Poway or with a State or Federally chartered bank as the escrow agent who shall pay such moneys to the Contractor upon satisfactory completion of the Contract.

The type of securities deposited and the method of release shall be approved by the City Attorney's office.

2-12 ASSIGNMENT OF CONTRACT - The successful bidder shall agree not to assign, transfer, convey, sublet or otherwise dispose of the items appearing on this bid form which he may be awarded, or any rights accruing thereunder, title or interest therein, funds to be received hereunder, or any power to execute the same without the consent in writing of the Director or City Engineer, Department of Development Services. Notice is hereby given that the City of Poway will not honor any assignment made by the Contractor, unless the consent in writing, as indicated above, is given.

2-13 MONTHLY PROGRESS PAYMENT REQUESTS - Monthly progress payment requests will be made in compliance with Section 7, "Measurement and Payment," of the Standard Specifications for Public Works Construction, 2018 Edition, and the associated Regional Supplement Amendments.

- a. The closure date for acceptance of progress payment requests will be the first working day of the month. Payments of complete and accurate requests will be made to the Contractor before the last working day of the month.
- b. The Contractor may request payment for materials delivered to the site and not yet incorporated in the work only after he has provided a secure storage location for the materials. The storage location is to be approved by the City Engineer or his representative before its use. The Contractor will be responsible to obtain the necessary Temporary Use Permit, and letter of permission from the property owner as required by the City of Poway, Department of Development Services.
- c. The City will furnish monthly-itemized estimates of work on the City's Progress Pay Estimate form for the purpose of making partial payments thereon. Progress Pay Estimates are processed for payment no later than the fourth Friday of each month. For purposes of developing monthly-itemized estimates, the Contractor's site representative shall conduct field measurements along with the City Inspector on a weekly basis. Field measurements shall be provided to the City's Project Manager for review and approval prior to incorporation in the Progress Pay form.
- d. The Contractor shall submit for review a current project schedule showing the critical path items prior to processing and payment of each progress pay.
- e. Delivery of a Progress Pay Estimate form by the City to the Contractor for signature shall constitute a written request for certified payroll covering the same period as the Progress Pay. Payment is contingent upon receipt of the certified payroll records.

2-14 CONTRACT DOCUMENTS – The following documents, the Advertisement for Bids, Notice Inviting Bids, Information for Bidders, Special Conditions, the accepted Bid, Bid Bond, Work and/or Project Description, the Agreement, Performance and Payment Bonds, the General Conditions of the Contract, Supplemental General Conditions, Specifications, Drawings, Details, and all addenda and Change Orders executed by the parties pursuant to the provisions thereof, are herein defined as the "Contract Documents."

- a. The Contract Documents comprise the entire agreement between the City of Poway and the Contractor concerning the Work and will be construed in accordance with the laws of the State of California.
- b. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically called for. In case of conflict or inconsistency, the Specifications shall take precedence over the Shop Drawings. Large scale and full-size drawings shall be followed in preference to small-scale drawings. Figured dimensions shall be followed in preference to scaled measurement.

SECTION 3

SPECIFICATIONS AND PLANS

3-1 The work performed shall be done in accordance with the Standard Specifications for Public Works Construction, 2018 Edition; the Regional Supplement Amendments; and City of Poway's Supplemental Engineering Standards, 2018 Edition; all hereinafter referred to as "Standard Specifications". All grading shall be in accordance with the City of Poway Municipal Code and these Special Provisions. All Contracts that contain landscape construction shall reference the City of Poway *Landscape and Irrigation Design Manual*, 2018 Edition. All work relating to traffic signals, signal communication, signing, striping and marking, and temporary traffic control shall be in accordance with the Caltrans Standard Specifications, dated 2018, and the Caltrans Standard Plans, dated 2018.

3-2 The precedence of the Contract documents shall be in compliance with Section 3-7.2, "Precedence of Contract Documents," as indicated in the Standard Specifications for Public Works Construction, 2018 Edition, and the associated Regional Supplement Amendments.

3-3 References in these Special Provisions to Standard Drawings shall mean the City of Poway's Supplemental Engineering Standards, 2018 Edition; and Regional Standard Drawings, San Diego Area, 2018; or Caltrans Standard Plans, 2018.

3-4 All materials used on this project shall be included in the City of Poway's approved materials list, which is included in the City of Poway's Supplemental Engineering Standards, 2018 Edition. Any alternate request must be submitted and approved by the City Engineer prior to bid opening. All material substitution requests must be received by the City a minimum of 10 days prior to bid opening.

3-5 Where the Standard Specifications describe portions of the work in general terms, but not in complete detail, it is understood that the item is to be furnished and installed complete and in place and that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be used. Unless otherwise specified, the Contractor shall furnish all labor, materials, tools, equipment and incidentals, and do all the work involved in executing the Contract.

3-6 All work is to be done in accordance with City of Poway Improvement Plans for:

BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT

<u>DESCRIPTION</u>	<u>SHEET NO.</u>
Title Sheet	1
Reservoir Layouts	2
Roof Appurtenances and Structural Details	3
Guardrailing and Safety Climb Details	4
Ladder Details	5
Inlet/Outlet and Drain Details	6
Overflow and Fall Restraint System Details	7
Cathodic Protection Layout	8
Cathodic Protection Details	9

SECTION 4

BEGINNING OF WORK, TIME OF COMPLETION, AND LIQUIDATION OF DAMAGES

4-1 Attention is directed to the Provisions in Section 6, "Prosecution and Progress of the Work," of the Standard Specifications and these Special Provisions.

4-2 The Contractor shall begin work within 15 (fifteen) days after the start date indicated in the Notice to Proceed. Should the City fail to issue a Notice to Proceed, said Notice shall be deemed given upon the date of mailing to the Contractor of the fully executed Contract. The Contractor shall diligently prosecute the work to completion within **ninety (90) working days** from the date of said Notice to Proceed. Regardless of whether the Contractor actually begins work on the date specified above or not, the Contract time shall begin on that date unless a written extension of time has been granted by the Engineer pursuant to Section 6-4 of the Standard Specifications.

4-3 The Contractor shall pay to the City of Poway the sum of \$500.00 (five hundred dollars) per day for each and every calendar days delay in completing the work in excess of the number of working days prescribed above. In no event will liquidated damages, as provided for in this Section 4, exceed \$500.00 for any one-calendar days delay.

4-4 WORKING DAY

- a. The Contractor's activities shall be confined to the hours between 7:00 a.m. to 4:30 p.m. Monday through Thursday, and 7:30 a.m. to 4:00 p.m. alternating Fridays, excluding holidays. There shall be no work on the alternating Friday on which City Hall is closed. Deviation from these hours will not be permitted without the prior consent of the City Engineer, except for emergencies involving immediate hazard to persons or property. In the event of either a requested or emergency deviation, inspection service fees will be charged against the Contractor. The service fees will be calculated at overtime rates including benefits, overhead, and travel time. The service fees will be deducted from any amounts due the Contractor.
- b. Lane Closures on Major Arterials will be allowed between 8:30 a.m. and 3:30 p.m. Monday through Thursday, and alternating Fridays, excluding holidays, and per the approved traffic control plan. Lane Closures on Poway Road between Oak Knoll Road and Midland Road will be allowed between 8:30 a.m. and 11:30 a.m. and between 1:30 p.m. and 3:30 p.m. Monday through Thursday, and alternating Fridays, excluding holidays, and per the approved traffic control plan. Lane Closures on Collector Streets will be allowed between 8:00 a.m. and 4:00 p.m. Monday through Thursday, and between 8:30 a.m. and 3:30 p.m. on alternating Fridays, excluding holidays, and per the approved traffic control plan. There shall be no lane closures on the alternating Friday on which City Hall is closed. Deviation from these hours will not be permitted without the prior consent of the City Engineer, except for emergencies involving immediate hazard to persons or property.

- c. The following is a list of City-observed holidays for 2020 and 2021:

New Year's Day	January 1, 2020
Martin Luther King Jr. Day	January 20, 2020
President's Day	February 17, 2020
Memorial Day	May 25, 2020
Independence Day	July 3, 2020
Labor Day	September 7, 2020
Veterans Day	November 11, 2020
Thanksgiving Day	November 26, 2020
Day after Thanksgiving	November 27, 2020
Christmas Eve	December 24, 2020
Christmas Day	December 25, 2020

New Year's Day	January 1, 2021
Martin Luther King Jr. Day	January 18, 2021
President's Day	February 15, 2021
Memorial Day	May 31, 2021
Independence Day	Observed July 5, 2021
Labor Day	September 6, 2021
Veterans Day	November 11, 2021
Thanksgiving Day	November 25, 2021
Day after Thanksgiving	November 26, 2021
Christmas Eve	December 24, 2021
New Year's Eve	December 31, 2021

4-5 CONSTRUCTION SCHEDULE

- a. As soon as possible after award of the Contract, and before a Notice to Proceed has been issued, the Contractor shall prepare and submit to the City's representative a construction progress schedule showing critical path work items. The schedule shall be in graphic form, bar graph, or such similar form as is acceptable to the City's representative showing the proposed dates of commencement, critical path items, and completion of each of the various subdivisions or units of work required under the Contract. Items on the schedule shall be arranged in the order and sequence in which they will be performed. The schedule shall conform to the working time and time of completion established under the terms of the Contract and shall be subject to modifications by and review of the City's representative. When necessary, in the opinion of the City's representative, the Contractor, when so ordered, shall modify the schedule to conform to such requirements. Upon request, the Contractor shall provide the construction schedule in both hard copy and electronic copy which may include PDF and/or an editable version.
- b. The Contractor shall also provide a three-week look ahead schedule, which shall be updated and provided to the City on a weekly basis or whenever significant changes are made. The schedule shall include a brief summary or list of proposed daily construction activities for the next three weeks and identify any critical path items during the scheduled time frame.

- c. The construction schedule shall be continuously updated and, if necessary, revised whenever an event occurs which renders the existing schedule inaccurate. Failure to submit an accurate revised schedule within 48 hours will result in the delay of the issuance of the monthly progress payment.
- d. Copies of newly updated schedules shall be forwarded to the City's representative, as directed, immediately upon preparation. Failure to submit updated construction schedules within 48 hours of receiving the request for progress payment will result in a delay of the issuance of the monthly progress payment check. Monthly progress payment check will not be issued until an updated schedule is received.
- e. Request for extensions of time when related to unforeseen events beyond the control of the Contractor, as stated in Section 6-4 of the Standard Specifications, shall be submitted to the City within 24 hours of the event. Any requests received more than 24 hours after the event are subject to rejection.

4-6 PROJECT DOCUMENTATION

Upon request, the Contractor shall provide copies of daily field reports. Reports shall include a summary of daily activities as well as a list of personnel along with materials and equipment used.

SECTION 5

AWARD AND EXECUTION OF CONTRACT

5-1 The bidder's attention is directed to the provisions in Section 1-7, "Award and Execution of the Contract," of the Standard Specifications and to Proposal Requirements and Conditions of the Special Provisions for the requirements and conditions concerning award and execution of the Contract.

Bids are required for the entire work described herein.

5-2 AWARD OF CONTRACT - The award of the Contract, if it is awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements described. The award, if made, will be made within forty-five (45) days after the opening of bids. Award of bid is subject to City Council appropriation of funds for the project.

The City reserves the right, after opening bids, to reject any or all bids, or to make award to the lowest responsible bidder, and reject all other bids, to waive any informality in the bidding, and to accept any bid or portion thereof. Bids will be compared on the basis of the Engineer's estimate of the quantities of the several items of work as shown on the Bid Schedule.

5-3 CONTRACT BONDS:

Performance Security - The Contractor shall furnish two good and sufficient bonds. Each of the said bonds shall be executed in a sum equal to: one hundred percent (100%) of the Contract price for the Payment Bond (material and labor) and one hundred percent (100%) of the Contract price for the Faithful Performance Bond. One of the said bonds shall secure the payment of claims for material and labor, and the other of the said bonds shall guarantee the faithful performance of the said Contract by the Contractor. Bonds shall be furnished by surety companies satisfactory to the City Attorney on forms provided herein.

Pursuant to Public Contract Code Section 22300, provisions for substitution of securities for performance retentions will be allowed.

Bid Security - Each bid must be accompanied by either cash, certified or cashier's check drawn on a responsible bank doing business in the United States payable to the City, or a satisfactory bidder's bond in favor of the City executed by the bidder, as principal, and a California admitted surety company (as defined by California Code of Civil Procedure sections 995.120 and 995.311) as surety, or letter of credit made payable to the City of Poway (the "Bid Security"). The Bid Security must be in an amount equal to at least ten percent (10%) of the amount bid, such guaranty of the bidder to be forfeited should the successful bidder to whom the Contract is awarded withdraws its bid prior to the expiration of sixty (60) calendar days after the opening of the bids, or attempts to withdraw its bid when the requirements of Public Contract Code sections 5100 *et seq.* are not met; or refuses or fails to enter into the Contract within ten (10) days (Sundays and legal holidays excluded), and provide the required bonds, insurance or certificates within fifteen (15) days (Sundays and legal holidays excluded) after the award of the Contract. In such event, if the

City awards the Contract to the next lowest responsible bidder, the amount of the lowest responsible bidder's Bid Security shall be applied to the Contract Price differential between the lowest bid and the next lowest bid and the surplus, if any, will be returned to the lowest bidder. If the City rejects all other bids presented and re-advertises, the lowest bidder's Bidder Security may be used to offset the City's cost of revising its plans and specifications, re-advertising and receiving new bids. Required qualifications for the surety issuing bid bonds shall be the same as the qualifications for sureties set forth in Section 5-8, "Surety and Insurance Company Qualifications."

In lieu of bonds required of the bidder, the bidder may provide security in the form of a cash deposit or a letter of credit drawn on an institution located in San Diego County and approved by the City Attorney.

If the Bid Security is in the form of a bid bond, bidder shall use the form entitled "Bid Bond" contained in the bid documents at pages 73-74, which bid bond shall be properly executed and acknowledged by the bidder and by an appropriate surety. Any material alteration of said form of bid bond, as herein required, will render it unacceptable and result in the rejection of the proposal under which the bid bond is submitted.

5-4 EXECUTION OF CONTRACT - The Contract shall be signed by the successful bidder and returned, together with the Contract bonds, within ten (10) days, excluding Sundays and legal holidays, after the bidder has received notice that the Contract has been awarded. No proposal shall be considered binding upon the City until the execution of the Contract.

5-5 Failure to execute the Contract and file acceptable bonds as provided herein within ten (10) days, not including Sundays, after the bidder has received notice that the Contract has been awarded to him, shall be just cause for the annulment of the award and the forfeiture of the Bid Security.

5-6 RETURN OF BIDDER'S BID SECURITIES - Within ten (10) days after the award of the Contract, the City will return the Bid Securities accompanying each of the proposals that are not to be further considered in making the award. All other Bid Securities will be held until the Contract has been finally executed, after which all Bid Securities, except those forfeited, will be returned to the respective bidders whose proposals they accompany.

5-7 INSURANCE - The City shall be named as an additional insured with the bidder. Refer to the Insurance Code of the State of California. Evidence shall be furnished that the requirements of said code are met. Unless specified otherwise, the minimum requirement is as follows:

- Comprehensive General Liability: \$1,000,000 Bodily Injury & Property Damage combined each occurrence and \$2,000,000 aggregate
- Automobile Liability, including owned, hired, and non-owned vehicles: \$1,000,000 combined single limit
- Workers' Compensation insurance: Per the statutory amount

Each policy is to provide primary coverage to City and its elected and appointed boards, officers, agents, and employees. It is not secondary or in any way subordinate to any other insurance or coverage maintained by City.

Upon request by City prior to the time of Award of Bid, the bidder agrees to promptly provide City with letters from insurance companies meeting the requirements of the contract documents verifying that they are prepared to issue insurance to bidder meeting all requirements of the contract documents. The failure of bidder to provide City with this proof of insurance prior to the time of award shall entitle City to reject the bidder's bid as nonresponsive and to award the bid to the next lowest bidder at the sole discretion of City.

The failure of bidder to provide City with insurance meeting all requirements of the contract documents within 15 calendar days after the Award of Bid, shall constitute a material breach of the contract, entitling City to terminate the contract and call the bid bond.

5-8 SURETY AND INSURANCE COMPANY QUALIFICATIONS - All bonds and all insurance shall meet the following standards. The issuing company:

- a. Shall be an "admitted surety" or an insurance company listed by the State Insurance Commissioner; and
- b. Shall have a rating in the latest Best's Rating Guide of "A -" or better and Class VI or better; or be "treasury listed" for the size of risk to be undertaken.

In the event that the company does not satisfy subsection (b) above, the City Attorney or City Manager may only approve such company if the small size of the insurance or surety obligation or other risk factor justify approval, and satisfactory evidence is produced by the company that its financial responsibility and performance capability are sufficient to insure or secure adequately the risk obligation. (See City Council Resolution 90-082.)

SECTION 6

PROPOSAL REQUIREMENTS AND CONDITIONS

6-1 The bidder's attention is directed to the General Provisions of the Standard Specifications and these Special Provisions for the requirements and conditions, which he must observe in the preparation of and the submission of the bid.

6-2 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND SITE OF WORK - The bidder is required to examine carefully the site of and the Proposal, Plans, Specifications, and Contract forms for the work contemplated; and it will be assumed that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality and quantities of work to be performed and materials to be furnished, and as to the requirements of the Specifications, the Special Provisions, and the Contract. It is mutually agreed that submission of the proposal shall be considered prima facie evidence that the bidder has made such examination.

The quantities given in the notice to Contractors and in the proposal and Contract are approximate only, being given as a basis for the comparison of bids. The Development Services Department does not, expressly or by implication, agree that the actual amount of work will correspond therewith, and reserves the right to increase or decrease the amount of any class or portion of the work, or to omit portions of the work, as may be deemed necessary or advisable by the Engineer.

6-3 DEFINITION OF TERMS - Whenever the words herein defined, or pronouns used in their stead, occur in these Special Provisions or Standard Specifications, they shall have the meaning here given, except as the context requires a different meaning.

- a. The word "City" or "Agency" shall mean the City of Poway.
- b. The term "Board" or "City Council" shall mean the City of Poway.
- c. The term "Engineer" shall mean the City Engineer of the City of Poway, California, or his designated representative.
- d. Wherever in the Standard Specifications or upon the Plans, the words "directed," "required," "ordered," "designated," "prescribed" or words of like import are used, it shall be understood that the direction, requirements, permission, order, designation, or prescription of the Engineer is intended, and similarly the words "approved," "acceptable," "satisfactory," or words of like import shall mean approved by, or acceptable to, or satisfactory to the Engineer, unless otherwise expressly stated.

6-4 PROPOSAL FORM - All proposals must be made on blank forms provided in these Special Provisions. All proposals must give the prices proposed, both in writing and figures, and must be signed by the bidder, with his address. If the proposal is made by an individual, his name and address must be shown. If made by a firm or partnership, the name and address of each member of the firm or partnership must be shown. If made by a corporation, the proposal must show the name of the state under the laws of which the corporation was chartered and the names, titles, and business addresses of the president, secretary, and treasurer.

6-5 REJECTION OF PROPOSALS CONTAINING ALTERATIONS, ERASURES, OR IRREGULARITIES - Proposals may be rejected if they show any alterations of form, additions not called for, conditional or alternative bids, incomplete bids, erasures, or irregularities of any kind.

The City of Poway reserves the right to reject any and all bids.

6-6 BIDDER'S GUARANTEE - All bids shall be presented under sealed cover and shall be accompanied by cash, cashier's check, certified check, or bidder's bond, made payable to the City of Poway for an amount equal to at least ten percent (10%) of the amount of said bid; and no bid shall be considered unless such cash, cashier's check, certified check, or bidder's bond is enclosed therewith.

6-7 PROOF OF INSURANCE - The bidder making this proposal warrants and represents that the bidder has carefully read and understood all of the insurance requirements of the Contract Documents and has included the full cost of providing insurance meeting all requirements of the Contract Documents in the bid.

6-8 ORDINANCE 735 – LOCAL VENDOR PREFERENCE – A local vendor is a business that is located in and licensed to provide goods and/or supplies within the City limits of Poway, and reports sales taxes to the State of California. When calculating bids or quotes based on the lowest responsible bid, and which involves the purchase of taxable goods in whole or in part, the preference to be granted to the price bid or quoted by a local vendor shall be 1%, which is equal to the portion of sales tax the City receives. The 1% preference will only apply to the taxable portion of the bid or quote. See the Poway Municipal Code, Title 3.

6-9 DEBARMENT – By submitting a bid, the proposing contractor certifies, under penalty of perjury, that neither it, nor any person associated with it in the capacity of owner, partner, director, officer, or manager (1) are currently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from submitting bids for contracts issued by any City or political subdivision or agency of the State of California or the Federal Government; (2) have (within the three (3) year period preceding the submission of the bid) been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or contract under a public transaction, violation of federal or state antitrust statutes, or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property; (3) are presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state, or local) with the commission of any of the offenses described in clause (2), above; and (4) have (within the three (3) year period preceding the submission of the bid) had one or more public transaction (federal, state, or local) terminated for cause or default.

6-10 CERTIFICATION AND INDEMNIFICATION REGARDING PUBLIC EMPLOYEES' RETIREMENT LAW/PENSION REFORM ACT OF 2013 – The proposing contractor will certify that if selected, all persons providing services to City by Contractor are not current members of the California Public Employees' Retirement System (CalPERS) and shall not become members of CalPERS while providing services to City.

Contractor further provides that in the event Contractor assigns a retired annuitant receiving a pension benefit from CalPERS to perform services for City, the retired annuitant is in full compliance with Government Code section 7522.56. A copy of Government Code section 7522.56 is attached hereto Section 6-10a.

Further, Contractor hereby fully and unconditionally indemnifies City from all penalties, fees, employer and employee contributions, or any other assessments imposed by CalPERS in the event CalPERS determines the person assigned by Contractor to provide services to City has been misclassified.

6-11 BACKGROUND INFORMATION QUESTIONNAIRE - The Contractor shall submit the Background Information Questionnaire in Section 9, with their bid. Falsifying any information on this questionnaire could jeopardize or delay award of the contract and may render the bid nonresponsive.

(Remainder of page intentionally left blank)

a. Cal Gov Code § 7522.56:

Deering's California Codes are current through all 1016 chapters of the 2018 Regular Session and the November 6, 2018 Ballot Measures.

Deering's California Codes Annotated > GOVERNMENT CODE > Title 1 General > Division 7 Miscellaneous > Chapter 21 Public Pension and Retirement Plans > Article 4 California Public Employees' Pension Reform Act of 2013

§ 7522.56. Provisions applicable to person receiving pension benefit from public retirement system; Section supersedes conflicting provisions

(a) This section shall apply to any person who is receiving a pension benefit from a public retirement system and shall supersede any other provision in conflict with this section.

(b) A retired person shall not serve, be employed by, or be employed through a contract directly by, a public employer in the same public retirement system from which the retiree receives the benefit without reinstatement from retirement, except as permitted by this section.

(c) A person who retires from a public employer may serve without reinstatement from retirement or loss or interruption of benefits provided by the retirement system upon appointment by the appointing power of a public employer either during an emergency to prevent stoppage of public business or because the retired person has skills needed to perform work of limited duration.

(d) Appointments of the person authorized under this section shall not exceed a total for all employers in that public retirement system of 960 hours or other equivalent limit, in a calendar or fiscal year, depending on the administrator of the system. The rate of pay for the employment shall not be less than the minimum, nor exceed the maximum, paid by the employer to other employees performing comparable duties, divided by 173.333 to equal an hourly rate. A retired person whose employment without reinstatement is authorized by this section shall acquire no service credit or retirement rights under this section with respect to the employment unless he or she reinstates from retirement.

(e)

(1) Notwithstanding subdivision (c), any retired person shall not be eligible to serve or be employed by a public employer if, during the 12-month period prior to an appointment described in this section, the retired person received any unemployment insurance compensation arising out of prior employment subject to this section with a public employer. A retiree shall certify in writing to the employer upon accepting an offer of employment that he or she is in compliance with this requirement.

(2) A retired person who accepts an appointment after receiving unemployment insurance compensation as described in this subdivision shall terminate that employment on the last day of the current pay period and shall not be eligible for reappointment subject to this section for a period of 12 months following the last day of employment.

(f) A retired person shall not be eligible to be employed pursuant to this section for a period of 180 days following the date of retirement unless he or she meets one of the following conditions:

(1) The employer certifies the nature of the employment and that the appointment is necessary to fill a critically needed position before 180 days have passed and the appointment has been approved by the governing body of the employer in a public meeting. The appointment may not be placed on a consent calendar.

(2)

(A) Except as otherwise provided in this paragraph, for state employees, the state employer certifies the nature of the employment and that the appointment is necessary to fill a critically needed state employment position before 180 days have passed and the appointment has been approved by the Department of Human Resources. The department may establish a process to delegate appointing authority to individual state agencies but shall audit the process to determine if abuses of the system occur. If necessary, the department may assume an agency's appointing authority for retired workers and may charge the department an appropriate amount for administering that authority.

(B) For legislative employees, the Senate Committee on Rules or the Assembly Rules Committee certifies the nature of the employment and that the appointment is necessary to fill a critically needed position before 180 days have passed and approves the appointment in a public meeting. The appointment may not be placed on a consent calendar.

(C) For employees of the California State University, the Trustees of the California State University certifies the nature of the employment and that the appointment is necessary to fill a critically needed position before 180 days have passed and approves the appointment in a public meeting. The appointment may not be placed on a consent calendar.

(3) The retiree is eligible to participate in the Faculty Early Retirement Program pursuant to a collective bargaining agreement with the California State University that existed prior to January 1, 2013 or has been included in subsequent agreements.

(4) The retiree is a public safety officer or firefighter hired to perform a function or functions regularly performed by a public safety officer or firefighter.

(g) A retired person who accepted a retirement incentive upon retirement shall not be eligible to be employed pursuant to this section for a period of 180 days following the date of retirement and subdivision (f) shall not apply.

(h) This section shall not apply to a person who is retired from the State Teachers' Retirement System, and who is subject to Section 24214, 24214.5 or 26812 of the Education Code.

(i) This section shall not apply to (1) a subordinate judicial officer whose position, upon retirement, is converted to a judgeship pursuant to Section 69615, and he or she returns to work in the converted position, and the employer is a trial court, or (2) a retiree of the Judges' Retirement System or the Judges' Retirement System II who is assigned to serve in a court pursuant to Section 68543.5.

History

Added Stats 2012 ch 296 § 15 (AB 340), effective January 1, 2013. Amended Stats 2013 ch 528 § 11 (SB 13), effective October 4, 2013 (ch 528 prevails); ch 76 § 75 (AB 383), effective January 1, 2013; Stats 2014 ch 238 § 1 (AB 2476), effective January 1, 2015.

Annotations

Notes

Amendments:

Note—

Amendments:

2013 Amendment:

Substituted (1) "have passed" for "has passed" in the first sentence of subds (f)(1) and (f)(2); (2) "or firefighter hired to perform a function or functions regularly performed by a public safety officer or firefighter" for "of firefighter" in subd (f)(4); and (3) "Judges' Retirement System" for "Judges' Retirement System I" in subd (i).

SECTION 7

PUBLIC CONVENIENCE AND SAFETY

- 7.1 CITY OF POWAY RIGHT-OF-WAY PERMIT - Add the following to Section 2-2, "Permits," of the Standard Specifications.
- a. The Contractor is required to apply for and obtain a Right-of-Way Permit from the City of Poway for any work to be performed in the right-of-way. The Right-of-Way Permit will be issued by the City of Poway once the City has reviewed and found the submittal to be in compliance with the City's standards for safety and construction. No permit fee will be required for work on a City Contract.
 - b. One Right-of-Way Permit will be issued for all phases of work to be performed by the Contractor or his subcontractors on the project.
 - c. The Contractor is required to submit traffic control plans for each phase of work and/or location work will be performed in the public right-of-way.
 - d. The Contractor is not required to provide an additional copy of their Certificate of Insurance or their State of California Contractor's License as listed in the Right-of-Way Permit application. These documents are currently on file with the City of Poway as a result of the project Contract awarded by the Poway City Council.
 - e. Should the Contractor or one of his subcontractors fail to comply with the requirements of the Right-of-Way Permit, the Right-of-Way Permit will be revoked. Any subsequent Right-of-Way Permit issued by the City of Poway to the Contractor will be done so only after the Right-of-Way application fees are paid to the City of Poway with the subsequent Right-of-Way Permit application.
- 7-2 WORK SITE MAINTENANCE - Shall Conform to Section 3-12 of Standard Specifications as revised below:
- a. Section 3-12.4.2, Storage in Public Streets. Delete the first paragraph and replace with the following: "Construction materials and equipment shall not be stored in the streets, roads or highways. All materials or equipment not installed or used in construction after delivery shall be stored elsewhere by the Contractor at his expense unless otherwise authorized by the City Engineer or his appointed representative."
- 7-3 TRAFFIC CONTROL - Traffic control shall conform to Part 6 of the Standard Specifications as revised below:
- a. Section 600-1, General. Add the following paragraph between the first and second paragraphs: "The Contractor shall prepare a letter of notification regarding the intent to start work on the upcoming project, the impact to traffic, when and where the work will begin, and how long the work will be performed in the area described. The letter will be submitted to the City Engineer for review and approval before distribution."

Once the letter is approved, the Contractor shall mail by U.S. Postal Service or other approved mail carrier (certified return receipt required) a signed copy of the letter to the Poway Fire Department, the San Diego County Sheriff's Department - Poway Substation, the U.S. Post Office, the Poway Unified School District, and Edco, the trash company collecting trash in the City of Poway. The notification letter must be received a minimum of five working days before the work is to begin. The Contractor shall cooperate with all local authorities relative to handling traffic and pedestrians traveling through the work zone. The Contractor and his personnel shall not park personal vehicles in the work area or the adjacent public right-of-way."

- b. Section 601-2 General. Delete first paragraph and replace with the following: "Traffic control plans are to comply with Part 6 of the California Manual on Uniform Traffic Control Devices (Cal MUTCD) 2018 Edition and Appendix "A" - Traffic Control Plans of the San Diego Regional Standard Drawings, 2018 Edition."
- c. Section 601-2.1 General. Add the following between the second and third paragraphs: "The traffic control plan shall show all affected streets, work days and work hours (from – to –), appropriate signs and sign spacing dimensions, type of delineators and delineator spacing, taper, buffer and work area lengths, flaggers, if required, existing signing, marking and striping within the traffic control area, temporary striping, if required, and removal of conflicting striping and marking and bagging of conflicting signs, and detour map with appropriate signage, if roadway closure is required with the proposed traffic control."
- d. Section 601-2.1 General. Add the following to the fourth paragraph: "Traffic control plans are to be submitted on 11" x 17" plan sheets. Traffic control plans can be submitted on 8.5" x 11" if the proposed traffic control represents a typical condition from the San Diego Regional Standard Drawings, Appendix "A" – Traffic Control Plans."
- e. Three complete sets of traffic control plans are to be submitted with the Right-of-Way Permit application.
- f. Traffic control plans for subsequent work locations can be submitted to the City's Project Manager seven (7) working days prior to the installation of the traffic control devices. Only after the traffic control plan for a specific area is submitted and approved can the work begin.
- g. Prior to commencement of work or implementation of traffic control plans in the public right-of-way (street, sidewalks or parkways), the Contractor must have approved traffic control plans and Right-of-Way permit. The traffic control plans shall be approved by Traffic Engineering staff during the review process of the project Right-of-Way application.
- h. For additional clarification on the required traffic control plans for this project, Contractors should contact the Project Manager.
- i. All costs associated with the preparation, submittal, and revisions of traffic control plans, and the implementation of the plans in the field, are to be included in the Contractor's bid line item for the various items of work.

SECTION 8

CONSTRUCTION CONTRACT

CITY OF POWAY

BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT

This Contract made and entered into this ____ day of _____, 2020, by and between City of Poway, a municipal corporation of the State of California, hereinafter referred to as "City" and _____, hereinafter referred to as "Contractor."

The City and the Contractor, for the consideration hereinafter named, mutually agree as follows:

1. The complete Contract includes all of the Contract Documents, which are incorporated herein by this reference, and include:
 - a. This Contract
 - b. Contract Addenda
 - c. Contract Change Orders
 - d. Instructions to Bidders, Proposal Requirements and Conditions
 - e. Contract Specifications
 - f. Contract Plans
 - g. General Condition
 - h. Special Conditions
 - i. Standard Specification for Public Works, most current edition,
2. The Contract Documents are complementary, and that which is required by one shall be as binding as if required by all.
3. Contractor shall provide and furnish all labor, materials, necessary tools, expendable equipment, and all utility and transportation services required for the following work of improvement: The Work involves furnishing all labor, equipment and materials necessary to install guardrail, ladders, center vent, auxiliary vent, lateral bracing modifications, fall restraint system, inlet/outlet modifications, overflow modifications, rafter repairs, cathodic protection system, interior coating removal, recoating, exterior paint removal, and exterior painting of Boulder Mountain Reservoir #1 (40' diameter, 23' height, 0.2 MG) and Boulder Mountain Reservoir #2 (58' diameter, 23' height, 0.4 MG) potable water steel storage reservoirs located at 15615 Boulder Mountain Road.

4. Contractor agrees to perform all the said work and furnish all the said materials at his own cost and expense that are necessary to construct and complete in strict conformance with Contract Documents and to the satisfaction of the City Engineer, the work hereinafter set forth in accordance with the Contract adopted by the City Council.
5. City agrees to pay and Contractor agrees to accept in full payment for performance of this work of improvement as described, the stipulated sum of _____ (\$ _____) the "Contract Price."

City agrees to make progress payments and final payment in accordance with the method set forth in the Special Provisions.

6. Contractor agrees to commence construction of the work provided for herein within Fifteen (15) Calendar Days after the date specified in the Notice to Proceed, and to continue diligently in strict conformance with Contract Documents and without interruption, and to complete the construction thereof within **90 Working Days** after the date specified in the Notice to Proceed.
7. Time is of the essence of this Contract, and it is agreed that it would be impracticable or extremely difficult to ascertain the extent of actual loss or damage which the City will sustain by reason of any delay in the performance of this Contract. It is, therefore, agreed that Contractor will pay as liquidated damages to the City the following sum: **\$500 per Calendar Day**, for each and every Calendar Days delay in finishing the Work in excess of the number of Working Days prescribed above. If liquidated damages are not paid, as assessed by the City, the City may deduct the amount thereof from any money due or that may become due the Contractor under this Contract in addition to any other remedy available to City. By executing this Contract, Contractor agrees that the amount of liquidated damages is reasonable and shall not constitute a penalty.
8. In accordance with State of California Senate Bill No. 854, Contractor will maintain and will require all subcontractors to maintain valid and current Department of Industrial Relations (DIR) Public Works Contractor registration during the term of this project. Contractor shall notify the City in writing immediately, and in no case more than twenty-four (24) hours, after receiving any information that Contractor's or any of its Subcontractor's DIR registration status has been suspended, revoked, expired, or otherwise changed.
9. Contractor will pay, and will require all subcontractors to pay, all employees on said Contract a salary or wage at least equal to the prevailing salary or wage established for such work as set forth in the wage determinations and wage standards applicable to this work, a copy of which is on file in the office of the City Clerk of the City of Poway. Federal prevailing wage rates apply for federally funded projects. Travel and subsistence pay shall be paid in accordance with Labor Code § 1773.1.
10. Contractor shall be subject to the penalties in accordance with Labor Code of § 1775 for each worker paid (either by him or by any subcontractors under him) less than the prevailing rate described above on the work provided for in this Contract.

11. Contractor and subcontractors shall comply with Labor Code § 1810 and § 1811 which stipulates that eight hours labor constitutes a legal day's work, and § 1812 which stipulates that the Contractor and subcontractors shall keep an accurate record showing the name of and actual hours worked each calendar day and each calendar week by each worker employed by him in connection with the work performed under the terms of the Contract. Failure to comply with these sections of the Labor Code will subject the Contractor to penalty and forfeiture provisions of the Labor Code § 1813.
12. Contractor will comply with the provisions of Labor Code § 1777.5 pertaining to the employment of apprentices to the extent applicable to this Contract.
13. Contractor, by executing this Contract, hereby certifies:

"I am aware of and will comply with the Labor Code § 3700 by securing payment for and maintaining in full force and effect for the duration of the contract, complete Workers' Compensation Insurance, and shall furnish a Certificate of Insurance to the City before execution of the Contract. The City, its officers, or employees, will not be responsible for any claims in law or equity occasioned by failure of the Contractor to comply with this paragraph."

Contractor further agrees to require all subcontractors to carry Workers' Compensation Insurance as required by the Labor Code of the State of California.

14. Contractor shall, concurrent with the execution of this Contract, furnish two bonds approved by the City, one in the amount of One Hundred Percent (100%) of the Contract Price, to guarantee the faithful performance of the work ("Performance Bond"), and one in the amount of One Hundred Percent (100%) of the Contract Price to guarantee payment of all claims for labor and materials furnished ("Payment Bond"). This Contract shall not become effective until such bonds are supplied to and approved by the City.
15.
 - a. Contractor shall procure and maintain at its own expense, until completion of performance, commercial general liability insurance of not less than One Million Dollars (\$1,000,000) combined single limit per occurrence, and Two Million Dollars (\$2,000,000) in the aggregate, for bodily injury, personal injury, death, loss or damage resulting from the wrongful or negligent acts by the Contractor or its officers, employees, servants, volunteers and agents and independent contractors. Contractor shall provide insurance on an occurrence, not claims-made basis. Contractor acknowledges and agrees that, for purposes of clarification with the intention of avoiding gaps in coverage with any umbrella or excess insurance, personal and advertising injury coverage shall be triggered by an "offense" while bodily injury and property damage coverage shall be triggered by an "occurrence" during the policy period.
 - b. Contractor shall further procure and maintain at its own expense, until completion of performance, commercial vehicle liability insurance covering personal

injury and property damage, of not less than One Million Dollars (\$1,000,000) combined single limit per occurrence, and Two Million Dollars (\$2,000,000) in the aggregate, covering any vehicle utilized by Contractor or its officers, employees, servants, volunteers and agents and independent contractors in performing the services required by this Agreement.

c. Contractor shall further procure and maintain at its expense, until completion of performance, workers' compensation insurance providing coverage as required by the California State Workers' Compensation Law. If any class of employees employed by the Contractor pursuant to this Agreement is not protected by the California State Workers' Compensation Law, Contractor shall provide adequate insurance for the protection of such employees to the satisfaction of the City. This provision shall not apply if Contractor has no employees performing work under this Agreement. Contractor agrees to waive its statutory immunity under any worker's compensation or similar statute, as respecting the City, and to require any and all subcontractors and any other person or entity involved with the Project to do the same.

Worker's Compensation Insurance:

- o Contractor has no employees and is exempt from workers' compensation requirements.
- o Contractor carries workers' compensation insurance for all employees.

d. All policies required by this section shall be secured from insurers authorized to do business in the State of California with an "A" policyholder's rating or better and a financial rating of at least Class VII, in accordance with the current Best's Ratings.

e. Contractor agrees to require that all parties, including but not limited to subcontractors, architects, engineers or others with whom Contractor enters into contracts or whom Contractor hires or retains pursuant to or in any way related to the performance of this Agreement, provide the insurance coverage required herein, at minimum, and, except for worker's compensation coverage, name as additional insureds the parties to this Agreement. Contractor agrees to monitor and review all such coverage and assumes all responsibility for ensuring that such coverage is provided in conformity with the requirements of this Section.

f. In the event this Agreement is terminated for any reason prior to the completion of all obligations and requirements of this Agreement, Contractor agrees to maintain all coverages required herein until the City provides written authorization to terminate the coverages following the City's review and determination that all liability posed under this Agreement as to the party providing insurance has been eliminated.

g. Contractor agrees and acknowledges that if it fails to obtain all of the insurance required in this Agreement in accordance with the requirements herein, or to obtain and ensure that the coverage required herein is maintained by any subcontractors or others involved in any way with the Project, Contractor shall be

responsible for any losses, claims, suits, damages, defense obligations, or liability of any kind or nature attributable to the City, and/or its officers, employees, servants, volunteers, agents and independent contractors, that result from such failure by Contractor.

16.
 - a. Contractor shall provide certificates of insurance with original endorsements to the City as evidence of the insurance coverage required herein. Certificates of such insurance shall be filed with the City on or before commencement of performance of this Agreement. Current certification of insurance shall be kept on file with the City at all times until completion of performance and acceptance by the City.
 - b. Notwithstanding any inconsistent statement in any required insurance policies or any subsequent endorsements attached thereto, the commercial general liability and commercial vehicle liability policies shall bear endorsements whereby it is provided that the City, and its officers, employees, servants, volunteers, agents and independent contractors are named as additional insureds. Additional insureds shall be entitled to the full benefit of all insurance policies in the same manner and to the same extent as any other insureds and there shall be no limitation to the benefits conferred upon them other than policy limits to coverages.
 - c. Contractor shall require the carriers of all required insurance policies to waive all rights of subrogation against the City, and its officers, employees, servants, volunteers, agents and independent contractors.
 - d. Each policy required herein must be endorsed to provide that the policy shall not be cancelled in coverage or limits (except by paid claims) unless the insurer has provided the City with 30 days prior written notice of cancellation. Contractor agrees to provide the City with 30 days written notice prior to any non-renewal or reduction in coverage or limits.
 - e. All insurance policies required to be provided by Contractor or any other party must be endorsed to provide that the policies shall apply on a primary and noncontributing basis in relation to any insurance or self-insurance, primary or excess, maintained or available to the City, and its officers, employees, servants, volunteers, agents and independent contractors.
17.
 - a. Contractor shall defend, indemnify and hold harmless the City, its officers, officials, agents, employees and volunteers from and against any and all claims, demands, actions, losses, damage, injuries, and liability, direct or indirect (including any and all costs and expenses in connection therewith) to the extent actually caused by the negligence of Contractor, Contractor's employees, subcontractors or independent contractors except for any such claim arising out of the negligence or willful misconduct of the City, or its officers, agents, employees or volunteers.
 - b. The City does not, and shall not, waive any rights that it may have against Contractor under this Section because of the acceptance by the City, or the deposit with the City, of any insurance policy or certificate required pursuant to this Agreement. The hold harmless, indemnification and duty to defend provisions of this

Section shall apply regardless of whether or not said insurance policies are determined to be applicable to the claim, demand, action, damage, liability, loss, cost or expense described herein.

18. Any amendments to any of the Contract Documents, including but not limited to Contract Change Orders, must be in writing executed by the Contractor and the City. Any time an approval, time extension, or consent of the City is required under the Contract Documents, such approval, extension, or consent must be in writing in order to be effective.
19. The Contract Documents contain all of the agreements and understandings of the parties and all previous understandings, negotiations, and contracts are integrated into and superseded by this Contract.
20. In the event that any one or more of the phrases, sentences, clauses, paragraphs, or sections contained in this Contract shall be declared invalid or unenforceable by a valid judgment or decree of a court of competent jurisdiction, such invalidity or unenforceability shall not affect any of the remaining phrases, sentences, clauses, paragraphs, or sections of this Contract which are hereby declared as severable and shall be interpreted to carry out the intent of the parties hereunder.
21. The persons executing this Contract on behalf of the parties hereto warrant that they are duly authorized to execute this Contract on behalf of said parties and that, by so executing this Contract, the parties hereto are formally bound to the provisions of this Contract.
22. This Contract shall be binding upon and shall inure to the benefit of the parties hereto and their respective heirs, personal representatives, successors, and assigns.
23. In performing its obligations and duties under this Contract, each party shall comply with all applicable local, state, and federal laws, regulations, rules, standards and ordinances.
24. This Contract may be executed by the parties in counterparts, which counterparts shall be construed together and have the same effect as if all of the parties had executed the same instrument.
25. After completion of the work contemplated by this Contract, Contractor shall file with the City Manager an affidavit stating that all workers and persons employed, all firms supplying materials, and all subcontractors upon the project have been paid in full, and that there are no claims outstanding against the project for either labor or materials, except certain items, if any, to be set forth in an affidavit covering disputed claims or items in connection with a Stop Notice that has been filed under the provision of the laws of the State of California.
26. All work shall be subject to inspection and testing by City and its authorized representatives during manufacture and construction and all other times and places, including, without limitation, the plans of Contractor and any of its suppliers. Contractor shall provide all reasonable facilities and assistance for the safety and

convenience of inspectors. All inspections and tests shall be performed in such manner as to not unduly delay the work. The Work shall be subject to final inspection and acceptance notwithstanding any payments or other prior inspections. Such final inspection shall be made within a reasonable time after completion of the work.

27. Whenever Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of the Contract, Contractor shall immediately give notice thereof, including all relevant information with respect thereto, to City.
28. Contractor agrees to contact the appropriate regional notification center in accordance with Government Code Section 4216.2.
29. Contractor shall submit its detailed plan for worker protection during the excavation of trenches required by the scope of the work in accordance with Labor Code Section 6705.
30. a. Contractor shall, without disturbing the condition, notify City, in writing, as soon as Contractor, or any of Contractor's subcontractors, agents, or employees have knowledge and reporting is possible, of the discovery of any of the following conditions:
 - i. The presence of any material that Contractor believes is hazardous waste, as defined in Section 25117 of the Health and Safety Code;
 - ii. Subsurface or latent physical conditions at the site differing from those indicated in the specifications; or
 - iii. Unknown physical conditions at the site of any unusual nature, different materially for those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract.
- b. Pending a determination by City of appropriate action to be taken, Contractor shall provide security measures (e.g., fences) adequate to prevent the hazardous waste or physical conditions from causing bodily injury to any person.
- c. City shall promptly investigate the reported conditions. If City, through and in the exercise of its sole discretion, determines that the conditions do materially differ or do involve hazardous waste, and will cause a decrease or increase in Contractor's cost of, or time required for, performance of any part of the work, then City shall issue a change order.
- d. In the event of a dispute between City and Contractor as to whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in Contractor's cost of, or time required for, performance of any part of the work, Contractor shall not be excused from any scheduled completion date, and shall proceed with all work to be performed under the contract. Contractor shall

retain any and all rights that pertain to the resolution of disputes and protests between the parties.

31. This Contract is to be governed by the laws of the State of California.
32. All work shall be guaranteed for a period of one (1) year from the date of acceptance by the City. Contractor shall promptly make all needed repairs arising out of defective materials, workmanship, and equipment.

City is hereby authorized to make such repairs if within ten (10) days after giving written notice to Contractor, or its agent, Contractor should fail to make or undertake with due diligence the aforesaid repairs; provided, however, that in case of an emergency, where, in the opinion of City, delay would cause serious loss or damage, repairs may be made without notice being sent to Contractor, and Contractor shall pay the costs thereof.

(Remainder of page intentionally left blank)

IN WITNESS WHEREOF, the said Contractor and the City Manager, City Clerk and City Attorney have caused the names of said parties to be affixed hereto, the day and year first above written.

Contractor's Name:

Print Name of Construction Company

By: _____
Signature

Print Name

Contractor information:
Address for Notices and Payments

Telephone Number: _____

Email: _____

CITY OF POWAY
a Municipal Corporation

Chris Hazeltine, City Manager

ATTEST:

Vaida Pavolas, CMC, City Clerk

APPROVED AS TO FORM:
RUTAN & TUCKER, LLP

Alan Fenstermacher, City Attorney

**THIS PAGE LEFT
INTENTIONALLY BLANK**

SECTION 8

PUBLIC WORK
BOND FOR MATERIAL AND LABOR

KNOW ALL PERSONS BY THESE PRESENTS:

That we, _____, as Principal and
_____ a

(Guaranty Company) (State)
Corporation, as Surety, is held and firmly bound unto the City of Poway in the sum of
_____ Dollars (\$ _____), lawful money of the United
States, for the payment of which sum, well and truly to be made, we bind ourselves, jointly
and severally, firmly by these presents.

The condition of the above obligation is such that, whereas said Principal has been
awarded and is about to enter into a written Contract dated _____ 2020, with the City of
Poway for:

BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT

which is hereto attached, and to which reference is hereby made for all particulars, and is
required by said City to give this bond in connection with the execution of said Contract;

NOW THEREFORE, if said Principal as Contractor in said Contract, or his Subcontractors,
fails to pay for any materials, provisions, or other supplies used in, upon, for, or about the
performance of the work contracted to be done, or for any work or labor thereon of any
kind, or for amounts due under the Unemployment Insurance Act with respect to such work
or labor, said surety will pay the same in the amount not exceeding the sum set forth
above, and also in case suit is brought upon this bond, a reasonable attorney's fee to 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 and by virtue of the provisions of Chapter II of
Title 4 or Part 3 of the Code of Civil Procedure of the State of California.

WITNESS our hands this _____ day of _____, 2020.

Principal

Attach acknowledgment.

By: _____
Principal

Guaranty Company

Attach acknowledgment.

By: _____
Guaranty's Attorney-in-Fact

**THIS PAGE LEFT
INTENTIONALLY BLANK**

Note: Letter must be submitted on bank letterhead with resolution or other documentation identifying signature as bank officer authorized to sign on behalf of bank.

LETTER OF CREDIT SECURING
PAYMENT OF MATERIALS AND LABOR

City of Poway
13325 Civic Center Drive
Poway, CA 92064

Subject: Irrevocable Letter of Credit No. _____

This Letter of Credit is given to secure the payment of labor and materials of

_____ hereinafter referred to as "Principal," dated _____ 2020 for: **BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT**, in accordance with the Plans and Specifications and Notice Inviting Bids therefore. The amount of this Letter of Credit is one hundred percent (100%) of the amount of the bid. If said bid is accepted and the Contract awarded to the Principal, said Principal shall enter into the Contract as required by law. If Principal does not do so, the City of Poway, hereinafter "City", may draw upon this Letter of Credit as hereinafter provided.

As required by said Notice Inviting Bids and Plans and Specifications, and for that purpose only, we hereby establish in favor of City and for the account of Principal our Irrevocable Letter of Credit No. _____ in the amount of

_____ U. S. Dollars
(\$ _____) to be paid by drafts at sight on us if accompanied by the following documents:

City's written statement (signed by the City Engineer, City Manager, or City Attorney) certifying that there has been failure of the Principal to perform the above agreement. Said statement shall declare the amount of the sight draft on us and that the amount of this draft is, therefore, now due and payable.

IT IS AGREED that the above funds are guaranteed for payment and said funds shall become trust funds for the purposes set forth herein.

Materials and Labor Letter of Credit - Page 1 of 2

All drafts under this Letter of Credit shall be marked:

Name of Bank

Address

Irrevocable Letter of Credit No. _____

We expressly agree with you that all drafts drawn under and in compliance with the terms of this Letter of Credit shall meet with due honor upon presentation. Further, that all drafts shall be delivered to the City in accordance with Cal. Comm. Code Section 5112.

Dated: _____

By: _____
Authorizing Agent or Representative

APPROVED AS TO FORM:

City Attorney

SECTION 8
PUBLIC WORK
BOND FOR FAITHFUL PERFORMANCE

KNOW ALL PERSONS BY THESE PRESENTS:

That we, _____, as Principal, and
_____, a

(Guaranty Corporation)

(State)

Corporation, as Surety, are held firmly bound unto the City of Poway in the sum of _____ Dollars (\$_____), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, jointly and severally, firmly by these presents.

The condition of the foregoing obligation is such that whereas said Principal has been awarded and is about to enter into a written Contract dated_____, 2020, with the City of Poway for: **BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT** and is required by said City to give this bond in connection with the execution of said Contract. In case suit is brought by the City to successfully enforce the terms of this Bond, the City shall be awarded its reasonable attorney fees and costs, including expert costs;

NOW, THEREFORE, if the said Principal shall well and truly do and perform all of the covenants and obligations of said Contract on his part to be done and performed at the times and in the manner specified therein, then this obligation shall be null and void, otherwise it shall be and remain in full force and effect.

WITNESS our hands this ____ day of _____, 2020.

Principal

Attach acknowledgment.

By:

Principal

Guaranty Company

Attach acknowledgment.

By:

Guaranty's Attorney-in-Fact

**THIS PAGE LEFT
INTENTIONALLY BLANK**

Note: Letter must be submitted on bank letterhead with resolution or other documentation identifying signature as bank officer authorized to sign on behalf of bank.

LETTER OF CREDIT SECURING CONTRACT EXECUTION

City of Poway
13325 Civic Center Drive
Poway, CA 92064

Subject: Irrevocable Letter of Credit No. _____

This Letter of Credit is given to secure the faithful performance of _____, hereinafter referred to as "Principal," dated _____, 2020 for: **BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT** in accordance with the Plans and Specifications and Notice Inviting Bids therefore. The amount of this Letter of Credit is one hundred percent (100%) of the amount of the bid. If said bid is accepted and the Contract awarded to the Principal, said Principal shall enter into the Contract as required by law. If Principal does not do so, the City of Poway, hereinafter "City", may draw upon this Letter of Credit as hereinafter provided.

As required by said Notice Inviting Bids and Plans and Specifications, and for that purpose only, we hereby establish in favor of the City and for the account of Principal our Irrevocable Letter of Credit No. _____ in the amount of _____ U. S. Dollars (\$ _____), to be paid by drafts at sight on us if accompanied by the following documents:

City's written statement (signed by the City Engineer, City Manager, or City Attorney) certifying that there has been failure of the Principal to perform the above agreement. Said statement shall declare the amount of the sight draft on us and that the amount of this draft is, therefore, now due and payable.

IT IS AGREED that the above funds are guaranteed for payment and said funds shall become trust funds for the purposes set forth herein.

All drafts under this Letter of Credit shall be marked:

Name of Bank

Address

Irrevocable Letter of Credit No. _____

We expressly agree with you that all drafts drawn under and in compliance with the terms of this Letter of Credit shall meet with due honor upon presentation. Further, that all drafts shall be delivered to the City in accordance with Cal. Comm. Code Section 5112.

Dated: _____

By: _____
Authorizing Agent or Representative

APPROVED AS TO FORM:

City Attorney

SECTION 8

GUARANTY

To the City of Poway, for:

BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT

The undersigned guarantees the construction and installation of the work included in this project:

Should any of the materials or equipment prove defective or should the work as a whole prove defective, due to faulty workmanship, material furnished or methods of installation, or should the work or any part thereof fail to operate properly as originally intended and in accordance with the Plans and Specifications, due to any of the above causes, all within 12 months from the date of filing the Notice of Acceptance by the Secretary, the undersigned agrees to reimburse the City upon demand, for its expenses incurred in restoring said work to the condition contemplated in said project, including the cost of any such equipment or materials replaced and the cost of removing and replacing any other work necessary to make such replacement or repairs, or upon demand by the City, to replace any such material and to repair said work completely without cost to the City so that said work will function successfully as originally contemplated.

The City shall have the unqualified option to make any needed replacements or repairs itself or to have such replacements or repairs done by the undersigned. In the event the City elects to have said work performed by the undersigned, the undersigned agrees that the repairs shall be made and such materials as are necessary shall be furnished and installed within a reasonable time after the receipt of demand from the City. If the undersigned shall fail or refuse to comply with his obligations under this guaranty, the City shall be entitled to all cost and expenses, including attorney's fees, reasonably incurred by reason of the said failure or refusal.

Contractor

Date

**THIS PAGE LEFT
INTENTIONALLY BLANK**

SECTION 8

WORKER'S COMPENSATION INSURANCE CERTIFICATE

Pursuant to Section 1861 of the State Labor Code, each Contractor to whom a public works contract has been awarded shall sign the following certificate and shall submit same to the City of Poway prior to performing any work on the Contract:

"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."

Contractor

By: _____

Title

Date

Section 3700 of the State Labor Code reads in part as follows:

"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 employees."

****TO BE SUBMITTED WITH EXECUTED CONTRACT****

**THIS PAGE LEFT
INTENTIONALLY BLANK**

SECTION 9

PROPOSAL
TO THE CITY OF POWAY
POWAY, CALIFORNIA

BACKGROUND INFORMATION

BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT

NAME OF BIDDER: _____ Check One: ☐ Corporation
(as it appears on license) ☐ Partnership
☐ Sole Prop.

Contact Person: _____

Business Address: _____

Phone: _____ Fax: _____

If firm is a sole proprietor or partnership:

Owner(s) of Company _____

Contractor's License Number(s):

Place of Residence: _____

The work to be done and referred to herein is in the City of Poway, San Diego County, California, and shall be performed in accordance with these Special Provisions.

The undersigned, as Bidder, declares that the only persons or parties interested in this proposal as Principals are those named herein; that this proposal is made without collusion with any other person, firm, or corporation; that he has carefully examined the location of the proposed work, the annexed proposed form of Contract, and the Plans therein referred to; and he proposes, and agrees if this proposal is accepted, that he will Contract with the City of Poway, in the form of the copy of the Contract annexed hereto, to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the Contract, in the manner and time therein prescribed, and according to the requirements of the Engineer as set forth therein.

Bidder understands that a bid is required for the entire work, that the estimated quantities set forth in the Bid Schedule are solely for the purpose of comparing bids, and that final compensation under the Contract will be the sum of the totals for each item of work. The total for each item of work shall be calculated by determining the actual quantity of each item of work and multiplying that actual quantity by the unit price bid by the Bidder for that item of work. Bidder shall be compensated only for items of work satisfactorily completed. It is agreed that the unit prices bid include all appurtenant expenses, taxes, royalties, and fees. In the case of discrepancies in the numbers of a bid amount and the words stating that amount, the words shall govern over the numbers. In the case of a discrepancy between unit prices and extended amounts, the unit prices shall govern over extended amounts.

The bidder certifies that all representations set forth in this proposal including without limitation the Plans, Specifications, Contract and proposal documents are made under penalty of perjury and are true and correct.

Dated _____, 20__ Bidder _____
Signature

By: _____
Name

Title _____

Phone No. _____

Bidder's Address:

Bidder's Email Address:

(Corporate Seal)

Names and Addresses of all members
of the firm or names of all officers of the
corporation:

Corporation organized under the laws of
the State of _____

Contractor's License No. _____

Classification: _____

Expiration Date: _____

California Department of Industrial
Relations' Public Works Contractor
Registration Number:

Surety or Sureties:

**THIS PAGE LEFT
INTENTIONALLY BLANK**

PART I. CONTRACTOR LICENSING AND INSURANCE INFORMATION

1. Contractor possesses a valid and current California Contractor's license for the project or projects for which it intends to submit a bid.

☐ Yes ☐ No

2. Contractor has a general liability insurance policy with a policy limit of at least \$1,000,000 per occurrence and \$2,000,000 aggregate; and an automobile liability insurance policy with a policy limit of at least \$1,000,000 per occurrence and aggregate.

☐ Yes ☐ No

3. Contractor has current workers' compensation insurance policy as required by the Labor Code or is legally self-insured pursuant to Labor Code section 3700 et. seq.

☐ Yes ☐ No ☐ Contractor is exempt from this requirement, because it has no employees

4. Has your contractor's license been revoked at any time in the last five years?

☐ Yes ☐ No

If yes, provide an explanation: _____

5. Has a surety firm completed a contract on your behalf, or paid for completion because your firm was default terminated by the project owner within the last five (5) years?

☐ Yes ☐ No

If yes, provide an explanation: _____

6. At the time of submitting this pre-qualification form, is your firm ineligible to bid on or be awarded a public works contract, or perform as a subcontractor on a public works contract, pursuant to either Labor Code section 1777.1 or Labor Code section 1777.7?

☐ Yes ☐ No

If the answer is "Yes," state the beginning and ending dates of the period of debarment:

7. At any time during the last five years, has your firm, or any of its owners or officers been convicted of a crime involving the awarding of a contract of a government construction project, or the bidding or performance of a government contract?

☐ Yes ☐ No

If yes, provide an explanation: _____

**PART II. ORGANIZATION, HISTORY, ORGANIZATIONAL PERFORMANCE,
COMPLIANCE WITH CIVIL AND CRIMINAL LAWS**

Part II of the Background Information can be left blank for any project where the Contractor's Total Amount of Bid, as listed on the Bid Schedule, is less than \$500,000.

A. Current Organization and Structure of the Business

For Firms That Are Corporations:

- 1a. Date incorporated: _____
- 1b. Under the laws of what state: _____
- 1c. Provide all the following information for each person who is either (a) an officer of the corporation (president, vice president, secretary, treasurer), or (b) the owner of at least ten percent of the corporation's stock.

Name	Position	Years with Co.	% Ownership

- 1d. Identify every construction firm that any person listed above has been associated with (as owner, general partner, limited partner or officer) at any time during the last five years. **NOTE: For this question, "owner" and "partner" refer to ownership of ten percent or more of the business, or 10 percent or more of its stock, if the business is a corporation.**

Person's Name	Construction Firm	Dates of Person's Participation with Firm

For Firms That Are Partnerships:

- 1a. Date of formation: _____
- 1b. Under the laws of what state: _____
- 1c. Provide all the following information for each partner who owns 10 percent or more of the firm.

Name	Position	Years with Co.	% Ownership

- 1d. Identify every construction company that any partner has been associated with (as owner, general partner, limited partner or officer) at any time during the last five years. **NOTE: For this question, “owner” and “partner” refer to ownership of ten percent or more of the business, or ten percent or more of its stock, if the business is a corporation.**

Person's Name	Construction Company	Dates of Person's Participation with Company

For Firms That Are Sole Proprietorships:

- 1a. Date of commencement of business. _____
- 1b. Social security number of company owner. _____
- 1c. Identify every construction firm that the business owner has been associated with (as owner, general partner, limited partner or officer) at any time during the last five years. **NOTE: For this question, “owner” and “partner” refer to ownership of ten percent or more of the business, or ten percent or more of its stock, if the business is a corporation.**

Person's Name	Construction Company	Dates of Person's Participation with Company

For Firms That Intend to Make a Bid as Part of a Joint Venture:

- 1a. Date of commencement of joint venture. _____
- 1b. Provide all of the following information for each firm that is a member of the joint venture that expects to bid on one or more projects:

Name of firm	% Ownership of Joint Venture

B. History of the Business and Organizational Performance

2. Has there been any change in ownership of the firm at any time during the last three years? **NOTE: A corporation whose shares are publicly traded is not required to answer this question.**

☐ Yes ☐ No If "yes," explain on a separate signed page.

3. Is the firm a subsidiary, parent, holding company or affiliate of another construction firm? **NOTE: Include information about other firms if one firm owns 50 percent or more of another, or if an owner, partner, or officer of your firm holds a similar position in another firm.**

☐ Yes ☐ No If "yes," explain on a separate signed page.

4. Are any corporate officers, partners or owners connected to any other construction firms? **NOTE: Include information about other firms if an owner, partner, or officer of your firm holds a similar position in another firm.**

☐ Yes ☐ No If "yes," explain on a separate signed page.

5. Reserved

6. How many years has your organization been in business in California as a contractor under your present business name and license number? _____ years

7. Is your firm currently the debtor in a bankruptcy case?

☐ Yes ☐ No If "yes," please attach a copy of the bankruptcy petition, showing the case number, and the date on which the petition was filed.

8. Was your firm in bankruptcy at any time during the last five years? (This question refers only to a bankruptcy action that was not described in answer to question 7, above)

☐ Yes ☐ No If "yes," please attach a copy of the bankruptcy petition, showing the case number and the date on which the petition was filed, and a copy of the Bankruptcy Court's discharge order, or of any other document that ended the case, if no discharge order was issued.

Licenses

8. List all California construction license numbers, classifications and expiration dates of the California contractor licenses held by your firm:

10. If any of your firm's license(s) are held in the name of a corporation or partnership, list below the names of the qualifying individual(s) listed on the CSLB records who meet(s) the experience and examination requirements for each license.

11. Has your firm changed names or license numbers in the past five years?

☐ Yes ☐ No If "yes," explain on a separate signed page, including the reason for the change.

12. Has any owner, partner or (for corporations:) officer of your firm operated a construction firm under any other name in the last five years?

☐ Yes ☐ No If "yes," explain on a separate signed page, including the reason for the change.

13. Has any CSLB license held by your firm or its Responsible Managing Employee (RME) or Responsible Managing Officer (RMO) been suspended within the last five years?

☐ Yes ☐ No If "yes," please explain on a separate signed sheet.

Disputes

14. At any time in the last five years has your firm been assessed and paid liquidated damages after completion of a project under a construction contract with either a public or private owner?

☐ Yes ☐ No

If yes, explain on a separate signed page, identifying all such projects by owner, owner's address, the date of completion of the project, amount of liquidated damages assessed and all other information necessary to fully explain the assessment of liquidated damages.

15. In the last five years has your firm, or any firm with which any of your company's owners, officers or partners was associated, been debarred, disqualified, removed or otherwise prevented from bidding on, or completing, any government agency or public works project for any reason? **NOTE: "Associated with" refers to another construction firm in which an owner, partner or officer of your firm held a similar position, and which is listed in response to question 1c or 1d on this form.**

☐ Yes ☐ No

If "yes," explain on a separate signed page. State whether the firm involved was the firm applying for pre-qualification here or another firm. Identify by name of the company, the name of the person within your firm who was associated with that company, the year of the event, the owner of the project, the project and the basis for the action.

16. In the last five years has your firm been denied an award of a public works contract based on a finding by a public agency that your company was not a responsible bidder?

☐ Yes ☐ No If "yes," explain on a separate signed page. Identify the year of the event, the owner, the project and the basis for the finding by the public agency.

NOTE: The following two questions refer only to disputes between your firm and the owner of a project. You need not include information about disputes between your firm and a supplier, another contractor, or subcontractor. You need not include information about "pass-through" disputes in which the actual dispute is between a sub-contractor and a project owner.

17. In the past five years has any claim against your firm concerning your firm's work on a construction project been filed in court or arbitration?

☐ Yes ☐ No

If "yes," on separate signed sheets of paper identify the claim(s) by providing the project name, date of the claim, name of the claimant, a brief description of the nature of the claim, the court in which the case was filed and a brief description of the status of the claim (pending or, if resolved, a brief description of the resolution).

18. In the past five years has your firm made any claim against a project owner concerning work on a project or payment for a contract and filed that claim in court or arbitration?

☐ Yes ☐ No

If "yes," on separate signed sheets of paper identify the claim by providing the project name, date of the claim, name of the entity (or entities) against whom the claim was filed, a brief description of the nature of the claim, the court in which the case was filed and a brief description of the status of the claim (pending, or if resolved, a brief description of the resolution).

19. At any time during the past five years, has any surety company made any payments on your firm's behalf as a result of a default, to satisfy any claims made against a performance or payment bond issued on your firm's behalf, in connection with a construction project, either public or private?

☐ Yes ☐ No

If "yes," explain on a separate signed page the amount of each such claim, the name and telephone number of the claimant, the date of the claim, the grounds for the claim, the present status of the claim, the date of resolution of such claim if resolved, the method by which such was resolved if resolved, the nature of the resolution and the amount, if any, at which the claim was resolved.

20. In the last five years has any insurance carrier, for any form of insurance, refused to renew the insurance policy for your firm?

☐ Yes ☐ No If "yes," explain on a separate signed page. Name the insurance carrier, the form of insurance and the year of the refusal.

Criminal Matters and Related Civil Suits

21. Has your firm or any of its owners, officers or partners ever been found liable in a civil suit or found guilty in a criminal action for making any false claim or material misrepresentation to any public agency or entity?

☐ Yes ☐ No

If "yes," explain on a separate signed page, including identifying who was involved, the name of the public agency, the date of the investigation and the grounds for the finding.

22. Has your firm or any of its owners, officers or partners ever been convicted of a crime involving any federal, state, or local law related to construction?

☐ Yes ☐ No

If "yes," explain on a separate signed page, including identifying who was involved, the name of the public agency, the date of the conviction and the grounds for the conviction.

23. Has your firm or any of its owners, officers or partners ever been convicted of a federal or state crime of fraud, theft, or any other act of dishonesty?

☐ Yes ☐ No

If "yes," identify on a separate signed page the person or persons convicted, the court (the county if a state court, the district or location of the federal court), the year and the criminal conduct.

Bonding

24. Bonding capacity: Provide documentation from your surety identifying the following:

Name of bonding company/surety: _____

Name of surety agent, address and telephone number:

25. If your firm was required to pay a premium of more than one percent for a performance and payment bond on any project(s) on which your firm worked at any time during the last three years, state the percentage that your firm was required to pay. You may provide an explanation for a percentage rate higher than one percent, if you wish to do so.

26. List all other sureties (name and full address) that have written bonds for your firm during the last five years, including the dates during which each wrote the bonds:

27. During the last five years, has your firm ever been denied bond coverage by a surety company, or has there ever been a period of time when your firm had no surety bond in place during a public construction project when one was required?

☐ Yes ☐ No

If yes, provide details on a separate signed sheet indicating the date when your firm was denied coverage and the name of the company or companies which denied coverage; and the period during which you had no surety bond in place.

C. Compliance with Occupational Safety and Health Laws and with Other Labor Legislation Safety

28. Has CAL OSHA cited and assessed penalties against your firm for any "serious," "willful" or "repeat" violations of its safety or health regulations in the past five years?

NOTE: If you have filed an appeal of a citation, and the Occupational Safety and Health Appeals Board has not yet ruled on your appeal, you need not include information about it.

☐ Yes ☐ No

If "yes," attach a separate signed page describing the citations, including information about the dates of the citations, the nature of the violation, the project on which the citation(s) was or were issued, the amount of penalty paid, if any. If the citation was appealed to the Occupational Safety and Health Appeals Board and a decision has been issued, state the case number and the date of the decision.

29. Has the federal Occupational Safety and Health Administration cited and assessed penalties against your firm in the past five years? **NOTE: If you have filed an appeal of a citation and the Appeals Board has not yet ruled on your appeal, or if there is a court appeal pending, you need not include information about the citation.**

☐ Yes

☐ No

If "yes," attach a separate signed page describing each citation.

30. Has the EPA or any Air Quality Management District or any Regional Water Quality Control Board cited and assessed penalties against either your firm or the owner of a project on which your firm was the contractor, in the past five years? **NOTE: If you have filed an appeal of a citation and the Appeals Board has not yet ruled on your appeal, or if there is a court appeal pending, you need not include information about the citation.**

☐ Yes

☐ No

If "yes," attach a separate signed page describing each citation.

31. How often do you require documented safety meetings to be held for construction employees and field supervisors during the course of a project?

32. List your firm's Experience Modification Rate (EMR) (California workers' compensation insurance) for each of the past three premium years: **NOTE: An Experience Modification Rate is issued to your firm annually by your workers' compensation insurance carrier.**

Current year: _____

Previous year: _____

Year prior to previous year: _____

If your EMR for any of these three years is or was 1.00 or higher you may, if you wish, attach a letter of explanation.

33. Within the last five years has there ever been a period when your firm had employees but was without workers' compensation insurance or state-approved self-insurance?

☐ Yes

☐ No

If "yes," please explain the reason for the absence of workers' compensation insurance on a separate signed page. If "No," please provide a statement by your current workers' compensation insurance carrier that verifies periods of workers' compensation insurance coverage for the last five years. (If your firm has been in the construction business for less than five years, provide a statement by your workers' compensation insurance carrier verifying continuous workers' compensation insurance coverage for the period that your firm has been in the construction business.)

Prevailing Wage and Apprenticeship Compliance Record

34. Has there been more than one occasion during the last five years in which your firm was required to pay either back wages or penalties for your own firm's failure to comply with California's prevailing wage laws?

NOTE: This question refers only to your own firm's violation of prevailing wage laws, not to violations of the prevailing wage laws by a subcontractor.

☐ Yes ☐ No

If "yes," attach a separate signed page or pages, describing the nature of each violation, identifying the name of the project, the date of its completion, the public agency for which it was constructed; the number of employees who were initially underpaid and the amount of back wages and penalties that you were required to pay.

35. During the last five years, has there been more than one occasion in which your own firm has been penalized or required to pay back wages for failure to comply with the **federal** Davis-Bacon prevailing wage requirements?

☐ Yes ☐ No

If "yes," attach a separate signed page or pages describing the nature of the violation, identifying the name of the project, the date of its completion, the public agency for which it was constructed; the number of employees who were initially underpaid, the amount of back wages you were required to pay along with the amount of any penalty paid.

36. Provide the **name, address and telephone number** of the apprenticeship program (approved by the California Apprenticeship Council) from whom you intend to request the dispatch of apprentices to your company for use on any public work project for which you are awarded a contract by the City of Poway.

37. If your firm operates its own State-approved apprenticeship program:

- (a) Identify the craft or crafts in which your firm provided apprenticeship training in the past year.
- (b) State the year in which each such apprenticeship program was approved and attach evidence of the most recent California Apprenticeship Council approval(s) of your apprenticeship program(s).
- (c) State the number of individuals who were employed by your firm as apprentices at any time during the past three years in each apprenticeship and the number of persons who, during the past three years, completed apprenticeships in each craft while employed by your firm.

38. At any time during the last five years, has your firm been found to have violated any provision of California apprenticeship laws or regulations, or the laws pertaining to use of apprentices on public works? **NOTE: You may omit reference to any incident that occurred prior to January 1, 1998, if the violation was by a subcontractor and your firm, as general contractor on a project, had no knowledge of the subcontractor's violation at the time they occurred.**

☐ Yes ☐ No

If "yes," provide the date(s) of such findings and attach copies of the Department's final decision(s).

PART III.

PREVIOUS EXPERIENCE.

39. Please list the three most recent projects (if applicable) your firm has successfully completed as prime contractor for a competitively bid project for a California Public Agency, or Federal Agency within the state of California:

Project One

Job Order Contract Name: _____

Completion Date: _____

Owner: _____

Owner Contact (name, current phone number(s) and email address):

Name: _____

Office: _____ Cell Phone: _____

Email address: _____

Owner's Construction Manager (name, current phone number(s) and email address):

Name: _____

Office: _____

Cell Phone: _____ Email address: _____

Total Value of Construction (including supplemental job orders): _____

Time Extensions Granted (number of days): _____

Project Two

Job Order Contract Name: _____

Completion Date: _____

Owner: _____

Owner Contact (name, current phone number(s) and email address):

Name: _____

Office: _____

Cell Phone: _____ Email address: _____

Owner's Construction Manager (name, current phone number(s) and email address):

Name: _____

Office: _____

Cell Phone: _____

Email address: _____

Total Value of Construction (including supplemental job orders): _____

Time Extensions Granted (number of days): _____

Project Three

Job Order Contract Name: _____

Completion Date: _____

Owner: _____

Owner Contact (name, current phone number(s) and email address):

Name: _____

Office: _____

Cell Phone: _____ Email address: _____

Owner's Construction Manager (name, current phone number(s) and email address):

Name: _____

Office: _____

Cell Phone: _____ Email address: _____

Total Value of Construction (including supplemental job orders): _____

Time Extensions Granted (number of days): _____

40. For all projects where your firm has been selected as a contractor for a competitively bid project for a California Public Agency, or Federal Agency within the state of California, have you ever not completed the project?

If Yes, please provide an explanation:

41. List the total number of projects where your firm has been selected as a prime or general contractor for a competitively bid project for a California Public Agency, or Federal Agency, where you successfully completed the Project

Total Number: _____

Identity of Owners:

* * * * *

I, the undersigned, certify and declare that I have read all the foregoing answers to this prequalification questionnaire and know their contents. The matters stated in the questionnaire answers are true of my own knowledge and belief, except as to those matters stated on information and belief, and as to those matters, I believe them to be true. I declare under penalty of perjury under the laws of the State of California, that the foregoing is correct.

Dated:

(Signature)

(Name)

**ADDITIONAL EXPLANATION PAGE
(INCLUDE AS MANY COPIES AS NECESSARY)**

If "yes" was checked on questions in the BACKGROUND INFORMATION additional explanation is required. A signed copy of this form shall be provided in response to each question.

QUESTION #: _____

EXPLANATION: _____

Dated: _____

(Signature)

(Name)

SECTION 9

PROPOSAL TO THE CITY OF POWAY BID SCHEDULE

BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT

Boulder Mountain Reservoir No. 1

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
1.	Mobilization	LS	1	\$ _____	\$ _____
2.	Interior Coating: Furnish all labor, materials, and equipment to prepare surfaces and coat interior with 100% solid epoxy coatings, in accordance with the specifications.	LS	1	\$ _____	\$ _____
3.	Disinfection: Furnish all labor, materials, and equipment to prepare surfaces and disinfect interior.	LS	1	\$ _____	\$ _____
4.	Exterior Painting: Furnish all labor, materials, and equipment to prepare all exterior surfaces and paint exterior surfaces and appurtenances with epoxy/urethane paint system.	LS	1	\$ _____	\$ _____
5.	Interior Caulking: Furnish all labor, materials, and equipment to apply flexible sealant to all designated voids on the interior surfaces and all roof lap seams.	LS	1	\$ _____	\$ _____
6.	Guardrailing and Safety Gate: Furnish all labor, materials, and equipment to install new guardrailing around the primary roof hatch and install a new safety gate, in accordance with plans.	LS	1	\$ _____	\$ _____

- | | | | | | |
|-----|---|----|---|----------|----------|
| 7. | Center Vent: Furnish all labor, materials, and equipment to remove existing center vent and furnish and install a new 36" diameter center vent, cover, screen, reinforcing plate, and roof plates, in accordance with plans. | LS | 1 | \$ _____ | \$ _____ |
| 8. | Roof Hatch: Furnish all labor, materials, and equipment to remove existing roof hatch and furnish and install a new 36" roof hatch, in accordance with the plans. | LS | 1 | \$ _____ | \$ _____ |
| 9. | Auxiliary Vent: Furnish all labor, materials, and equipment to furnish and install a new 24" diameter vent, with an exhaust fan flange and screening, in accordance with the plans. | LS | 1 | \$ _____ | \$ _____ |
| 10. | Exterior Ladder: Furnish all labor, materials, and equipment to remove and dispose of existing exterior ladder and furnish and install a new ladder and vandal guard, in accordance with the plans, including a wide opening onto the roof and bracing the Saf-T-Climb rail. | LS | 1 | \$ _____ | \$ _____ |
| 11. | Interior Ladder: Furnish all labor, materials, and equipment to remove and dispose of existing interior ladder and braces and furnish and install a new fiberglass ladder and braces, in accordance with the plans. | LS | 1 | \$ _____ | \$ _____ |
| 12. | Saf-T-Climb: Furnish all labor, materials, and equipment to install a new Saf-T-Climb fall prevention device on the | LS | 1 | \$ _____ | \$ _____ |

interior and exterior ladders including dismount section, sleeve, and harness.

- | | | | | | |
|-----|---|----|---|----------|----------|
| 13. | Liquid Level Indicator:
Furnish all labor, materials, and equipment to remove and dispose of the existing liquid level indicator assembly and gauge board and plate over holes. | LS | 1 | \$ _____ | \$ _____ |
| 14. | Lateral Bracing: Furnish all labor, materials, and equipment to remove and dispose of all the existing tie-rods and furnish and install new 3 ½" x 3 ½" x ¼" angle lateral bracing at the midspan of the rafters. | LS | 1 | \$ _____ | \$ _____ |
| 15. | Fall Restraint System: Furnish all labor, materials, and equipment to remove and dispose of the existing system prior to painting and install new fall restraint cables, attachments, and necessary mounting hardware, in accordance with the plans. | LS | 1 | \$ _____ | \$ _____ |
| 16. | 10-inch Inlet/Outlet Pipe:
Furnish all labor, materials, and equipment to remove and dispose of existing pipe, furnish and install Force Balanced double ball flexible expansion connection fitting and a 3" combination air valve on the inlet/outlet piping, including piping, nozzle, flanges, fittings, adjustable pipe supports, insert plate, and steel bollards. | LS | 1 | \$ _____ | \$ _____ |
| 17. | Overflow Air Break: Furnish all labor, materials, and equipment to modify the overflow pipe by installing a | LS | 1 | \$ _____ | \$ _____ |

Tide Flex flanged passive check valve and a funnel with a removable grate on the bottom portion of the overflow pipe, in accordance with the plans.

- | | | | | | |
|-----|---|------|----|----------|----------|
| 18. | Manhole Davit Assembly: Furnish all labor, materials, and equipment to remove and dispose of the existing davit assembly and furnish and install new davit assembly in like kind. | LS | 1 | \$ _____ | \$ _____ |
| 19. | Column Modification: Furnish all labor, materials, and equipment to weld an additional channel section to the entire length of the center column, in accordance with the plans and specifications. | LS | 1 | \$ _____ | \$ _____ |
| 20. | 3-inch Ports: Furnish all labor, materials, and equipment to weld two new 3-inch sample/injection ports on shell, in accordance with the plans. | LS | 1 | \$ _____ | \$ _____ |
| 21. | Galvanic Cathodic Protection System: Furnish all labor, materials, and equipment to remove existing cathodic protection system and furnish and install a new galvanic cathodic protection system. | LS | 1 | \$ _____ | \$ _____ |
| 22. | Dehumidification: Furnish all labor, materials, and equipment to use dehumidification system for interior work as directed by the City, including curing of coatings. (3 weeks) | LS | 1 | \$ _____ | \$ _____ |
| 23. | Rafter Replacement: Furnish all labor, materials, and equipment to remove existing severely corroded rafters and | EACH | 20 | \$ _____ | \$ _____ |

replace with new rafters, including gusset plates and nuts and bolts, as determined necessary by Engineer.

- | | | | | | |
|-----|---|------|----|----------|----------|
| 24. | Replace Nuts and Bolts:
Furnish all labor, materials, and equipment to remove nuts and bolts and furnish and install new nuts and bolts at the shell to rafter connections, as determined necessary by Engineer. | EACH | 40 | \$ _____ | \$ _____ |
| 25. | Pit/Perforation Treatment:
Furnish all labor, materials, and equipment to fill pits or weld plates over pitted or excessively corroded areas, as determined necessary by Engineer.
(16 hours) | LS | 1 | \$ _____ | \$ _____ |
| 26. | Grinding: Furnish all labor, materials, and equipment to grind smooth excessively corroded areas of the structural members that comprise of sharp edges from sandblasting, as determined necessary by Engineer. (16 hours) | LS | 1 | \$ _____ | \$ _____ |
| 27. | Inspection Spot Blasting:
Furnish all labor, materials, and equipment to spot abrasively blast clean severely corroded surfaces, as determined necessary by Engineer.
(8 hours) | LS | 1 | \$ _____ | \$ _____ |
| 28. | Drain Modification: Furnish all labor, materials, and equipment to modify the existing drain and install a drain trough, in accordance with the plans and specifications. | LS | 1 | \$ _____ | \$ _____ |

- | | | | | | |
|-----|---|----|---|----------|----------|
| 29. | New Enclosure Box: Furnish all labor, materials, and equipment to remove charger and battery system from existing enclosure box and install in a new enclosure box. | LS | 1 | \$ _____ | \$ _____ |
| 30. | Hydropneumatic Tank: Furnish all labor, materials, and equipment to remove hydropneumatic tank, concrete supports, pump, control box, wiring, and conduit and dispose of off-site, including backfilling and restoring asphalt concrete as needed. | LS | 1 | \$ _____ | \$ _____ |

Boulder Mountain Reservoir No. 2

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
31.	Mobilization	LS	1	\$ _____	\$ _____
32.	Interior Coating: Furnish all labor, materials, and equipment to prepare surfaces and coat interior with 100% solids epoxy coatings, in accordance with the specifications.	LS	1	\$ _____	\$ _____
33.	Disinfection: Furnish all labor, materials, and equipment to prepare surfaces and disinfect interior.	LS	1	\$ _____	\$ _____
34.	Exterior Painting: Furnish all labor, materials, and equipment to brush-off blast clean all exterior surfaces and paint exterior surfaces and appurtenances with epoxy/urethane paint system, including caulking the void at the foundation.	LS	1	\$ _____	\$ _____

- | | | | | | |
|-----|--|----|---|----------|----------|
| 35. | Interior Caulking: Furnish all labor, materials, and equipment to apply flexible sealant to all designated voids on the interior surfaces and all roof lap seams. | LS | 1 | \$ _____ | \$ _____ |
| 36. | Guardrailing and Safety Gate: Furnish all labor, materials, and equipment to install new guardrailing around the primary roof hatch and install a new safety gate. | LS | 1 | \$ _____ | \$ _____ |
| 37. | Center Vent Screen: Furnish all labor, materials, and equipment to remove existing vent screening and install new screening, in accordance with the plans. | LS | 1 | \$ _____ | \$ _____ |
| 38. | Roof Hatch: Furnish all labor, materials, and equipment to remove existing roof hatch and furnish and install a new 36" roof hatch, in accordance with the plans. | LS | 1 | \$ _____ | \$ _____ |
| 39. | Auxiliary Vent: Furnish all labor, materials, and equipment to furnish and install a new 24" diameter vent with an exhaust fan flange, in accordance with the plans. | LS | 1 | \$ _____ | \$ _____ |
| 40. | Exterior Ladder: Furnish all labor, materials, and equipment to remove and dispose of existing ladder and furnish and install a new ladder and vandal guard, including a wide opening onto the roof and bracing the Saf-T-Climb rail. | LS | 1 | \$ _____ | \$ _____ |
| 41. | Interior Ladder: Furnish all labor, materials, and equipment to remove and dispose of existing ladder and braces and | LS | 1 | \$ _____ | \$ _____ |

furnish and install a new fiberglass ladder and braces, in accordance with the plans.

- | | | | | | |
|-----|--|----|---|----------|----------|
| 42. | Saf-T-Climb: Furnish all labor, materials, and equipment to install a new Saf-T-Climb fall prevention device on the interior and exterior ladders, including dismount section, sleeve, and harness. | LS | 1 | \$ _____ | \$ _____ |
| 43. | Liquid Level Indicator: Furnish all labor, materials, and equipment to remove and dispose of the existing liquid level indicator assembly and gauge board. | LS | 1 | \$ _____ | \$ _____ |
| 44. | Lateral Bracing: Furnish all labor, materials, and equipment to remove and dispose of all the existing tie-rods and furnish and install new 3 ½" x 3 ½" x ¼" angle lateral bracing at the midspan of the rafters. | LS | 1 | \$ _____ | \$ _____ |
| 45. | Fall Restraint System: Furnish all labor, materials, and equipment to remove and dispose of the existing system prior to painting and install new fall restraint cables, attachments, and necessary mounting hardware, in accordance with the plans. | LS | 1 | \$ _____ | \$ _____ |
| 46. | 10-inch Inlet/Outlet Pipe: Furnish all labor, materials, and equipment to remove and dispose of existing pipe, furnish and install Force Balanced double ball flexible expansion connection fitting and a 3" combination air valve on the inlet/outlet piping, including piping, nozzle, flanges, fittings, | LS | 1 | \$ _____ | \$ _____ |

adjustable pipe supports, insert plate, and steel bollards.

- | | | | | | |
|-----|--|----|---|----------|----------|
| 47. | Overflow Air Break: Furnish all labor, materials, and equipment to modify the overflow pipe by installing a Tide Flex flanged passive check valve and a funnel with a removable grate on the bottom portion of the overflow pipe, in accordance with the plans. | LS | 1 | \$ _____ | \$ _____ |
| 48. | Manhole Davit Assembly: Furnish all labor, materials, and equipment to remove and dispose of the existing davit assembly and furnish and install new davit assembly in like kind. | LS | 1 | \$ _____ | \$ _____ |
| 49. | Column Modification: Furnish all labor, materials, and equipment to weld an additional channel to the entire length of the center column, in accordance with the plans. | LS | 1 | \$ _____ | \$ _____ |
| 50. | 3-inch Ports: Furnish all labor, materials, and equipment to weld two new 3-inch sample/injection ports on shell, in accordance with the plans. | LS | 1 | \$ _____ | \$ _____ |
| 51. | Galvanic Cathodic Protection System: Furnish all labor, materials, and equipment to remove existing cathodic protection system and furnish and install a new galvanic cathodic protection system. | LS | 1 | \$ _____ | \$ _____ |
| 52. | Dehumidification: Furnish all labor, materials, and equipment to use dehumidification system for interior work as directed by the City, including curing of coatings. (4 weeks) | LS | 1 | \$ _____ | \$ _____ |

- | | | | | | |
|-----|---|------|----|----------|----------|
| 53. | Rafter Replacement: Furnish all labor, materials, and equipment to remove existing severely corroded rafters and replace with new rafters, including gusset plates and nuts and bolts, as determined necessary by Engineer. | EACH | 15 | \$ _____ | \$ _____ |
| 54. | Jack Rafter Replacement: Furnish all labor, materials, and equipment to remove existing severely corroded jack rafters and headers and replace with new jack rafters and headers, including gusset plates and nuts and bolts, as determined necessary by Engineer. | EACH | 15 | \$ _____ | \$ _____ |
| 55. | Replace Nuts and Bolts: Furnish all labor, materials, and equipment to remove nuts and bolts and furnish and install new nuts and bolts at the shell to rafter connections, as determined necessary by Engineer. | EACH | 20 | \$ _____ | \$ _____ |
| 56. | Pit/Perforation Treatment: Furnish all labor, materials, and equipment to fill pits or weld plates over pitted or excessively corroded areas, as determined necessary by Engineer.
(16 hours) | LS | 1 | \$ _____ | \$ _____ |
| 57. | Grinding: Furnish all labor, materials, and equipment to grind smooth excessively corroded areas of the structural members that comprise of sharp edges from sandblasting, as determined necessary by Engineer. (16 hours) | LS | 1 | \$ _____ | \$ _____ |
| 58. | Inspection Spot Blasting: Furnish all labor, materials, and | LS | 1 | \$ _____ | \$ _____ |

equipment to spot abrasively
blast clean severely corroded
surfaces, as determined
necessary by Engineer.
(8 hours)

59. **Drain Modification:** Furnish all LS 1 \$ _____ \$ _____
labor, materials, and equipment
to modify the existing drain and
install a drain trough, in
accordance with the plans and
specifications.

TOTAL AMOUNT OF BID IN FIGURES: \$ _____

TOTAL AMOUNT OF BID IN WORDS: _____

_____ DOLLARS

AND _____ CENTS

**THIS PAGE LEFT
INTENTIONALLY BLANK**

SECTION 9
LIST OF SUBCONTRACTORS

BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT

The Bidder (_____) is required to furnish the following information relative to the subcontractors, suppliers, and self performance. A listed subcontractor shall perform all of the type work indicated, including all labor, materials, and equipment. If the prime Contractor is providing equipment or materials for subcontractors, it must be noted in the space below for suppliers. Per Standard Specifications for Public Works Construction, Section 3-2 Self Performance: "The Contractor shall perform, with its own organization, Contract work amounting to at least 50 percent of the Contract Price."

If all work is to be done without subcontractors, write "none" in the following space: _____

Dollar Value of Subcontractor	Name under which Subcontractor is Licensed	1) License No. 2) Classification No. 3) State of CA Registration No.	Address of Office, Mill or Shop and Telephone Number and Email Address	Type of Work Subcontractor Will Do
		1)		
		2)		
		3)		
		1)		
		2)		
		3)		
		1)		
		2)		
		3)		

SUPPLIERS: (This information will not be used to determine the lowest responsible bidder.)

<u>Name of Supplier</u>	<u>Address & Telephone No.</u>	<u>Type of Material</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

(Use additional copies of this form as needed to show all subcontractors and suppliers.)

**THIS PAGE LEFT
INTENTIONALLY BLANK**

**SECTION 9
WORKER CLASSIFICATIONS**

BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT

As part of the award of the bid, workers classifications will be uploaded to the California State Department of Industrial Relations per Labor Code Section 1773.3 Form PWC-100.

Check all worker classifications that apply to your COMPANY and SUBCONTRACTORS you will be using for this project: This information must be included AS PART OF THE BIDDERS RESPONSE.

<input type="checkbox"/>	ASBESTOS	<input type="checkbox"/>	BOILERMAKER	<input type="checkbox"/>	BRICKLAYERS	<input type="checkbox"/>	CARPENTERS
<input type="checkbox"/>	CARPET/LINOLEUM	<input type="checkbox"/>	CEMENT MASONS	<input type="checkbox"/>	DRYWALLFINISHER	<input type="checkbox"/>	DRYWALL/LATHERS
<input type="checkbox"/>	ELECTRICIANS	<input type="checkbox"/>	ELEVATOR MECHANIC	<input type="checkbox"/>	GLAZIERS	<input type="checkbox"/>	IRON WORKERS
<input type="checkbox"/>	LABORERS	<input type="checkbox"/>	MILLWRIGHTS	<input type="checkbox"/>	OPERATING ENG	<input type="checkbox"/>	PAINTERS
<input type="checkbox"/>	PILE DRIVERS	<input type="checkbox"/>	PIPE TRADES	<input type="checkbox"/>	PLASTERERS	<input type="checkbox"/>	ROOFERS
<input type="checkbox"/>	SHEET METAL	<input type="checkbox"/>	SOUND/COMM	<input type="checkbox"/>	SURVEYORS	<input type="checkbox"/>	TEAMSTER
<input type="checkbox"/>	TILE WORKERS	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	

**THIS PAGE LEFT
INTENTIONALLY BLANK**

SECTION 9
PROPOSAL TO THE CITY OF POWAY
BID SECURITY BOND OR CHECK

(See Section 5, Paragraph 5-3, "Bid Security")

☐ A *certified check, properly made payable to the City of Poway, for _____ dollars (\$ _____); or

☐ A *bond in favor of the City for _____ dollars (\$ _____); which amount is not less than ten percent (10%) of the total amount of the bid, is attached hereto.

The undersigned further agrees that in case of default in executing the required Contract, with necessary bonds, within ten (10) days, not including Sunday, after having received notice that the Contract is ready for signature, the proceeds of the check or bond accompanying this bid shall become the property of the City of Poway.

Licensed in accordance with an act providing for registration of Contractors,

License No. _____.

SIGNATURE OF BIDDER: _____

(If an individual, so state. If a firm or co-partnership, state the firm name and give the names of all individual co-partners composing the firm. If a corporation, state legal name of corporation, also names of president, secretary, treasurer, and manager thereof.)

**Strike out inapplicable phrase.*

Business Address

DATED: _____, 20__ OR

NAME OF CORPORATION: _____

By: _____
(Signature of President of Corp.)

DATED: _____, 20__ By: _____
(Signature of Secretary of Corp.)

Business Address _____

Corporation organized under the laws of the State of _____
SEAL

**THIS PAGE LEFT
INTENTIONALLY BLANK**

Note: Bidder must use this Form

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS:

That we, _____, as Principal and

(Guaranty Company)
a _____ Corporation,
(State)

as Surety, our respective heirs, executors, administrators, successors and assigns, are held and firmly bound unto the City of Poway, a municipal corporation, as Obligee, in the sum of _____ Dollars (\$_____) lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the above bounden Principal as aforesaid, is about to hand in and submit the Obligee the accompanying bid for the

BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT

in accordance with the plans and specifications filed in the office of the Obligee and under the notice inviting proposals therefore.

NOW, THEREFORE, if the Principal shall not withdraw said bid within the period specified in the bid documents, or, if no period is specified, for sixty (60) days (Sundays and legal holidays excepted) after award of the contract for the project; or if the principal does not attempt to withdraw the bid when the requirements of Public Contract Code section 5101 et seq. are not met; or if the Principal is awarded the contract and shall within the period specified therefore, or if no period is specified, within ten (10) days (Sundays and legal holidays excepted) after award of the contract, enters into a written contract with the Obligee, in accordance with the bid as accepted, and gives such bond(s) with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract and for the payment for labor and materials used in the performance of the contract and the required insurance documentation, then the above obligation shall be void and of no further effect; otherwise the above obligation shall remain in full force and effect, and the amount of this bond shall be declared to be forfeited to such Obligee City of Poway as liquidated damages, it being agreed that said Obligee will suffer damages as a result of such failure, neglect or refusal of the said Principal and that such damages are and will continue to be impracticable and extremely difficult to determine.

In the event that suit or other proceeding is brought upon this bond by the Obligee, the Surety shall pay to the Obligee all costs, expenses and fees incurred by the Obligee in connection therewith, including, without limitation, attorneys' fees and costs.

WITNESS our hands this _____ day of _____, 20__.

Principal

Principal

Guaranty Company

By: _____
Guaranty's Attorney-in-Fact

Attach acknowledgment

Note: Letter must be submitted on bank letterhead with resolution or other documentation identifying signature as bank officer authorized to sign on behalf of bank.

LETTER OF CREDIT SECURING BID

City of Poway
13325 Civic Center Drive
Poway, CA 92064

Subject: Irrevocable Letter of Credit No. _____

This Letter of Credit is given to secure the bid of _____ hereinafter referred to as "Principal," dated _____, 20__ for **BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT** in accordance with the Specifications and Notice Inviting Bids therefore. The amount of this Letter of Credit is ten percent (10%) of the amount of the bid. If said bid is accepted and the Contract awarded to the Principal, said Principal shall enter into the Contract as required by law. If Principal does not do so, the City of Poway, hereinafter "City" may draw upon this Letter of Credit as hereinafter provided.

As required by said Notice Inviting Bids and Specifications, and for that purpose only, we hereby establish in favor of City and for the account of Principal our Irrevocable Letter of Credit No. _____ in the amount of _____ U.S. Dollars (\$_____), to be paid by drafts at sight on us if accompanied by the following documents:

City's written statement (signed by the City Engineer, City Manager, or City Attorney) certifying that there has been failure of the Principal to perform the above agreement. Said statement shall declare the amount of the sight draft on us and that the amount of this draft is, therefore, now due and payable.

IT IS AGREED that the above funds are guaranteed for payment and said funds shall become trust funds for the purposes set forth herein.

All drafts under this Letter of Credit shall be marked:

Name of Bank

Address

Irrevocable Letter of Credit No. _____

We expressly agree with you that all drafts drawn under and in compliance with the terms of this Letter of Credit shall meet with due honor upon presentation. Further, that all drafts shall be delivered to the City in accordance with Cal. Comm. Code Section 5112.

Dated: _____

By: _____
Authorizing Agent or Representative

APPROVED AS TO FORM:

City Attorney

SECTION 9

NON-COLLUSION AFFIDAVIT

To the City of Poway, Poway, California:

The undersigned, in submitting a bid for performing the following work by Contract, being duly sworn, deposes and says:

That he has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such Contract, for:

BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT

Signature of Bidder

Business Address

Place of Residence

Subscribed and sworn before me this _____ day of _____ 2020

Notary Public in and for the County of

_____, State of California.

My Commission expires_____.

(This affidavit shall be executed by the successful bidder in accordance with instructions in the Federal Requirements, but bidder may execute the affidavit on this page at the time of submitting bid.)

**THIS PAGE LEFT
INTENTIONALLY BLANK**

SECTION 10

WAGE RATES AND LABOR CODE REQUIREMENTS

10-1 Wage Rates - The City of Poway has obtained from the Director of the California Department of Industrial Relations a determination of the general prevailing rate of per diem wages and the general prevailing rate for legal holiday and overtime work in the locality in which said work is to be performed for each craft, classification, or type of worker needed. Not less than the determined rates shall be paid to all workers employed in the performance of the Contract, pursuant to sections 1770, 1773, and 1773.2 of the California Labor Code. Such rates of wages are on file with the Department of Industrial Relations and can be found on the website at: <http://www.dir.ca.gov/dlsr/>.

Attention is directed to the provisions of Sections 1774, 1775, 1776, 1777.5, and 1777.6 of the State Labor Code, excerpt copies of which are appended to the Specifications. Sections 1774 and 1775 require the Contractor and all subcontractors to pay not less than the prevailing wage rates to all workmen employed in the execution of the Contract and specify forfeitures and penalties for failure to do so. The minimum wages to be paid are those determined by the State Director of the Department of Industrial Relations. Section 1776 requires the Contractor and all subcontractors to keep accurate payroll records, specifies the contents thereof, their inspection and duplication procedures, and certain notices required of the Contractor pertaining to their location.

Prevailing wage should include the following indemnification provision for the Contractor's failure to pay prevailing wage:

Whenever the Contractor or any subcontractor performing a public works project is found by the Department of Industrial Relations (DIR) or the City to be in violation of the prevailing wage requirements imposed by law, the Contractor shall indemnify and hold City harmless from any and all liability arising from such violation, including any and all liability imposed on the City. The Contractor's duty to indemnify the City pursuant to this section shall include any and all costs and expenses incurred by the City therefrom, including, but not limited to, any penalties imposed on the City by DIR or any other state agency and reasonable attorney's fees. Nothing in this section shall be construed to limit, alter, or amend the Contractor's duty to indemnify under any other provisions of the Contract documents.

10-2 Apprentices - Section 1777.5 requires the Contractor or subcontractor employing tradesmen in any apprenticeable occupation to apply to the Joint Apprenticeship committee nearest the site of the public works project and which administers the apprenticeship program in that trade for a certificate of approval. The certificate will also fix the ratio of apprentices to journeymen to be used in the performance of the Contract.

The Contractor is required to make contributions to funds established for the administration of apprenticeship programs if he employs registered apprentices or journeymen in any apprenticeable trade and if other Contractors on the public works site are making such contributions.

Information relative to apprenticeship standards, contributions, wage schedules and other requirements may be obtained from the State Director of Industrial Relations or from the Division of Apprenticeship Standards.

10-3 Clayton Act and Cartwright Act - Section 4551 of the State Government Code specifies that in executing a public works contract with the City to supply goods, services, or materials, the Contractor or subcontractor offers and agrees to assign to the City 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 Sec. 16700) of Part 2 of Division 7 of the Business and Professional Code, arising from purchase of goods, services, or materials pursuant to the Contract or subcontract. This assignment shall become effective when the City tenders final payment to the Contractor without further acknowledgment by the parties.

10-4 Worker's Compensation Certificates - Section 3700 of the State Labor Code requires that every employer shall secure the payment of compensation either by being insured against liability to pay compensation with one or more insurers or by securing a certificate of consent to self-insure from the State Director of Industrial Relations.

In accordance with this section and with Section 1861 of the State Labor Code, the Contractor shall sign a Compensation Insurance Certificate, which is included within these Specifications, and submit same to City along with the other required Contract documents, prior to performing any work.

EXCERPTS FROM STATE OF CALIFORNIA LABOR CODE, applicable to this Contract:

1771.1.

(a) A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

1774. The Contractor to whom the Contract is awarded, and any subcontractor under him shall pay not less than the specified prevailing rates of wages to all workers employed in the execution of the Contract.

1775.

(a) The Contractor and any subcontractor under him or her shall, as a penalty to the state or political subdivision on whose behalf the Contract is made or awarded, forfeit not more than fifty dollars (\$50) for each calendar day, or portion thereof, for each worker paid less than the prevailing rates as determined by the director for the work or craft in which the worker is employed for any public work done under the Contract by him or by any Contractor under him.

- (2) The difference between the prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate shall be paid to each worker by the Contractor or subcontractor, and the body awarding the Contract shall cause to be inserted in the Contract a stipulation that the provisions of this section will be complied with.
- (b) If a worker employed by a subcontractor on a public works project is not paid the general prevailing per diem wages by the subcontractor, the prime Contractor of the project is not liable for any penalties under subdivision (a) unless the prime Contractor had knowledge of that failure of the subcontractor to pay the specified prevailing rate of wages to those workers or unless the prime Contractor fails to comply with all of the following requirements:
 - (1) The Contract executed between the Contractor and the subcontractor for the performance of work on the public works project shall include a copy of the provisions of Sections 1771, 1775, 1776, 1777.5, 1813, and 1815.
 - (2) The Contractor shall monitor the payment of the specified general prevailing rate of per diem wages by the subcontractor to the employees, by periodic review of the certified payroll records of the subcontractor.
 - (3) Upon becoming aware of the failure of the subcontractor to pay his or her workers the specified prevailing rate of wages, the Contractor shall diligently take corrective action to halt or rectify the failure, including, but not limited to, retaining sufficient funds due the subcontractor for work performed on the public works project.
 - (4) Prior to making final payment to the subcontractor for work performed on the public works project, the Contractor shall obtain an affidavit signed under penalty of perjury from the subcontractor that the subcontractor has paid the specified general prevailing rate of per diem wages to his or her employees on the public works project and any amounts due pursuant to Section 1813.
- (c) The Division of Labor Standards Enforcement shall notify the Contractor on a public works project within 15 days of the receipt by the Division of Labor Standards Enforcement of a complaint of the failure of a subcontractor on that public works project to pay workers the general prevailing rate of per diem wages.

1776.

- (a) Each Contractor and subcontractor shall keep accurate payroll records, 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 public work.
- (b) The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the Contractor on the following basis:
 - (1) A certified copy of an employee's payroll record shall be made available for inspection or furnished to such employee or his or her authorized representative on request.
 - (2) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the Contract, the Division of Labor Standards

Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.

- (3) A certified copy of all payroll records enumerated in subdivision (a) shall be made available upon request to the public for inspection or for copies thereof. However, 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. The public shall not be given access to such records at the principal office of the Contractor.
- (c) 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.
- (d) A Contractor or subcontractor shall file a certified copy of the records enumerated in subdivision (a) with the entity that requested such records within 10 days after receipt of a written request.
- (e) Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement, shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social security number. The name and address of the Contractor awarded the Contract or performing the Contract shall not be marked or obliterated.
- (f) The Contractor shall inform the body awarding the Contract of the location of the records enumerated under subdivision (a), including the street address, city and county, and shall, within five working days, provide a notice of a change of location and address.
- (g) The Contractor or subcontractor shall have 10 days in which to comply subsequent to receipt of a written notice requesting the records enumerated in subdivision (a). In the event that the Contractor or subcontractor fails to comply within the 10-day period, he or she shall, as a penalty to the state or political subdivision on whose behalf the Contract is made or awarded, forfeit twenty-five dollars (\$25) 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.
- (h) The body awarding the Contract shall cause to be inserted in the Contract stipulations to effectuate this section. These stipulations shall fix the responsibility for compliance with this section on the prime Contractor.
- (i) The director shall adopt rules consistent with the California Public Records Act, (Chapter 3.5 (commencing with Sec. 6250), Division 7, Title 1, Government Code) and the Information Practices Act of 1977, (Title 1.8 (commencing with Section 1798) Part 4, Division 3, Civil Code) governing the release of these records, including the establishment of reasonable fees to be charged for reproducing copies of records required by this section.

1777. Any officer, agent, or representative of the State or of any political subdivision who willfully violates any provision of this article, and any Contractor, or subcontractor, or agent or representative thereof, doing public work who neglects to comply with any provision of Section 1776 is guilty of a misdemeanor.

1777.5

- (a) Nothing in this chapter shall prevent the employment of properly registered apprentices upon public works.
- (b) Every apprentice employed upon public works shall be paid the prevailing rate of per diem wages of 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 is registered.
- (c) Only apprentices as defined in Section 3077, who are in training under 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 at 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 the provisions of the apprenticeship standards and apprentice agreements under which he or she is training.
- (d) When the Contractor to whom the Contract is awarded by the state or any political subdivision, in performing any of the work under the Contract, employs workers in any apprenticeable craft or trade, the Contractor shall employ apprentices in at least the ratio set forth in this section 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. However, the decision of the apprenticeship program to approve or deny a certificate shall be subject to review by the Administrator of Apprenticeship. The apprenticeship program or programs, upon approving the Contractor, shall arrange for the dispatch of apprentices to the Contractor. A Contractor covered by an apprenticeship program's standards shall not be required to submit any additional application in order to include additional public works contracts under that program. "Apprenticeable craft or trade," as used in this section, means a craft or trade determined as an apprenticeable occupation in accordance with rules and regulations prescribed by the California Apprenticeship Council. As used in this section, "Contractor" includes any subcontractor under a Contractor who performs any public works not excluded by subdivision (o).
- (g) The ratio of work performed by apprentices to journeymen employed in a particular craft or trade on the public work may be no higher than the ratio stipulated in the apprenticeship standards under which the apprenticeship program operates where the Contractor agrees to be bound by those standards, but, except as otherwise provided in this section, in no case shall the ratio be less than one hour of apprentice work for every five hours of journeyman work.
- (i) A Contractor covered by this section that has agreed to be covered by an apprenticeship program's standards upon the issuance of the approval certificate, or that has been previously approved for an apprenticeship program in the craft or trade, shall employ the number of apprentices or the ratio of apprentices to journeymen stipulated in the applicable apprenticeship standards, but in no event less than the 1-to-5 ratio required by subdivision (g).
- (k) An apprenticeship program has the discretion to grant to a participating Contractor or subcontractor association a certificate, which shall be subject to the approval of the Administrator of Apprenticeship, exempting the Contractor from the 1-to-5 ratio set forth in this section when it finds that any one of the following conditions is met:

- (1) Unemployment for the previous three-month period in the area exceeds an average of 15 percent.
 - (2) The number of apprentices in training in the area exceeds a ratio of 1 to 5.
 - (3) There is a showing that the apprenticeable craft or trade is replacing at least one-thirtieth of its journeymen annually through apprenticeship training, either on a statewide basis, or on a local basis.
 - (4) Assignment of an apprentice to any work performed under a public works contract would create a condition that would jeopardize his or her life or the life, safety, or property of fellow employees or the public at large, or the specific task to which the apprentice is to be assigned is of a nature that training cannot be provided by a journeyman.
- (l) When an exemption is granted pursuant to subdivision (k) to an organization that represents Contractors in a specific trade from the 1-to-5 ratio on a local or statewide basis, the member Contractors will not be required to submit individual applications for approval to local joint apprenticeship committees, if they are already covered by the local apprenticeship standards.
- (m) (1) A Contractor to whom a Contract is awarded, who, in performing any of the work under the Contract, employs journeymen or apprentices in any apprenticeable craft or trade 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 public works site. A Contractor may take as a credit for payments to the council any amounts paid by the Contractor to an approved apprenticeship program that can supply apprentices to the site of the public works project. The Contractor may add the amount of the contributions in computing his or her bid for the Contract.
- (2) At the conclusion of the 2003-04 fiscal year and each fiscal year thereafter, the California Apprenticeship Council shall distribute training contributions received by the council under this subdivision, less the expenses of the Division of Apprenticeship Standards for administering this subdivision, by making grants to approved apprenticeship programs for the purpose of training apprentices. The funds shall be distributed as follows:
- (A) If there is an approved multiemployer apprenticeship program serving the same craft or trade and geographic area for which the training contributions were made to the council, a grant to that program shall be made.
 - (B) If there are two or more approved multiemployer apprenticeship programs serving the same craft or trade and geographic area for which the training contributions were made to the council, the grant shall be divided among those programs based on the number of apprentices registered in each program.
 - (C) All training contributions not distributed under subparagraphs (A) and (B) shall be used to defray the future expenses of the Division of Apprenticeship Standards.
- (3) All training contributions received pursuant to this subdivision shall be deposited in the Apprenticeship Training Contribution Fund, which fund is hereby created in the State Treasury. Notwithstanding Section 13340 of the Government Code, all money in the Apprenticeship Training Contribution

Fund is hereby continuously appropriated for the purpose of carrying out this subdivision and to pay the expenses of the Division of Apprenticeship Standards.

- (n) The body awarding the Contract shall cause to be inserted in the Contract stipulations to effectuate this section. The stipulations shall fix the responsibility of compliance with this section for all apprenticeable occupations with the prime Contractor.
- (o) This section does not apply to Contracts of general Contractors or to Contracts of specialty Contractors not bidding for work through a general or prime Contractor when the Contracts of general Contractors or those specialty Contractors involve less than thirty thousand dollars (\$30,000).
- (p) All decisions of the joint apprenticeship committee under this section are subject to Section 3081.

1777.6 It shall be unlawful for any employer or a labor union to refuse to accept otherwise qualified employees as registered apprentices on any public works, on the grounds of the race, religious creed, color, national origin, ancestry, sex, or age, except as provided in Section 3077, of such employee.

1777.7

- (a) (1) A Contractor or subcontractor that is determined by the Chief of the Division of Apprenticeship Standards to have knowingly violated Section 1777.5 shall forfeit as a civil penalty an amount not exceeding one hundred dollars (\$100) for each full calendar day of noncompliance. The amount of this penalty may be reduced by the Chief if the amount of the penalty would be disproportionate to the severity of the violation. A Contractor or subcontractor that knowingly commits a second or subsequent violation of Section 1777.5 within a three-year period, where the noncompliance results in apprenticeship training not being provided as required by this chapter, shall forfeit as a civil penalty the sum of not more than three hundred dollars (\$300) for each full calendar day of noncompliance. Notwithstanding Section 1727, upon receipt of a determination that a civil penalty has been imposed by the Chief, the awarding body shall withhold the amount of the civil penalty from Contract progress payments then due or to become due.
- (b) In the event a Contractor or subcontractor is determined by the Chief to have knowingly committed a serious violation of any provision of Section 1777.5, the Chief may also deny to the Contractor or subcontractor, and to its responsible officers, the right to bid on or be awarded or perform work as a subcontractor on any public works contract for a period of up to one year for the first violation and for a period of up to three years for a second or subsequent violation. Each period of debarment shall run from the date the determination of noncompliance by the Chief becomes a final order of the Administrator of Apprenticeship.
- (c) (1) An affected Contractor, subcontractor, or responsible officer may obtain a review of the determination of the Chief imposing the debarment or civil penalty by transmitting a written request to the office of the Administrator within 30 days after service of the determination of debarment or civil penalty. If the Administrator does not receive a timely request for review of the determination of debarment or civil penalty made by the Chief, the order of debarment shall become the final order of the Administrator.

- (e) Any funds withheld by the awarding body pursuant to this section shall be deposited in the General Fund if the awarding body is a state entity, or in the equivalent fund of an awarding body if the awarding body is an entity other than the state.
- (g) The interpretation and enforcement of Sections 1777.5 and this section shall be in accordance with the regulations of the California Apprenticeship Council.

SECTION 11

CONSTRUCTION DETAILS AND MATERIALS

11-1 DESCRIPTION OF WORK - The **BOULDER MOUNTAIN RESERVOIRS NO. 1 AND 2 REHABILITATION PROJECT** includes furnishing all labor, equipment and materials necessary to install guardrail, ladders, center vent, auxiliary vent, lateral bracing modifications, fall restraint system, inlet/outlet modifications, overflow modifications, rafter repairs, cathodic protection system, interior coating removal, recoating, exterior paint removal, and exterior painting of Boulder Mountain Reservoir #1 (40' diameter, 23' height, 0.2 MG) and Boulder Mountain Reservoir #2 (58' diameter, 23' height, 0.4 MG) potable water steel storage reservoirs located at 15615 Boulder Mountain Road.

11-2 SCHEDULE DELAYS - If there is any delay in the Contractor's activity, he shall clean the site of all construction debris and prepare the site to remain undisturbed until such time as he shall return to complete the Contract work prior to quitting the site. If rain is expected which could damage work already performed or which could present a hazard to surrounding improvements, it shall be the Contractor's responsibility to protect and/or repair such improvements from erosion, siltation or other damage to all agency requirements (BMPs) at no additional cost. The Contractor will be responsible for all monetary assessed fines by outside agencies.

11-3 FLOW AND ACCEPTANCE OF WATER - It is anticipated that storm, surface, or other waters will be encountered at various times during the work herein contemplated. The Contractor, by submitting a bid, acknowledges that he has investigated the risk arising from such waters and has prepared his bid accordingly, and Contractor, by submitting a bid, assumes all of said risk.

11-3.1 Erosion Control - Delete Section 3-12.6 of the Standard Specifications for Public Works Construction, 2018 Edition, and replace with the following:

- a. The Contractor shall comply with all Federal, State, and City standards, orders and requirements. The following are definitions to terms used in this section:

Best Management Practice (BMP) means schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce to the maximum extent practicable the discharge of pollutants directly or indirectly to waters of the United States. Best Management Practices also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, or waste disposal, and drainage from raw materials storage.

Clean Water Act (CWA): The Federal Water Pollution Control Act entered in 1972 by Public Law 92-500 and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to waters of the United States unless said discharge is in accordance with an NPDES Permit. The 1987 amendments include guidelines for regulating municipal, industrial, and construction storm water discharges under the NPDES program.

Maximum Extent Practicable (MEP) means the technology-based standard established by Congress in the Clean Water Act 402(p)(3)(B)(iii) that municipal discharges of storm water must meet. MEP generally emphasizes pollution prevention and source control BMPs primarily in combination with treatment methods serving as a backup.

National Pollutant Discharge Elimination System (NPDES) Permit means a permit issued by the San Diego Regional Water Quality Control Board (Region 9) or the State Water Resources Control Board pursuant to Division 7 of the California Water Code to control discharges from point sources to water of the United States.

Storm Water Management (SWM): The recognition of adverse drainage resulting from altered runoff and the solutions resulting to mitigate, abate, or reverse those adverse results.

Storm Water Pollution Prevention Plan (SWPPP) means a document which describes the BMPs to be implemented by the Contractor to eliminate or reduce to the MEP pollutant discharges to the Storm Water Conveyance System.

Water Pollution Control Site Management Program (WPCSMP) means a document that delineates the position of all BMPs that are referred to in the Specifications.

b. At a minimum, the Contractor shall be required to do the following:

1. The Contractor shall designate a qualified person who is trained and competent in the use of BMPs and shall be on site daily and inspect and document the condition of all BMPs. In the event that the first designate is absent, a secondary person shall be designated in writing at the pre-construction meeting.

This person shall implement the conditions of the WPCSMP, Contract documents and local ordinances with respect to erosion, sediment, and pollutant, BMP control, and other waste management regulations.

This person is responsible for monitoring the weather and implementation of any emergency plans (developed by Contractor) as needed. The weather shall be monitored (use National Weather Forecast <http://www.wrh.noaa.gov/sandiego/index.shtml>) on a 48-hour forecast plan and a full BMP protection plan shall be activated when there is a 50% chance of rain.

This person is responsible for overseeing all site grading, site operations, and evaluating the effectiveness of the BMPs. This person shall modify the BMPs as necessary to keep the dynamics of the site in compliance.

2. Educate all subcontractors and employees about storm water pollution and mitigation measures needed during various construction activities to prevent the impact of construction discharges. Education requirements shall be in accordance with Section E.7 of the San Diego Regional Water Quality

Control Board (SDRWQCB) Order No. R9-2013-0001 (page 109), dated May 8, 2013, plus all subsequent revisions. The Contractor shall ensure that all personnel are trained in basic urban runoff management. A log of the attendees and the educational materials shall be submitted with each progress pay.

3. Protect all new and existing storm water conveyance system and structures from sedimentation and concrete rinse, or other construction related debris/trash and discharges.
 4. Within the Contractor developed WPCSMF show where concrete wash out, vehicle maintenance, staging, and storage areas will be located along with other BMPs as related to the project.
 5. Inspect and record monthly all pollutant control measures installed to mitigate construction activities. The Contractor shall include in his WPCSMF documents a statement that these pollutant control measures were inspected for the duration of the project and submitted with each progress payment submitted to the Project Engineer.
 6. All pollutant control measures shall be maintained daily to original installation conditions as described in BMPs before and after every rain event and every 24 hours during any prolonged rain event. The Contractor shall immediately repair ineffective pollutant control measures.
 7. If an unmitigated non-storm drain water discharge leaves the project site, the Contractor shall immediately stop the activity causing the discharge and mitigate the discharge. The Contractor shall also immediately notify the Project Inspector of the discharge. As soon as practical, any and all waste material, sediment, and debris from each unattended discharge shall be removed from the drainage system by the Contractor.
- c. Approved erosion control devices are required to control surface drainage. The Contractor is required to provide erosion control devices to effectively control erosion. Erosion and sediment control measures shall meet the requirements of the State General Construction Permit for National Pollutant Discharge Elimination.
 - d. The Contractor shall provide the City with emergency 24-hour telephone number(s) of responsible Contractor personnel and details of protective measures, including desilting basins or other temporary drainage and/or control measures to be implemented to protect the site from polluting adjacent drainages.
 - e. The Contractor shall familiarize themselves with the requirements of the City of Poway's Storm Water Ordinance Chapter 13.09 and the amendments to the City of Poway's Grading Ordinance Chapters 16.40–16.56 and 16.100–16.105 and the City's JURMP BMP Manual.
 - f. Remove all silt and debris from check berms and desilting basins after a rainstorm and as needed to assure proper operation.

- g. The Contractor is advised that, based upon actual site conditions, other work devices, controls, and/or revisions to the erosion control plan/ program may be required by the Project Inspector, at no cost to owner, to satisfy requirements of this article.
- h. Maintenance is to include silt removal, repair, and replacement of the BMPs as necessary for the duration of the project.
- i. The Contractor is responsible to monitor and maintain all erosion control items before, during, and after any rain event. Failure to do so will result in the City of Poway contracting with others to complete the work necessary to comply with the requirements of the most recently adopted City of Poway's Jurisdictional Runoff Management Program. All costs associated, including overhead, will be deducted from the monies due to the Contractor.
- j. All work associated with the above-mentioned requirements as described under this Section shall be included in the various bid items if no specific bid item is provided in the bid schedule. No additional payment will be made.

11-3.2 Performance Standards - The City will evaluate the adequacy of the Contractor's site management for storm water pollution prevention, inclusive of BMP implementation on construction sites based on performance standards for storm water. Performance standards shall include:

- a. There shall be no observable discharge of sediment or other pollutants in the runoff waters discharging from the site.
- b. Slope erosion shall be managed and contained utilizing approved BMPs. If rills and gullies develop, damage, or cause a BMP to become ineffective, they must be repaired immediately and additional BMPs added to correct the source.
- c. Storm water runoff discharge from the Contractor's site is not directed so as to cause damage in downstream areas.
- d. Materials needed to install 125% of the design BMPs are to be on site to completely protect the exposed portions of the site from erosion, and to prevent sediment discharges.
- e. The Contractor shall be responsible for all costs incurred for sampling, testing, and cleanup of pollutants if deemed necessary by the City due to a discharge into the storm drain conveyance system.
- f. At any time of year, an inactive site must be fully protected from erosion and discharges of sediment. The site will be considered inactive if construction activities have ceased for a period of ten (10) or more consecutive calendar days.
- g. All work associated with the above-mentioned requirements as described under this Section shall be included in the various bid items if no specific bid item is provided in the bid schedule. No additional payment will be made.

11-3.3 Weather Triggered Action Plan

- a. The Contractor shall have an approved Weather-Triggered Action Plan (WTAP). The WTAP shall be kept on site and available at any time for inspection. The WTAP describes the intent of the Contractor for the purpose of protecting the construction site in the event of a predicted storm event (a predicted storm event is defined as a forecasted 50% or greater chance of rain). The Contractor shall have the ability to deploy standby BMPs as needed to completely protect the exposed portions of the site within 48 hours of prediction of a storm event. On request, the Contractor shall provide proof of this capability that is acceptable to the City.
- b. The Contractor shall complete the WTAP form and have it available for inspection at the pre-construction meeting.
- c. At any time when a 50% rain event has been forecasted, as indicated on the National Oceanic and Atmospheric Administration (NOAA) website, the Contractor shall complete or modify the WTAP and deliver it to the project inspector. Modifications to the WTAP must be made when the site conditions have changed beyond recognition of the original WTAP, or at the direction of the project inspector.
- d. The area that can be trenched, cleared, or graded and left exposed at one time is limited to the amount of acreage that the Contractor can adequately protect prior to a predicted storm event, with BMPs stored onsite.
- e. BMPs shall be installed to provide sufficient protection for the six-year storm event likely to occur during the rainy season.
- f. All work associated with the above-mentioned requirements as described under this Section shall be included in the various bid items if no specific bid item is provided in the bid schedule. No additional payment will be made.

11-4 REMOVAL OF WATER - The Contractor shall provide and maintain at all times during construction ample means and devices to promptly remove and properly dispose of all surface and subsurface water entering the excavations or other parts of the work to the satisfaction of the City Engineer. This may include, but not be limited to, coffer dams, well points, piping pumps, French drains, etc., as necessary to accomplish the above.

- a. No concrete footing or floor shall be laid in water, nor shall water be allowed to rise over them until the concrete or mortar has set at least (8) hours.
- b. Disposal of water from de-watering operations shall be the sole responsibility of the Contractor. Disposal methods shall conform to the Porter-Cologne Water Quality Control Act, 1974, the Federal Water Pollution Control Act Amendments of 1972, and the Poway Municipal Code, Title 16.
- c. The Contractor shall protect any aggregate base that has been placed from any waters; e.g. rain, drainage, etc. If the aggregate base becomes moistened by water in excess of 4% above optimum moisture content, or to the point that the moisture

content is high enough to cause the base material to yield during a loaded 4000-gallon water truck yield test, the Contractor shall replace the wet aggregate base as directed by the Engineer with dry aggregate base at no cost to the City. Cost for protection of the placed aggregate base, including labor, replacement, and associated materials, shall be included in the bid item for the related items of work and no additional compensation will be made thereto.

- d. Full compensation for de-watering shall be considered as included in the Contract prices paid for the related items of work, and no additional compensation will be allowed.

11-5 PERMITS AND FEES - The Contractor shall obtain and pay for any construction permit (e.g. Tree Removal Permit, Temporary Use Permit, etc.), or license fees required to perform the work. The cost of such construction permit (e.g. Tree Removal Permit, Temporary Use Permit, etc.), or license fees shall be considered as included in the various applicable items of work, and no additional allowance will be made therefore. The City will issue a Right-of-Way Permit free of charge after receiving a completed Right-of-Way Permit application.

11-6 CERTIFICATES OF COMPLIANCE

- a. The Contractor shall submit Certificates of Compliance for all materials proposed for use on this project prior to the time of delivery. Certificates of Compliance will be required for **each** shipment of any materials to be used in the project. The Contractor shall deliver to the City certified copies of **all** test results required by these Specifications for those materials to be used (emulsified asphalt, mineral filler, aggregate, etc.) The test report shall indicate:

Name of the material supplier
Type and grade of material to be delivered
Date and point of delivery
Quantity to be delivered
Delivery ticket number
Purchase order number
Bid item association
Specification Section related to results of specified tests

- b. Test reports shall be signed by an authorized representative of the material testing agency and shall certify that the product delivered conforms to these Specifications. The Engineer reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.
- c. The Engineer may select three (3) samples of the materials shipped for conformance testing. Conformance testing shall be conducted at no cost to the Contractor, except if the material samples fail any of the tests. In this case, the Contractor shall bear the cost of the testing of those failed samples. **NO** material from that shipment shall be utilized or employed in performance of the work **UNTIL** certified test reports and samples of the material have been furnished to, checked

by and approved by the Engineer. The Contractor shall bear the cost of all supplementary conformance testing.

- 11-7 RECORD DRAWINGS - The Contractor shall provide and keep up to date a complete project record set of plans, which shall be corrected, and shall show every change from the original drawings and Specifications and the exact project record locations, sizes and kinds of material used.

These drawings shall also serve as work progress drawings and the Contractor shall make neat and legible annotations thereon daily as the work proceeds, showing the work as actually installed. These drawings shall be available at all times for inspection and shall be kept in a location designated by the Engineer.

Before the date of final inspection, the Contractor shall transfer all information from the project record plans to (3) redlined sets of plans, procured from the Engineer.

All work shall be neat, in ink and subject to the satisfaction of the Engineer, and the drawings shall be completed and approved prior to final inspection of the project.

On the irrigation as-builts, the Contractor shall dimension to the nearest foot and (label) from two permanent points of reference (e.g. walls, rails, sidewalks, or road intersections, etc.) The location of the following items:

- 1) Connection to existing water lines / water meters (P.O.C.).
- 2) Backflow prevention device.
- 3) Irrigation controller and power source locations.
- 4) Routing of sprinkler pressure lines (dimension maximum 50' along routing).
- 5) Remote control valves, master control valves, shut off valves, manual globe valves and flow sensors.
- 6) Routing of low voltage control wire and flow sensor wire / conduit.
- 7) Pull boxes and wire splice locations.
- 8) Quick coupling valves.
- 9) Other related equipment as directed by the Engineer.

On or before the date of the final inspection, the Contractor shall deliver the corrected and completed plans to the Engineer. Delivery of the redlined plans will not relieve the Contractor of the responsibility of furnishing required information that may be omitted from the plans.

11-8 SAMPLES

- a. The Engineer shall have the right to obtain samples of all such materials to be used in the work and to test such samples for the purpose of determining specification compliance.
- b. The Engineer reserves the right to obtain said samples at the point of delivery and/or at the point of manufacture. The Engineer shall also have the right to inspect sources of materials to be used in the work to determine acceptability of procedures used by the materials supplier.

- c. Should any test result indicate non-compliance with Contract Specifications, the expense of the remedial work, replacement, disposal, retesting, or other work required to achieve Contract compliance will be the responsibility of the Contractor. In the case of soil compaction or materials laboratory retesting due to failures, the Contractor is responsible for all costs associated with the retesting. In any case, the retesting expenses will be deducted from monies owed the Contractor at the time of payment. The Engineer reserves the right to select any standard test method of material testing.
- d. **PAYMENT:** Full compensation for all work involved in securing and providing certificates and/or samples shall be considered as included in the various other bid items in the Bid Schedule, and no separate compensation will be made thereof.

11-9 MOBILIZATION - Lump sum amount shall be provided by the Contractor in the Bid Schedule to cover the Contractor's Mobilization costs. The Contractor will be paid the amount bid in the Bid Schedule, and no additional payment will be made therefore. The Contractor will be paid for Mobilization upon completion of all items in Mobilization. Mobilization will include, but is not limited to:

1. Shop Drawings/Submittals.
2. Permit Application.
3. Business Certificate.
4. Traffic control plans preparation for City's review and approval.
5. Time Schedule (Bar Chart) and revision to the schedule as required. The time schedule shall be submitted to the City during the preconstruction meeting.
6. Storage site (setup and removal).
7. Stockpile site (includes cleanup to the satisfaction of the City). Stockpile and/or storage sites require a Temporary Use Permit from the City, which the Contractor must obtain prior to start at no cost to the Contractor.
8. Construction water meter. The Contractor shall obtain a construction water meter from the Customer Services Department and shall pay for all water used.
9. Pre-construction video documentation of the pre-construction site conditions. Video format shall be DVD or USB drive. Video documentation to be submitted to the City of Poway prior to the start of any work on the project. City of Poway approval of the DVD or USB drive contents shall be received, in writing from the City, prior to the start of any onsite activities.
10. Demobilization and Site Restoration. The Contractor shall clean and remove all equipment and debris from the construction site upon project completion.

PROJECT MANAGEMENT DOCUMENTATION & ADMINISTRATION

The City and Contractor shall utilize Virtual Project Manager (<http://www.virtual-pm.com/>), hereinafter called VPM, for submission of all data and documents (unless specified otherwise in this Section) throughout the duration of the project. VPM is an electronic project management system accessible through the Internet used to create, share, and review construction management documentation. VPM is provided by the City at no cost to the Contractor. VPM will be made available to all Contractors' personnel, subcontractor personnel, suppliers, consultants, City, and any of the City's representatives or agents. The joint use of this system is to facilitate electronic exchange of information, automation of

key processes, electronic notification of project activity, and overall management of contract documentation. VPM shall be the primary means of project information submission and management.

The City will establish the Contractor's access to VPM by enabling access and assigning user profiles to Contractor personnel, including subcontractors and suppliers, as requested by Contractor. All authorized personnel shall have an individual user profile; no joint-use or shared user profiles will be allowed. Each user profile shall be assigned to a user group and have specific permission settings and privileges based on the user's need within VPM. Entry of information exchanged and transferred between the Contractor and its subcontractors and suppliers on VPM shall be the responsibility of the Contractor.

Contractor shall provide a list of key VPM personnel for the City's acceptance. The list shall include the following information: first name, last name, address, title, office phone number, cell phone number, and email address. The City is responsible for adding and removing users from the system and establishing read, write, and approval permission levels.

The Contractor shall electronically submit the following items utilizing VPM:

1. Daily Logs: Contractor's daily reports.
2. Change Order Manager: Contractor requests for change order.
3. Transmittals: Schedules, Certified Payrolls (In addition, hard copies with wet signatures are required), etc.
4. Submittals: Submittals requiring approval.
5. RFIs: Requests for information (RFIs).
6. Payment Applications: Monthly Payment Applications shall be submitted by the specified date for review and approval by submitting current work items completed within the schedule of values. Contractor to submit back-up as required.

11-10 SITE INSPECTION - The Contractor shall be required to inspect the project sites prior to submitting a bid (in order to examine the existing conditions such as existing trees and fences adjoining the project site). Any portion of the project that is not described in complete detail in the Specifications, but can be clarified by the site inspection, shall **not** be considered unforeseen conditions and no additional compensation will be made thereto for extra work. It is the Contractor's responsibility to inspect the site and include any costs in the Bid Proposal for work that is not shown in complete detail in the Specifications prior to submitting a bid.

11-11 UTILITY RELOCATION - The Contractor shall examine the site carefully and note the location of existing water valves, cable T.V. boxes, underground utility cable, utility boxes, cleanouts, fire hydrants, traffic signs, and shrubbery in the area where the proposed improvements are to be constructed.

11-11.1 The Contractor is responsible for the following tasks:

1. The Contractor shall make arrangements with all non-City utilities for adjustments of existing boxes to new finish grades or do the adjusting himself with the appropriate utility company's written approval. Close communication and coordination with utility companies is required to facilitate all relocations.
2. When the Plans call to "adjust to grade" any existing water valve, air release assembly, or blow-off assembly, the Contractor shall replace existing valve boxes with approved new valve boxes, new valve box covers, and new riser materials.

11-11.2 Compensation for utility coordination, relocation, protection, and/or adjustment shall be considered in other items of work, and no additional compensation will be allowed therefore, unless an item is specifically identified in the Bid Schedule.

11-11.3 The Contractor shall contact both the City Engineer and the following utility representatives for an update of the status of the utility work, for more details regarding their respective schedules and requirements, and arrange for their attendance at the preconstruction meeting:

<u>COMPANY</u>	<u>UTILITY</u>	<u>REPRESENTATIVE</u>	<u>PHONE</u>
SDG&E	City Liaison	Manny Baeza	(909) 222-3890
SDG&E	Elec Project Planner	Manny Baeza	(909) 222-3890
SDG&E	Gas	Robert Blackwell	(619) 572-7352
SDG&E	Street Lights	Madeleine Carrasco	(858) 654-1218
AT&T	Telephone	Mike Cascio	(619) 261-0775
Cox Cable	Construction Dispatch		(619) 266-6110
City of Poway	Traffic Signals	Jon Collins	(858) 668-4640
City of Poway	Water and Sewer	Troy DePriest	(858) 668-4750

11-12 UTILITIES - The location and existence of substructures were determined from a search of records maintained by their owners. No guarantee is made or implied that the information is complete or accurate. It shall be the Contractor's responsibility alone to determine the exact location of substructures of every nature and to protect them from damage.

Delete Section 402-1, "Location," of the Standard Specifications for Public Works Construction, 2018 Edition, and replace with the following:

- a. The Contractor shall delineate the work area as required by Underground Service Alert Guidelines. The work area delineation is to occur before any excavation, saw cutting or demolition is started in the work area. Once the work area is delineated, the Contractor will contact Underground Service Alert at 800-227-2600 and request mark out. The Contractor is responsible to comply with all necessary procedures as are required by Underground Service Alert to get the mark out completed. Once Underground Service Alert has identified all the existing utility locations, the Contractor shall hand excavate each location to expose the existing utility. The

location and depth of the utility shall be marked conspicuously on the adjacent ground, street, or sidewalk in addition to being noted on the project record drawings. If the owner of the utility can be determined upon exposure of the conduit, this too is to be recorded. All excavation required to expose the existing utilities is to be done with hand tools. The use of power equipment is prohibited unless the owner of the utility provides the Contractor with written authorization to excavate with power equipment. The City of Poway is to receive a copy of the authorization letter prior to the start of excavation with power equipment. All potholing is to be completed prior to the start of the installation of any proposed underground facility.

- b. The Contractor shall notify the owners of all utilities and substructures not less than forty-eight (48) hours prior to working in the vicinity of any such facility. In addition, the Contractor shall pothole prior to any construction work.
- c. Any list of names and telephone numbers for utility or substructure owners shown on the Plans or in any other Contract document is intended for the convenience of the Contractor and is not guaranteed to be complete or correct.
- d. Full compensation for the separate potholing operation shall be included in the prices bid for the installation or execution of associated work.

11-12.1 SEWER FACILITIES – All contractors are required to be trained on the City's Sewer Overflow Prevention and Response Plan. This training is required for the City to be in compliance with the Sanitary Sewer System Wastewater Discharge Regulation (SSSWDR). At the pre-construction meeting the Contractor will be required to review the training documents and sign a signature sheet acknowledging that they have read and understand the document's content and reporting procedures. A copy of the document is attached in Appendix B.

11-13 CONSTRUCTION STAKING –Upon request, the Contractor shall provide copies of surveyor cut sheets for the construction staking. Sufficient information shall be provided on all survey markings for the City's project inspector to ensure that the project is being installed in the proper location and at the correct elevation. Construction surveying services will be provided by the Contractor. Payment shall be included in the other various items of work and no additional compensation shall be made. The Contractor is responsible for maintenance of survey markings and no additional compensation will be made for markings lost due to vandalism of lathes or normal wear and tear to painted markings.

11-14 CLEANUP - Cleanup shall be made as each portion of work progresses. Refuse and excess dirt shall be removed from the site. All sidewalks and paving shall be broomed, and any damage sustained as a result of the Contractor shall be repaired to original conditions. The City's representative may, at any time during construction, order a general cleanup of the site as part of the work under this section.

The City now requires that ALL mark outs for wet or dry utilities, and survey work, be removed at the completion of work. The methods used shall not cause pollutants to enter the drainage system. The Contractor shall include all costs for this work in existing Bid items, and no additional payment will be made.

All temporary facilities shall be removed from the site prior to or upon completion of construction. Contractor will remove unused equipment and implements of service and leave the entire construction area clean and free of debris, such as to meet the approval of the City's representative.

All guaranties and warranties shall be submitted to the City prior to or upon completion of construction.

11-15 CLOSEOUT SCHEDULE AND PROCEDURE

- a. Requirements prior to final inspection: The Contractor shall request that the Engineering Inspector perform a preliminary final inspection for the purpose of determining the state of completion of the project. The Contractor shall notify the City Engineer at least three (3) days in advance of when this inspection is to be performed. From the information gathered at this inspection, the Engineering Inspector will prepare a "punch list" of work to be performed, corrected, or completed before the project will be accepted. All work on the punch list shall be completed by the Contractor prior to final inspection.
- b. All temporary facilities shall be removed from the site.
- c. The site shall be thoroughly cleaned as specified in Section 11-14, "Cleanup" of these Special Provisions.
- d. Record drawings shall be completed, signed and submitted to the City for review and acceptance.
- e. The material and equipment list, along with any maintenance instructions as specified in the body of the Specifications, shall be submitted to the City.
- f. All guarantees and warranties shall be submitted to the City.
- g. Full compensation for all work involved in project closeout shall be considered as included in Mobilization, and no additional compensation will be made thereof.

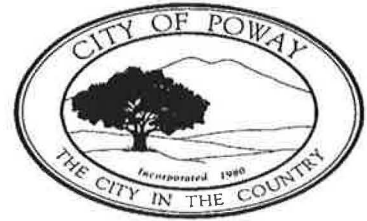
11-16 FINAL INSPECTION

- a. After all requirements preparatory to the final inspection have been completed, the Contractor shall request that the City perform the final inspection. Written notice shall be given at least three (3) days in advance of the time the final inspection is to be performed.
- b. The Contractor, or its principal superintendent authorized to act on behalf of the Contractor, shall accompany the Engineering Inspector on the final inspection tour as well as any principal subcontractors the City may require to be present.
- c. If the work has been completed in accordance with the Contract documents and no further corrective measures are required, the City will schedule the project for acceptance by City Council, after which a Notice of Completion will be filed.

- d. If the work has not been substantially completed in accordance with the Contract documents, and several or many corrective measures are still required, the City will not accept the project and will not file a Notice of Completion. Instead a new punch list will be prepared, based on the information gathered from the final inspection, and the Contractor will be required to complete this work and call for another final inspection following the procedures outlined above.
- e. If the work has been substantially completed in accordance with the Contract documents and only minor corrective measures are required, a new punch list will be prepared based on the information gathered from the final inspection and the Contractor will be required to complete this work and call for another final inspection following the procedure outlined above.

11-17 Release of Retention - At the expiration of 45 days from the date of acceptance of the work by the City, the amount deducted from the final estimate and retained by the City will be paid to the Contractor except such amounts as are required by law to be withheld by properly executed and filed notices to stop payment.

Weather Triggered Action Plan For Construction Sites



This Action Plan should be completed before the rainy season
and updated prior to each rain event.

Project: _____

Address: _____

Date: _____

Inspector Name and Title: _____

Inspector Signature: _____

Erosion Controls	
Existing Condition	Action Plan
Sediment Controls	
Existing Condition	Action Plan
Equipment and Vehicles	
Existing Condition	Action Plan

Materials and Wastes	
Existing Condition	Action Plan
Non-Storm Water Management	
Existing Condition	Action Plan
Discharge Locations	
Existing Condition	Action Plan

Notes: _____

TECHNICAL SPECIFICATIONS

TABLE OF CONTENTS
TECHNICAL SPECIFICATIONS

SECTION

01000	SUMMARY OF WORK
01150	MEASUREMENT AND PAYMENT
02223	TRENCHING, BACKFILLING, AND COMPACTING
02513	ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE PAVING
09800	TANK COATING AND PAINTING
13200	MISCELLANEOUS STRUCTURAL MODIFICATIONS SPECIFICATION
15041	CHLORINATION OF WATER MAINS FOR DISINFECTION
15060	HYDROSTATIC TESTING OF PRESSURE PIPELINES
15076	PIPELINES AND APPURTENANCES
16641	CATHODIC PROTECTION BY GALVANIC ANODES

SECTION 01000 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 WORK UNDER THIS CONTRACT

- A. The Contractor shall furnish all labor, equipment and materials as required by these specifications for the following reservoirs. (The dimensions are approximate only and shall be field verified by the Contractor prior to bidding.)

	<u>Reservoir</u>	<u>Size</u>	<u>Dimensions</u>
1.	Boulder Mountain Reservoir No. 1	0.2 MG	40 ft. Dia. x 23 ft. Ht.
2.	Boulder Mountain Reservoir No. 2	0.4 MG	57.67 ft. Dia. x 23 ft. Ht.

- B. Work to be performed includes application of protective coatings to interior surfaces and paints to exterior surfaces, including surface preparation, handling of hazardous and nonhazardous materials/wastes, disinfection of interior surfaces and additions, replacement and modification of miscellaneous structural items to bring the structure into compliance with current safety and health codes, standards and regulations and other work necessary to accomplish the approved end result of totally protected and usable structures, including attachments, accessories and appurtenances. The following items are required, except as otherwise noted, generally as follows:

BOULDER MOUNTAIN NO. 1 AND NO. 2

1. Remove all interior coating by abrasive blast cleaning.
 - a. The topside of the existing rafters shall be blasted and coated in accordance with the specifications.
 - b. The topside of the new rafters shall be blasted and coated in accordance with specifications prior to installation.
2. Apply a 100% solids epoxy coating system to all interior surfaces.
3. Electrically detect epoxy coating system noted in 2. above and repair as required.
4. Cure interior epoxy coating as specified herein.
5. Test, handle and dispose of hazardous and nonhazardous coating wastes in conformance to all regulations.
6. Apply a flexible sealant to inaccessible voids as designated by the Engineer, including, but not limited to, roof to shell transition, all roof lap seams, and column bases.
7. Wash down and disinfect all interior surfaces.

8. Furnish and install new guardrails and self-closing gate meeting Cal/OSHA around the roof hatches/work areas.
9. Remove and dispose of existing roof hatch and furnish and install a new 36" square roof hatch, in accordance with the plans and specifications. Insert new roof plates as needed.
10. Furnish and install a new 24" auxiliary vent, in accordance with the plans and specifications.
11. Remove and dispose of existing exterior ladder. Furnish and install a new exterior ladder and vandal guard at location designated on the plans. The top of the exterior ladder shall provide a wider opening onto the roof and brace the Saf-T-Climb rail, in accordance with the plans.
12. Remove and dispose of the existing interior ladder and braces and furnish and install a new fiberglass ladder and braces. Interior ladder must be aligned with the hatch in a manner that allows a person safe access to the ladder.
13. Furnish and install new Saf-T-Climb fall prevention device on the interior and exterior ladders, including dismount sections, harness, and sleeve.
14. Remove existing liquid level indicator (LLI) assembly, gauge board and piping. Cut existing LLI piping flush with the roof and seal weld plates over roof penetrations.
15. Remove all existing tie-rods and furnish and install 3 1/2" x 3 1/2" x 1/4" angle lateral bracing at the midspan of the rafters.
16. Remove the existing fall restraint cable system prior to painting exterior roof and install new fall restraint cable system after completion of all painting, in accordance with the detail shown on the plans.
17. Remove and dispose of existing 10" piping and furnish and install a flexible coupling for the 10" inlet/outlet piping, in accordance with the details shown on the plans, including new 10" shell nozzle, piping, bollards, and removal of the existing shell nozzle, piping, and insert plate in shell opening, in accordance with the plans.
18. Furnish and install an air break in the exterior overflow pipe, in accordance with the plans.
19. Remove and dispose of existing davit arm hardware on the monobolt manholes and replace in like kind.
20. Furnish and weld an additional channel section to the entire length of the center column to modify the unsymmetrical "T" shaped columns to an "H" shape.
21. Furnish and install two (2) new 3-inch diameter sample/injection ports in the shell at location designated by the Engineer for each reservoir.
22. Furnish and install a new galvanic cathodic protection system, including removing the existing interior mounted impressed current system.

23. Furnish all labor, materials, and equipment to use dehumidification system for interior work, including curing of coatings, in accordance with the specifications.
24. Remove and replace severely corroded rafters, including gusset plates and nuts and bolts, as determined necessary by the Engineer.
 - a. Boulder No. 2: Remove and replace severely corroded jack rafters and headers, including gusset plates and nuts and bolts, as determined necessary by the Engineer
25. Remove existing severely corroded nuts and bolts and furnish and install new nuts and bolts at the rafter to shell connections, as determined necessary by the Engineer.
26. Fill or weld plates over excessively pitted or excessively corroded areas, as determined necessary by the Engineer.
27. Excessively corroded areas on the rafter flanges and structural members that comprise of sharp edges from sandblasting shall be ground smooth and rounded, as determined necessary by the Engineer.
28. Furnish all labor, materials, and equipment to abrasively blast clean severely corroded areas, as determined necessary by the Engineer.

BOULDER MOUNTAIN NO. 1

1. Remove all exterior paint from roof, shell, piping, and appurtenances by abrasive blast cleaning or other approved method.
2. Apply specified primer to all exterior surfaces of the tank noted in 1. above.
3. Apply intermediate and finish coats of paint to complete exterior surfaces, piping, and appurtenances noted in 2. above.
4. Test, handle and dispose of hazardous and nonhazardous wastes generated from exterior painting operations in conformance to all regulations.
5. Remove and dispose of the existing center vent and furnish and install a new 36" diameter center vent and reinforcing plate. Install new fine and coarse mesh screens and hardware to the center vent at completion of interior coating and exterior painting.
6. Modify the Boulder Mountain No. 1 existing interior drain to install a drain trough in the reservoir bottom, as determined necessary by the Engineer.
7. Remove charger and battery system from the existing enclosure box and install in new enclosure box.
8. Remove and dispose of hydropneumatic tank, concrete supports, pump, control box for the pump, and miscellaneous conduit and wiring, including backfill and

restore asphalt concrete as needed.

BOULDER MOUNTAIN NO. 2

1. All exterior surfaces, piping and appurtenances shall be brush-off blast cleaned.
 2. All rusting, scaling, or damaged areas shall be spot vacuum blasted cleaned or spot vacuum power tool cleaned to near white metal.
 3. Apply specified primer to spot prepared exterior surfaces of the reservoir noted in 2. above.
 4. Apply intermediate and finish coats of paint to complete exterior surfaces, piping, and appurtenances noted above.
 5. Test, handle and dispose of hazardous and nonhazardous wastes generated from exterior painting operations in conformance to all regulations.
 6. Apply a flexible sealant around the entire perimeter of the reservoir in the void between the concrete ringwall and reservoir bottom plate extension.
 7. Remove and dispose of existing center vent screening and replace with new fine and coarse mesh aluminum screening at the completion of interior coating and exterior painting.
 8. Remove existing stilling well and weld plate over roof penetration.
 9. Modify the Boulder Mountain No. 2 existing interior drain to install a drain trough in the reservoir bottom, as determined necessary by the Engineer.
- C. Surfaces not to be painted include fencing, concrete surfaces, liquid level indicator accessories, glass, plastic, nameplates, communication equipment and other surfaces on which coatings or paints would not adhere or would interfere with operation of specific item.
- D. If severely corroded or damaged areas are discovered during the course of abrasive blast cleaning operations, the Contractor shall notify the Engineer or authorized representative. Welding and repair of severely corroded areas of tank and other mechanical repairs may be required during project.
1. The Contractor shall allow the City access to make tank repairs. The City reserves the option to repair the tank structure with:
 - a. Change order to the contract.
 - b. City employees.
 - c. A separate Contractor.
 - d. Any combination of the above.

2. A time extension will be issued should structural repairs preclude abrasive blast cleaning and/or coating or paint application. Preparation work shall continue while tank repairs are being made. The time extension will assume the Contractor will be able to re-mobilize and begin coating and painting within two weeks of notification. No additional time will be granted to permit the Contractor to complete other projects prior to this project.

1.2 REFERENCE SPECIFICATIONS AND STANDARDS

- A. Without limiting the general aspects or other requirements of this specification, work and equipment shall conform to applicable requirements of municipal, state and federal codes, laws and ordinances governing the work, manufacturer's printed instructions, subject to Engineer's approval.
- B. The Engineer's decision shall be final as to interpretation and/or conflict between any of the referenced codes, laws, ordinances, specifications and standards contained herein.

1.3 DEFINITIONS

- A. The following pairs of words shall be considered identical in meaning and may be used interchangeably: "City" and "Owner"; "General Conditions" and "General Provisions"; "Drawings" and "Plans"; "Standard Drawings" and "Standard Plans".
- B. The City referred to in these specifications is City of Poway. Engineer shall be person or persons as designated by the City.
- C. The definition of the word "Engineer" contained herein is: The person authorized by the City to oversee the execution of the contract, acting either directly or through his properly authorized agents, each agent acting only within the scope of authority delegated to him.

1.4 HOURS OF WORK

- A. The Contractor's activities shall be confined to the hours of 7:00 a.m. and 4:30 p.m. Monday through Thursday and 7:30 a.m. to 4:00 p.m. alternating Fridays, excluding City-designated holidays in accordance with Section 4 "Beginning of Work, Time of Completion, and Liquidation of Damages" Item 4-4 "Working Day".
- B. In the event of either a requested or emergency deviation, inspection service fees for City personnel and any third-party inspector will be charged against the Contractor. The service fees will be calculated at full overtime rates including benefits, overhead, and travel time. The service fees will be deducted from any amounts due the Contractor. Charges will be made for any change to extraordinary work hours, including standby time due to late crew arrival or "no-show" by crew.
- C. Inspection hours made necessary as a result of the Contractor's crew working over forty hours per week must be scheduled and approved by City and paid for by Contractor at the prevailing rate for overtime. Inspections requested by or made necessary as a result of actions by the Contractor on Saturdays, Sundays or holidays must be scheduled and approved by City and paid for by Contractor at the prevailing rate for overtime or holiday work.

1.5 COMPLETION OF WORK

All work shall be completed within the number of calendar days consistent with the Contract Period noted in the Contract Documents. If work is not completed within the number of calendar days specified, Contractor shall bear all additional expenses incurred after contract completion schedule.

1.6 EXTRA WORK

- A. The City may, as the need arises, order changes in work through additions, deletions, or modifications, without invalidating the Contract. Such changes will be affected through written change orders delivered to the Contractor describing the change required in the work, together with any adjustment in contract price or time of completion as hereinafter provided. No such change shall constitute the basis of claims for damages or anticipated profits; however, the Engineer will make reasonable allowance for the value of any work, materials, or equipment furnished and subsequently rendered useless because of such change. Any adjustment in Contract price resulting from a change order will be considered in computing subsequent monthly payments due the Contractor. Any work performed in accordance with a change order shall be subject to all provisions of the original Contract, and the Contractor's sureties shall be bound thereby to the same degree as under the original Contract. The Contractor will not receive payment for extra work performed unless said extra work is ordered in writing.
- B. Any adjustment in contract price shall be based on unit price bid items or additive and deductive bid items submitted by the Contractor in his original bid on the work where such bid items are applicable, or time and material rates established at the Pre-Construction Conference.

1.7 QUALITY ASSURANCE

- A. General: Quality assurance procedures and practices shall be utilized to monitor all phases of surface preparation, application and inspection throughout the duration of the project. Procedures or practices not specifically defined herein may be utilized provided they meet recognized and acceptable professional standards and are approved by the Engineer.
- B. All materials furnished and all work accomplished under the Contract shall be subject to inspection by the Engineer. The Contractor 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. Work accomplished in the absence of prescribed inspection may be required to be removed and replaced under the proper inspection, and the entire cost of removal and replacement, including the cost of all materials which may be furnished by the City and used in the work thus removed, shall be borne by the Contractor, regardless of whether the work removed is found to be defective or not. Work covered up without the authority of the Engineer or Inspector, shall, upon order of the Engineer, be uncovered to the extent required, and the Contractor shall similarly bear the entire cost of accomplishing all the work and furnishing all the materials necessary for the removal of the covering and its subsequent replacement, as directed and approved by the Engineer.

- D. Except as otherwise provided herein, the cost of inspection will be paid by the City.
- E. The Engineer will make, or have made, such tests as he deems necessary to assure the work is being accomplished in accordance with the requirements of the Contract. Unless otherwise specified in the Special Conditions, the cost of such testing will be borne by the City. In the event such tests reveal non-compliance with the requirements of the Contract, the Contractor shall bear the cost of such corrective measures deemed necessary by the Engineer, as well as the cost of subsequent retesting and re-inspection. It is understood and agreed the making of tests shall not constitute an acceptance of any portion of the work, nor relieve the Contractor from compliance with the terms of the Contract.
- F. Warranty Inspection: Warranty inspection shall be conducted between the eleventh and sixteenth months following completion of all work and filing of the Notice of Acceptance. The draining of the tank will be accomplished when there will be minimum inconvenience to the City. All personnel present at the Pre-Construction Conference should be present at this inspection. All defective work shall be repaired in strict accordance with this specification and to the satisfaction of the Engineer.
1. Notification: The City shall establish the date for the inspection and shall notify the Contractor at least 30 days in advance. The City will drain the tank and Contractor shall provide, at his own expense, suitable lighting, scaffolding and ventilation for the inspection. At the City's option, warranty inspection for interior surfaces may be accomplished by diving operations with tank in service.
 2. Interior Inspection: The entire interior coating systems shall be visually inspected as specified in 1.7 QUALITY ASSURANCE. All defective coating as well as damaged or rusting spots of the tank shall be satisfactorily repaired by and at the sole expense of the Contractor. All repaired areas shall then be electrically tested as specified in the above-mentioned section and repair/electrical testing procedure repeated until surface is acceptable to the Engineer.
 3. Exterior Inspection: The entire exterior paint systems shall be visually inspected as specified in 1.7 QUALITY ASSURANCE. All defective paint as well as damaged or rusting spots of the tank shall be satisfactorily repaired by and at the sole expense of the Contractor. All repaired areas shall then be again inspected as specified in the above-mentioned section and repair procedure repeated until surface is acceptable to the Engineer.
 4. Structural Inspection: The entire work shall be visually inspected as specified. All defective work shall be satisfactorily repaired by and at the sole expense of the Contractor.
 5. Inspection Report: The Engineer shall prepare an inspection report covering the first anniversary inspection, setting forth the number and type of, defects observed, failures observed, the percentage of the surface area where failure has occurred, and the names of the persons making the inspection.
 6. Schedule: Upon completion of inspection and receipt of Inspection Report as noted herein, City shall notify Contractor of results of inspection and establish a date for Contractor to proceed with remedial work. Any delay on part of Contractor to meet schedule may cause City to proceed to have defects remedied by others

as outlined under General Provisions.

7. Remedial Work: The Contractor shall make repairs at all points where defects are observed by removing the defective work and repairing or replacing it to bring the item into total conformance to the original specification. Any location where coating or paint has peeled, bubbled, or cracked and any location where rusting is evident shall be considered to be a failure of the system. The Contractor shall make repairs at all points where failures are observed by removing the deteriorated coating or paint, cleaning the surface, and reapplying the same system per original specification. If the area of failure exceeds 25 percent of a specific coated or painted surface, the entire applied system may be required to be removed and reapplied based on the City's sole judgment in accordance with the original specification.
 - a. Specific coated surfaces are defined as follows:
 - 1) Underside of roof and structural members
 - 2) Shell & columns
 - 3) Bottom
 - 4) Attachments, accessories and appurtenances
 - 5) Flexible sealants
 - b. Specific painted surfaces are defined as follows:
 - 1) Roof
 - 2) Shell
 - 3) Attachments, accessories and appurtenances
 - 4) Flexible sealants
8. Upon completion of warranty remedial repairs, Contractor shall wash down and disinfect tank as originally specified. Contractor shall prevent or reduce to the maximum extent practicable the discharge of pollutants directly or indirectly to water of the United States per Section 11 "Construction Details and Materials" Item 11-3. Contractor shall provide new gaskets and nuts and bolts for the manholes as needed.
9. Costs: All noted costs for Contractor's inspection and all costs for repair shall be borne by the Contractor and in figuring his bid, the Contractor shall include an appropriate amount for testing and repair as no additional allowance will be paid by the City for said inspection and repair.
10. Upon completion of warranty repairs, the cathodic protection system shall be connected and tested in accordance with Section 16641, 3.3 C. and D. and 4.1.

1.8 SAFETY AND HEALTH REQUIREMENT

- A. Contractor shall submit a notarized letter signed by a principal officer of the Corporation or Company certifying the Contractor fully complies with Federal and State Regulations pertaining to the work including, but not limited to, the following. Review of Contractor's safety plan by Engineer does not imply that City accepts responsibility for such plans or safety activities.

1.	Illness Injury Prevention Program	CSO/GISO	1508/3203
2.	Confined Space Plan	GISO	5156/5159
3.	Respiratory Protection	CSO/GISO	1531/5144
4.	Hazard Communication	GISO	5194
5.	Lead-Based Paint Compliance Plan	CSO	1532
6.	Rolling Scaffolds	CSO	1646
7.	Employee Safety Instruction	CSO	1510
8.	Emergency Medical Service	CSO	1512
9.	Dusts, Fumes, Mists, Vapors & Gases	CSO	1528

- B. General: Contractor assumes the responsibility to accomplish all work in a safe and prudent manner, and to conform to all applicable safety requirements, regulations and guidelines of federal, state and local regulatory agencies, as well as applicable manufacturer's printed instructions and appropriate technical bulletins and manuals. Without in any way limiting that responsibility or assuming responsibility for safety, the City is particularly concerned that the following are strictly observed:

1. Life Saving Equipment: Contractor shall provide and require use of personal protective life saving equipment for all its personnel working in or about the project site.
2. Access Facilities: All ladders, scaffolding and rigging shall be designed for their intended uses and meet Cal/OSHA regulations. Ladders and scaffolding shall be supplied and erected as requested by Engineer to facilitate inspection and be moved by the Contractor to locations requested by the Engineer.
3. Ventilation: Contractor shall ensure there is proper ventilation, air eduction and exhausting of work space to reduce the concentration of lead-laden air contaminants to a level which poses no hazard to personnel at or near the job site. Air circulation and exhausting of solvent vapors shall be continued until coatings and paints have fully cured. If conventional blast cleaning is accomplished, total containment during blast cleaning and coating and paint application operations is mandatory. The exhaust blower or dehumidification equipment capacity shall be sufficient to maintain air changes within containment interior in accordance with Cal/OSHA, coating and paint manufacturer's recommendations and local Air Quality Management District regulations, subject to Engineer's review.

- a. Exhaust blower shall exhaust into an Engineer-reviewed structure that precludes the exhausting of lead or zinc-laden paint chips or particulate matter onto the site or into the atmosphere.
 - b. Where ventilation is used to control hazardous exposure, all equipment shall be explosion proof, of industrial design and shall be approved by the Engineer. Household-type venting equipment will not be acceptable. Ventilation shall reduce the concentration of air contaminant to the degree a hazard does not exist by educting air, vapors, etc. from the confined space.
 - c. Ventilation system shall be furnished and installed by the Contractor in accordance with these specifications. The Contractor shall make modifications to the ventilation system as required by Cal/OSHA to ensure a safe working environment and complete removal of all contaminated vapors.
4. Head and Face Protection and Respiratory Devices: Equipment shall include protective helmets that shall be worn by all persons while in the vicinity of the work. During abrasive blasting operations, nozzle men shall wear U.S. Bureau of Mines approved positive pressure air-supplied helmets and all other persons who are exposed to blasting dust shall wear respiratory protection. If coatings are hazardous, additional protection will be worn as determined necessary by the exposure assessment of the Certified Industrial Hygienist.
- a. When and where required, positive pressure air-fed hoods and/or masks shall be supplied by an air source currently certified to produce "Class D Breathing Air". Contractor shall at all times during the work maintain onsite current documentation to substantiate the quality of the breathing air.
 - b. Barrier creams shall be used on any exposed areas of skin.
5. Grounding: Welding leads, all hoses and related equipment shall be grounded to prevent accumulation of charges of static electricity.
6. Illumination: Sparkproof artificial lighting shall be provided for all work in confined spaces. Light bulbs shall be guarded to prevent breakage. Lighting fixtures and flexible cords shall comply with the requirements of NFPA 70 "National Electric Code" for the atmosphere in which they will be used. Whenever required by the Engineer, the Contractor shall provide additional illumination and necessary supports to cover all areas to be inspected. The level of illumination for inspection purposes shall be determined by the Engineer.
7. Toxicity and Explosiveness: The maximum allowable concentration of vapor shall be kept below the maximum safe concentration for eight-hour exposure, plus lower explosive limit (LEL) must be strictly maintained. Exterior paints have been determined to contain lead. All regulations related to safety of personnel and handling of such materials shall be strictly followed. Cost of handling and disposing of such materials will be borne by the Contractor.

- a. Contractor's responsibility for meeting all regulations relating to toxic and hazardous materials includes, but is not limited to, obtaining all permits and EPA numbers, processing paperwork, blood testing of personnel at start and finish of project, sampling and testing of wastes, paying fees, handling and packaging of wastes at site, and delivering materials to the selected Class I dumpsite using licensed hazardous materials transporters. All regulations relating to working with heavy metals or confined spaces shall be strictly enforced. Documentation of all hazardous or toxic waste disposal will be required and a copy supplied to the City.
8. Protective Clothing: During cutting, burning, welding operations and when handling and mixing coatings and paints, workmen shall wear gloves, eye shields and other protective clothing. If working with lead, zinc or other heavy metals, regulations regarding handling of exposed clothing shall be strictly enforced.
9. Fire: Contractor shall provide appropriate fire abatement devices on site and be readily available at the jobsite during all operations. Prohibit any flames, welding and smoking during mixing and application of materials.
10. Sound Levels: Whenever the occupational noise exposure exceeds the maximum allowable sound levels, the Contractor shall provide and require the use of Cal/OSHA approved ear protective devices.
 - a. Sound barriers approved by the City shall be provided at all times to minimize disturbance to persons living or working nearby, and to the general public. Measures to be used in effecting noise suppression shall include (but not limited to) equipping all internal combustion engines with critical residential silencers (mufflers), shielding noise-producing equipment from nearest areas of human occupancy by location in such positions as to direct the greatest noise emissions away from such areas, and conducting operations in the most effective manner to minimize noise generation consistent with the prosecution of the Contract in a timely and economic manner. Whenever levels are above local ordinances, they shall be adjusted as directed by the Engineer.
11. Gas and Air Monitoring: Contractor shall furnish monitoring equipment to determine the presence of oxygen deficiency or dangerous air contamination. Continual monitoring will be required. Concentration levels will be as prescribed by Cal/OSHA.
- C. Contractor shall provide Health Department approved sanitary facilities for all Contractor personnel, as no existing facilities will be available to the Contractor. Facilities shall be maintained during the project to complete standards established by City and shall be removed prior to Contractor's departure from the site at completion of the project.

1.9 DEHUMIDIFICATION

- A. Scope: Dehumidification is required by the City's Bid Item or the Contractor elects to use dehumidification at their own expense, the interior of the tank shall be dehumidified continuously, 24 hours per day, 7 days per week, during the cleaning and coating operations including shifts during which no work is being accomplished and also during the final curing

period, unless fewer hours or days are approved in writing by the Engineer.

1. The purpose of dehumidifying the interior of the tank during the cleaning and coating operations and during the final cure period is to nullify the adverse effects of cold and/or wet atmospheric conditions. Additionally, the dehumidification equipment will provide the necessary ventilation for the removal of solvent vapors during the coating and final cure phases.
2. Dust collectors and/or separators using approved filters are required. The contractor shall, at all times, maintain the concentration of solvent vapors in all parts of the structure 10% below the lower explosive limit (LEL).

B. Dehumidification equipment systems must be reviewed by the Engineer.

1. The exhaust blower for removal of dust, etc. from the interior containment shall exhaust into an Engineer-reviewed structure that precludes the exhausting of lead-laden paint chips or particulate matter onto the site or into the atmosphere.

C. Final Cure: Final cure of coating is specified in Section 09800 Subsection 3.11 FINAL CURING OF EPOXY COATINGS.

D. General:

1. The structure shall be continuously dehumidified 24 hours per day, during blasting, coating, between coats of coating, and during the final cure period, unless fewer hours or days are approved in writing by the Engineer.
2. The Contractor shall maintain the dehumidification system at all times, including final cure period, and shall remove the ventilation and dehumidification system upon completion of the final cure period.
3. The Contractor shall make modifications to the dehumidification system as directed by the Engineer to ensure a safe working environment, complete removal of all solvent vapors, and maintenance of the proper relative humidity at the concrete and steel surfaces.
4. Ducting shall be airtight and reinforced with spirally-wound wire to prevent collapse. The Contractor shall furnish and install an appropriate airtight connecting device between the duct and designated opening. All bends in ductwork shall have a minimum radius of 2 x ID of the ducting (i.e. 18" ID = 36" minimum radius).
5. The Contractor shall design and submit for review a dehumidification and ventilation plan. If lead coating or paint is being removed, the ventilation plan shall provide for a minimum cross-draft velocity of 100 feet per minute in the vicinity of the work area. The cross-draft velocities may be obtained with use of a portable blower or fans. If lead coating or paint is being removed, air filtration is required with HEPA PM-10 filters.
6. The Contractor shall furnish, install and maintain three (3) 3,000 cubic foot per minute circulation fans inside the structure, or as modified by the Engineer.

7. The circulation fans may be moved as necessary, but shall be placed in dead air space areas and directed toward the designated opening at all times.
8. The Contractor shall seal all structure openings, to prevent the entry of moist air detrimental to the blasting, coating, or curing process. An approved air lock entry shall be provided for ingress to and egress from the structure.
9. The area adjacent to the surface that is to be blasted and coated shall not be exposed to a relative humidity over thirty-five percent (35%) at anytime during blasting, cleaning, and coating operations.

E. Equipment:

1. The dehumidification equipment shall be a solid desiccant (not liquid, granular or loose lithium chloride) design having a single rotary desiccant bed capable of continuous operation, fully automatic, with drip-proof automatic electrical controller.
2. Dehumidification equipment operated on the structure must be capable of making two complete air changes every sixty minutes unless the 100 feet per minute cross-draft velocity requirement requires a larger volume.
3. The processed air from the dehumidification unit must maintain a relative humidity of eleven percent (11%) or less.
4. During the coating and cure phase, dehumidification units must have auxiliary heaters capable of maintaining an air temperature inside the tank of a minimum of 70 degrees F.
5. Air heaters are not acceptable as substitutes for dehumidification units.
6. Air chillers, heaters, or air conditioners may be used downstream of the dehumidifiers if they are approved for use by the manufacturer of the dehumidification equipment.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 COORDINATION AND MEETINGS

A. PRE-BID CONFERENCE

1. A mandatory Pre-Bid Conference for the project will be conducted by the Engineer at City offices and site as noted in the Notice of Inviting Bids. The object of the Pre-Bid Conference is to acquaint bidders with existing facility and sites. The conditions and requirements of the plans and specifications shall govern over any information presented at the Pre-Bid Conference, unless amended in writing by the Engineer. All bidders must attend the Pre-Bid Conference to have their bid accepted by the City.

B. PRE-CONSTRUCTION CONFERENCE

1. A Pre-Construction Conference shall be scheduled prior to start of project. The City, Contractor and Engineer shall be present. The sequence of work will be discussed and will be mutually agreed upon to ensure that the work is accomplished and completed as stated in the Contract, and to allow for inspection and operations flexibility by City. A schedule of work to be accomplished and a list of labor, material and equipment rates for additional work will be established and maintained throughout the project. Contractor shall furnish resumes of all personnel assigned to project, and a complete set of approved submittal data for use by inspection personnel. Contractor shall have a designated representative for all projects.
2. The Contractor shall submit manufacturer's literature and Safety Data Sheets (SDS) on all materials to be used in coating and painting operations, including, but not limited to coatings, paints, thinners, solvents and cleaning fluids. No materials will be allowed which have been stored over 60 days, or manufacturer's recommended shelf life, whichever is less. Contractor shall maintain copies of SDS at jobsite at all times. Copies of all invoices showing purchased dates and delivery for all material mentioned above will be required.

END OF SECTION

SECTION 01150 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SCHEDULE OF VALUES

- A. Submit to City within 10 days after execution of the Contract a breakdown of each bid item in a form which will assist the City in preparing the estimates for progress payments.
- B. Provide a breakdown of Lump Sum prices in the Bid. For use in preparing estimates of completed Work on which to base claims for partial payments, under each Lump Sum item in the Bid, prepare an itemized breakdown of the Contract Price indicating quantities and unit prices for the various elements of the Work:
 1. The breakdown shall be a true representation of the Contract Price for Work covered by the Specifications and Drawings and shall be subject to acceptance by the City. An unbalanced breakdown is not acceptable.
 2. Values assigned to the price breakdown will be used only as a basis for partial payments and not as a basis for additions to or deletions from the Contract Price.

1.2 WORK LISTED IN THE SCHEDULE OF WORK ITEMS

The unit prices include full compensation for furnishing the labor, materials, tools, and equipment and doing all the work involved to complete the Work in the Contract Documents, and no additional compensation will be paid by the City. Work described herein is applicable to the Schedule of Work Items unless otherwise noted.

BOULDER MOUNTAIN NO. 1

1. Mobilization (Bid Item No. 1):

The amount bid for Mobilization/Demobilization shall not exceed 4.0% of the Contractor's bid total. Any amount bid in excess of the stipulated 4.0% cap will not be paid until project completion.

Payment for this item will be made at the lump sum price named in the Bid Schedule under Item No. 1, which shall constitute full compensation for all work and expenditures required to mobilize, provide bonds, insurance, obtain required permits, take pre-construction photos and videos, prepare project schedule, testing, site maintenance, and cleanup, remove and reinstall existing site facilities as required, comply with all General and Supplementary Conditions, demobilize and provide cleanup of construction site complete in place, as required by Contract Documents with sole exclusion of payments to be made as defined herein for other items in Bid Schedule.

Work to be paid under this item shall also include furnishing, setting up, and removing Contractor's operations at project site including temporary offices, utilities, staging areas, security, etc. Work shall also include furnishing any temporary construction facilities and trailers required by Contract Documents.

Upon completion of mobilization, 50 percent of the amount bid for this item (or 50 percent of stipulated 4.0% cap, whichever is less) will be paid to Contractor. The remainder will be paid as part of the final contract payment under project completion.

2. Interior Coating (Bid Item No. 2):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to prepare interior surfaces to SSPC-SP10 and coat with a 100% solids epoxy coating, in accordance with the specifications.

Payment shall be at the lump sum bid price.

3. Interior Disinfection (Bid Item No. 3):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to wash down and disinfect the interior surfaces, in accordance with the specifications.

Payment shall be at the lump sum bid price.

4. Exterior Painting (Bid Item No. 4):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to prepare exterior surfaces to SSPC-SP10, including piping and appurtenances, and paint all prepared exterior surfaces with epoxy/urethane paint system, in accordance with the specifications.

Payment shall be at the lump sum bid price.

5. Interior Caulking (Bid Item No. 5):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to apply flexible sealant to all designated voids on the interior surfaces including, but not limited to, column bases, bolt holes, and roof lap joints, in accordance with the specifications.

Payment shall be at the lump sum bid price.

6. Guardrailing and New Safety Gate (Bid Item No. 6):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to install new guardrailing around the primary roof hatch and install a new safety gate, in accordance with the plans.

Payment shall be at the lump sum bid price.

7. Center Vent (Bid Item No. 7):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove the center vent and furnish and install a new

36" diameter center vent, cover, screening, reinforcing plate, and new roof plates as needed, in accordance with the plans.

Payment shall be at the lump sum bid price.

8. Roof Hatch (Bid Item No. 8):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of the roof hatch and furnish and install a new 36" roof hatch, including new roof plates as needed, in accordance with the specifications and plans.

Payment shall be at the lump sum bid price.

9. Auxiliary Vent (Bid Item No. 9):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to furnish and install a new 24-inch diameter vent with an exhaust fan flange and screening, in accordance with the specifications and plans.

Payment shall be at the lump sum bid price.

10. Exterior Ladder (Bid Item No. 10):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of the existing exterior ladder and furnish and install a new ladder and vandal guard with a wide opening onto the roof and brace the Saf-T-Climb rail, in accordance with the specifications and plans.

Payment shall be at the lump sum bid price.

11. Interior Ladder (Bid Item No. 11):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of the existing interior ladder and furnish and install a new fiberglass ladder and braces, in accordance with the plans.

Payment shall be at the lump sum bid price.

12. Saf-T-Climb (Bid Item No. 12):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to furnish and install an approved galvanized Saf-T-Climb fall prevention device on the interior and exterior ladders, including dismount section, sleeve, and harness.

Payment shall be at the lump sum bid price.

13. Liquid Level Indicator (Bid Item No. 13):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of the existing liquid level indicator assembly and gauge board and plate over holes in roof.

Payment shall be at the lump sum bid price.

14. Lateral Bracing (Bid Item No. 14):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove all existing tie-rods and furnish and install new 3 ½" x 3 ½" x ¼" angle lateral bracing at the midspan of the rafters, in accordance with the plans.

Payment shall be at the lump sum bid price.

15. Fall Restraint Cable System (Bid Item No. 15):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of the existing fall restraint cable system prior to painting exterior roof and furnish and install new fall restraint cable system after completion of exterior painting, in accordance with the plans.

Payment shall be at the lump sum bid price.

16. 10" Inlet/Outlet Pipe (Bid Item No. 16):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of existing piping, install insert plate, furnish and install Force Balanced double ball flexible expansion connection fitting, new shell nozzle and a 3" combination air valve on the new 10" inlet/outlet piping, including trenching, backfilling, pipe bedding, hydrostatic testing, disinfection, tracer wire, warning tape, thrust blocks, fittings, restrained joints, tie-ins, and paving replacement, in accordance with the plans. Furnish and install the adjustable pipe supports on 12" square and 6" thick concrete pads, two 7/8" dia. (A36) steel rods with threaded ends and 5 ½-inch diameter and 36-inch high steel bollards.

Payment shall be at the lump sum bid price.

17. Overflow Air Break (Bid Item No. 17):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to provide an air break in the exterior overflow pipe, in accordance with the plans and specifications, including funnel, vortex breaker, brackets, and passive check valve.

Payment shall be at the lump sum bid price.

18. Manhole Davit Assembly (Bid Item No. 18):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of the existing monobolt manhole davit arm assembly and furnish and install new assembly in like kind.

Payment shall be at the lump sum bid price.

19. Column Modification (Bid Item No. 19):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to weld an additional channel section to the entire length of the center column, in accordance with the plans and specifications.

Payment shall be at the lump sum bid price.

20. 3-inch Ports (Bid Item No. 20):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to weld two (2) new 3-inch sample/injection ports on shell, in accordance with the plans and specifications.

Payment shall be at the lump sum bid price.

21. Galvanic Cathodic Protection System (Bid Item No. 21):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove existing cathodic protection system and furnishing and installing a new galvanic cathodic protection system, in accordance with the specifications and plans.

Payment shall be at the lump sum bid price.

22. Dehumidification (Bid Item No. 22):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to provide dehumidification for all interior coating work, including curing of the coatings, as directed by the City. (3 weeks)

Payment shall be at the lump sum bid price.

23. Rafter Replacement (Bid Item No. 23):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove severely corroded rafters and replace with new rafters in like kind, including new gusset plates and nuts and bolts and coating the topside of the rafters prior to installation, as determined necessary by the Engineer.

Payment shall be at an each bid price.

24. Replace Nuts and Bolts (Bid Item No. 24):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove nuts and bolts and furnish and install new nuts and bolts at the shell to rafter connections, as determined necessary by the Engineer.

Payment shall be at an each set of 2 nuts and bolts bid price.

25. Pit/Perforation Treatment (Bid Item No. 25):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to fill pits or weld plates over pitted or corroded areas, as determined necessary by the Engineer. (16 hours)

Payment shall be at the lump sum bid price.

26. Grinding (Bid Item No. 26):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to grind smooth excessively corroded areas of the structural members that comprise of sharp edges from sandblasting, as determined necessary by the Engineer. (16 hours)

Payment shall be at the lump sum bid price.

27. Inspection Spot Blasting (Bid Item No. 27):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to abrasively blast clean severely corroded surfaces, as determined necessary by the Engineer to determine if structural repair is required. (8 hours)

Payment shall be at the lump sum bid price.

28. Boulder Mountain No. 1 Drain Modification (Bid Item No. 28):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to modify the existing drain to the specified distance from the shell, in accordance with the plans and specifications.

Payment shall be at the lump sum bid price.

29. New Enclosure Box (Bid Item No. 29):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove charger and battery system from existing enclosure box and install in a new enclosure box at the location noted on the plans.

Payment shall be at the lump sum bid price.

30. Hydropneumatic Tank (Bid Item No. 30):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove hydropneumatic tank, concrete supports, pump, control box, wiring, and conduit and dispose of off-site, including backfill and restore asphalt concrete as needed.

Payment shall be at the lump sum bid price.

BOULDER MOUNTAIN NO. 2

31. Mobilization (Bid Item No. 31):

The amount bid for Mobilization/Demobilization shall not exceed 4.0% of the Contractor's bid total. Any amount bid in excess of the stipulated 4.0% cap will not be paid until project completion.

Payment for this item will be made at the lump sum price named in the Bid Schedule under Item No. 1, which shall constitute full compensation for all work and expenditures required to mobilize, provide bonds, insurance, obtain required permits, take pre-construction photos and videos, prepare project schedule, testing, site maintenance, and cleanup, remove and reinstall existing site facilities as required, comply with all General and Supplementary Conditions, demobilize and provide cleanup of construction site complete in place, as required by Contract Documents with sole exclusion of payments to be made as defined herein for other items in Bid Schedule.

Work to be paid under this item shall also include furnishing, setting up, and removing Contractor's operations at project site including temporary offices, utilities, staging areas, security, etc. Work shall also include furnishing any temporary construction facilities and trailers required by Contract Documents.

Upon completion of mobilization, 50 percent of the amount bid for this item (or 50 percent of stipulated 4.0% cap, whichever is less) will be paid to Contractor. The remainder will be paid as part of the final contract payment under project completion.

32. Interior Coating (Bid Item No. 32):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to prepare interior surfaces to SSPC-SP10 and coat with a 100% solids epoxy coating, in accordance with the specifications.

Payment shall be at the lump sum bid price.

33. Interior Disinfection (Bid Item No. 33):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to wash down and disinfect the interior surfaces, in accordance with the specifications.

Payment shall be at the lump sum bid price.

34. Exterior Painting (Bid Item No. 34):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to prepare all rusting, scaling, and damaged exterior surfaces to SSPC-SP11 and to brush-off blast clean all exterior surfaces to SSPC-SP7, including piping and appurtenances, and paint all exterior surfaces with epoxy/urethane paint system, in accordance with the specifications. Work shall also include caulking the void between the foundation and bottom plate extension.

Payment shall be at the lump sum bid price.

35. Interior Caulking (Bid Item No. 35):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to apply flexible sealant to all designated voids on the interior surfaces including, but not limited to, column bases, bolt holes, and roof lap joints, in accordance with the specifications.

Payment shall be at the lump sum bid price.

36. Guardrailing and New Safety Gate (Bid Item No. 36):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to install new guardrailing around the primary roof hatch and furnish and install a new safety gate, in accordance with the plans.

Payment shall be at the lump sum bid price.

37. Center Vent Screening (Bid Item No. 37):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove the existing center vent screening and furnish and install new screening at the completion of interior coating and exterior painting.

Payment shall be at the lump sum bid price.

38. Roof Hatch (Bid Item No. 38):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of the roof hatch and furnish and install a new 36" roof hatch, including new roof plates as needed, in accordance with the specifications and plans.

Payment shall be at the lump sum bid price.

39. Auxiliary Vent (Bid Item No. 39):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to furnish and install a new 24-inch diameter vent with

an exhaust fan flange and screening, in accordance with the specifications and plans.

Payment shall be at the lump sum bid price.

40. Exterior Ladder (Bid Item No. 40):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of the existing exterior ladder and furnish and install a new ladder and vandal guard with a wide opening onto the roof and brace the Saf-T-Climb rail, in accordance with the specifications and plans.

Payment shall be at the lump sum bid price.

41. Interior Ladder (Bid Item No. 41):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of the existing interior ladder and furnish and install a new fiberglass ladder and braces, in accordance with the plans.

Payment shall be at the lump sum bid price.

42. Saf-T-Climb (Bid Item No. 42):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to furnish and install an approved galvanized Saf-T-Climb fall prevention device on the interior and exterior ladder, in accordance with the specifications and plans, including dismount section, sleeve, and harness.

Payment shall be at the lump sum bid price.

43. Liquid Level Indicator (Bid Item No. 43):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of the existing liquid level indicator assembly and gauge board and plate over holes on roof.

Payment shall be at the lump sum bid price.

44. Lateral Bracing (Bid Item No. 44):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove all existing tie-rods and furnish and install new 3 1/2" x 3 1/2" x 1/4" angle lateral bracing at the midspan of the rafters, in accordance with the plans.

Payment shall be at the lump sum bid price.

45. Fall Restraint Cable System (Bid Item No. 45):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of the existing fall restraint cable system prior to painting exterior roof and furnish and install new fall restraint cable system after completion of exterior painting, in accordance with the plans.

Payment shall be at the lump sum bid price.

46. 10" Inlet/Outlet Pipe (Bid Item No. 46):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of existing piping, install insert plate, furnish and install Force Balanced double ball flexible expansion connection fitting, new shell nozzle, and a 3" combination air valve on the new 10" inlet/outlet piping, including trenching, backfilling, pipe bedding, hydrostatic testing, disinfection, tracer wire, warning tape, thrust blocks, fittings, restrained joints, tie-ins, and paving replacement. Furnish and install the adjustable pipe supports on 12" square and 6" thick concrete pads, two 7/8" dia. (A36) steel rods with threaded ends and 5 1/2-inch diameter and 36-inch high steel bollards.

Payment shall be at the lump sum bid price.

47. Overflow Air Break (Bid Item No. 47):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to provide an air break in the exterior overflow pipe, in accordance with the plans and specifications, including funnel, vortex breaker, brackets, and passive check valve.

Payment shall be at the lump sum bid price.

48. Manhole Davit Assembly (Bid Item No. 48):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove and dispose of the existing monobolt manhole davit arm assembly and furnish and install new assembly in like kind.

Payment shall be at the lump sum bid price.

49. Column Modification (Bid Item No. 49):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to weld an additional channel section to the entire length of the center column, in accordance with the plans and specifications.

Payment shall be at the lump sum bid price.

50. 3-inch Ports (Bid Item No. 50):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to weld two (2) new 3-inch sample/injection ports on shell, in accordance with the plans and specifications.

Payment shall be at the lump sum bid price.

51. Galvanic Cathodic Protection System (Bid Item No. 51):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove existing cathodic protection system and furnishing and installing a new galvanic cathodic protection system, in accordance with the specifications and plans.

Payment shall be at the lump sum bid price.

52. Dehumidification (Bid Item No. 52):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to provide dehumidification for all interior coating work, including curing of the coatings, as determined necessary by City. (4 weeks)

Payment shall be at the lump sum bid price.

53. Rafter Replacement (Bid Item No. 53):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove severely corroded rafters and replace with new rafters in like kind, including new gusset plates and nuts and bolts and coating the topside of the rafters prior to installation, as determined necessary by the Engineer.

Payment shall be at an each bid price.

54. Jack Rafter Replacement (Bid Item No. 54):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove severely corroded jack rafters and headers and replace with new jack rafters and headers in like kind, including new gusset plates and nuts and bolts and coating the topside of the rafters prior to installation, as determined necessary by the Engineer.

Payment shall be at an each bid price.

55. Replace Nuts and Bolts (Bid Item No. 55):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to remove nuts and bolts and furnish and install new nuts

and bolts at the shell to rafter connections, as determined necessary by the Engineer.

Payment shall be at an each set of 2 nuts and bolts bid price.

56. Pit/Perforation Treatment (Bid Item No. 56):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to fill pits or weld plates over pitted or corroded areas, as determined necessary by the Engineer. (16 hours)

Payment shall be at the lump sum bid price.

57. Grinding (Bid Item No. 57):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to grind smooth excessively corroded areas of the structural members that comprise of sharp edges from sandblasting, as determined necessary by the Engineer. (16 hours)

Payment shall be at the lump sum bid price.

58. Inspection Spot Blasting (Bid Item No. 58):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to abrasively blast clean severely corroded surfaces, as determined necessary by the Engineer to determine if structural repair is required. (8 hours)

Payment shall be at the lump sum bid price.

59. Boulder Mountain No. 2 Drain Modification (Bid Item No. 59):

Work under this item shall include, but not be limited to, furnishing all labor, materials, and equipment to modify the existing drain to the specified distance from the shell, in accordance with the plans and specifications.

Payment shall be at the lump sum bid price.

1.3 WORK NOT LISTED IN THE SCHEDULE OF WORK ITEMS

- A. The General Specifications and items in the Special Provisions, general requirements, and Specifications which are not listed in the schedule of work items of the bid are, in general, applicable to more than one listed work item, and no separate work item is provided therefor. Include the cost of Work not listed but necessary to complete the Project designated in the Contract Documents in the various listed work items on the bid.
- B. The bid for the Work is intended to establish a total cost for the Work in its entirety. Should the Contractor feel that the cost for the Work has not been established by specific items in the bid, include the cost for that Work in some related bid item so that the bid reflects the total cost for completing the Work in its entirety.

PART 2 - MATERIALS (Not Used)

PART 3 - EXECUTION (Not Used)

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

The work described herein will not be measured for payment.

4.2 PAYMENT

The work described herein will not be paid for separately. Payment for these items will be included in the price for pay items of associated work.

END OF SECTION

SECTION 02223 - TRENCHING, BACKFILLING, AND COMPACTING

PART 1 - GENERAL

1.1 DESCRIPTION

This Section describes materials, testing, and performance of trench excavation, backfilling, and compacting.

1.2 REFERENCE SPECIFICATIONS AND STANDARDS

- A. Without limiting the general aspects or other requirements of this specification, work and equipment shall conform to applicable requirements of municipal, state and federal codes, laws and ordinances governing the work, Standard Specifications for Public Works Construction, 2015 edition, City of Poway Supplemental Engineering Standards, manufacturer's printed instructions, subject to Engineer's approval.
- B. The Engineer's decision shall be final as to interpretation and/or conflict between any of the referenced codes, laws, ordinances, specifications and standards contained herein.

1.3 SUBMITTALS

- A. The following submittals are required:
 - 1. Drawings showing excavation and shoring, bracing, or sloping for worker protection.
 - 2. Copies of a report from a testing laboratory verifying that backfill material conforms to the specified gradations or characteristics for pea gravel, granular material, imported sand, rock refill for foundation stabilization, and water.

1.4 PROTECTION OF EXISTING UTILITIES AND FACILITIES

- A. General: Be responsible for the care and protection of all existing sewer pipelines, water pipelines, gas mains, storm drains, culverts, or other facilities and structures that may be encountered in or near the area of Work.
- B. Damage: In the event of damage to any existing facilities during the progress of the work due to the failure of the Contractor to exercise the proper precautions, be responsible for the cost of all repairs and protection to said facilities. The City may stop the Contractor's work until repair operations are complete.

1.5 PROTECTION OF LANDSCAPING

- A. General: Protect all trees, shrubs, fences, and other landscape items adjacent to or within the site unless directed otherwise on the Drawings. In the event of damage to landscape items, replace the damaged items in a manner satisfactory to the Engineer.

- B. Restoration: After the completion of Work in planted or improved areas within public or private easements, restore such areas to original condition. Restoration shall include regrading, placement of 5 inches of topsoil, reseeding, and replacement of landscaping.

PART 2 - MATERIALS

2.1 DEFINITION OF ZONES

- A. Pavement Zone: The pavement zone shall include the asphaltic concrete and aggregate base pavement section placed over the reservoir site.
- B. Street Zone: The street zone shall consist of the top 18 inches of the trench immediately below the pavement zone in paved areas or areas to be paved.
- C. Trench Zone: The trench zone shall include the portion of the trench from the top of the pipe zone to the bottom of the street zone in paved areas or to the existing surface in unpaved areas.
- D. Pipe Zone: The pipe zone shall include the full width of trench from the bottom of the pipe or conduit to a horizontal level 12 inches above the top of the pipe. Where multiple pipes or conduits are placed in the same trench, the pipe zone shall extend from the bottom of the lowest pipes to a horizontal level above the top of the highest or topmost pipe.
- E. Pipe Base: The pipe base shall be defined as a layer of material immediately below the pipe zone and extending over the full trench width.

2.2 NATIVE EARTH BACKFILL--TRENCH ZONE

Excavated native earth backfill shall be fine-grained non-organic materials free from peat, roots, debris, and rocks larger than 3 inches, and which can be compacted to the specified relative compaction.

2.3 BACKFILL--PIPE ZONE AND PIPE BASE

Unless otherwise specified or shown on the plans, the pipe base and pipe zone backfill material shall be imported sand as specified herein.

2.4 IMPORTED SAND--PIPE ZONE AND PIPE BASE

Imported sand used in the pipe zone or for the pipe base shall have the following gradation:

<u>Sieve Size</u>	<u>Percent passing by Weight</u>
3/8-inch	100
No. 4	75 - 100
No. 30	12 - 50
No. 100	5 - 20
No. 200	0 - 15

Minimum sand equivalent shall be 30 per ASTM D 2419.

2.5 GRAVEL AND CRUSHED ROCK--PIPE ZONE AND PIPE BASE

Gravel or crushed rock material shall conform to the Standard Specifications, Section 200-1.2 and shall meet the following gradation:

<u>Sieve Sizes</u>	<u>Designated Material Size</u>			
	<u>1-1/2-Inch</u> Percent Passing	<u>1-Inch</u> Percent Passing	<u>3/4-Inch</u> Percent Passing	<u>3/8-Inch</u> Percent Passing
2 inches	100	---	---	---
1-1/2 inches	90 - 100	100	---	---
1-inch	20 - 55	90 - 100	100	---
3/4-inch	0 - 15	30 - 60	90 - 100	---
1/2-inch	---	0 - 20	30 - 60	100
3/8-inch	0 - 5	---	0 - 20	90 - 100
No. 4	---	0 - 5	0 - 5	30 - 60
No. 8	---	---	---	0 - 10

2.6 REFILL MATERIAL FOR FOUNDATION STABILIZATION

Refill material below the pipe shall be either material conforming to the 1½-inch size requirement for gravel or crushed rock, or naturally occurring rock having the following gradation:

<u>Sieve Size</u>	<u>Percent Passing</u> <u>By Weight</u>
3 inches	100
1-1/2 inches	70 - 100
3/4-inch	60 - 100
No. 4	5 - 55
No. 30	0 - 30
No. 200	0 - 10

2.7 SAND-CEMENT SLURRY REFILL MATERIAL FOR FOUNDATION STABILIZATION IN PIPE BASE AND PIPE ZONE

Sand-cement slurry shall consist of one sack (94 pounds) of Portland cement per cubic yard of sand and sufficient moisture for workability.

2.8 PEA GRAVEL

Pea gravel shall be defined as gravel, uniformly graded from coarse to fine with less than 10% passing a No. 200 sieve, less than 50% passing a No. 4 sieve, and having a maximum particle size of 3/4-inch.

2.9 WATER FOR COMPACTION

Water used in compaction shall have a maximum chloride concentration of 500 mg/l, a maximum sulfate concentration of 500 mg/l, and shall have a pH of 7.0 to 9.0. Water shall be free of acid, alkali, or organic materials injurious to the pipe coatings.

PART 3 - EXECUTION

3.1 TESTING FOR COMPACTION

- A. Methods: Determine the density of soil in place by the sand cone method, ASTM D 1556, or by the nuclear method, ASTM D 2922 or D 3017.
- B. Soil Moisture-Density Relationship: Determine the laboratory moisture-density relations of soils shall be determined per ASTM D 1557.
- C. Cohesionless Materials: Determine the relative density of cohesionless materials by ASTM D 4253 and D 4254.
- D. Sampling: Sample backfill materials per ASTM D 75.
- E. Relative Compaction: Express "relative compaction" as the ratio, expressed as a percentage, of the in place dry density to the laboratory maximum dry density.
- F. Compaction Compliance: Compaction shall be deemed to comply with the Specifications when none of the tests falls below the specified relative compaction. When tests are to be conducted by the City, notify the City 24 hours in advance of when backfill lifts are ready for testing, and pay the costs of any retesting of Work not conforming to the Specifications.

3.2 COMPACTION REQUIREMENTS

Unless otherwise shown on the drawings or otherwise described in the specifications for the particular type of pipe installed, relative compaction in pipe trenches shall be as follows:

- A. Pipe Base and Pipe Zone: Pipe base and pipe zone--90% relative compaction. Note 95% relative compaction requirement in specific areas shown on the plan and profile drawings.
- B. Trench Zone - Not Beneath Paving: Backfill in trench zone not beneath paving--90% relative compaction.
- C. Trench Zone - Paved Areas: Backfill in trench zone in paved areas--90% relative compaction.
- D. Street Zone: Backfill in street zone in paved areas--95% relative compaction.
- E. Foundation Stabilization: Rock refill material for foundation stabilization--90% relative density.
- F. Over-excavation: Rock refill for over-excavation--90% relative density.
- G. Material Testing: Test all imported or native materials before the start of compaction operations to determine the moisture density relationship for materials with cohesive components, and the maximum density for cohesionless materials. Variations in imported

or native earth materials may require a number of base curves of the moisture-density relationship.

- H. Testing Intervals: Unless noted otherwise, perform compaction tests at random depths and at 200-foot intervals, and as directed by the Engineer.

3.3 MATERIAL REPLACEMENT

Remove trenching and backfilling material which does not meet the Specifications and replace at no additional expense to the City.

3.4 SHEETING, SHORING, AND BRACING OF TRENCHES

Trenches shall have sheeting, shoring, and bracing conforming to Cal/OSHA requirements. Base lateral pressures for design of trench sheeting, shoring, and bracing on type of soil exposed in the trench, groundwater conditions, surcharge loads adjacent to the trench, and type of shoring that will be used in the trench.

3.5 TRENCH WIDTHS

Pipe Diameter 12 inches and Greater: Unless shown otherwise on the drawings, trench widths in the pipe zone shall be equal to the pipe outside diameter plus 12 inches on each side of the pipe. Trench width at the top of the trench shall not be limited except where width of excavation would undercut adjacent structures and footings. In such cases, width of trench shall be such that there is at least 18 inches between the top edge of the trench and the structure or footing.

3.6 GRADE

Excavate trenches to the lines and grades shown on the Drawings with allowance for pipe thickness and for pipe base. If the trench is excavated below the required grade, refill the portion of the trench excavated below the grade with refill material at no additional cost to the City. Place the refill material over the full width of trench in compacted layers not exceeding 6 inches deep to the required grade with allowance for the pipe base. Remove hard spots that would prevent a uniform thickness of pipe base. Before laying pipe sections, check the grade with a straightedge and correct any irregularities. The trench bottom shall form a continuous and uniform bearing and support for the pipe at every point.

3.7 PIPE BASE THICKNESS

Show thickness of the pipe base on the Drawings or as otherwise described in the Specifications for the particular type of pipe installed, but in no cases shall the thickness be less than 4 inches.

3.8 DEWATERING

- A. Means and Devices: Provide and maintain suitable means and devices to continuously remove and dispose of all water entering the trench excavation during the time the trench is being prepared for the pipe laying, during the laying of the pipe, and until the backfill at the pipe zone has been completed. These provisions shall apply during the noon hour as well as overnight. Dispose of water in a manner to prevent damage to adjacent property.

Do not drain trench water through the pipeline under construction. Do not allow groundwater to rise around the pipe until jointing compound has firmly set.

- B. Notification: Notify the City 48 hours prior to commencement of dewatering. Methods employed shall be in conformance with the City's existing NPDES permit.

3.9 STORAGE OF EXCAVATED MATERIAL

During trench excavation, store excavated material only within the Work area. Do not obstruct roadways or streets. The safe loading of trenches with excavated material shall conform to Laws and Regulations.

3.10 LENGTH OF OPEN TRENCH

The length of open trench shall be limited to 600 feet in advance of pipe laying or amount of pipe installed in one working day. Complete backfilling and temporary or first layer paving so that not more than 500 feet of trench is open in the rear of pipe laying. Backfill or adequately bridge sidewalks, driveways and other traveled ways to provide safe access and egress at the completion of each day's Work. All trenches not backfilled at the end of the work day shall be secured by methods subject to approval by the Engineer.

3.11 FOUNDATION STABILIZATION

After the required excavation has been completed, the Engineer shall inspect the exposed trench subgrade to determine the need for any additional excavation. It is the intent that additional excavation shall be conducted in all areas within the influence of the pipeline where unacceptable materials exist at the exposed subgrade. Over-excavation shall include the removal of all such unacceptable material that exists directly beneath the pipe base and to the depth required. The presence of unacceptable material may require excavating a wider trench. Backfill the over-excavated portion of the trench to the subgrade of the pipe base with refill material for foundation stabilization. Place foundation stabilization material over the full width of the excavation and compacted in layers not exceeding 6 inches in depth, to the required grade.

3.12 TRENCH BACKFILLING AND COMPACTION

- A. General: Trench backfill shall conform to requirements of the detailed piping specification for the particular type of pipe and following.
- B. Pipe Base: Place the specified thickness of pipe base material over the full width of trench. Grade the top of the pipe base ahead of the pipe laying to provide firm, uniform support along the full length of pipe.
- C. Bell Holes: Excavate holes at each joint to permit proper assembly and inspection of the entire joint.
- D. Pipe Zone: After the pipe has been bedded, place pipe zone material simultaneously on both sides of the pipe, keeping the level of backfill the same on each side. Carefully place material around the pipe so that the pipe barrel is completely supported and that no voids or uncompacted areas are left beneath the pipe. Particular care shall be taken in placing

material on the underside of the pipe to prevent lateral movement during subsequent backfilling. Compact material placed within the pipe zone by hand tamping only.

- E. Trench Zone: Deposit carefully backfill material onto the backfill previously placed in the pipe zone. Do not permit free fall of the material until at least 2 feet of cover is provided over the top of the pipe. Do not drop sharp, heavy pieces of material directly onto the pipe or the tamped material around the pipe.
- F. Trench Backfill: Compact trench backfill to the specified relative compaction. Perform compaction by using mechanical compaction or hand tamping equipment. Unless specified otherwise, do not consolidate by jetting or flooding. Do not use high impact hammer-type equipment except where the pipe manufacturer warrants in writing that such use will not damage the pipe.
- G. Equipment: Do not use axle-driven or tractor-drawn compaction equipment within 5 feet of walls and structures.
- H. Street Zone Backfill: Street zone backfill shall be done in accordance with the requirements and to the satisfaction of the City.

3.13 IMPORT OR EXPORT OF BACKFILL MATERIAL

- A. Excess Material: Remove and dispose of excess excavated soil material off the sites at no additional expense to the City. Dispose of excess soil material in accordance with Laws and Regulations.
- B. Imported Material: Import, place and compact any additional backfill material necessary to return all grades to plus or minus 0.2 feet from the grade encountered at the beginning of construction or as shown on the Contract Drawings, at no additional cost to the City.

3.14 MOISTURE CONTENT OF BACKFILL MATERIAL

During the compacting operations, maintain optimum practicable moisture content required for compaction purposes in each lift of the backfill material. Maintain moisture content throughout the lift at a uniform level. If placement is discontinued and proper moisture content not maintained, bring the upper layer back to proper moisture content by sprinkling, cultivating and rolling the backfill material before placing new material. At the time of compaction, the water content of the material shall be at optimum water content plus or minus two percentage points. Do not work material which contains excessive moisture to obtain the required compaction. Material having excessive moisture content may be dried by blading, discing, or harrowing to hasten the drying process.

END OF SECTION

SECTION 02513 - ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE PAVING

PART 1 - GENERAL

1.1 DESCRIPTION

This Section describes the requirements for the removal and replacement of pavement surfaces. Remove and replace pavement surfaces in conformance with the trenching and paving design and the details shown on the Drawings and as specified herein. Section includes materials, testing, and installation of asphalt concrete pavement, aggregate base course, herbicide, prime coat, tack coat, and seal coat. Work shall be in accordance with Standard Specifications for Public Works Construction, Latest Edition (SSPCW) and the City of Poway Supplemental Engineering Standards.

1.2 SUBMITTALS

The following submittals are required:

- A. Information on material sources, designs and quality certifications.
- B. Aggregate base course:
 - 1. Grading per Section 200-2.2.2 of the Standard Specifications.
 - 2. Quality Requirements per Section 200.2.2.3 of the Standard Specifications (2008 Cumulative Supplement).
 - 3. Asbestos content: Copies of a report from a testing laboratory verifying that aggregate material contains less than 1% asbestos by weight or volume and conforms to the specified gradations or characteristics. Submit batch test prior to permanent paving.
- C. Tack coat
- D. Herbicide or Weed Killer
 - 1. Certificates of Registrations with the California Department of Pesticide Regulation.
- E. Asphalt concrete pavement:
 - 1. Test results in accordance with Section 203-1.2 of the Standard Specifications.
 - 2. Temperatures in accordance with Section 203-1.4 of the Standard Specifications.
 - 3. California Department of Transportation asphalt vendor approval certificate in accordance with Section 203-1.3 of the Standard Specifications.
 - 4. Asbestos content: Copies of a report from a testing laboratory verifying that aggregate material contains less than 1% asbestos by weight or volume and

conforms to the specified gradations or characteristics. Submit batch test prior to permanent paving.

PART 2 - MATERIALS

2.1 AGGREGATE BASE COURSE

Aggregate base shall be ½" crushed aggregate base as specified in Section 200-2 "Untreated Base Material" and Section 301-2, "Untreated Base" of the Standard Specifications. Aggregate shall contain less than 1% asbestos by weight or volume.

2.2 TACK COAT

Tack coat shall conform with Section 302-5.4 of the Standard Specifications and shall be either PG 64-10 paving asphalt or Grade SS-1h emulsified asphalt.

2.3 HERBICIDE OR WEED KILLER

Provide a dry, free-flowing, dust-free chemical compound, soluble in water, capable of inhibiting growth of vegetation including dawny brome grass, puncture vine, and plantain. Weed killer must be approved for use on this Work by all governmental agencies having jurisdiction including the U.S. E.P.A. and the California Department of Pesticide Regulation.

2.4 ASPHALT CONCRETE PAVING

Asphalt concrete pavement shall be designated by performance grade and be Type III as listed in Section 203-6.2.3 of the Standard Specifications, except where modified by these documents.

The asphalt concrete surface course shall be Class C2-PG 64-10. Where shown on the plans, the surface course shall be Class C, gap-graded as required, PG64-16.

The asphalt concrete base course shall be Class B-PG 64-10.

The asphalt concrete for leveling course and surface course feathering and leveling and joining of existing pavement, if required, shall be Class D1-PG 64-10.

Asphalt shall contain a maximum Recycled Asphalt Pavement (RAP) of 15%.

2.5 ASPHALT

Asphalt shall be as specified above and conform to Sections 203-1.2 through 203-6 of the Standard Specifications.

2.6 AGGREGATE FOR ASPHALT CONCRETE

Aggregate shall be in accordance with Section 203-6.2.3 of the Standard Specifications. Aggregate shall contain less than 1% asbestos by weight or volume.

PART 3 - EXECUTION

3.1 SCHEDULE FOR FINAL PAVEMENT OF TRENCHES

- A. Backfill, compaction, and the base asphalt pavement course, except for the final asphalt surface course, shall be complete at all times to a point not to exceed 500 feet behind any trench working heading. Do not place final surface course until at least 30 days, but not more than 60 days or as approved by the Engineer, after traffic has been returned to that portion of the street.
- B. Protect lip of existing pavement after base course is complete.
- C. Place temporary striping after the base course of A.C. pavement has been completed in the same configuration as the existing permanent striping so that traffic can be returned to normal patterns. This striping shall be considered temporary and is the Contractor's responsibility to place and maintain.

3.2 TESTING FOR COMPACTION

Test for asphalt concrete compaction per Section 302-5 of the Standard Specifications.

3.3 PAVEMENT REMOVAL

- A. During initial excavation, cut asphalt concrete pavement with pneumatic pavement cutter or other equipment at the limits of the excavation and remove the pavement. Concrete pavement may be cut at the limits of the excavation by other methods prior to removal.
- B. After backfilling the excavation, saw cut asphalt concrete pavement to its full thickness at a point not less than 12 inches outside the limits of the excavation, any broken asphalt or the previous pavement cut, whichever is greater, and remove the additional pavement.
- C. Saw cut concrete pavement, including cross gutters, curbs and gutters, sidewalks, and driveways, to a minimum depth of 1-1/2 inches at a point at least 12 inches beyond the edge of the excavation and remove the pavement. If the saw cut falls within 3 feet of a concrete joint or pavement edge, remove the concrete to the joint or edge.
- D. Make arrangements for and dispose of the removed pavement and concrete.
- E. Final pavement saw cuts shall be straight along both sides of trenches, and provide clean, solid, vertical faces free from loose material. Saw cut and remove damaged or disturbed adjoining pavement. Saw cuts shall be parallel to the pipeline alignment or the roadway centerline or perpendicular to same. Refer to Section 300-1.3.2 of the Standard Specifications.
- F. Prior to installation of surface course, inspect lip. Lip shall be straight and provide clean, solid, vertical faces free from loose material. If lip is damaged, chip the existing surface 12 inches back from the join line.
- G. Perform any additional investigations necessary to determine pavement sections.

3.4 SITE ASPHALT CONCRETE PAVEMENT CONSTRUCTION

- A. Construct site asphalt concrete pavement to the lines and grades shown in the Drawings. Producing, hauling, placing, compacting and finishing of asphalt concrete shall conform to Section 302-5 of the Standard Specifications.
- B. The total pavement replacement thickness in trenches shall be equal to the existing asphalt concrete plus 1".

3.5 SITE PREPARATION OF SUBGRADE

- A. Excavate and shape subgrade to line, grade, and cross section shown in the drawings. The subgrade shall be considered to extend over the full width of the base course.
- B. The finished subgrade shall be within a tolerance of ± 0.08 of a foot of the grade and cross section shown and shall be smooth and free from irregularities and at the specified relative compaction.

3.6 CONNECTIONS WITH EXISTING PAVEMENT

Where new paving joins existing paving, chip the existing surfaces 12 inches back from the join line so that there will be sufficient depth to provide a minimum of 1-3/4 inches asphalt concrete. Dispose of waste material offsite. Tack coat chipped areas prior to placing the asphalt concrete. Meet lines shall be straight and the edges vertical. Paint the edges of meet line cuts with liquid asphalt or emulsified asphalt prior to placing asphalt concrete. After placing the asphalt concrete, seal the meet line by painting with a liquid asphalt or emulsified asphalt and then immediately cover with clean, dry sand.

3.7 INSTALLING REDWOOD HEADERS

Provide redwood header at edges of paving except where paving is adjacent to concrete slabs, gutters, walks, existing paving, or structures.

3.8 APPLYING HERBICIDE OR WEED KILLER

Apply weed killer or herbicide on base prior to placing pavement. Apply at the rate recommended by the manufacturer to control daisy brome grass, puncture vine, and plantain. Apply to full width of trench, or from outside of curb to opposite outside of curb and for the full width of curbless roadways and parking areas.

3.9 PLACING AGGREGATE BASE COURSE

The thickness of the aggregate base course shall match existing, but it shall be placed one inch deeper to accommodate the extra inch of pavement where required, unless shown otherwise in the Drawings. Compact to 90% relative compaction. Install in accordance with Section 301-2 of the Standard Specifications.

3.10 COMPACTION OF AGGREGATE BASE AND LEVELING COURSES

Begin compaction and rolling at the outer edges of the surfacing and continue toward the center. Apply water uniformly throughout the material to provide moisture for obtaining

the specified compaction. Compact each layer to the specified relative compaction before placing the next layer.

3.11 PLACING TACK COAT

Apply tack coat on surfaces to receive finish pavement per Section 302-5.4 of the Standard Specifications. Apply tack coat to metal or concrete surfaces that will be in contact with the asphalt concrete paving.

3.12 PLACING ASPHALT PAVING

- A. Asphalt shall be placed in all trenches to a minimum thickness matching the existing paving plus 1" or a minimum of 4 inches and a maximum of 8 inches.
- B. An asphalt surface course shall be placed over the entire site, including trenches and access road to a minimum of 1-3/4 inch thick. Install in accordance with Section 302-5 of the Standard Specifications. Maintain existing cross sectional slope and crown of roadway. The final pavement thickness in all trenches shall match the existing thickness plus 1", except that pavement shall be at least 4 inches and a maximum of 8 inches.

3.13 COMPACTION OF ASPHALT CONCRETE PAVING

Compact until roller marks are eliminated and a density of 92% minimum to 98% maximum has been attained per ASTM D 2041.

3.14 SURFACE TOLERANCE

After paving has been installed and compacted, spray water over the entire paved area. Correct any areas where water collects and does not drain away.

3.15 TEMPORARY PAVING

Replace all pavement removal for trenching operations with 4 inches of temporary paving mix after soil compaction or within three days after backfill of trenches, whichever comes first. Make temporary pavement flush with existing pavement.

Pave cross streets and all accesses with temporary pavement on the same day that excavation is made. Maintain temporary pavement so that a smooth traversable surface is available at all times for vehicular traffic, free from ruts, depressions, holes, and loose gravel. Cost for temporary paving shall be included in the unit prices for the Work, and no extra compensation will be paid therefor.

END OF SECTION

SECTION 09800 - TANK COATING AND PAINTING

PART 1 - GENERAL

1.1 PURPOSE

The purpose of this specification is to establish methods and procedures for coating, painting, dehumidification and handling of hazardous and nonhazardous materials/wastes.

1.2 CONTRACTOR

The Contractor shall be a licensed Painting and Decorating Contractor in the State of California (C-33 Classification). He shall have a minimum of five (5) years practical experience and successful history in the application of specified products to surfaces of steel water storage tank. Upon request, he shall substantiate this requirement by furnishing a written list of references.

1.3 DEFINITIONS

- A. "Coating" refers to protective materials used or applied on interior surfaces.
- B. "Paint" refers to protective materials used or applied on exterior surfaces.
- C. "Coat" refers to paint applied in a single or multiple pass application to form an evenly distributed film when dry. Designations for "coats" are primer or first coat, intermediate or second coat, and finish coat, and any coats applied beyond the designated coats.

1.4 SUBMITTALS

- A. Electronic submittals in pdf format of complete submittal data for manufacturer's literature and Safety Data Sheets (SDS) on all materials to be used in coating and painting operations, including, but not limited to coatings, paints, thinners, solvents and cleaning fluids. No materials will be allowed which have been stored over 60 days, or manufacturer's recommended shelf life, whichever is less. Copies of all invoices showing purchased dates and delivery for all material mentioned above will be available upon request.
- B. An electronic submittal will be accepted in only the following format.
 - 1. The file shall be in pdf format.
 - 2. Each project submittal shall be a separate file.
 - 3. Each file shall be labeled in the following sequence:
 - a. City Name/Project Name
 - b. Submittal No.
 - c. Description
 - 4. Each submittal must reference the specification section that applies to the submittal.

1.5 QUALITY ASSURANCE

- A. Surface Preparation: Surface preparation will be based upon comparison with: "Pictorial

Surface Preparation Standards for Painting Steel Surfaces", SSPC-Vis 1, ASTM Designation D2200, and as described below. Anchor profile for prepared surfaces shall be measured by using a non-destructive instrument such as a K-T Surface Profile Comparator, Testex Press-O-Film System or digital surface profile gauge. Temperature and dewpoint requirements noted in 1.5 B. herein shall apply to all surface preparation operations, except low and high temperature limits and operation of dehumidification equipment shall be determined at the Pre-Construction Conference.

B. Application: No coating shall be applied under the following conditions:

1. When the surrounding air temperature or the temperature of the surface to be coated or painted is below 55 degrees F for epoxy coatings, below 45 degrees F for epoxy low temperature cure coatings, or below 40 degrees F for urethane paint, or above 125 degrees F for all materials; or in accordance with the data sheets.
2. To wet or damp surfaces or in rain, fog or mist;
3. When the surface temperature is less than 5 degrees F above the dewpoint.
4. When it is expected the air temperature will drop below 55 degrees F for epoxy coating, below 45 degrees F for epoxy low temperature cure coatings, or 40 degrees F for urethane paints, or the surface temperature is expected to be less than 5 degrees F above the dewpoint within two hours after application of coatings or paints.
 - a. Dewpoint shall be measured by use of an instrument such as a sling psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychrometric Tables or equivalent. Dehumidification equipment must run continuously during all phases of contract, except disinfection phase.
 - b. If above conditions are prevalent, coating and paint application shall be delayed or postponed until conditions are favorable. The day's application shall be completed in time to permit the film sufficient drying time prior to damage by atmospheric conditions.

C. Overspray and Dust Control: The Contractor shall conduct all operations so as to confine abrasive blasting debris and coating and paint overspray to within the bounds of the site. The Contractor shall take all precautions necessary to prevent adverse off-site consequences of blast cleaning or application operations. Any complaints received by the City relating to any such potential off-site problems will be immediately delivered to the Contractor-assigned jobsite representative. The Contractor shall immediately halt blast cleaning or application work and shall take whatever corrective action is required to mitigate any such problems. All costs associated with protection of off-site properties and/or correction of damage to property as a result of blast cleaning or application operations shall be borne directly by the Contractor at no additional expense to the City.

1. City approval of Contractor's blast cleaning and overspray prevention procedures and Engineer's presence on project does not free Contractor from responsibility for compliance. Daily approval of procedures will be required prior to start of blast cleaning or spray operations.

D. Inspection and Checking: The City will provide and utilize the services of an independent professional coating inspection agent who will be the City's Coating Inspector. Test equipment will be provided by the coating inspection agent and will be operated by the coating inspector assigned to the project, excluding the holiday detection equipment. Procedures or practices not specifically defined herein may be utilized provided they meet recognized and accepted professional standards and are acceptable to the City's Coating Inspector. The City's Coating Inspector's decisions shall be final as to interpretation and/or conflict between any of the reference specifications and standards contained herein.

1. The City's Coating Inspector will perform continuous inspection on all phases of the surface preparation, abrasive blast cleaning, and application of the coating systems. All surfaces will be inspected by the City's Coating Inspector prior to each application of coating materials. Coating materials applied without the prior inspection of the City's Coating Inspector shall be removed and reapplied at the expense of the Contractor.
2. The City's Coating Inspector will perform such tests as are required to ensure compliance with all phases of the surface preparation, abrasive blast cleaning, and application of the coating systems. Test equipment shall include but not be limited to the following: SSPC surface preparation standards; surface profile comparator; test tape; micrometer; abrasive sieve test; ultraviolet lamp; mirror; certified thickness calibration plates and magnetic type dry film thickness gauge. Accuracy of inspection equipment will be verified by the City's Coating Inspector in the presence of the Contractor prior to its use.
3. Notify the City's Coating Inspector five working days in advance of shop and field-apply operations involving abrasive blast cleaning and coating applications.
4. The City's Coating Inspector will determine the degree of cleanliness and surface profile of the shop and field blast cleaned surfaces. Additional blast cleaning of non-conforming areas shall be accomplished until all areas conform to the cleanliness and profile specified.
5. The City's Coating Inspector will totally inspect each coat of primer, intermediate, and finish coating to determine the thickness and integrity. Each coat applied will be checked and deficiencies marked. After observing specified recoat time, apply additional coating materials over areas not having the specified minimum dry film thickness and areas having any holidays or pinholes. After correction of deficiencies, City's Coating Inspector will re-inspect those areas to determine the acceptability of the additional coating. Each coat applied must be 100% to the satisfaction of the City's Coating Inspector prior to subsequent coats being applied.

E. Inspection Facilities: The Contractor shall provide the City's Coating Inspector with facilities for inspection including, but not limited to, the following:

1. Furnish as determined necessary by the City's Coating Inspector all safety equipment and devices during abrasive blast cleaning and coating operations. Provide helmet with continuous fresh air supply for observation during cleaning operations.

2. Furnish illumination and the manpower to move the lights, whenever required by the City's Coating Inspector. Provide additional lights and supports sufficient to illuminate all areas to be inspected. The City's Coating Inspector will determine the level of illumination required for inspection purposes.
 3. Temporary ladders and scaffolding shall be erected and moved to the locations requested by the City's Coating Inspector.
- F. Thickness Testing: Thickness of coatings and paints shall be tested with a non-destructive film thickness gauge. An instrument such as a Tooke Gage should be used if a destructive tester is deemed necessary. Testing shall be accomplished in conformance to SSPC-PA 2, "Measurement of Dry Paint Thickness with Magnetic Gages" except as modified hereinafter.
1. Flat coated or painted surfaces shall be tested in conformance to SSPC-PA2.
 2. Structural members, piping and other irregular surfaces shall be tested with frequency and locations as directed by the Engineer.
- G. Holiday Testing: Coating integrity of ALL interior coated surfaces shall be tested with an approved inspection device. All pinholes shall be marked, repaired in accordance with the manufacturer's printed recommendations and retested. No pinholes or other irregularities will be permitted in the final coating.
- H. Inspection Devices: Contractor will furnish, until final acceptance of coatings and paints, inspection devices in good working condition for detection of holidays and measurement of dry film thickness. They shall also furnish U.S. Department of Commerce, National Bureau of Standards certified thickness calibration plates to test accuracy of thickness gauges. Dry film thickness gauge and holiday detectors shall be available at all times until final acceptance of application. Inspection devices shall be operated by, or in the presence of the Engineer with location and frequency basis determined by the Engineer.
- I. Acceptable Inspection Devices: Acceptable devices for ferrous metal surfaces include, but are not limited to, Tinker and Razor Models AP and AP-W holiday detectors equipped with a wire brush electrode supplied by the manufacturer, and "Inspector", or "Positest", or "Positector" or "Quanix" units for dry film thickness gauging. Inspection devices shall be operated in accordance with these specifications and the manufacturer's instructions.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Materials specified are those which have been evaluated for the specific service. Products of International, Devoe, and Tnemec Company, Inc. are listed to establish a standard of quality for the project. Standard products of manufacturers other than those specified, will be accepted when it is proved to the satisfaction of the Engineer they are equal in composition, durability, usefulness and convenience for the purpose intended. Substitutions will be considered provided the following minimum conditions are met:
1. The proposed coating or paint system shall have a dry film thickness equal to or

greater than that of the specified system.

2. The proposed coating or paint system shall employ an equal or greater number of separate coats.
 3. The proposed coating or paint system shall employ coatings or paints of the same generic type.
 4. All requests for substitution shall carry full descriptive literature and directions for application, along with complete information on generic type, non-volatile content by volume and a list of 10 similar projects, all at least three years old, where the products have been applied to similar exposure.
 5. The City requires that the Contractor provide certified laboratory data sheets showing the results of complete spectrographic and durability tests accomplished on the proposed substitute. Tests shall be accomplished by an independent testing laboratory satisfactory to the Engineer and all costs incurred in the testing program shall be borne by the Contractor. In any case, the Engineer shall be sole and final judge of the acceptability of any proposed substitution. Requests for substitution must be approved in writing prior to date of bid.
- B. The Contractor shall submit prior to start of project manufacturer's literature and Safety Data Sheets (SDS) on all materials to be used in coating and painting operations, including, but not limited to coatings, paints, thinners, solvents and cleaning fluids. No materials will be allowed which have been stored over 60 days, or manufacturer's recommended shelf life, whichever is less. Contractor shall maintain copies of SDS at job site at all times.
- C. All materials shall be brought to the jobsite in the original sealed containers. They shall not be opened or used until City's representative has physically inspected contents and obtained necessary data from information printed on containers or label. Materials exceeding storage life recommended by the manufacturer shall be rejected. Copy of invoice showing purchase and delivery dates will be required.
- D. Flammability, toxicity, allergenic properties, and any other characteristic requiring field precautions shall be identified and specific safety practices shall be stipulated.
- E. All coating and paint materials shall be stored in enclosed structures to protect them from weather and excessive heat or cold. Flammable materials must be stored to conform to City, County, State and Federal safety codes for flammable materials. At all times coatings and paints shall be protected from freezing.
- F. Contractor shall use products of same manufacturer for all coats.

2.2 SPECIFIC INTERIOR COATING MATERIALS

- A. Coating materials for interior surfaces of tanks must appear on the Standard 61 of the National Sanitation Foundation (NSF), or Standard 61 of Underwriters' Laboratory. Products containing perchloroethylene (PCE), trichloroethylene (TCE), lead, chromium or zinc will not be permitted. In addition, products containing Methyl Ethyl Ketone (MEK) or Methyl Isobutyl Ketone (MIBK) will not be allowed in amounts that will cause volatile

organic analysis to be above maximum contaminant levels or action levels.

1. The Contractor shall provide, prior to coating any surfaces of the tank, written certifications from the coating manufacturers stating that the coating materials, thinners, solvents, and equipment cleaning fluids provided by the manufacturers do not contain PCE or TCE. The Contractor shall also certify, in writing, that no material containing PCE, TCE, lead, chromium, or zinc in any form will be used for the interior coatings or exterior paints of the tank. This shall include all solvents, thinners, and cleaning fluids at the job site, regardless of where the materials were obtained.
 2. The Engineer may require all solvents, thinners and cleaning fluids be tested for TCE and PCE prior to being used at the job site. The Contractor shall provide the Engineer with samples of each material at no cost to the City. Unacceptable materials shall be removed from the job site.
- B. All coating materials shall comply with air pollution regulations, specifically the local air quality management district or air pollution control district rules, and rules for the City.
 - C. All coating materials shall also conform to regulations and applicable requirements of local, State and Federal health regulatory agencies.
 - D. Epoxy prime coat and stripe coat shall be International/Devco Bar-Rust 233H LV Epoxy Primer, or Tnemec Pota Pox Series L140F Low VOC Epoxy Primer. First coat shall not be gray or white.
 - E. Epoxy coatings shall be International Interline 975P 100% Solids Epoxy Coating, or Tnemec Epoxoline Series 22 100% Solids Epoxy Coating. Tnemec Epoxoline Series FC22 100% Solids Epoxy Coating may be used for cold conditions or accelerated cure, as approved by the Engineer. Finish coat shall be white.
 - F. Joint sealant shall be a flexible polyurethane such as Sikaflex 1A or similar approved polysulfide product.

2.3 WASH DOWN AND DISINFECTION MATERIALS

- A. Cleaner for pre-disinfection cleaning of interior surfaces shall be Gre-Sa-Way or approved equal.
- B. Disinfection materials shall conform to all requirements of AWWA Standard C652, latest revision.
- C. Product to prevent flash rusting during wet abrasive blast cleaning shall be Hold Tight 102 or approved equal.

2.4 SPECIFIC EXTERIOR PAINT MATERIALS

- A. Paint materials for exterior surfaces of tank will consist of an epoxy primer, epoxy intermediate coat and urethane finish coat. Products containing lead, zinc or chromium compounds will not be permitted.

- B. All paint materials shall comply with air pollution regulations, specifically the local air quality management district or air pollution control district rules, and rules for the City.
- C. All paint materials shall also conform to regulations and applicable requirements of local, State and Federal health regulatory agencies.
- D. Prime coat shall be similar or equal to products such as Devoe Bar-Rust 231H Low VOC's Multi-Purpose epoxy coating, or Tnemec L69 Epoxoline II Low VOC's epoxy coating.
- E. Intermediate coat shall be similar or equal to products such as Devoe Bar-Rust 231H Low VOC's Multi-Purpose epoxy coating, or Tnemec L69 Epoxoline II Low VOC's epoxy coating.
- F. Finish coat shall be similar or equal to products such as Devoe Bar-Ox Devthane 379H urethane coating, or Tnemec Series 1095 Low VOC's urethane coating.
- G. Joint sealant shall be a flexible elastomeric sealant similar or equal to Sikaflex 2C-NS as manufactured by Sika Corporation.

PART 3 - EXECUTION

3.1 GENERAL

- A. All surface preparation, coating and paint application shall conform to applicable standards of the City and the manufacturer's printed instructions, as approved by the Engineer. Material applied prior to approval of the surface, by the Engineer, shall be removed and reapplied to the satisfaction of the Engineer at the expense of the Contractor.
- B. All work shall be accomplished by skilled craftsmen qualified to accomplish the required work in a manner comparable with the best standards of practice. Resumes of personnel proposed to be used on the project shall be submitted for approval upon Notice of Award. Continuity of personnel shall be maintained and transfers of key personnel shall be coordinated with the Engineer.
- C. The Contractor shall provide a supervisor to be at the work site during cleaning and application operations. The supervisor shall have the authority to sign any change orders, coordinate work and make other decisions pertaining to the fulfillment of their contract.
- D. Dust, dirt, oil, grease or any foreign matter which will affect the adhesion or durability of the finish must be removed by washing with clean rags dipped in an approved commercial cleaning solution, rinsed with clean water and wiped dry with clean rags.
- E. No rubber tire vehicles or equipment shall be permitted on the interior floor after the floor has been blasted.
- F. The Contractor's equipment shall be designed for application of materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air. Blotter test shall be accomplished at each start-up period and as deemed necessary by the Engineer. Contractor's equipment shall be subject to approval of the Engineer. This approval does not relieve the Contractor's responsibility for the safe operation of the equipment or its performance.

1. Cleanliness of compressed air supply shall be verified daily, and as deemed necessary by Engineer, by directing a stream of air, without abrasive, from the blast nozzle onto a white blotter or cloth for twenty seconds. If oil or water appears on the blotter or cloth, all traps and separators shall be blown down until two subsequent twenty-second tests show no further oil or water.
 - G. Application of the first coat shall follow immediately after surface preparation and cleaning within an eight-hour period. If unforeseen weather conditions, as defined in 1.5 B. QUALITY ASSURANCE, surfaces shall be re-cleaned per the original specifications prior to application of the first coat. Brush-off blast cleaning SSPC-SP7 (sweep blast) will not be accepted in lieu of SSPC-SP10 (Near White Metal) blast.
 1. If dehumidification equipment is required, cleaned areas may have first coat applied at last shift of the week, provided dehumidification equipment has run continuously during the complete week, and surfaces meet all requirements of the specification. Monitoring devices approved by the Engineer shall be used to ensure continuous operation.
 - H. Because of presence of moisture and possible contaminants in atmosphere, care shall be taken to ensure previously coated or painted surfaces are protected or recleaned prior to application of subsequent coat(s). Methods of protection and recleaning shall be approved by the Engineer.
 1. Project is subject to intermittent shutdown if, in the opinion of the Engineer, cleaning and application operations are creating a localized condition detrimental to ongoing facility activities, personnel or adjacent property.
 2. In the event of emergency shutdown by the Engineer, Contractor shall immediately correct deficiencies. All additional costs created by shutdown shall be borne by Contractor.
 - I. The Contractor shall provide, at his own expense, all necessary power required for his operations under the contract.
 - J. Contractor shall seal any tank vents, pumps, motors, and other open areas to prevent intrusion of coating or paint or other contaminants. The sealing system shall be designed to allow continuous operation of facilities or equipment, with no detrimental effects. If necessary, sealing system shall be removed daily at termination of work, or as directed by the Engineer.
 - K. The Contractor shall prevent or reduce to maximum extent practicable the discharge of pollutants directly or indirectly to water of the United States. Pollutants include, but are not limited to, paint, coating, and products used for wash down.
- 3.2 SURFACE PREPARATION, GENERAL
- A. The latest revision of the following surface preparation specifications of the Society for Protective Coatings shall form a part of this specification. (Note: An element of surface area is defined as any given square inch of surface.)

1. Solvent Cleaning (SSPC-SP1): Removal of oil, grease, soil and other contaminants by use of solvents, emulsions, cleaning compounds, steam cleaning or similar materials and methods, which involve a solvent or cleaning action.
 2. Hand Tool Cleaning (SSPC-SP2): Removal of loose rust, loose mill scale, coating and other detrimental foreign matter present to degree specified by hand chipping, scraping, sanding and wire brushing.
 3. Power Tool Cleaning (SSPC-SP3): Removal of loose rust, loose mill scale, coating and other detrimental foreign matter present to degree specified by power wire brushing, power impact tools or power sanders.
 4. Commercial Blast Cleaning (SSPC-SP6): Blast cleaning until at least two-thirds of each element of surface area is free of all visible rust, mill scale, coating and other detrimental foreign matter present.
 5. Brush-off Blast Cleaning (SSPC-SP7): Blast cleaning to remove loose rust, loose mill scale, coating and other detrimental foreign matter present to the degree specified.
 6. Near-White Blast Cleaning (SSPC-SP10): Blast cleaning to near-white metal cleanliness, until at least ninety-five percent of each element of surface area is free of all visible rust, mill scale, coating and other detrimental foreign matter present.
 7. Power Tool Cleaning to Bare Metal (SSPC-SP11): Power tool cleaning to remove visible rust, mill scale, coating and other detrimental foreign matter to produce a bare metal surface and to retain or produce a surface profile of at least 1.0 mil.
 8. High and Ultra High Pressure Water Jetting (SSPC-SP WJ 1 through 4): Water jet cleaning of metals to remove rust, mill scale, coating, paint, and other detrimental foreign matter present to varying degrees of cleanliness from light cleaning to clean to bare substrate.
- B. Any burrs, weld spatter, sharp edges, corners, or rough welds which would cause difficulty in achieving a defect-free paint system shall be chipped or ground smooth in conformance to NACE Standard SPO178-or latest edition. It is not the intent to have the welds or "scars" ground "flush". The object of the grinding is to eliminate sharp edges, corners, and overlaps to provide a surface for the application of a uniform thickness of coating or paint without voids or other defects.
- C. Abrasive blasting nozzles shall be equipped with "deadman" emergency shut-off nozzles. Blast nozzle pressure shall be a minimum of 95 P.S.I. and shall be verified by using an approved nozzle pressure gage at each start-up period or as directed by the Engineer. Number of nozzles used during all blast cleaning operations must be sufficient to ensure timely completion of project, subject to designation and approval by Engineer.
- D. All blast hose connections shall be tethered and secured to prevent separation during blast cleaning operations, and shall be taped with duct tape prior to pressurizing. All taped connections shall be visually inspected for leaks within five minutes after start of blast cleaning operations and at the end of blast cleaning operations. Leaking connections shall be immediately repaired to prevent further damage.

- E. Field blast cleaning for all interior surfaces shall be by dry method. Contractor is responsible for maintaining dust emissions within the legal level and that level which would not create a nuisance.
 - 1. Exterior surfaces of the tanks contain hazardous materials. Dust emissions, abrasive deflection and removed paint particles shall be confined to interior of containment structure where abrasive blasting is being accomplished, unless vacuum blasting or other means of cleaning are approved by Engineer.
- F. Contractor is responsible for maintaining dust emissions within the legal level and that level which would not create a nuisance.
- G. Particle size of abrasives used in blast cleaning shall be that which will produce a minimum of a 3.0 mil surface profile.
- H. Abrasive used in blast cleaning operations shall be new, washed, graded and free of contaminants which would interfere with adhesion of coatings and paints and shall not be reused unless specifically approved by the Engineer. Abrasives shall be certified for unconfined dry blasting pursuant to the California Administrative Code, Section 92520 of Subchapter 6, Title 17 or subsequent revision, and shall appear on the current listing of approved abrasives. Invoices or load sheets confirming above shall be required.
- I. Recycled ferrous metallic abrasives must meet or exceed the cleanliness standards set forth in SSPC-AB2. The operating mix of abrasive media shall be such that a sharp angular not peened profile is produced. Any recycled abrasive shall be designed for the use (i.e. steel grit) and be free of grease, oil, or other debris or contaminants that could be detrimental to the service life of the applied coatings. If steel shot media is used it shall be limited to no more than 1/3 of the operating mix. Recycled abrasive shall be tested for contamination through the use of a vial test in accordance with the procedures outlined in SSPC's Publication 91-12 and ISO 8502-3.
- J. During blast cleaning operations, caution shall be exercised to ensure existing coatings and paints are not exposed to abrasion from blast cleaning.
- K. Blast cleaning from rolling scaffolds shall only be accomplished within confines of interior perimeter of scaffold. Reaching beyond limits of perimeter will be allowed only if blast nozzle is maintained in a position which will produce a profile acceptable to the Engineer.
- L. Accessible interior surfaces of the outlet nozzle and that portion of the inlet nozzle permanently attached to the tank shall be cleaned of all old coating and rust by blast cleaning or other approved methods. Precautions shall be taken so as to prevent any damage to the existing gate or butterfly valves at the inlet and outlet nozzles. All exposed surfaces of the valves shall be masked prior to blast cleaning the nozzles. The removable portions of the inlet nozzle shall be removed and blast cleaned as specified herein.
- M. During blast cleaning operations, inlet, outlet, overflow, and drain openings in bottom shall be covered with plywood bulkheads, or other approved barriers, to prevent entry of spent abrasive, removed coating or other foreign materials.
- N. The Contractor shall keep the area of his work in a clean condition and shall not permit

blasting materials to accumulate as to constitute a nuisance or hazard to the prosecution of the work or the operation of the existing facilities. Spent abrasives and other debris shall be removed at the Contractor's expense as directed by the Engineer. As existing exterior paints have been determined by laboratory analysis to be toxic or hazardous, coating/paint and coating/paint abrasive residue mixture shall be tested to ensure conformance with hazardous material tolerances have been met. It shall be the responsibility of the Contractor to provide adequate containers on the job site to retain spent media and removed coating and paint until tests have been completed or approval for disposal from a landfill has been obtained. Disposal of hazardous or toxic waste at other than government regulated landfills will not be permitted unless approved personally by the Engineer in Contractor's plan of action for project. Documentation of all hazardous or toxic waste disposal will be required and a copy supplied to City.

- O. Blast cleaned and coated and painted surfaces shall be cleaned prior to application of specified coatings or paints via a combination of blowing with clean dry air, brushing/brooming and/or vacuuming as directed by the Engineer. Air hose for blowing shall be at least 1/2" in diameter and shall be equipped with a shut-off device.
- P. High and Ultra High Pressure Water Jetting (SSPC-SPWJ1 through 4) shall not be used on interior surfaces and shall only be used on exterior surfaces when and as directed by Engineer. Pressures shall be those determined by Engineer to effectively accomplish removal of loose, peeling/flaking coatings or paint or other detrimental surface contaminants.

3.3 HAZARDOUS MATERIALS, GENERAL

- A. Exterior surfaces of the tanks have been determined to contain excessive levels of lead. All regulations related to safety, worker protection, and handling of such materials shall be strictly followed. Contractor must comply with Title 8, California Code of Regulations (CCR) Section 1532.1. The Contractor shall submit a written compliance program for the project prior to start of project. The compliance program shall address data specified in subsections (e)(2)(B) and (e)(2)(C) of Section 1532.1.
- B. Contractor shall comply with requirements of 40 CFR 268, CCR Title 22 Division 4.5, and HSC Division 20 Ch. 6.5 for handling and disposing of hazardous wastes resulting from surface contamination and removed coating and paint particles.
 - 1. Upon completion of coating and paint removal from reservoir surfaces, a representative sample of the spent abrasive, with the removed coating and paint particles within the abrasive, is taken and sent to an approved testing laboratory for testing under Land Ban requirements. All waste samples shall be run for CAM-17 metals to determine disposal method and disposal site. Samples of exterior and interior spent abrasives should be sent to a certified laboratory for testing at the Contractor's expense.
 - 2. Waste Storage and Accumulation: All spent abrasives shall be managed as hazardous waste, until lab analysis results prove otherwise. The Contractor shall meet all applicable requirements under 22 CCR Division 4.5 for storage and accumulation. Hazardous waste containers shall not be accumulated on-site for more than 90 days.

3. Transportation and Disposal of Debris: The Contractor shall arrange to have the waste streams transported from the site in accordance with the requirements of Title 40 CFR Part 263 and disposed of properly in accordance with Title 40 CFR Part 264, 22 CCR Division 4.5 and Title 40 CFR Part 268 Protection of Environment. Signed manifests shall be returned to the Engineer to verify that all steps of the handling and disposal process have been completed properly.
 4. The Contractor has the option to recycle spent abrasives that are federal (RCRA) hazardous wastes, as confirmed by test results; the Contractor must provide documentation from the recycler indicating waste acceptance. Spent abrasives that are California (non-RCRA) hazardous waste cannot be recycled and must be transported by a licensed hazardous waste hauler to a certified Treatment, Storage, & Disposal Facility (TSDF).
- C. All work must be accomplished in compliance to the following.
1. On first day of any lead-based paint removal, work environment must be tested by or under the supervision of a Certified Industrial Hygienist (CIH) to determine levels of protection required to protect workers and the environment from lead and other heavy metal contamination. All costs related to testing by the CIH shall be borne by the Contractor. Field testing may be accomplished by either an Industrial Hygienist or a CIH.
 2. Testing will include air sampling and testing of filters removed from the workers' respirators or personal air monitors to determine the level of lead or chromium exposure. Upon completion of testing, the CIH shall file a written report on the results of the testing. Level of exposure will then determine the type respiratory protection, clothing, housekeeping, hygiene facilities, medical surveillance, medical removal protection, employee information and training, signs, record keeping, and observation of monitoring required for the project.
 3. No exterior painting work shall re-commence until the report from the CIH is filed and worker and environmental protection required is in place. Costs for the time delay shall be included in the Contractor's original bid.
- D. Contractor is responsible for maintaining dust emissions within the legal level and that level which would not create a nuisance. Dust emissions, abrasive deflection, and removed paint particles shall be contained where abrasive blasting is being accomplished, unless vacuum blasting or other means of cleaning are approved by Engineer. No water, abrasive deflection, or paint particles shall be allowed to land on the ground around the tank.
- E. All lead paint or coating removal work shall be governed by, but not necessarily limited to California Code of Regulations (29 CFR 1926, applicable sections).
1. Health and Safety Code, Division 20, Chapter 6.5 (California Hazardous Waste Control Act)
 2. Title 22 California Code of Regulations, Division 4.5 (Minimum Standard for Management of Hazardous and Extremely Hazardous Materials)

3. Title 8, California Administrative Code
 4. Code of Federal Regulations (29 CFR 1926, applicable sections)
- F. The City shall remove four representative samples of soil from the job site prior to start of work. Samples shall be tested for determination of lead, zinc, and chromium to ensure soil does not contain excessive levels of noted heavy metals. If soils contain excessive levels of noted or other heavy metals, site remediation shall be the responsibility of the City. Copies of laboratory analyses reports shall be forwarded to Contractor immediately upon receipt from laboratory, prior to start of any work. Any required remediation schedule will be determined by the City.

3.4 SURFACE PREPARATION, INSPECTION BLAST

- A. Severely corroded surfaces designated by the Engineer shall be blast cleaned to SSPC-SP10 (Blast Cleaning to Near-White Metal) to determine the condition of the substrate to determine if repair is required.
1. The hourly crew rate will be based on a minimum 4-man crew with the following minimum equipment:
 - a. A minimum 7 or 8 nozzle with a 2" diameter hose
 - b. A minimum 425 compressor
 - c. A minimum 7 bag blast pot
 - d. Particle size of abrasive shall be a minimum 30 grit

3.5 SURFACE PREPARATION, INTERIOR

- A. All interior surfaces shall be blast cleaned, in conformance to Society for Protective Coatings Specification SSPC-SP10 (Blast Cleaning to Near-White Metal). Field blast cleaning for all interior surfaces shall be by dry method.
1. Particle size of abrasives used in blast cleaning shall be that which will produce a minimum of a 3.0 mil surface profile.
 2. Topside of new rafters and inaccessible surfaces of new gusset plates shall be blasted to SSPC-SP10 prior to installation.
 3. The complete interior and exterior of all roof penetrations including, but not limited to, center and auxiliary vent structures, access ports, roof hatch, etc., shall be abrasive blast cleaned to (SSPC-SP10) including one (1) foot past the structure onto the adjacent exterior roof surfaces simultaneously with the interior surfaces of these penetrations. The perimeter of the blast cleaned surfaces shall be cut to straight lines and the edge of the existing paint system sufficiently feathered to create a smooth transition between the two paint systems.
 4. Contractor shall be responsible for removal and replacement of center vent cover as needed to coat and paint all surfaces. The scope of work in the structural portion of the technical specifications requires the vent screening to be removed and replaced. Therefore, removal of the center vent cover shall be coordinated between the coating contractor and the structural contractor.

5. All SCADA instrumentation, intrusion alarms, equipment or other devices on the tank shall be protected in place or removed and reinstalled.
- B. The topside of the existing rafters and the roof plates above the rafters shall be abrasive blast cleaned in conformance to Society for Protective Coatings Specification SSPC-SP10 (Blast Cleaning to Near-White Metal).
1. Abrasive blast cleaning of the topside of the rafters and roof plates may require, but not be limited to, directing the blast nozzle at the roof to ricochet the abrasive off the roof, by wedging the roof, and/or utilizing angle or banana nozzles or other approved method that accomplishes the specified cleanliness.
 2. Abrasive blasting in conformance to SSPC-SP10 (Blast Cleaning to Near-White Metal) will not be required in areas where the roof cannot be lifted above the rafters including, but not limited to, near the shell or areas where the roof plates are welded to the top angle or other structural members, as determined by the Engineer. These areas shall be abrasive blasted by the blast nozzle being directed at the void between the roof and topside of the rafter from both sides to remove all loose rust, mil scale and coating to accomplish the specified cleanliness of Brush-off Blast Cleaning (SSPC-SP7).
 3. Wedging between the rafters and the roof plates a minimum of 1 ½" shall be accomplished by the Contractor for access by the City's Inspector to inspect the topside of the rafters and roof plates.

3.6 SURFACE PREPARATION, EXTERIOR BOULDER MOUNTAIN NO. 1

- A. All exterior surfaces, piping, and appurtenances shall be blast cleaned in conformance to Society for Protective Coatings Specification SSPC-SP10 (Blast Cleaning to Near-White Metal).
1. Surface preparation around all roof penetrations shall be in accordance with Section 3.5 A. 3. above.

3.7 SURFACE PREPARATION, EXTERIOR BOULDER MOUNTAIN NO. 2

- A. All exterior surfaces, including appurtenances and piping shall be inspected jointly by the Contractor and the Engineer after pressure washing to determine the condition of existing paint. The Engineer shall then designate the surface condition by marking deficient areas, and cleaning shall be accomplished as noted below. Any areas overlooked during the joint inspection shall not relieve the Contractor from completely preparing surfaces:
1. Step One: All oily or greasy surface contaminants shall be removed by wiping the contaminated area with a clean rag wetted with solvent or degreasing solution in accordance with Society for Protective Coatings Specification SSPC-SP1 (Solvent Cleaning), then rinsed with clean water, wiped clean and dried.
 2. Step Two: All exterior surfaces shall be abraded by Wet Brush-off Abrasive Blast Cleaning (SSPC-SP7). The purpose of this method is to thoroughly abrade surfaces of the existing paint surfaces and to remove the marginally bonded paint

and ensure primer is not damaged by this method prior to applying the epoxy/urethane coating.

- a. Cleaning methods other than noted above, which accomplish the specified results may be used, after approval by Engineer.
 - b. If Step Two and Four are combined during the Wet Abrasive Blast Cleaning, then paint compatible corrosion inhibitors shall be used and coating applications shall begin as soon as the surfaces are dry.
 - c. Wet abrasive blasting shall be accomplished using high-pressure water with sand injection. The equipment used shall be commercially produced equipment with a successful service record.
3. Step Three: If all chalking paint or other surface contaminants are not removed during Step Two, Wet Abrasive Blast Cleaning, then chalking paint and surface contaminants shall be removed by high pressure water blasting and scrubbing the complete surface with a suitable broom or brush as approved by the Engineer, wetted with a solution of a commercial detergent and water, or other approved cleaning solution. Cleaned surfaces shall then be rinsed with clean water, wiped clean and dried.
 4. Step Four: All rusting, scaling or damaged areas shall be blast cleaned in conformance with Society for Protective Coatings Specification SSPC-SP10 (Near-White Blast Cleaning). Remaining paint shall be firmly bonded to the substrate with blast cleaned edges feathered. Extreme care should be exercised to ensure remaining paint is not damaged by cleaning operations.
 - a. Cleaning methods other than vacuum blasting may be used, after approval by Engineer, which accomplish the specified results while containing all paint, abrasive, etc. during cleaning operations.
 - b. Surface preparation around the roof hatches shall be in accordance with Section 3.5 A. 3. above.

3.8 APPLICATION, GENERAL

- A. Coating and paint application shall conform to the requirements of the Society for Protective Coatings Paint Application Specification SSPC-PA1, latest revision, for "Shop, Field and Maintenance Painting", the City, the manufacturer of the coating and paint materials printed literature and as specified herein and approved by the Engineer.
- B. Thinning shall only be permitted as recommended by the manufacturer and approved by the Engineer and shall not exceed limits set by applicable regulatory agencies.
 1. If Contractor applies any materials which have been modified or thinned to such a degree as to cause them to exceed established VOC levels, Contractor shall be responsible for any fines, costs, remedies, or legal action and costs that may result.
- C. Each application of coating and paint shall be applied evenly, free of brush marks, sags, runs and no evidence of poor workmanship. Care should be exercised to avoid lapping

on glass or hardware. Coatings and paints shall be sharply cut to lines. Finished surfaces shall be free from defects or blemishes.

- D. Protective coverings or drop cloths shall be used to protect floors, fixtures, equipment, prepared surface and applied paints. Personnel walking on exterior roof of tank shall take precautions to prevent damage or contamination of painted surfaces. If required by Engineer, personnel shall wear soft-soled shoes, or shoe coverings approved by Engineer. Care shall be exercised to prevent coating or paint from being spattered onto surfaces which are not to be coated or painted. Surfaces from which such material cannot be removed satisfactorily shall be refinished as required to produce a finish satisfactory to the Engineer.
- E. All materials shall be applied as specified herein.
- F. All welds and irregular surfaces shall receive a separate brush coat of the specified product prior to application of the intermediate coat and a separate stripe coat prior to the application of the finish coat. Application of stripe coat shall not be accomplished simultaneously with spray coat and shall be allowed to dry a sufficient amount of time before application of subsequent spray coat. Coating and paint shall be brushed in multiple directions to ensure penetration and coverage, as approved by the Engineer. These areas include, but are not limited to, welds, nuts, bolts, etc. Care shall be exercised to ensure dry film thickness of coatings and paints does not exceed the maximum thickness allowed by the manufacturer of the specific product being applied.
- G. At conclusion of each day's blast cleaning and coating and paint operations, a 6" wide strip of blast cleaned substrate shall remain uncoated to facilitate locating point of origin for successive day's blast cleaning operations.
- H. Epoxy coated surfaces or other multi-component materials exposed to excessive sunlight or an excessive time element beyond manufacturer's recommended recoat cycle, shall be scarified by Brush-off Blast Cleaning (SSPC-SP7) or methods approved by Engineer, prior to application of additional coating. Scarified coating shall have sufficient depth to ensure a mechanical bond of subsequent coat, as recommended by the manufacturer.
- I. All attachments, accessories, and appurtenances shall be prepared and finished in the same manner as specified for adjoining tank sections, except as specifically designated by the Engineer.

3.9 APPLICATION, INTERIOR EPOXY COATING SYSTEM

A. Interior Surfaces

- 1. After completion of surface preparation as specified, all prepared surfaces shall receive the primer specified under 2.2 D. SPECIFIC INTERIOR COATING MATERIALS. Dry film thickness shall not be less than 5.0 mils.
- 2. After completion of prime coat and stripe coat, either one 22.0 mil coat or two 11.0 mil coats of coating specified under 2.2 E. SPECIFIC INTERIOR COATING MATERIALS shall be applied. Total dry film thickness of the system shall be not less than 25.0 mils at any point in the coated surface.

- a. Prior to beginning the 100% solids coating application, a 2 ft. x 2 ft. test patch on plastic outside the vessel shall be performed. The test patch shall be sprayed to the same thickness as will be applied to the vessel.
- b. Ratio tests shall be performed at the beginning of each application process and performed every 4 hours thereafter until the application is completed for the day. The ratio test shall be a minimum of 12 ounces for the part requiring the least quantity.
- c. If approved by the manufacturer, the stripe coat may be the same product as the prime coat noted on the product data sheet.
- d. Topside of new rafters and inaccessible surfaces of gusset plates shall be coated prior to installation.
- e. Wedging between the rafters and the roof plates a minimum of 1 ½" shall be accomplished by the Contractor during the coating process for the purposes of coating the topside of the rafters and inspection by the City's Inspector. Coating shall be accomplished in accordance with 3.8 F. APPLICATION, GENERAL. The rafter wedges shall be moved between each coat and each stripe coat.
- f. Maximum dry film thickness allowed, if not specified in manufacturer's approved literature, will be as determined, in writing, by the coating manufacturer's headquarters technical representative.
- g. All roof penetrations prepared in accordance with 3.5 A. 3. shall be primed concurrently as one unit on all interior and exterior surfaces of the penetrations and shall receive first stripe coat, intermediate coat, second stripe coat and finish coat on the interior and exterior surfaces concurrently while these coats are being accomplished on the interior surfaces of the reservoir.

B. Shell/Roof Junction Void, Roof Lap Joints, and Other Designated Void Areas

- 1. After completion of finish coat application of epoxy coating and holiday detection and touch-up, as specified, all void areas including, but not limited to, column bases, bolt holes, and roof lap joints shall be primed, if required, and filled with joint sealant as specified under 2.2 F. SPECIFIC INTERIOR COATING MATERIALS. Prior to filling joints, area shall be blown down or wiped as necessary to clean area. Voids shall be filled flush at a 1:1 angle (45 degrees) out from upper edge of the plate in accordance with the plans.
 - a. Prior to applying the caulking at the base of the columns, the top of the column base plate and the adjacent bottom plate a distance of 1:1 ratio (45-degree angle) from top outer edge of the plate shall be masked to obtain a clean line. Remove masking after completion of the caulking.

3.10 QUALITY ASSURANCE, INTERIOR, EPOXY COATING SYSTEM

- A. All coating components shall be mixed in exact proportions specified by the manufacturer.

Care shall be exercised to ensure all material is removed from containers during mixing and metering operations.

- B. All coatings shall be thoroughly mixed, utilizing an approved slow-speed power mixer until all components are thoroughly combined and are of a smooth consistency. Coatings shall not be applied beyond pot-life limits or recoat cycles specified by manufacturer.
- C. Thinners shall be added to coating materials only as required in accordance with manufacturer's printed literature and in the presence of the Engineer. Quantities of thinner shall not exceed limits set by applicable regulatory agencies.
- D. Application shall be by airless spray method, except as otherwise specified for 100% solids epoxy systems. Drying time between coats shall be strictly observed as stated in manufacturer's printed instructions, except there shall be a minimum of 12 hours between coats.
- E. Maximum time to recoat shall be strictly observed as stated in the manufacturer's printed instructions. Contractor shall be responsible for all cost associated with application of coating within the recoat window. If the maximum recoat window is violated, the Contractor will be required to brush-off blast the surfaces as required by the manufacturer and the Engineer. The Contractor will be required to provide a fine abrasive that will not unnecessarily damage the coating to be scarified. If recoat violation is caused by the Contractor's schedule, all costs for brush-off blasting will be borne by the Contractor.
- F. When two or more coats are specified, each coat shall contain sufficient approved color additive to act as an indicator of coverage or the coats must be of contrasting color.
- G. Care shall be exercised during spray operations to hold the spray nozzle perpendicular and sufficiently close to surfaces being coated, to avoid excessive evaporation of volatile constituents and loss of material into the air or the bridging of cracks and crevices. Reaching beyond limits of scaffold perimeter will not be permitted. All overspray identified by Engineer shall be removed by hand or pole sanding prior to application of subsequent coat.
- H. Joint sealant may be applied by caulking gun, trowel or other approved method. Sealant shall be pressed firmly into voids to ensure 100% filling/sealing and angled at a 1:1 ratio (45 degrees) from the outer edge of the plate.
- I. Upon completion of coating operations, after curing interval in accordance with manufacturer's recommendations, holiday detection shall be accomplished, with a wire brush electrode, using the specified instrument at 2,500 volts for all surfaces. Repair and retesting shall be accomplished as specified under 1.5 QUALITY ASSURANCE. Engineer is not precluded from verifying adequacy of holiday testing by accomplishing holiday detection of selected areas, using his own holiday detector.
 - 1. Upon completion of coating application to bottom surfaces, lower shell surfaces of completed epoxy coating which may have been subjected to damage from abrasive blast cleaning of bottom surfaces shall be holiday detected again and repaired as noted above.
- J. All mixing, thinning, application and holiday detection of coatings shall be accomplished

in the presence of the Engineer.

- K. A time element equivalent to 7 days curing time at 70 degrees F and 50% relative humidity shall be allowed before placing the epoxy coating into service, as determined in 3.11 FINAL CURING OF EPOXY COATINGS.

3.11 FINAL CURING OF EPOXY COATINGS

- A. Upon completion and acceptance of applied coating system, Contractor shall furnish an approved exhaust fan or blower of sufficient capacity to ensure removal of solvent vapors during curing process. The fan or blower, after approval by Engineer, shall be installed as approved by the Engineer and shall remain in continuous operation until coating is completely cured as determined by the manufacturer of the coating system. Operation and maintenance of blower during curing operations shall be the responsibility of the City if Contractor has completed all ongoing work and workers are not working at the site. In the event of blower malfunction, City will immediately notify Contractor, who will be responsible for immediate repair of blower or furnishing of another operating blower until completion of curing operations.
 - 1. Dehumidification equipment shall remain in-place and run continuously during all curing operations.
- B. After completion of curing cycle as noted above, the Contractor shall test the applied coating with a solvent rub test performed in accordance with ASTM D.5402 to verify, to the Engineer, adequate curing has been attained.
 - 1. If final cure has not been attained, based on above tests, ventilation shall be continued until applied coating passes the "acetone wipe-test" or "hardness test".
- C. After final cure is approved by Engineer, Contractor shall remove fan or blower.

3.12 APPLICATION EXTERIOR PAINT AND QUALITY ASSURANCE FOR PAINT SYSTEMS

- A. After completion of surface preparation as specified, all surfaces of Boulder Mountain No. 1 and all spot prepared surfaces of Boulder Mountain No. 2 shall receive the primer specified under 2.4 D. SPECIFIC EXTERIOR PAINT MATERIALS. Dry film thickness shall not be less than 5.0 mils.
 - 1. Manufacturer shall provide recoat window guidelines for product based on temperature variations with minimum and maximum recoat windows.
- B. After proper drying interval, primed areas shall be carefully inspected to determine if paint edges have lifted or if other defects exist. If necessary, repairs shall be accomplished, using procedures as specified herein to affect a smooth transition between primer and subsequent coats.
- C. The primer shall be clean, dry and show no evidence of oxidation, after which all surfaces of both tanks shall receive the intermediate coat specified under 2.4 E. SPECIFIC EXTERIOR PAINT MATERIALS, to a dry film thickness of 3.0 mils.
 - 1. Manufacturer shall provide recoat window guidelines for product based on

temperature variations with minimum and maximum recoat windows.

- D. After specified drying interval, all intermediate coated surfaces of both tanks shall receive the finish coat specified under 2.4 F. SPECIFIC EXTERIOR PAINT MATERIALS, to a dry film thickness of 3.0 to 5.0 mils.
- E. Total dry film thickness of the completed three-coat system shall not be less than 11.0 to 13.0 mils at any point on the surfaces where bare metal was originally exposed, or less than 8.0 mils above the previous thickness where the two-coat system was applied over the existing paint system.
 - 1. Maximum dry film thickness allowed, if not specified in manufacturer's approved literature, will be as determined, in writing, by the paint manufacturer's headquarters technical representative.
 - 2. Paint shall not be applied when wind speed exceeds fifteen miles per hour.
- F. Upon completion of painting operations, the void between the concrete foundation and the tank bottom plate extension (BPE) of Boulder Mountain No. 2 shall be filled with the joint sealant specified in 2.4 G. The sealant shall be applied at a 1:1 angle from the top edge of the BPE to the concrete. Prior to application of the sealant, existing material and felt must be trimmed. Joint sealant may be applied by caulking gun, trowel, or other approved method. Sealant shall be pressed firmly into voids to ensure 100% filling/sealing. If required, excessively deep voids can be filled with an approved backing material to allow correct filling of the exterior void with the specified material.
 - 1. Prior to applying the finish coat and the sealant, the tank bottom plate extension (BPE) shall receive two brush coats of the epoxy coating.
- G. Upon completion of exterior painting operations, inspection shall be accomplished as specified under 2.5 QUALITY ASSURANCE. All applicable sections of 3.10 QUALITY ASSURANCE, INTERIOR, EPOXY COATING SYSTEM shall apply to exterior painting operations.
- H. All mixing, thinning, application and holiday detection of coatings and paints shall be accomplished in the presence of the Engineer.
- I. Color Scheme: The Contractor shall submit a current chart of the manufacturer's available colors to the City's representative ten days prior to start of painting operations.
- J. The Contractor shall supply the City with five extra gallons of both the epoxy and urethane paints used for the exterior surfaces.

3.13 WASH DOWN

Wash down of interior surfaces of tank shall be accomplished in the presence of the Engineer.

- 1. Wash down shall be accomplished after completion and acceptance by City of all interior recoating and curing of coating as required in 3.11 FINAL CURING OF EPOXY COATINGS.

2. The complete interior shall be cleaned with an approved cleaner or detergent applied via high-pressure solution method. If deemed necessary by Engineer because of contaminants remaining on surfaces, immersed areas shall be scrubbed with a brush or similar implement that will apply force and pressure to the surface to completely remove residual solvents and other surface contaminants.
3. Contractor shall coordinate with the City to purge all tank piping to remove stagnate water and any debris trapped in line prior to disinfecting the interior of the tank.
4. Cleaned surfaces shall then be rinsed with clean water. Residual water and contamination removed during washing process shall be thoroughly flushed from tank. Contractor shall obtain approval of City prior to draining any residual water to waste. This operation shall be accomplished after completion of interior coating work as directed by the Engineer.

3.14 DISINFECTION

- A. Disinfecting of interior surfaces of tank shall be accomplished in the presence of the Engineer, in conformance to AWWA Standard C652 Section 4.3 Chlorination Method 2 as modified herein:
 1. After completion of cleaning cycles as noted above in 3.13 WASH DOWN, all interior surfaces shall be jet washed with a chlorine or chloramine solution having a content of 200 PPM. Disinfection shall be accomplished using a liquid chlorine compound. Granular chlorine shall not be used. Chlorine or chloramine solution which accumulates on the bottom shall be drained to waste. Contractor shall obtain approval of City prior to draining any high strength chlorinated water to waste. Rinsing with clean water is not required unless directed by Engineer.
 - a. Contractor shall furnish and install new gaskets and nuts and bolts for the manholes and seal-up the tank.
 2. Once the tank has been completely filled, the tank will be isolated from the water system and the City will take a Bac-T test. Should the Bac-T test fail, the Contractor will be responsible for reimbursing the City for the rejected and drained water and will be required to re-chlorinate the tank as described above until the Bac-T tests are negative.

3.15 TESTING FOR VOLATILE ORGANIC COMPOUNDS (VOC'S)

To monitor the presence of VOC's leached into the water from the coating process, the following procedure shall be utilized:

1. After satisfactory curing, the tank shall be filled by City in accordance with standard filling procedure. Water shall then be retained for a period of five days.
2. On the sixth day following completion of the filling of the tank, samples of water shall be removed by City, in accordance with latest SWRCB Division of Drinking Water memoranda. Samples shall then be forwarded, by City, to an approved test

laboratory for testing to determine presence of VOC's.

3. After testing of samples, results must show levels of leached organics to be in accordance with levels established by the SWRCB Division of Drinking Water for various VOC's. Results will be verified by the State Health Department and tank will then be placed into operating service.
4. If levels of leached organics exceed those acceptable to the SWRCB Division of Drinking Water, the tank shall be drained, flushed, refilled and retested at the Contractor's expense. Failure of the tank to attain levels acceptable to the SWRCB Division of Drinking Water shall be the responsibility of the Contractor and remedial measures to attain such levels shall be at his sole expense.
5. If leached organics produce any taste and odor objectionable to consumers of the water from the tank, the tank shall be drained, re-cleaned, flushed, refilled and retested at the Contractor's expense. Failure of the tank to be taste and odor-free shall be the responsibility of the Contractor and remedial measures to attain such a condition shall be at his sole expense.

3.16 CLEANUP

Upon completion of the work, all staging, scaffolding and containers shall be removed from the site or destroyed in a manner approved by the Engineer. Coating, paint and thinner containers, and excess coatings, paints and thinners, shall be disposed of in conformance to current regulations. Coating or paint spots upon adjacent surfaces shall be removed and the entire jobsite cleaned. All damage to surfaces resulting from the work of this section shall be cleaned, repaired or refinished to the complete satisfaction of the Engineer at no cost to the City.

3.17 OMISSIONS

Care has been taken to delineate herein those surfaces to be coated or painted. However, if coating and painting requirements have been inadvertently omitted from this section or any other section of the specifications, it is intended that all metal surfaces, unless specifically exempted herein, shall receive a first-class protective system equal to that given the same type surface pursuant to these specifications.

END OF SECTION

SECTION 13200 - MISCELLANEOUS STRUCTURAL MODIFICATIONS SPECIFICATION

PART 1 - GENERAL

1.1 PURPOSE

This specification establishes methods and procedures for miscellaneous structural and safety modifications.

1.2 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. Welding and design shall be accomplished in conformance to the latest revision of AWWA D100 Standard for Welded Steel Reservoirs for Water Storage. Where tolerances and details are not defined by the AWWA Standard, the applicable sections of the American Petroleum Institute (API) Standard 650 shall apply. Welders shall be certified to the procedure and process called for in the work, and certification papers shall be on file with the Contractor at the job site, or in possession of welders at all times.
- B. Contractor is to submit shop drawings or sketches in detail of each item to be added, replaced or modified, as noted in 1.4. Contractor is responsible for verifying all measurements in the field before fabrication or installation of any items as typical drawings may not accurately represent actual field conditions.

1.3 CONTRACTOR

The Contractor shall be licensed under the laws of the State of California in the classification of General Engineering "A". He shall have a minimum of five years practical experience and successful history of similar modifications to steel tanks. Contractor shall substantiate this requirement by furnishing a written list of references.

1.4 SUBMITTALS

- A. Electronic submittals in pdf format of detailed shop drawings or sketches of field work and required calculations shall be submitted to the Engineer for review for all structural work. Drawings or sketches shall contain sufficient details to clearly define work to be accomplished. Submitted drawings and calculations shall be stamped and signed by a California licensed Structural or Civil Engineer. Fabrication or installation shall not be commenced prior to review and approval of shop drawings or sketches.
- B. An electronic submittal will be accepted in only the following format.
 - 1. The file shall be in pdf format.
 - 2. Each project submittal shall be a separate file.
 - 3. Each file shall be labeled in the following sequence:
 - a. Owner Name/Project Name
 - b. Submittal No.
 - c. Description
 - 4. Each submittal must reference the specification section that applies to the submittal.

1.5 QUALITY ASSURANCE

Welding procedures and welding operators shall have been qualified in accordance with AWWA D100 Standard. All butt joints shall be complete penetration and fusion of joints. All completed welds shall be free of slag and all finish steel surfaces free from weld spatters. Examination of the welded joints shall be made as the work progresses in accordance with API 653 Section 10 (Revised), herein included as part of this specification.

PART 2 - MATERIALS OF CONSTRUCTION

2.1 GENERAL

- A. All materials specified are those which have been evaluated for the specific use. Any proposed substitutions must be submitted to the Engineer prior to the bid opening.
- B. All steel plate components shall be fabricated from new ASTM A-36 material and all new carbon steel pipe shall be ASTM A-53 material. Contractor shall provide certified mill test reports for all steel plate and pipe.
- C. Materials of construction not specified as noted herein, shall be as noted in applicable sections of Standard Specifications for Public Works Construction, latest edition.

2.2 PRODUCTS

- A. Self-Closing Gate: Self-closing gate shall be an A36 carbon steel yellow powder coated FabEnCo, Inc. Model No. XL71-27PC, Houston Texas (713) 686-6620 or approved equal.
- B. Vandal Guard Hinges: Hinges for the vandal guard shall be heavy duty Surface Mount Hinges with bearings from McMaster-Carr (Product # 1805A15) or Weld-on Tear Drop Hinge ½" Pin x 6" Lg. (V2A1500) from Jansen Supply or approved equal.
- C. Fall Prevention Device:
 - 1. Fall prevention device shall be a Saf-T-Climb rigid rail fall prevention system by Miller Products or approved equal.
 - 2. The safety sleeve shall be a Saf-T-Climb shuttle assembly model 602-100-003 by Miller Products or approved equal.
 - 3. The safety harness shall be a Saf-T-Climb Harness model 733-201-002(3) by Miller Products or approved equal.
- D. Fall Restraint System:
 - 1. Wire Rope: Shall be ¼" S.S. 7 x 19 wire rope with clear vinyl coating from McMaster-Carr 8912T754, Landmann, US Cargo Control, or approved equal
 - 2. Carabiner: Carabiners shall be DBI Sala, Miller 17D-1 or approved equal.
 - 3. Compression Sleeves: Shall be tin-plate copper alloy from McMaster-Carr

3883T47, Nicropress, or approved equal

4. Thimble: Shall be McMaster-Carr 3868T45 or approved equal
- E. Flexible Expansion Connection (FEC): The Force Balanced FEC shall be manufactured of ductile iron per ANSI/AWWA C153/A21.53. The FEC shall have flanged connections on each end.
 1. The Force Balanced FEC shall be an integral double ball and socket type flexible joint combined with a sliding barrel type expansion joint providing 15 degrees of lateral deflection at each socket. A minimum of 3" clearance shall be provided from the ground in the offset position. All pressure containing parts shall be lined with a minimum of 15 mils of Fusion Bonded Epoxy per ANSI/AWWA C213.
 2. The unit shall be factory tested with all manufacturer's specifications. Installation shall be in accordance with the manufacturer's requirements.
 3. The FEC shall be a "Flex-Tend" manufactured by EBBA Iron Sales, Inc., Eastland Texas or approved equal.
- F. Passive Check Valve: Neoprene slip on Smart Tide Flex Tf-2, Onyx Valve Series DBS or approved equal
- G. Exterior Nuts and Bolts: All hex head bolts and nuts used on the exterior of the tank shall be carbon steel conforming to ANSI/ASME hB18.2.1 and ANSI/ASME B18.2.2. All thread compound used on bolted connections shall be NSF 61 approved. Flange insulation kits shall be used at all stainless steel bolts in contact with carbon steel. Insulating flange kits shall include insulating sleeves, gaskets, and insulating washers for each flange bolt. Sleeves shall be full length and shall cover entire bolt. Insulating gaskets shall be full-faced. Insulating flange kit shall be in accordance with the City's approved materials list.
- H. Interior Nuts and Bolts: All bolts and nuts used on the interior of the tank shall be ASTM A307 steel galvanized after fabrication or A325 for structural members.
- I. Insulating Flange Kits: Insulating flange kits shall include insulating sleeves, gaskets, and insulating washers for each flange bolt. Sleeves shall be full length and shall cover the entire bolt. Insulating gaskets shall be full-faced. Insulating flange kit shall be as manufactured by PSI, Pipeline Seal and Insulator, Inc. or approved equal.
- J. Hatch Edge Trim: Edge trim for perimeter of hatch curb shall be Duro 55A No. 8507K54 by McMaster-Carr or approved equal.
- K. Vent Screening:
 1. Screening: Shall be aluminum wire 24 mesh (opening no larger than .027) and 2 mesh from TWP or approved equal.
 2. Banding and Straps: Shall be ½" aluminum banding with aluminum wing seals from metrosupplycollc.com or approved equal
 3. Tensioning Tool: Push Bar Tension for securing banding shall be from

PART 3 - EXECUTION

3.1 GENERAL

- A. All work shall be executed in accordance with the requirements of the American Water Works Association Standard D100, latest revision, the City, and these specifications. Where the foregoing standards, recommendations, and specifications are conflicting, said conflicts shall be brought to the attention of the Engineer.
- B. All work shall be executed by skilled craftsmen qualified to accomplish the required work in a manner comparable with the best standards of practice. Resumes of personnel to be used on the project shall be submitted upon Notice of Award. Continuity of personnel shall be maintained and transfers of key personnel shall be coordinated with the Engineer.
- C. The Contractor shall provide a supervisor to be at the work site during all operations. The supervisor shall have the authority to sign any change orders, coordinate work and make other decisions pertaining to the execution of their contract.
- D. The Contractor shall cooperate with the City who may be conducting other operations on or near the tank.
- E. Provide safeguards, including warning signs, barricades, temporary fences, warning lights, and other similar items that are required for protection of all personnel during demolition and removal operations.
- F. All installation and repair work shall be accomplished in such a way as to minimize tank downtime. All repair operations shall be completed so as not to impair completion schedule for project, which includes subsequent recoating and repainting of tank by others.
- G. The Contractor shall coordinate with the City at least seven (7) days before starting work at the site.
- H. All equipment, piping, and surfaces of the tank shall be protected from all damage and dust or other deleterious material infiltration during the operations of the Contractor. Any items damaged by the operations of the Contractor shall be replaced in kind or acceptably repaired to the satisfaction of the Engineer by the Contractor at no cost to the City.
- I. All work shall be made accessible to the Engineer at all times. The City may use own forces, engage full-time independent inspection services, or perform inspections intermittently. The Contractor is to supervise the job properly between inspections.
- J. Wherever a cutting torch or other equipment that might cause a fire is used, provide and maintain fire extinguishers nearby ready for immediate use. Instruct all possible uses in use of fire extinguisher.
- K. The Engineer shall inspect the cleaning of pitted areas prior to welding and following post-weld repair applications.

- L. Any burrs, weld spatter, sharp edges, corners, or rough welds which would cause difficulty in achieving a defect-free paint system shall be chipped or ground smooth in conformance to NACE Standard SP0178-latest edition. It is not the intent to have the welds or "scars" ground "flush". The object of the grinding is to eliminate sharp edges, corners, and overlaps to provide a surface for the application of a uniform thickness of coating or paint without voids or other defects.
- M. Should vents, holes, rigging attachments, or any other modification, cutting or welding be required to meet safety standards, they may be accomplished at the expense of the Contractor upon submitting of details in writing to, and with subsequent approval by the Engineer.
- N. Where it is necessary to abrasively blast clean or chemically strip coated or painted areas prior to, and after, any welding operations, work will be coordinated with the Engineer.
- O. Any remedial cleaning, coating and painting application shall be accomplished in accordance with the requirements listed in Section 3.2. below and Technical Section 09800.
- P. The Contractor's equipment shall be designed for installation of materials specified and shall be maintained in first class working condition. Contractor's equipment shall be subject to approval of the Engineer.
- Q. The Contractor shall provide, at his own expense, all necessary power and scaffolding required for his operations under the contract.
 - 1. The interior of the tank will be recoated upon completion and acceptance of the structural modifications. Contractor may privately arrange for the coating and painting contractor to furnish scaffolding for accomplishment of all structural work prior to use of scaffolding for his work.

3.2 HEAVY METAL COMPLIANCE AND TESTING

Contractor shall comply with requirements of Department of Health Services and Cal/OSHA Title 8 for worker protection during removal of paint and handling of hazardous wastes resulting from surface contamination and any removed paint particles. Prior to removal, modification or installation of any materials or fittings, Contractor will remove existing interior coating and exterior paint where cutting, burning and welding will be accomplished. If any additional exterior paint is to be removed, submittal of a written plan of action for the project shall be accomplished by Contractor prior to start of project.

3.3 MODIFICATIONS AND REPAIRS

- A. Welding: Welding shall be accomplished as specified herein and in conformance to referenced standards and industry practice.
- B. Plans and Sketches: Available original site, piping and accessory plans and miscellaneous typical sketch drawings are included as specific references. Contractor is to submit plans or sketches in detail of each item to be added, replaced or modified as noted in 1.4.

- C. Guardrailing (Both): Fabricate and install all new guardrailing sections around the roof hatches/work areas, in accordance with the plans. Pipe sections shall be used, provided they meet current Cal/OSHA requirements. Guardrailing layout shall be field verified prior to fabrication. Provide two brackets for securing the interior ladder dismount section on the guardrailing adjacent to the roof hatch.
- D. Self-Closing Gate (Both): Furnish and install a new self-closing gate, in accordance with Section 2.2 A. PRODUCTS, on the guardrailing around the roof hatch/work area, in accordance with the plans. Gate shall not be installed until exterior painting is complete.
- E. Center Vent (Boulder Mtn. No. 1): Remove the existing center vent and furnish and install a new 36" diameter vent and 6 ft. diameter reinforcing plate and new roof plates, as needed. Vent shall conform to details shown on the plans. Bolts and nuts for the vent shall be either galvanized or stainless steel. Install insulation sleeves and gaskets where dissimilar metals touch. Screening for vent shall consist of 24 mesh (opening no larger than .027) aluminum screening on inside with 2 mesh aluminum mesh backup on outside, in accordance with Section 2.2 K. PRODUCTS. Screening shall not be installed until after completion of the interior coating and exterior painting.
- F. Vent Screening (Boulder Mtn No. 2): The center vent cover and existing screening shall be removed prior to coating the interior surfaces at the vent. New screening shall not be installed until after completion of the interior coating and exterior painting. Screening for vent shall consist of aluminum screening 24 mesh on inside and 2 mesh backup on outside, in accordance with Section 2.2 K. PRODUCTS.
- G. Roof Hatch (Both): Remove and dispose of existing hatch and install an approved 36" x 36" hatch with hinged aluminum cover at location noted on the plans. Hatch curb must penetrate the roof a minimum of 1" and a maximum of 2" on the low side and be seal welded on the interior and exterior of the roof. Hatch must be aligned with the interior ladder in a manner that allows a person safe access to the ladder.
 - 1. Plate over existing opening with ¼" plate to cover the opening from the removal of the existing hatch and seal weld on the interior and exterior of the roof.
 - 2. Furnish and install edge trim on perimeter of hatch curb in accordance with Section 2.2 J. PRODUCTS.
- H. Auxiliary Vent (Both): Furnish and install 24-inch diameter vent with an exhaust fan flange at a location designated by the Engineer. This is not a center vent. The purpose of this vent is to provide for attachment of Contractor's ventilation fan during interior cleaning and coating operations. Vent shall conform to details shown on the plans. New screening shall not be installed until after completion of the interior coating and exterior painting. Screening for vent shall consist of aluminum screening 24 mesh (opening no larger than .027) on inside and 2 mesh backup on outside, in accordance with Section 2.2 K. PRODUCTS.
- I. Exterior Ladder (Both): Remove and dispose of existing exterior ladder, vandal guard, and cage. Fabricate and install a new exterior ladder and vandal guard at location noted on the plans and in accordance with current Cal/OSHA requirements. A new vandal guard shall be installed as detailed on the plans. A minimum of two hinges shall be utilized to hang the vandal guard and shall be in accordance with Section 2.2 B. PRODUCTS. The

vandal guard, when fully open, shall provide a minimum of 30" head clearance from the ladder to the back of the vandal guard. The top of the ladder shall provide an 18" to 24" wide opening onto the roof and brace the Saf-T-Climb rail, in accordance with the plans.

- J. Interior Ladder (Both): Remove and dispose of the existing interior ladder and braces. Existing braces shall be cut flush with shell and shall be ground smooth to provide an integrated interface with the shell. Fabricate and install a new fiberglass ladder, in accordance with the plans. New carbon steel brackets meeting Cal/OSHA requirements shall be installed, in accordance with the plans. Galvanized bolts used to secure the ladder shall be isolated from the carbon steel braces. Ladders must be aligned with the hatch in a manner that allows a person safe access to the ladder.
- K. Saf-T-Climb Device, Interior (Both): Furnish and install an approved new galvanized Saf-T-Climb fall prevention device on the interior ladder, including dismount section, in accordance with Section 2.2 C. PRODUCTS and the plans. A dismount section shall be included on the ladder. Hardware shall be installed in accordance with manufacturer's instructions as noted in Figure No. 9 and Figure No. 11, including palnuts. Provide a locking sleeve and harness to the City.
- L. Saf-T-Climb Device, Exterior (Both): Furnish and install an approved new galvanized Saf-T-Climb fall prevention device on the interior ladder, including dismount section, in accordance with Section 2.2 C. PRODUCTS and the plans. A dismount section shall be included on the ladder. Hardware shall be installed in accordance with manufacturer's instructions as noted in Figure No. 9 and Figure No. 11, including palnuts. Provide a locking sleeve and harness to the City.
- M. Liquid Level Indicator (Both): Remove and dispose of the liquid level indicator assembly, gauge board, and piping. Hole in roof shall be covered with a metal plate of the same plate thickness as roof plate. Plate shall extend three inches beyond hole with a 100% fillet seal weld around perimeter of plate.
- N. Lateral Bracing (Both): Remove and dispose of all existing tie-rods and furnish and install new 3 1/2" x 3 1/2" x 1/4" angle lateral bracing at the midspan of the rafters, in accordance with the plans. The existing holes in the rafters may be left alone; however, the Contractor shall place the new gusset plates for the lateral bracing a minimum of three inches from the existing hole to allow room to thoroughly coat the existing hole.
- O. Fall Restraint System (Both): Remove and dispose of the existing system and furnish and install two new stainless steel cable assemblies as shown on the plans and in accordance with Section 2.2 D. PRODUCTS. Cable shall be stainless steel aircraft cable, 7 x 19 construction with a plastic sleeve the full length of the cable. Cable collar around the center vent at the top of the roof shall be 1/4" diameter cable, placed in a plastic sleeve to prevent paint damage. Use a minimum of two swaged oval sleeves to connect the lapped ends of the cable. Cable shall also show a maximum of 2" greater diameter than the center neck at the roof level. Cable shall rest freely upon the roof after installation.
 - 1. The two new stainless steel fall prevention personnel cables shall be 1/4" diameter and shall be fabricated with a swaged loop at the center vent attaching point and at the hold down point adjacent to the roof hatch/work area for a carabiner. The carabiner shall be double locking with a minimum tensile strength of 5,000 pounds

and a minimum gate face of 3,600 pounds. The length of each personnel cable shall terminate 42" from outer perimeter of roof when attached to center cable.

2. All cables shall contain stainless steel tags with proper identification in accordance with ANSI/ASSE Z359.1-1999.
 3. The cable attachment bracket shall be attached to the bottom of the guardrail post.
- P. New 10" Shell Inlet/Outlet (Both): Furnish and install Force Balanced double ball flexible expansion connection fitting as noted in Section 2.2 E. PRODUCTS and a 3" combination air valve on the inlet/outlet piping, as shown on the plans and Section 15076 PIPELINES AND APPURTENANCES. Provide all piping, nozzle, flanges, and fittings as needed to install the flexible expansion connection and shell nozzle. Provide all pipe supports, steel rods, and steel bollards. Contractor shall field measure piping layout prior to preparation of submittals. New shell nozzle and reinforcing plate shall conform to API 650 Figure 3-4B – Details of Shell Manholes and Nozzles. Existing piping shall be potholed to determine if an adequate concrete thrust block exists beneath the grade. Work shall include, but not be limited to, trenching, backfilling, pipe bedding, hydrostatic testing, disinfection, tracer wire, warning tape, thrust blocks, fittings, restrained joints, piping appurtenances, tie-ins, and paving replacement.
1. Furnish and install a replacement insert plate in the shell opening at the existing inlet/outlet. The replacement plate in the shell shall be welded with butt joints with complete penetration and complete fusion. The welds shall be in accordance with API Std. 650 5.1.5.1 through 5.1.5.3. The thickness of the replacement plate shall not be less than the thickness of the existing shell plate.
 2. Contractor shall furnish the adjustable pipe supports on 12" square and 6" thick concrete pad, as noted on the plans. The supports shall not be bolted to the concrete pads.
 3. Furnish and install two 7/8" dia. (A36) steel rods with threaded ends one each located on both sides of flexible coupling and bolt four 7/8" plates to backside of flanges at four locations noted on plans.
 4. After the line has been energized, the steel rods are to be removed to allow proper functioning of the FEC. Rods should be placed back on the FEC whenever the pipe is being energized to prevent improper movement of the FEC.
 5. Furnish and install four (4) new 6-inch diameter schedule 40 steel pipe bollards filled with concrete around the inlet/outlet piping at locations to be determined by the City. Bollards shall be 3 feet high above the asphalt paving and shall be buried 3 feet deep in concrete. The bollards shall be painted traffic yellow.
- Q. Overflow Air Break (Both): Modify the 8" and 12" exterior overflow pipes on Boulder Mountain Reservoirs No. 1 & 2, respectively, to furnish and install an air break and new exterior funnel, in accordance with the plans. A flanged passive check valve, as noted in Section 2.2 F. PRODUCTS, shall be installed at the bottom of the overflow pipe. The valve shall open with 2" of water and withstand zero backpressure. Install a removable grate on the bottom portion of the overflow pipe.

1. Interior of new overflow pipe shall be coated with the epoxy system, in accordance with Section 09800, prior to installation. Coating damaged during installation shall be repaired in accordance with Section 09800.
- R. Manhole Davit Arms (Both): Remove and dispose of davit arm assembly on monobolt manholes and replace with new davit arm assemblies in like kind.
- S. Drain Modification (Both): Furnish and install a new ¼" thick steel drain trough and ¼" thick steel diverter at the location of the existing drain, in accordance with the plans.
1. Cut the existing drain from the bottom plates. Furnish new section of pipe as needed to extend the drain into the trough, in accordance with the plans. Furnish and install additional bottom plates, as needed.
 2. All voids under the trough and bottom plates shall be filled with 2 sack sand slurry prior to placing the trough.
 3. Seal weld the drainpipe to the trough.
 4. Interior and exterior of new drainpipe shall be coated with the epoxy system, in accordance with Section 09800, prior to installation.
- T. Column Modification (Both): The unsymmetrical "T" shaped columns shall be modified to "H" shaped columns by adding a new 5" x 1-3/4" channel to entire length of the center column. The channels shall be seal welded to the end of the existing 6-1/4" x 2" channel, as per plans. The length of the column will need to be field determined prior to ordering materials.
- U. 3-inch Diameter Ports (Both): Furnish and install two (2) each 3-inch dia. 3000# full couplings, including reducing nylon bushing and locking ball valve on each reservoir at location to be determined by the Engineer.
- V. Hydropneumatic Tank: The hydropneumatic tank located on the site within the fenced enclosure shall be removed and disposed of off-site, including all appurtenances and aboveground piping.
1. The aboveground portion of the concrete supports shall be removed. If the entire concrete support and footing is removed, Contractor shall fill the hole from the footings with clean compacted dirt.
 2. The small pump adjacent to the hydropneumatic tank shall be removed, including the control box for the pump and all conduit and wiring.
 3. Areas shall be backfilled and asphalt concrete shall be restored as needed after removal of conduit and equipment.
- W. New Enclosure Box: The existing enclosure box within the fenced enclosure, containing battery system and charger, shall be removed and replaced with a new NEMA 3R enclosure box, in like kind. The existing battery system and charger shall be removed from the old box and reinstalled in the new box.

- X. Rafter Replacement (Both): Remove existing severely corroded rafters, as determined necessary by the Engineer, and replace with new rafters in like kind. The top of the rafters shall be shop coated in accordance with Section 09800 prior to installation. The Contractor shall field verify the rafter sizes and lengths prior to fabricating. Work shall be accomplished on the basis of each. The gusset plates, nuts and bolts shall be replaced. The Contractor may NOT cut holes in the roof to install the rafters.
1. Boulder Mtn No. 1: Existing rafters are C6x10.5 and approximately 20 feet in length.
 2. Boulder Mtn. No. 2: Existing full length rafters are C12x25 and approximately 29 feet in length. The existing jack rafters are C6x10.5 and are approximately 15 feet in length. Header supports for the jack rafters are C3x6.
- Y. Nuts and Bolts (Both): Remove existing severely corroded nuts and bolts at the rafter to shell gusset plate connections and replace with ASTM A307 steel galvanized nuts and bolts, as determined necessary by the Engineer.
- Z. Pit/Perforation Treatment (Both): Excessively pitted or perforated areas shall be either filled with weld metal and ground smooth or covered with a metal plate of the same plate thickness, as determined necessary by the Engineer. Plate shall extend six inches beyond pit or perforation with a 100% fillet seal weld around perimeter of plate. This work will be accomplished on an hourly rate time and material basis.
- AA. Grinding (Both): Excessively corroded areas on the structural members that comprise of sharp edges from sandblasting shall be ground smooth and rounded, as determined necessary by the Engineer.
- BB. Inspection Blasting (Both): Excessively corroded areas of the structural members shall be abrasive blast cleaned to remove severe corrosion, as determined necessary by the Engineer and in accordance with Section 09800, Item 3.4 SURFACE PREPARATION, INSPECTION BLAST. Engineer shall inspect the blast cleaned areas using Contractor's scaffold following the blasting to determine whether optional bid items will be needed.

3.4 TESTING

- A. The Contractor shall furnish all material, labor and equipment necessary to test the modifications as specified herein. Testing shall be completed prior to acceptance of work as complete and meeting the requirements of the specification.
- B. Spot examination of the welded joints shall be made as the work progresses by magnetic particle, dye penetrant method, or by spot radiographic examination as applicable.
- C. All defects uncovered by testing process shall be corrected and retested until such defects are eliminated.
- D. Contractor shall provide a watertight installation. After flushing of the chlorinated water and upon filling of the tank, any leaks which occur on the tank or appurtenant piping shall be repaired by the Contractor at his expense and to the satisfaction of the Engineer.

3.5 CLEANUP

Upon completion of the work, all staging, erection brackets, scaffolding and debris shall be removed from the tank and site and disposed in a manner approved by the Engineer. The entire job site shall be left in a clean condition.

END OF SECTION

SECTION 15041 - CHLORINATION OF WATER MAINS FOR DISINFECTION

PART 1 - GENERAL

1.1 DESCRIPTION

This Section describes the disinfection of potable water mains, services, appurtenances, and connections by chlorination, in accordance with AWWA C601 and as specified herein.

1.2 JOB CONDITIONS

- A. Discharge of chlorinated water into watercourses or surface waters is regulated by the National Pollutant Discharge Elimination System (NPDES).
- B. The rate of flow and locations of discharges shall be scheduled in advance and coordination with the City.
- C. Potable water shall be used for chlorination. The water will be supplied from the on-site temporary tank with a chlorine concentration of 1.0mg/l to 2.0 mg/L.
- D. Perform chlorination prior to hydrostatic testing for pipelines having a diameter of 8 inches and larger. See Subsection 3.1 of this Section for concurrent testing of smaller diameter pipelines.

PART 2 - PRODUCTS

2.1 LIQUID CHLORINE SOLUTION

Liquid chlorine solution shall be in accordance with the requirements of ANSI/AWWA B301, and shall be injected with a solution feed chlorinator and a water booster pump.

2.2 CALCIUM HYPOCHLORITE (DRY)

Calcium Hypochlorite shall be in accordance with the requirements of ANSI/AWWA B300, and shall be dissolved in water to a known concentration in a container and pumped into the pipeline at a measured rate.

2.3 SODIUM HYPOCHLORITE (SOLUTION)

Sodium Hypochlorite shall be in accordance with the requirements of ANSI/AWWA B300, and shall be diluted in water to desired concentration and pumped into the pipeline at a measured rate.

2.4 CHLORINE RESIDUAL TEST KIT

For measuring chlorine concentration, use a medium range, drop count, titration kit or an orthotolidine indicator comparator with wide range color discs. The kit shall be capable of determining chlorine concentration in the range 1.0 to 25 mg/L. Test kits shall be Hach Chemical, Hellige, or approved equal. Maintain an adequate number of kits in good working order and available for immediate test of residuals at points of sampling.

PART 3 - EXECUTION

3.1 PIPELINES

- A. General: Before placing them into service, chlorinate all pipelines and appurtenances. Disinfect pipelines with a diameter of 10 inches or less by direct chlorine solution injection. Disinfect pipelines with a diameter of 12 inches and larger by direct chlorine solution injection. Disinfect steel pipelines by direct chlorine solution injection. Disinfect steel pipelines by direct chlorine solution injection. Bacteriological testing after disinfection will be performed by the City.
- B. Chlorination Contractor: Chlorination shall be performed by a certified chlorination and testing contractor. Chlorination shall be in accordance with the instructions of the chlorinator manufacturer.
- C. Groundwater: In the event groundwater is encountered and it is impossible to prevent its entrance into the mains, or the mains are not free from dirt, thoroughly flush them prior to disinfection. Disinfection shall be by direct chlorine solution injection.
- D. Services: Tightly shut off every service connection served by a main being disinfected at the curb stop before water is applied to the main. Care shall be taken to expel all air from the main and services during the filling operation.
- E. Chlorine Solution Injection by the Continuous Feed Method:
 - 1. Apply chlorine solution at the beginning of the section to be chlorinated and inject through a corporation stop, a hydrant, or other approved connection to ensure treatment of the entire system being disinfected. Install all required corporation stops and other plumbing materials necessary for chlorination or flushing of the main.
 - 2. Introduce potable water into the pipeline at a constant measured rate. Inject chlorine solution into the potable feed water at a measured rate. Proportion the two rates so that the chlorine concentration in the pipeline is maintained at a minimum to maximum concentration of 50 mg/L to 100 mg/L, with a chlorine residual of 25 mg/L after 24 hours in the pipe. Check the concentration at points downstream of the injection point and at each end of the pipe periodically during the filling to ascertain that sufficient chlorine is being added and has reached all sections of the pipe.
- F. Disinfection of Valves and Appurtenances: During the period that the chlorine solution or slug is in the section of pipeline, open and close valves to obtain a chlorine residual at hydrants and other pipeline appurtenances. Care shall be taken to ensure that no chlorinated water enters any active pipeline. The chlorine concentration shall not exceed 100 mg/l in copper tubing or in contact with copper.
- G. Concurrent Testing (for Pipelines with Diameter of 10 Inches or Less): Disinfecting mains and appurtenances and hydrostatic testing may run concurrently for the required 24-hour test period. In the event there is leakage and repairs are necessary, repeat disinfection of the pipeline by injection of chlorine solution into the line as provided in this Section.

- H. Confirmation of Residual: After the chlorine solution applied by the continuous feed method has been retained in the pipeline for 24 hours, take samples at air valves and other points of access to confirm that a chlorine residual of 25 mg/L minimum exists along the pipeline.

With the slug method, take samples as the slug passes each access point and as it leaves the pipeline in order to confirm that a chlorine residual of 25 mg/L minimum is present.

- I. Bacteriologic Tests: Collect sample on two consecutive days at each air-release valve or for each mile where valve intervals are greater and deliver to the Engineer within six hours. The City will perform a bacteriologic quality test to demonstrate the absence of coliform organisms in each separate section of the pipeline after chlorination and refilling.
- J. Repetition of Procedure: If the initial chlorination fails to produce required residuals and bacteriologic tests, repeat chlorination and until satisfactory results are obtained.
- K. Pipeline Flushing: After confirming the chlorine residual, flush excess chlorine solution from the pipeline until the chlorine concentration in the water leaving the pipe is within 1.0 to 2.0 mg/L of the replacement water. The flushed water shall be de-chlorinated prior to disposal in the drain.
- L. Test Facility Removal: After satisfactory disinfection, replace air valves, restore the pipe coating and remove temporary disinfection and test facilities.
- M. Connections to Existing System: Where connections are to be made to an existing potable water system, swab or spray the interior surfaces of all pipe and fittings used in making the connections shall be with a one percent hypochlorite solution before they are installed. Start thorough flushing as soon as the connection is completed and continue until all discolored water is eliminated.

END OF SECTION

SECTION 15060 - HYDROSTATIC TESTING OF PRESSURE PIPELINES

PART 1 - GENERAL

1.1 DESCRIPTION

This section describes the requirements and procedures for pressure and leakage testing of all pressure mains. Hydrostatic testing shall conform to AWWA C600 and these specifications.

1.2 REQUIREMENTS PRIOR TO TESTING

- A. All thrust blocks and anchor blocks shall be allowed to cure.
- B. All piping, valves, fire hydrants, services, and related appurtenances shall be installed.
- C. Pressure tests on exposed, aboveground and vault installed piping shall be conducted only after the entire piping system has been installed and attached to pipe supports, hangers or anchors as shown on the Approved Plans.

1.3 HYDROSTATIC TESTING OF PIPELINES

Hydrostatic testing of pipelines shall be performed prior to disinfection operations, in accordance with Section 15041 CHLORINATION OF WATER MAINS FOR DISINFECTION 3.1. In the event repairs are necessary, as indicated by the hydrostatic test, the City's Representative may require additional flushing.

1.4 CONNECTION TO EXISTING MAINS

The Contractor shall install test plates at each valve that is connected to an active water main. Hydrostatic testing shall be performed prior to placing the facilities into service in the City's system. Test plates shall be removed by the Contractor after the pressure test has been accepted. City authorization for connection to existing system shall be given only on the basis of acceptable hydrostatic testing, disinfection and bacteriological test results. Connection to existing mains shall be performed under direct City inspection.

1.5 VALVE LOCKS

The Contractor shall install valve-locking devices on all valves at stub-outs or where a valve connects directly to an active domestic water main. Locking devices shall also be installed on the control valves at newly constructed detector checks. The locking device shall be provided by the Contractor. At the time the new water system is progressed for service, locking devices will be removed by the Contractor under direct inspection by a City inspector.

PART 2 - PRODUCTS

2.1 WATER

Potable water, supplied by a source approved by the City, shall be used for all hydrostatic testing of potable pipelines.

2.2 CONNECTIONS

- A. Testing water shall be supplied through a metered connection equipped with a backflow prevention device at the point of connection to the potable water source used.
- B. The Contractor shall provide any temporary piping needed to deliver potable water to the piping that is to be tested.

PART 3 - EXECUTION

3.1 GENERAL

- A. The Contractor shall provide the City with a minimum of 24 hours' notice prior to the requested date and time for hydrostatic tests.
- B. The Contractor shall furnish all labor, materials, tools, and equipment for testing.
- C. Test pressure shall not exceed rated working pressure of gate or butterfly valves.
- D. Corporation stops shall be rated the same as the design pressure of the pipeline.
- E. Temporary blocking during the test will be permitted only at temporary plugs, caps or where otherwise directed by the City's Representative.
- F. The test pressure shall not exceed the thrust restraint design pressure or 1.5 times the pressure rating of the pipe or joint, whichever is less (as specified by the manufacturer).
- G. While filling the pipeline, care shall be taken to release all air within the pipe and appurtenances to be tested. Air shall be released through services, fire hydrants, air release valves, or other approved locations.

After filling the pipeline and before application of test pressure, test section shall be maintained at the working pressure for a minimum of one (1) hour to allow the pipeline to stabilize with respect to line movement under pressure, water absorption by the lining and for an initial leak inspection.

- H. The pressure shall be increased to 1.5 times the stated system pressure, or 150 pounds per square inch (psi), whichever is greater, to a maximum of 300 psi. Pressure shall be measured at, or corrected to, the lowest point in the portion of the pipeline being tested.

The test pressure for the entire section under test (if no leaks have been found, or if found, have been repaired and re-subjected to test pressure) shall be maintained for four (4) hours between ± 5 psi of the stated test pressure for the duration of the test. During the test time the amount of leakage shall be determined by measuring the quantity of water which must be added to maintain the test pressure.

If the leakage exceeds the allowable loss, the leak points shall be located and repaired as required by the City's Representative. All defective pipes, fittings, valves and other

appurtenances discovered shall be removed and replaced with sound material. The hydrostatic test shall be repeated until the leakage does not exceed the rate specified. All visible leaks shall be similarly repaired.

END OF SECTION

SECTION 15076 - PIPELINES AND APPURTENANCES

PART 1 - GENERAL

1.1 DESCRIPTION AND SCOPE

- A. Contractor shall furnish all pipe, fittings, thrust blocks, materials, equipment, and labor and perform all operations necessary to construct pipelines and appurtenances as specified by the City as shown by the Drawings. Drawings shall consist of construction drawings, standard drawings and detailed drawings.
- B. The Work shall consist of all utility location and verification (excavating, exposing, and verifying locations, depths, and dimensions of utility facilities); all pavement removal and disposal; all earthwork (including trenching, shoring, dewatering if required, blasting if required, bedding, backfilling, and compacting); furnishing and installing all pipe, fittings, appurtenances, and making all related connections; protecting in place or removing and replacing all existing utilities and public and private improvements; removing and replacing all asphalt and disinfecting and testing all pipelines; disposing of excess soil and rock material; and restoring all areas and improvements to pre-construction conditions.
- C. Contractor shall, upon completion of pipeline construction and appurtenances required herein, initially operate all components of the Work installed or furnished and installed by him, and make any additional adjustments, corrections, repairs, replacements, and reconstructions necessary to provide the City with complete, correctly operating pipelines and appurtenances.

1.2 SUBMITTALS

Complete fabrication, assembly, and installation drawings, together with details and data governing materials used and other accessories furnished, shall be submitted for approval. Data shall include, but not be limited to, the following:

- A. Welded Steel Pipe - Contractor shall furnish an Affidavit of Compliance in accordance with Section 1.12, AWWA C200, latest, and Section 1.7 AWWA C205, latest. Contractor shall also furnish certifications of the following:
 - 1. Material Certification
 - a. Steel Skelp
 - b. Flanges
 - c. Nuts and Bolts
 - d. Flange Gaskets
 - e. Rubber Gaskets
 - 2. Manufacturing Certification
 - a. Pipe Mill Reports
 - b. Production Weld Test Reports
 - c. Hydrostatic Test Reports
 - d. Outlet Reinforcement Calculations

e. Pipe Wall Thickness Calculations

3. Unless specified otherwise, Contractor shall furnish detailed layout and shop or fabrication drawings showing pipe, lining, coating, reinforcement, joints, fittings, appurtenances, and station and elevation for each fitting and outlet and for each pipe joint at each change in pipe class, alignment, or slope. Contractor shall submit detailed layout and shop or fabrication drawings to the City for acceptance in all cases in time sufficient to allow review and acceptance, and to accommodate the Contractor's construction schedule.

B. Polyvinyl Chloride Pipe

1. Contractor shall furnish an Affidavit of Compliance in accordance with Section 6.3, AWWA C900 and C90S (latest). Contractor shall also furnish certified copies of test reports containing results of all physical and chemical tests on pipe and coupling showing compliance with AWWA C900 and AWWA C90S (latest) as modified herein.
2. Unless specified otherwise, Contractor shall prepare detailed installation or laying drawings showing pipe, fittings, appurtenances, station and elevation for each fitting, and each change in alignment or slope. Contractor shall submit the detailed installation or laying drawings to City for approval in all cases in time sufficient to allow review and approval, and to accommodate the Contractor's construction schedule.
3. Revisions shown on the shop drawings shall be considered changes necessary to meet the requirements of these Specifications and shall not be taken as the basis of claims for extra charges. Contractor shall accept such revisions or submit others for acceptance. When delays are caused by resubmissions of shop drawings, Contractor shall not be entitled to any damages or extensions of time for such delays.
4. The City's acceptance of detailed layout and shop or fabrication drawings shall apply only to general arrangement and general compliance and not to specific details and dimensions and their correctness and compatibility. Contractor shall correct any misfits due to any errors in the detailed shop or fabrication drawings. Any fabrication in advance of receipt of detailed layout and shop or fabrication drawings marked "Accepted" or "Furnish as Corrected" shall be at Contractor's risk. Contractor shall furnish the City six sets of all accepted layout and shop or fabrication drawings.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Contractor shall furnish only approved materials as listed in the specifications. All materials shall be new and of the best quality for their intended use. All like materials shall be of one manufacturer for any particular project.
- B. Contractor shall, in addition to furnishing other data herein required, submit three signed and dated copies of the list of materials to be used in pipeline and appurtenance

construction including but not limited to pipeline installations, pipeline valve installations, air valve installations, blowoff installations, manway installations, service installations, fire hydrant installations, and related appurtenances.

2.2 WELDED STEEL PIPE (CEMENT MORTAR LINED AND COATED)

- A. All welded steel pipe shall conform with applicable provisions of AWWA C200, C205, C206, C207, and C208, latest, and applicable portions of M11 "Steel Pipe Manual", latest, as modified herein, by the Drawings, or by the City.
- B. All welded steel pipe shall be manufactured by organizations with at least ten years successful experience in manufacturing, fabricating, lining, and coating the type of pipe specified. City shall approve manufacturer's methods, equipment, facilities, and operations before performance of any work and manufacturer's completed product before its use.
- C. Standard or special pipe sections and standard or special connections, outlets, and fittings may be manufactured at a single plant, or they may be manufactured at two separate plants (Plant 1: manufacturing of standard sections of lined, coated, and cured steel pipe consisting of steel pipe cylinder formation and lining, coating, and curing; Plant 2: fabricating special pipe sections and standard or special connections, outlets, and fittings using standard sections of manufactured lined, coated, and cured steel pipe). Special pipe sections and standard or special connections, outlets, and fittings fabricated at a separate manufacturing plant shall be comprised of standard pipe cylinders that have been formed, lined, coated, and cured at a single manufacturing plant. The separate manufacturing plant shall use facilities and methods for lining and coating repair and curing equal to the facilities and methods of the manufacturer of the standard sections of lined, coated, and cured steel pipe.
- D. Pipe and Fitting: All pipe and fittings furnished shall conform with applicable provisions of AWWA C200, C205, C206, C207, and C208, latest, and applicable portions of AWWA M11, "Steel Pipe Manual", latest, as modified herein, by the Drawings, or by the City.
 - 1. Pipe and fittings shall be Class 150 minimum. Minimum steel cylinder thickness shall be as noted by the construction drawings or specified by the City; it shall not be less than 10-gauge or as noted by the standard drawings. All pipe and fittings shall be machine cement mortar lined and machine cement mortar coated.
 - 2. Curved alignment by use of pulled joints will be permitted. Maximum pull permitted from normal closure on one side of joint shall not exceed $\frac{1}{2}$ inch for 8-inch pipe or smaller, $\frac{3}{4}$ inch for 10-inch through 21-inch pipe, and 1 inch for 24-inch pipe and larger. Maximum joint deflections shall not exceed manufacturer's recommendation or 3 degrees; the more restrictive or lesser deflection shall apply.
 - 3. Where greater curvature is required, Contractor may use fabricated bends as specified by the construction drawings or ordered by the City. For the purpose of reducing angular deflections at pipe joints, Contractor may use pipe sections of less than standard length. Closing courses and short sections of pipe shall be fabricated and installed by Contractor as found necessary in the field.

4. All fittings shall be shop fabricated unless the construction drawings indicate that fittings may be field fabricated, Contractor describes methods of fabrication, and the City specifically approves field fabrication. All fittings shall be fabricated from individual pipe sections, welded together, and lined and coated as described hereafter.
 5. Lining of Fittings
 - a. The application of cement mortar lining to miters, angles, bends, reducers, and other special sections, the shape of which precludes application by the machine spinning process, shall be accomplished by mechanical placement, pneumatic placement, or hand application and finished to produce a smooth, dense surface.
 - b. If the interior of the fitting has not been previously machine lined, wire-fabric reinforcement or ribbon-mesh reinforcement shall be applied to the interior of fittings larger than 24 inches and shall be secured at frequent intervals by tack welding to pipe, by dips or by wire. Repaired areas of machine applied linings at miters, pipe ends, outlets, and other cuts made in the lining for fabrication of the fittings need not be reinforced if the width of the repair area does not exceed 12 inches. Repairs for widths exceeding 6 inches shall be bonded to the steel and adjacent faces of the lining with an approved bonding agent.
 - c. Immediately after lining has been completed, pipe and fittings shall be water cured without being disturbed for at least one day before applying the exterior coating, if such a coating is specified. If cement mortar coating is not specified, the lining shall be kept moist for four days before shipment. In either case, the lining shall be cured for at least four days before shipment. To prevent moisture loss during the curing period, ends of the pipe sections shall be kept closed with plastic end caps or covers which will remain in place until time of installation. The date of lining and class of pipe shall be plainly marked on the inside of each fitting.
 6. Coatings of Fittings: Mortar coating for pipe bends and other special sections not adaptable to the application of spiral-wire coating reinforcement shall be reinforced with wire fabric or ribbon mesh. The wire fabric or ribbon mesh shall be applied over the surface of the pipe to be coated, and may be held away from the pipe shell with self-furring mesh, furring clips, or an equivalent method. The application of the mortar coating shall be by mechanical or pneumatic means to the specified thickness, except that hand application may be substituted for all specials. After the outside coating has been applied, the pipe and fittings shall be kept continually moist by continuous spraying for at least four days. Provisions shall be made to protect the coating from erosion during sprinkling. The date of coating and class of pipe shall be plainly marked on the inside of each fitting.
- E. Pipe Joints: Unless specified otherwise, joints shall conform to the following types. Joints shall be as specified on the construction drawings or by the City. All joints shall be continuity bonded.
1. All rubber gasket joints shall conform with AWWA C200, latest.

2. Flanged Joints

- a. All flanges 4 inches through 12 inches shall conform with AWWA C207, latest, Class E (ring) or ANSI 816.5 Class 150. All flanges larger than 12 inches shall conform with AWWA C207, latest, Class E (ring). All flange bolts shall be standard hex head machine and conform with ASTM A325. All flange nuts shall be heavy hex cold pressed semi-finished steel and conform with ASTM A194-2, 2H.
 - b. All flanges shall be fully welded to pipe on both faces, one pass minimum on the inside, and two passes minimum on the outside. Pipe linings shall extend to mating faces of flanges. Bolt threads shall be lubricated with an approved anti-seize compound. Flanges together with bolts and nuts, shall be, once installed, coated with an approved bitumastic material.
3. Swedged Lap Welded Joints: Bell ends shall be formed integrally with pipe cylinders, being swedged out by machine. Bell ends shall be designed and fabricated to withstand design pressure of class of pipe specified and to permit spigot ends (plain end) to enter belled ends approximately 1 inch with clearance of approximately $1/32$ inch.
 4. Banded Lap Welded Joints: Where lap welded joints are required and swedged lap welded joints cannot be fabricated, belled ends shall be formed by welding steel bands to outside circumferences of plain ends of pipe. Bell ends shall be designed and fabricated to withstand design pressure of class of pipe specified and to permit spigot ends (plain ends) to enter belled ends approximately 1 inch with a clearance of approximately $1/32$ inch.
 5. Sleeve Couplings: Where sleeve couplings are required, they shall conform with the construction drawings. Pipe coatings at pipe ends shall be held back 12 inches and pipe shall have weld seams ground flush within 12 inches from pipe ends, unless specified otherwise. For above ground applications, pipe ends and sleeve couplings shall be painted. For below ground applications, pipe ends and sleeve couplings shall be coated with an approved bitumastic material. An approved bitumastic coating shall be substituted for mortar coating within 12 inches of pipe ends. After joints have been coupled, sleeve couplings shall be coated with an approved bitumastic material.
 6. Cut-to-Fit Joints: Where cut-to-fit joints are required, they shall conform with the standard drawings and the construction drawings. Pipe coatings at cut-to-fit joints shall be held back as required to permit construction of joints; pipe coatings shall thereafter be added in the field. Field applied pipe coatings shall match manufactured pipe coatings. Contractor shall provide, at his expense, cut-to-fit joints, in addition to those specified, if necessary to accommodate his work and schedule.
 7. Shop Testing of Joints and Joint Ends: Every pipe section, standard, or special, shall be hydrostatically tested after joint ends have been completely shop formed and attached in place by welding, as applicable, or dye check tested provided pipe cylinders had been previously hydrostatically tested.

F. Cement Mortar Lining and Cement Mortar Coating: Cement mortar lining and cement mortar coating shall conform with AWWA C205, latest.

1. Surface Preparation: Prior to lining and coating, pipe shall be cleaned of all loose mill scale, moisture, rust, sand, dust, oil, grease, and other deleterious or objectionable matter both inside and outside.
2. Cement Mortar Lining
 - a. Mortar shall consist of one part Portland cement to three parts (by weight) clean, sharp sand. Unless specified otherwise, cement used for cement mortar shall conform with ASTM C-150, latest, Type II. Sand shall consist of clean, inert, sharp, durable material, maximum grain size being no more than one-half specified minimum lining thickness. Mortar shall be thoroughly mixed and made workable with clear, potable water. All cement mortar shall develop a minimum compressive strength of 2,600 psi minimum at seven days and 4,500 psi minimum at twenty-eight days.
 - b. Cement mortar shall be applied to interior surfaces of pipe with equipment specifically designed for that purpose. Said equipment shall have a retracting feed line that will provide uniform cement mortar distribution throughout pipe length. Pipe shall be slowly rotated in horizontal position while cement mortar is being applied. Each end shall be provided with suitable end dam during spinning operation to control lining thickness and provide square-finished lining end.
 - c. Following application of mortar, pipe shall be rotated at sufficient speed to compact lining mortar. Said speed shall be maintained until all excess water has been forced to lining surface. During the spinning operation, surplus water shall be expelled from pipe by blower or other suitable means. Peripheral speed and spinning time shall be sufficient to obtain dense, well compacted lining with smooth surface free from defects. Minimum lining thickness shall be as shown by the standard drawings. Immediately after lining has been completed, pipe shall be water cured without being disturbed for at least one day. Moisture loss shall be prevented during the curing period.
3. Cement Mortar Coating
 - a. Mortar shall consist of one part Portland cement to three parts (by weight) clean, sharp sand. Materials for cement mortar coating shall be the same as materials for cement mortar lining. All cement mortar shall develop a minimum compressive strength of 2,600 psi minimum at seven days and 4,500 psi minimum at twenty-eight days.
 - b. After pipe interior has been lined, cement mortar shall be applied to outside of pipe through fixed nozzles to form an even, dense, and tightly adhering coating. During coating operation, pipe shall be rotated and moved beneath said fixed nozzles to obtain uniform coating free from defects. Minimum coating thickness shall be as shown by the standard drawings.

- c. Cement mortar coating shall be reinforced with spirally wound steel (reinforcing) wire embedded midway within coating. Reinforcing wire shall be bright basic wire comprised of low carbon, open hearth steel, unannealed after the last draw, with an approximate ultimate tensile strength of 80,000 psi. Said wire shall be No. 14 gauge minimum and it shall be placed at a pitch of 1-1/2 inch maximum in the middle third of the coating.
 - d. Immediately after coating has been completed, each end of each section shall be cleansed to bare metal and cement mortar shall be troweled and shaped suitable for joint being used. All exposed bare metal shall be cleaned and coated and painted for protection against corrosion. Completed pipe shall then be water cured for at least four days without being disturbed.
- G. Manufacturing Inspection: The City shall at all times have the right to inspect Work and materials during the course of manufacture. Manufacturer shall furnish the City reasonable facility for obtaining such information as it may desire regarding progress and manner of work and character and quality of materials used.
- H. Loading, Transporting, and Unloading Pipe and Fittings
 - 1. After pipe and fittings have been manufactured as set forth above, they shall be braced at the plant with wooden struts of adequate size to protect against excessive deflection. Each set of struts (two struts minimum to a set) shall be nailed together at right angles as a unit. Wooden wedges may be used to accomplish proper tight fit for the struts. Bracing shall be located 1 foot in from each end of each pipe section for pipe 24 inches and smaller, and additionally at mid-point for pipe 30 inches and larger.
 - 2. After the struts have been installed, pipe shall be loaded on rubber-tired vehicles, adequately supported and choked to prevent damage during transportation, and delivered to Work site. All bracing shall remain in place until each pipe section has been bedded and backfilled to at least 1 foot above the top of the pipe for pipe 24 inches and larger.
 - 3. Plastic end caps or covers shall be placed over the ends of pipe following installation of braces to prevent moisture loss during loading, transporting, unloading, and installing; they shall remain in place until installation. If the plastic and caps or covers are damaged (perforated), they shall be replaced immediately.
 - 4. During loading, unloading, and stringing operations, pipe and fittings shall be moved with care to prevent damage thereto. They shall be moved with nylon chokers or straps of sufficient width, placed at third points (one-third length of pipe from each end), to prevent damage to exterior coating, and they shall be handled in such manner to prevent damage to interior lining. Steel slings shall not be used.
 - 5. Unloading shall be accomplished in a workmanlike manner by Contractor and every precaution shall be taken to prevent damage to pipe and fittings. Under no circumstances are pipe sections to be dropped or bumped in handling. Any pipe

section that becomes damaged shall be repaired if possible and, if not possible in the opinion of the City, it shall be replaced with an undamaged pipe section. When strung, pipe shall be adequately supported and chocked to avoid movement until it is installed. It shall also be placed to avoid damage during construction.

2.3 POLYVINYL CHLORIDE PIPE

- A. Polyvinyl chloride (PVC) pipe furnished and installed under these Specifications shall conform to applicable AWWA Standards (latest), as modified herein, by the Drawings, or by City.
- B. All pipe furnished shall be manufactured by an organization which has had not less than 10 years successful experience in the manufacture of the type of pipe specified. City shall approve manufacturer's product before its use.
- C. Pipe and Couplings: All pipe and couplings furnished shall conform to AWWA C900 and C905 (latest) and the following additional requirements:
 - 1. Unless otherwise specified or shown on Drawings, AWWA C900 pipe and couplings (4" through 12" diameter) shall be minimum Class 150 (maximum dimension ratio of 18). Polyvinyl chloride pipe shall have same dimensions as ductile iron pipe and pipe bell and pipe spigot shall have same thickness as pipe barrel.
 - a. Standard lengths of pipe shall have nominal length of 20 feet, 0 inches, plus or minus 1 inch. Standard lengths of pipe shall be furnished with integral bells and spigots and with rubber gaskets. Couplings may be used for closures and curved alignments where permitted by City.
 - b. Pipe shall have sufficient strength to withstand an internal hydrostatic pressure of four times rated operating pressure for its class per AWWA C900 (latest).
 - 2. Unless otherwise specified or shown on the Drawings, AWWA C905 pipe and couplings (14" through 36" diameter) shall have maximum dimension ratio of 18 (Class 235). Polyvinyl chloride pipe shall have same dimensions as ductile iron pipe and pipe bell and pipe spigot shall have same thickness as pipe barrel.
 - a. Standard lengths of pipe shall have nominal length of 20 feet, 0 inches, plus or minus 1 inch. Standard lengths of pipe shall be furnished with integral bells and spigots and with rubber gaskets. Couplings may be used for closures and curved alignments where permitted by City.
 - b. Pipe shall have sufficient strength to withstand an internal hydrostatic pressure of two times rated operating pressure for its class per AWWA C905 (latest).
 - 3. Where restrained joints are required (specified or shown on the Drawings), the restraint system shall be a split ring installed on the spigot connected to a solid back-up ring seated behind the bell. Restraint system shall be Series 1350 Uni-Flange, Star Pipe Products Series 1100, or equal. The solid back and split rings

shall apply even pressure around the pipe and provide 360-degrees contact. Restraint device shall be ductile iron with 316 stainless steel rods and nuts. Restraint device shall be rated for full working pressure of the pipe with 2:1 factor of safety.

- D. Fittings: All fittings shall be Class 150 ductile iron unless otherwise specified or shown on the Drawings. Ductile iron fittings shall conform with AWWA C110, C111, and C153 (ANSI A21.10, A 21.11, and A21.53, respectively), latest. Unless specified otherwise, fittings shall be push-on joint and comply with AWWA C111 (ANSI A21.11). Fittings shall have an asphaltic outside coating in accordance with AWWA C110 or C153 (ANSI A21.10 or A21.53), latest, and cement mortar lining in accordance with AWWA C104 (ANSI A21.4), latest. Fittings shall have standard lining thickness and shall be seal coated with asphaltic material or other approved material. The lining process must produce a dense, compacted lining that shall be bonded to the interior of the fitting and have a smooth surface.
1. Where PVC fittings are specified on the Drawings or permitted as an alternative as specified on the Drawings, fittings shall be in compliance with AWWA C907 (4" through 8"). Affidavits and testing results shall be submitted as required for PVC pipe.
 2. Where restrained joints are required (specified or shown on the Drawings), the system shall be suitable for mechanical joint fittings or push-on fittings and be of split ring design providing even pressure around the pipe with 360 degrees contact. The rings shall be ductile iron and threaded rods shall be 316 stainless steel. System shall be Uni-Flange Series 1300 or equal.
- E. Testing: All pipe and couplings furnished shall be tested in the United States in accordance with Section 4, AWWA C900 and AWWA C905.
- F. Manufacturing Inspection and Certification: City shall at all times have the right to inspect all work and materials in the course of manufacture. Manufacturer shall furnish City reasonable facility for obtaining such information as he may desire regarding the progress and manner of the work and the character and quality of materials used.
- G. Loading, Transporting, and Unloading: After the pipe has been tested in accordance with Section 5 above, it shall be loaded on rubber-tired vehicles, adequately supported and chocked to prevent any damage during transportation, and delivered to job site. All pipe and couplings (AWWA C900 and C905) shall be unloaded and stored in accordance with AWWA manual M23 (latest). During the unloading and stringing operations, the pipe shall be moved in such a manner as to prevent injury to the pipe and/or couplings. Unloading shall be accomplished in a workmanlike manner as directed by the manufacturer. Under no circumstances are pipe sections to be dropped or bumped in handling.
- H. Defective or Damaged Material: The pipe and couplings shall be carefully inspected for defects. Any pipe, coupling, sleeve, or rubber ring found to be defective in workmanship or material or so damaged as to make repair and use impossible shall be rejected and removed from the job site. In the event that pipe is damaged, the damaged portion may be removed, as approved by City, and discarded. Remaining sound portions may be used with ductile iron fittings or with couplings. Contractor shall be responsible for any and all damage to material and he shall stand expense of repairing or replacing same. Contractor

shall take proper precautions to assure that the rubber gaskets are protected from oxidation or undue deterioration.

2.4 FLEXIBLE EXPANSION CONNECTION (FEC)

- A. The Force Balanced FEC shall be manufactured of ductile iron per ANSI/AWWA C153/A21.53. The FEC shall have flanged connections on each end.
- B. The Force Balanced FEC shall be an integral double ball and socket type flexible joint combined with a sliding barrel type expansion joint providing 15 degrees of lateral deflection at each socket. A minimum of 3" clearance shall be provided from the ground in the offset position. All pressure containing parts shall be lined with a minimum of 15 mils of Fusion Bonded Epoxy per ANSI/AWWA C213.
- C. The unit shall be factory tested with all manufacturer's specifications. Installation shall be in accordance with the manufacturer's requirements.
- D. The FEC shall be a "Flex-Tend" manufactured by EBBA Iron Sales, Inc., Eastland, Texas or approved equal.

2.5 FASTENERS

- A. Hex head bolts and nuts shall be carbon steel conforming to ANSI/ASME B18.2.1 and ANSI/ASME B18.2.2. All thread compound used on bolted connections shall be NSF 61 approved.
- B. Flange insulation kits shall be used at all stainless steel bolts in contact with carbon steel. Insulating flange kits shall include insulating sleeves, gaskets, and insulating washers for each flange bolt. Sleeves shall be full length and shall cover entire bolt. Insulating gaskets shall be full-faced. Insulating flange kit shall be as manufactured by PSI, Pipeline Seal and Insulator, Inc. or approved equal.

PART 3 - EXECUTION

3.1 PIPELINE CONSTRUCTION

- A. Pipelines and Appurtenances: Pipelines and appurtenances shall be constructed in accordance with these Specifications and the Construction Drawings, and as specified by the City.
- B. Valves and Appurtenances
 - 1. Pipeline valves at pipeline intersections shall be connected directly to pipeline intersection fittings (cross or tee).
 - 2. Unless specified otherwise, air valve installations shall be constructed at all pipeline high spots and blowoff installations shall be constructed at all pipeline low spots. Contractor shall construct, at his expense, air valve installations and blowoff installations in addition to those specified, if necessary to accommodate his work and schedule.

C. Pipeline Length: All pipeline lengths noted by the Construction Drawings or otherwise specified or referenced shall mean net horizontal constructed lengths and said lengths shall extend through all fittings and appurtenances including bends, outlets, tees, flanges, and valves. Contractor shall provide all pipe necessary to accommodate any vertical alignment of the pipeline and said pipe shall be represented by the net horizontal constructed length.

D. Pipeline Alignment

1. All pipelines shall be constructed with no basic variation in horizontal alignment as shown by the Drawings or as specified by the City. Pipelines may be constructed by the use of pulled joints, short joints, bevels, bends, and elbows, provided pipelines are constructed as specified.
2. In all non-critical areas and subject to the City's approval, pipelines may be constructed at variance with vertical alignment as shown by the construction drawings by the use of pulled joints, short joints, bevels, bends, and elbows provided pipelines are constructed as specified at pipeline connections and underground interferences, and where pipeline cover is limited. The City will not approve any variation in vertical alignment until it has determined that proposed alignment is proper and modifications are in order.

E. Pipeline Tolerances

1. With regard to vertical alignment, pipelines shall be constructed so that actual flow line elevations, measured at pipe joints, are within 0.1 foot of design flow line elevations. Pipelines, when installed, shall have continuous slope upgrade or downgrade, corresponding with design slope, without any high spots.
2. With regard to horizontal alignment, pipelines shall be constructed so that actual pipeline centerlines, measured at pipe joints, are within 0.1 foot of design pipeline centerlines. Pipelines, when installed, shall closely follow specified horizontal alignment.
3. Pipeline construction shall conform with Construction Drawings and layout, shop, fabrication, installation, or laying drawings (design drawings which show flow line elevations and pipeline centerlines) in accordance with the above specified tolerances. Contractor shall make or assist the City in making all necessary measurements, as determined by the City, to confirm or verify compliance with construction tolerances.

F. Pipeline Cover

1. Pipeline cover as shown by the Construction Drawings is hereby defined as design cover over pipeline. If field conditions determined during construction staking show that pipe grade changes are required to provide design cover, Contractor shall, at his expense, make required changes in pipeline grade and construct pipeline accordingly.
2. Pipeline cover from top of pipe to ground surface over pipeline shall not be less than 36 inches. Where future ground surface elevation over pipeline has been

established and where actual ground surface is greater, pipeline cover shall be referenced to future (established) ground surface elevation, not actual ground surface elevation.

3.2 SURVEY MONUMENTS AND CONSTRUCTION STAKES

- A. Contractor shall not disturb or destroy any existing monuments or bench marks. If any survey monuments or bench marks need to be removed and replaced, Contractor shall have all necessary services performed by a registered civil engineer or a licensed land surveyor. If Contractor fails to comply, the City will have said services performed at Contractor's expense.
- B. Before removing any monuments in preparation for construction, Contractor shall have a registered civil engineer or licensed land surveyor set at least four ties for each monument to be removed and replaced; after construction Contractor shall have the same registered civil engineer or licensed land surveyor replace each monument using the aforementioned ties and file a corner record for each replaced monument.
- C. Unless specified otherwise, Contractor shall use construction stakes and cut sheets for pipeline construction and the City will use them for construction inspection. All construction stakes shall be set by a registered civil engineer or licensed land surveyor. The City must approve cut sheets before actual construction. Contractor shall protect all construction stakes set for construction and he shall restore any construction stakes destroyed or disturbed. If Contractor fails to comply, the City will have services performed at Contractors expense.

3.3 UNDERGROUND UTILITIES (SUBSURFACE INSTALLATIONS)

- A. Where underground utility facilities (conductors or conduits for water, gas, sewer, telephone, electric power, cable television, or other utilities) are shown on construction drawings, Contractor shall assume that service facilities (services or laterals for water gas, sewer, telephone, electric power, cable television, or other utilities) extend from each utility facility to each parcel or property whether or not service facilities are shown.
- B. At least two working days but no more than fourteen calendar days before commencing any excavation on the Work, Contractor shall request Underground Service Alert (1-800-227-2600) and non-member companies or utilities to mark or otherwise indicate the locations of their subsurface facilities including, but not limited to, structures including vaults, main conductors or conduits, and service connections or facilities.
- C. Contractor shall comply with applicable laws pertaining to subsurface installations, especially with respect to excavations and permits. Contractor shall specifically comply with applicable provisions of Sections 4215 through 4216.9 of the Government Code. Contractor shall take all actions necessary to maintain a valid inquiry identification number during the Work.
- D. At least ten days in advance, or 1,000 feet minimum ahead of pipeline trenching, Contractor shall excavate, expose, and determine ("pothole") the exact locations, depths, and dimensions of each and every potential interference, including, but not limited to, all facilities shown specifically (depth and location) on construction drawings, or which have been marked by their respective City's.

- E. Upon learning of the existence or location of any utility facility omitted from or shown incorrectly on construction drawings, or improperly marked or otherwise indicated, Contractor shall immediately notify the City, providing full details as to depth, location, size, and function. Contractor shall immediately notify utility having jurisdiction over facility.
- F. Contractor shall not interrupt or disturb any utility facility without written permission from the Utility or written order from the City. Where protection is required to ensure integrity of utility facilities located as shown on construction drawings or visible to Contractor or marked or otherwise indicated as stated herein, Contractor shall, unless otherwise provided, furnish and place all necessary protection at his expense.
- G. Contractor is advised that the City has no knowledge or information about trench backfill conditions of utility facilities adjacent to or parallel with pipeline being constructed pursuant to these Specifications; therefore, Contractor shall protect against adjacent or parallel trench backfill failure. If adjacent or parallel trench fails, Contractor shall, at his expense, remove and replace said backfill material in accordance with trench backfill requirements herein and remove and replace asphalt concrete pavement and any other improvements damaged in connection therewith.

3.4 TRENCH EXCAVATION

- A. Unless specified otherwise, pipelines and appurtenances shall be installed in open trench excavations to the depth and in the direction specified by the construction drawings. Excavation for trenches shall include removal of all material of any nature as required for installation of pipe, fittings, or appurtenances and shall include blasting, either sloping or shoring, and all necessary dewatering, if any, all at Contractor's expense. Contractor is advised that unsuitable earth may be encountered during trenching operations. Where such material is encountered, Contractor shall, at his expense, remove such material, discard it at legal disposal site(s), and thereafter replace it with approved backfill material.
- B. Excavation Safety Drawings: Before excavating any earth or soil to a depth of five (5) feet or more, Contractor shall, pursuant to Labor Code Section 6705, submit to the City detailed drawings (hereafter referred to as excavation safety drawings) showing design of shoring, bracing, sloping, or other provisions to be made for worker, individual, or property protection. Said excavation safety drawings shall comply with OSHA Construction Safety Orders (Cal/OSHA or Federal OSHA, whichever is applicable at time of construction) and shall be prepared and certified by a registered civil or structural engineer, engaged by Contractor at his expense, who shall affix his signature and seal to each sheet of said excavation safety drawings. Contractor shall not excavate until the City has received and acknowledged properly certified excavation safety drawings. Contractor shall comply with all other applicable requirements of Labor Code Section 6705 and, as therein provided, no requirements of that Section shall be construed to impose tort liability on City or City's representatives, including City's Engineer.
- C. Trench and Bell Hole Sloping or Shoring: Trenches and bell holes shall be adequately sloped or shored so that earth will not slide or settle into trench, so that all existing improvements and utilities (above and below ground) will be fully protected from damage, and so that workers and individuals are protected from injury. At minimum, Contractor shall keep toe of trench spoil at least 5 feet from top of trench. Contractor shall assume full responsibility for all damages caused by inadequate sloping or shoring. Contractor

shall make all necessary repairs or perform all reconstruction at his expense and he shall bear all other expenses resulting from such damages.

- D. Unless specified otherwise, all pipeline trenches within pipe zone shall, wherever possible, have vertical sides and minimum widths as specified on the standard drawings, however, trenches shall be sloped or shored as required for worker, individual, and property protection.
- E. Whenever maximum allowable trench width, as shown by the Drawings, is exceeded for any reason, the City may, at its discretion, require Contractor, at his expense, to cradle pipe (Class B Portland cement concrete) or to provide higher class bedding to support pipe as required to limit load on pipe to allowable supporting strength. The City shall approve method of support prior to its use.
- F. Trenches shall be excavated to depths specified by or shown on construction drawings or as otherwise directed by the City. If trench excavation is carried below grade without direction or permission, Contractor shall, at his expense, refill trench to proper grade with moist clean sand, sand and gravel, or other suitable material as approved by the City, tamped in place to 90 percent relative compaction minimum. Excess excavated material shall be incorporated in backfill or discarded at legal disposal site(s) by Contractor at his expense.

3.5 WELDED STEEL PIPE INSTALLATION

A. Pipe Installation

- 1. Pipe manufacturer, fitting manufacturer, and material supplier, in addition to the City and the City's representative, shall have access to the Work during installation. Contractor shall use assistance provided by either manufacturer or supplier where required for proper installation of pipe, fittings, or materials; however, Contractor shall limit role of either manufacturer or supplier to advisory service.
- 2. Contractor shall not move pipe using dozer blades, backhoe buckets, or the like (sharp metal surfaces). Contractor shall use nylon chokers or straps, not steel slings, in moving, placing, or setting pipe. Nylon chokers or straps shall be placed at third points (one-third length of pipe from each end).
- 3. All out-of-round pipe shall be rejected and removed from the Work site immediately. Rejected pipe shall be replaced immediately. Contractor shall not use hammers, bars, wrenches, or other tools to modify pipe ends to accommodate installation.
- 4. All pipe ends shall be secured with plastic covers. Said plastic covers shall be left in place until pipe is prepared for installation. If any plastic covers are damaged or destroyed before pipe has been installed, they shall be immediately replaced.
- 5. All pipe and fittings shall be laid true to line and grade and at the locations shown by the construction drawings or as specified. Pipe and fittings shall be installed in accordance with applicable sections of AWWA M11, "Steel Pipe Manual". Bell ends shall be placed uphill unless otherwise permitted.

6. All flanges shall be fully welded to pipe on both faces, one pass minimum on the inside and two passes minimum on the outside. Pipe linings shall extend to mating faces of flanges and pipe coatings shall extend to backs of flanges, tapered as necessary for installation of bolts and nuts. All exposed steel shall be field coated with an approved bitumastic material.
7. Special care shall be taken to avoid damaging lining or coating during lowering of pipe into trench and making of field joints. Unless specified otherwise, field joints shall be bell and spigot rubber gasket joints, continuity bonded (two evenly spaced bonding clips per joint minimum). Flanged joints, welded joints, and mechanical joints may be required for particular applications.
8. After pipe has been set in trench, exterior of spigot and interior of bell shall be thoroughly cleaned. Lubricant as recommended by pipe manufacturer and as approved by the City shall be applied to rubber gasket, and said gasket shall then be snapped into place and excess lubricant removed. Lubricant shall be water soluble, nontoxic, shall impart no objectionable taste or odor to water, shall have no deteriorating effects on the rubber gaskets, and shall not support the growth of bacteria.
9. Before inserting spigots into bells, to make joints, bells shall be hand mortared with quick setting non-shrink commercial grout mixed with an approved bonding agent. Once spigots have been inserted into bells, joints shall be gauged to ensure that gaskets have been properly seated.
10. For pipe 24 inches and larger, Contractor shall relieve (equalize) gaskets before laying to prevent gaskets from being tight on one side of pipe and slack on the other side, and adversely affecting seal. Contractor shall lift gaskets with a round blunt tool (like the shaft of a screwdriver) and roll it around the circumference of the spigot end at least once and preferably twice.
11. For pipe less than 24 inches in diameter, sufficient quantities of moist cement mortar shall be placed on interior joining ends of pipe to completely fill space between respective mortar linings. Moist mortar shall be placed only after respective mortar linings have been properly wetted. Moist mortar shall not be placed against dry mortar linings. Excess mortar shall be removed by drawing an approved pipe cleaning tool through the pipe after joints have been made (pipe sections have been joined). For fully welded joints, pipe sections shall be pulled together and restrained with come-along devices, or hoists with chains and slings, and mortar shall be allowed to set for twenty minutes before welding joint. Once joint has been pulled closed and cleaning tool has been drawn through pipe sections, pipe alignment shall not be adjusted, nor shall pipe be bounced or hammered. Come-along devices, or hoists with chains and slings, shall be removed only after joint has been fully welded.
12. For pipe 24 inches in diameter and larger, cement mortar shall be placed on interior joining ends from inside pipe after it has been set. Moist mortar shall be applied only after mortar linings have been properly wetted. Moist mortar shall not be placed against dry mortar linings. Excess mortar and debris shall be removed by hand or by other means acceptable to and approved by the City.

13. For cement mortar coated pipe, joint exteriors shall be coated with cement mortar utilizing a joint diaper. Said diaper shall be furnished by pipe manufacturer and shall be centered over joint and securely fastened to pipe. Cement mortar joint mix consisting of one part Portland cement to two parts (by weight) clean, sharp sand, shall contain just enough water to allow mix to be poured into diaper and flow around circumference of joint. Said mix shall be allowed to set prior to backfilling around joint.
14. Joints shall be completed to provide continuous interior lining and exterior coating. Field lining and coating must equal or exceed shop lining and coating when completed with respect to strength, uniformity, and density and there shall be no voids between lining or coating and steel cylinder.
15. If cement mortar lining has to be removed, Contractor shall scribe, chisel, and remove the lining using appropriate tools. If cement mortar coating has to be removed, Contractor shall first scribe, then saw cut said coating $\frac{3}{4}$ of its thickness, and then remove coating using a chisel driven by a hammer, chipping gun, or other suitable tool. Impact shall be applied parallel with pipe barrel, not perpendicular thereto.
16. At the end of each day's work, all openings in the pipeline shall be plugged with watertight, expandable plugs or approved equal. Said plugs shall be secured in place so that they cannot be removed by children or animals.

B. Field Welding

1. Whenever field welding is required, Contractor shall attach welding machine ground to pipe only with clamps or other means acceptable to the City unless an alternative means is specified.
2. Unless specified otherwise, field welded or thrust restrained joints shall consist of flanged joints or fully welded joints. All flanges shall be fully welded to pipe on both faces, one pass minimum on the inside and two passes minimum on the outside. Welded joints shall be made with pipe having ends belled for welding, or alternatively, ends belled for rubber gasket joints, provided pipe manufacturer furnished filler rods of proper diameter, length, and curvature are installed in accordance with pipe manufacturer's recommendations, as approved by City. Belled ends shall not be deformed to accomplish fully welded joints. Full welds for all joints shall be accomplished with two welding passes (beads) minimum.

C. Field Cement Mortar Lining and Cement Mortar Coating: Whenever field cement mortar lining and cement mortar coating is permitted by the City for either repair or fabrication, Contractor shall comply with the following procedures:

1. Cement Mortar Lining
 - a. Contractor shall square the edge of the remaining lining, leaving no feather edge, and shall clean metal surfaces with a stiff wire brush.
 - b. Contractor shall apply approved bonding agent to both steel area and edges of adjacent lining. Cement mortar shall then be applied to the area

being patched and worked and finished with a trowel until smooth. Contractor shall brush on approved curing compound over the surface of the patch to prevent rapid evaporation of moisture. Otherwise, Contractor shall keep the patched mortar moist by covering it with wet burlap. The pipe shall not be moved until the cement mortar achieves its initial set, not less than three hours.

- c. Cement mortar shall consist of not less than one part cement to three parts sand, thoroughly mixed before any water addition. Cement mortar may be approved commercial, packaged dry mortar mix. Cement mortar shall be mixed separately for each area to be patched. Quantity of water shall be just sufficient so that when mortar is firmly compressed into a ball, it will hold its shape without slump.

2. Cement Mortar Coating

- a. Exterior coating which requires removal around the complete circumference of the pipe shall be repaired by removing the coating by chipping with a hammer or chisel, squaring the edges to accept repair patch. Wrapping the area with 2 x 4 x 14 GA self-furring wire mesh or an approved stucco netting and guniting the area being patched and hand troweling mortar onto the area being patched. Apply an approved curing compound to the patched area. Avoid movement and protect the pipe until the cement mortar achieves its initial set, not less than three hours.
- b. Exterior coating that does not extend around the entire circumference of the pipe shall be repaired by removing the coating by chipping with a hammer and chisel, squaring the edges to accept repair patch. Apply by brush an approved bonding agent to both the steel area and the edges of the remaining coating. Apply cement mortar to the area being patched and thoroughly compact it, with finished patch mounding up above and overlapping (at least 1 inch on all sides) the surrounding coating. Apply an approved curing compound to the patched area. If the repair patch is made on pipe in the ditch, it shall be covered with wet burlap, heavy cloth, or similar material, and dirt shall be placed around and over the patched area by hand before proceeding with placing backfill material.
- c. The cement mortar mix proportions shall be the same as for lining repair.
- d. If the area to be patched exceeds over half of the pipe circumference, 2 x 4 x 14 GA self-furring wire mesh or an approved stucco netting shall be attached to the pipe prior to the application of the cement mortar.

- 3. Installation of Repaired Pipe: After the repaired area has achieved initial set, not less than six hours, the pipe section can be installed, providing the patched area of the coating is backfilled with water saturated or wetted soil.

3.6 PVC PIPE INSTALLATION

- A. Pipe manufacturer, fitting manufacturer, and material supplier, in addition to the City and the City's representative, shall have access to the Work during installation. Contractor

shall use assistance provided by either manufacturer or supplier where required for proper installation of pipe, fittings, or materials; however, Contractor shall limit role of either manufacturer or supplier to advisory service.

- B. All pipe shall be laid true to line and grade and at the locations as shown by the Construction Drawings or as specified. Pipe shall be installed in accordance with AWWA C605 and Manual M23 (latest) (including AWWA C905 pipe and couplings), applicable provisions of manufacturer's installation guides (latest) and manufacturer's directions. City shall approve manufacturer's product before its use. Contractor shall furnish City with two manufacturer installation guides for use during construction. Bell ends shall be placed uphill unless otherwise specified.
- C. Unless otherwise specified or shown on the Drawings, backfill within the pipe zone shall have a minimum sand equivalent of 50 as determined by ASTM D2419 (latest).
- D. After pipe has been set in trench, exterior of spigot and interior of bell shall be thoroughly cleaned. Lubricant recommended by pipe manufacturer and as approved by the City shall be applied to rubber gasket. Lubricant shall be water soluble, nontoxic, shall impart no objectionable taste or odor to the water, shall have no deteriorating effects on the rubber gaskets, and shall not support growth of bacteria. Excess lubricant shall be removed. Pipe ends shall be aligned, and spigot shall be pulled into bell with come-along devices, or hoists with chains and slings, unless permitted otherwise. If either the pry bar or the backhoe bucket method is permitted, a timber header shall be placed between the pipe and the pry bar or backhoe bucket before the spigot is pushed into bell.
- E. Curved alignment of AWWA C900 pipe shall be accomplished by longitudinal bending of the pipe. Minimum allowable bend radii shall be as specified by the pipe manufacturer. Unless otherwise allowed by the pipe manufacturer and approved by the City, axial deflection at the pipe joints of AWWA C900 pipe is prohibited. Where closing sections are required, Contractor shall make all necessary measurements to select appropriate pipe lengths and closure couplings for correct installation.
- F. Curved alignment of AWWA C905 pipe by use of longitudinal bending is prohibited; however, curved alignment by use of pulled joints will be permitted. Unless otherwise allowed by the pipe manufacturer and approved by the City, maximum joint deflection shall be one (1) degree. For purposes of reducing angular deflections at pipe joints and for closure sections, Contractor may install pipe sections of less than standard length. Where closing sections are required, Contractor shall make all necessary measurements to select appropriate pipe lengths and closure couplings for correct installation.
- G. Whenever cutting of pipe is required, it shall be done with a special cutting tool specifically made for cutting and machining PVC pipe. Cut ends and rough edges shall be ground smooth and beveled for push-on joints.
- H. Pipe locator wire (No. 14 AWS insulated copper) shall be installed in trench with pipe where shown by the Standard Drawings unless it is specifically deleted by the Construction Drawings or by City. It shall be held in place by looping the pipe at 20-foot intervals maximum, or as specified.
- I. As work progresses, a pipe cleaning tool as approved by City shall be drawn through the pipe to remove dirt, rocks, or other foreign material. At the end of each day's work, all

openings in the pipeline shall be plugged with watertight expandable plugs or City approved equal.

- J. Unless specified otherwise, polyvinyl chloride pipe shall not be encased with concrete. If protection is necessary, it shall be accomplished by the use of conductor casing(s) as approved by City.

3.7 FLEXIBLE EXPANSION CONNECTIONS

Furnish and install double ball flexible expansion connection fitting as noted in Section 2.4 and a 3" combination air valve on the inlet and outlet piping penetrating through the shell, as shown on the plans. Provide all flanges and fittings as needed to install the flexible expansion connection. Contractor shall furnish the adjustable pipe supports on 12" square and 6" thick concrete pad as noted on the plans.

1. Furnish and install two 7/8" dia. (A36) steel rods with threaded ends one each located on both sides of flexible coupling and bolt four 7/8" plate to backside of flanges at 4 locations as noted on the plans.
2. Furnish and install 5 1/2-inch diameter and 36-inch high steel bollards at locations as noted on the plans.
3. After the line has been energized, the steel rods are to be removed to allow proper functioning of the FEC. Rods should be placed back on the FEC whenever the pipe is being energized to prevent improper movement of the FEC.

3.8 FIELD HYDROSTATIC TEST AND LEAKAGE TEST

- A. Hydrostatic and Leakage Test shall be performed in accordance with Section 15060.
- B. Required test pressures shall be applied by pump connected to pipeline sections being tested. The City shall approve pump connections to pipeline before testing begins. As part of the Work, and unless specified otherwise, Contractor shall install, at his expense, top outlets (service taps) required for testing. Contractor shall provide calibrated meters for measurement of leakage, and all pumps, piping, fittings, bulkheads, plugs, valves, gages, power equipment, and manpower necessary for conducting all tests required, all at his expense. Contractor shall furnish the City three copies of all records of all tests performed.
- C. Unless specified otherwise, Contractor shall test against test plates for pipelines 12 inches and smaller. Contractor shall not remove said test plates until pipelines have been tested, disinfected, and accepted by the City.
- D. Contractor, at his expense, shall locate and repair leaks or other defects which may develop or become apparent during test. Contractor shall excavate, including removal of backfill already placed, and make all repairs necessary for required water tightness, and then replace all excavated material, after which Contractor shall retest repaired pipeline section. Pipeline sections shall be repeatedly repaired and tested until they meet requirements set forth herein.
- E. Pipe manufacturer and fitting manufacturer shall have free access to the Work during testing. Any improper act on the part of Contractor which the pipe and fitting manufacturer

may observe shall be reported to the City. Pipe and fitting manufacturer shall be free to observe and verify all tests.

- F. After completed pipeline and appurtenances or test sections have successfully met test requirements to the satisfaction of the City, the entire pipeline or each test section shall be filled or shall remain filled with water until completion of the Work, unless otherwise ordered by the City.

3.9 MISCELLANEOUS REQUIREMENTS

- A. Connections to Existing Water Mains: The Contractor shall make all connections to existing water mains in the presence of City's inspector. Contractor shall provide all labor, equipment, and materials necessary to perform connection work including, but not limited to, isolation gate valve, fittings, and adapters.
- B. Hydrostatic testing against isolation valves will not be allowed. Adjacent to the isolation valve, Contractor shall install a test plate for the aforementioned test and, after satisfactory test, remove said test plate and replace it with a 1/8-inch-thick minimum ring gasket. The use of any other test appurtenances shall be as approved by the City.
- C. Field Painting: Contractor shall field paint all aboveground, bare, or exposed piping and appurtenances in accordance with the applicable specifications and drawings.

END OF SECTION

SECTION 16641 - CATHODIC PROTECTION BY GALVANIC ANODES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section addresses materials, installation and testing requirements for a new interior sacrificial anode cathodic protection system on two existing welded steel ground storage water reservoirs owned and operated by the City of Poway. The reservoirs are known as the Boulder Mountain No. 1 and No. 2 reservoirs, respectively. The interiors of both reservoirs will have a new epoxy coating.
- B. The work includes supplying all materials, tools and labor to install the following: sacrificial magnesium rod anodes and cables, cutting of new five (5) inch diameter anode handholes in the roof plates, providing six (6) inch diameter anode handhole covers, anode and cable mounting and suspension hardware and internal/external mounted potential monitoring test equipment.
- C. The reservoirs each have an existing impressed current cathodic protection system (ICCP) which will require removal in its entirety including all anodes, cabling, suspension hardware, conduits and exterior mounted AC/DC rectifier and its AC power wiring and circuit breakers.
- D. The Contractor performing all cathodic protection installations shall be a licensed Electrical Contractor in the State of California (C-10 minimum classification) and shall have a minimum of five (5) years of practical experience with successful histories of similar reservoir work. Upon request, the Contractor shall substantiate this requirement by furnishing a written list of appropriate references with contact names, phone numbers and year of installation and project titles.

1.2 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Commercial Standards: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designations only.
 - 1. ASTM B107-13 Standard Specification for Magnesium-Alloy Extruded Bars, Rods, Tubes and Wire
 - 2. ASTM D1248-12 Standard Specification for Polyethylene Plastic Extrusion Materials for Wire and Cable
 - 3. NACE SP0196-15 Galvanic Anode Cathodic Protection of Internal Submerged Surfaces of Steel Water Reservoirs
 - 4. NSF/ANSI 61-13 Drinking Water System Components – Health Effects

1.3 SUBMITTALS

- A. Submit the following for review and approval by the Owner's Corrosion Engineer (3 copies):
 - 1. Anodes

2. Wire and Cable
 3. Anode Handhole Covers
 4. Potential Meter and Enclosure
 5. Permanent Reference Electrode
- B. Submit electronic submittal in pdf format of detailed shop drawings in accordance with Owner's requirements. Shop drawings to include specific anode core to lead wire connections.
- C. An electronic submittal will be accepted in only the following format:
1. The file shall be in pdf format.
 2. Each project submittal shall be in a separate file.
 3. Each file shall be labeled in the following sequence:
 - a. Owner Name/Project Name
 - b. Submittal No.
 - c. Description

1.4 MANUFACTURERS

All materials furnished under this specification shall be standard products of manufacturers regularly engaged in the manufacture of such products and equipment and shall be the manufacturer's latest design that complies with the specification requirements. All materials shall be manufactured in the USA where feasible.

PART 2 - MATERIALS

2.1 ANODE HANDHOLE COVERS

Anode hole covers shall be 3/32" (min.) thick galvanized, cadmium plated or zinc plated mild steel or bare stainless steel, six (6.0) inches in diameter, with a 1/2" diameter centered stainless steel through bolt. A galvanized or cadmium plated steel bar or 1/2" thick FRP (fiberglass reinforced plastic - **not PVC**) bar shall be utilized to hold the cover in place and shall be dimensioned as shown. The bar shall be factory drilled and tapped to accept the 1/2" bolt. The end of the bolt shall be peened or saw cut with a slot to prevent the bar from coming off the bolt. A 6" dia., full face, 0.100" thick (min.) neoprene rubber gasket with a 9/16" diameter center hole shall be provided under the cover to seal the cover to the anode handhole in the roof plate. An additional EPDM or neoprene rubber grommet shall be provided between the roof plate and the neoprene cover gasket to facilitate future removal of the cover.

2.2 ANODES

- A. ASTM B107 Magnesium Rod, Galvorod Alloy (Dow Chemical) Certified (Standard Potential - 1.4/1.5 VDC – max. open circuit voltage to CSE) or approved equal. High potential (primary grade) anodes shall not be utilized for this project. Anodes shall be **NSF/ANSI Standard 61** certified with accompanying certification paperwork.

1. Chemical composition of the anode shall be as follows:
 - a. Aluminum 2.5-3.5 % maximum

b.	Manganese	0.20 % minimum
c.	Zinc	0.7-1.3 %
d.	Silicon	0.05 % maximum
e.	Copper	0.01 % maximum
f.	Nickel	0.001 % maximum
g.	Iron	0.002 % maximum
h.	Other (each)	0.05 % maximum
i.	Other (total)	0.30 % maximum
j.	Magnesium	Remainder

2. Bare Anode Weight:

- a. Boulder Mtn. No. 1: 10 pounds (min.) for 10-foot long rod (1.315" dia.)
- b. Boulder Mtn. No. 2: 25 pounds (min.) for 10-foot long rod (2.024" dia.)

3. Anode Diameter:

- a. Boulder Mtn. No. 1: 1.315 inches O.D. \pm 0.020"
- b. Boulder Mtn. No. 2: 2.024 inches O.D. \pm 0.024"

- 4. Rod anodes shall be continuously cast or extruded with a centrally located 0.135" or 0.188" diameter iron wire core and shall be supplied with the anode lead wire conductor both factory silver soldered and hydraulically crimped or split bolted to the core. The entire soldered/crimped connection shall be completely encapsulated in a waterproof heat shrinkable sleeve followed by an epoxy potting compound contained within an additional PVC sleeve or an overall heat shrinkable sleeve.
- 5. Anodes must be NSF 61 Certified with accompanying NSF paperwork and approved manufacturers are Galvotec Alloys, Inc., Timminco Limited, MaxMag, Mag Specialties or other approved equal.

2.3 ANODE LEAD WIRES

Anode lead wires shall be AWG #8 stranded copper conductors, ASTM D-1248 Type 1, Class A, Type CP, HMW/PE insulated (black), insulation thickness 0.110", not less than 15' in length and extend to the roof plate connection without splicing. Lead wires must be NSF 61 certified.

2.4 POTENTIAL METER AND ENCLOSURE

A DC voltmeter shall be provided in an external enclosure to allow measurement of interior structure-to-water potentials. The meter shall read from 0-2 volts DC and have a minimum internal resistance of 100K ohms per volt (Ω/V) sensitivity. Meter shall be at least 2-1/2" square and the face of the meter shall be permanently marked with a "green arc" from +0.850V to +1.200V and a "yellow arc" from +1.200V to +2.000V. The meter circuit shall be provided with an external "push-to-read" momentary switch, which is normally "off" or "open" (NO). The voltmeter and switch shall be mounted on a PVC or acrylic board as shown.

The enclosure for the meter shall be a NEMA 3R (rain tight) box with a hinged cover. The box shall be a Stahlin "J Series" non-metallic grey fiberglass reinforced polyester type or

style with a continuous poured polyurethane seamless gasket built into the cover for sealing and a full length stainless steel hinge. Enclosure shall contain all 300 series stainless steel hardware, latches and screws. Box size shall be 8" x 8" x 4" and the cover shall have a hasp for padlocking the cover to the box. The meter and enclosure shall be the Model GMC-707TK as manufactured by GMC Electrical, Ontario, California or approved equal. If desired by the Owner, a 9V battery powered digital DC voltmeter may be supplied as model 707-D-TK in an 8" x 8" x 4" high impact NEMA 4 polycarbonate box.

2.5 PERMANENT REFERENCE ELECTRODE

The permanent reference electrode shall be the "Staperm", Model Cu-2-FW and shall consist of a 1-1/8" diameter x 8" long ABS (yellow) plastic housing with an internally coiled 1/8" diameter 99.9% pure copper rod suspended in a saturated laboratory grade copper sulphate (CuSO₄) conductive paste. The electrode shall contain a chloride-ion trap and utilize a ceramic electrolyte contact plug on the bottom end. The design life shall be a minimum of 20 years with a stability of ± 5 millivolt (mV) under a 3 micro-amp (μ A) load. The electrode cable size shall be AWG #14 with RHH-RHW (yellow) insulation and be of sufficient length to reach from the electrode to the external potential meter enclosure without splicing. The electrode shall be as manufactured by GMC Electrical of Ontario, California or approved equal and be NSF 61 certified.

PART 3 - EXECUTION

3.1 INSTALLATION

The following installation procedures shall be accomplished with the reservoir wet or dry (Owner's option). The anodes will be suspended from the interior roof plate as shown in the Plans and shall meet all requirements of NACE Standard SP0196-15.

3.2 ANODE HANDHOLES

The Contractor shall utilize the newly cut 5" diameter holes in the roof plates at the locations shown. Handholes shall be cut by the use of a magnetic-mount circular hole saw or flame cut. Do not allow cut out roof material to fall into the reservoir.

3.3 ANODE INSTALLATION

- A. Install each anode and lead wire at the indicated locations (by the use of the individual anode clevis assembly):

NOTE: DO NOT PERFORM ITEMS "C" AND "D" BELOW UNTIL AFTER THE 11th MONTH COATING WARRANTY INSPECTION HAS BEEN PERFORMED (BY OTHERS).

- B. Suspend each anode from its clevis assembly as shown. Verify that the installed anode is the correct design distance ($7' \pm 6"$) off the reservoir floor. Cover the lead wire solderless lugs with a tightly taped-closed plastic "baggie" or other suitable waterproof cover to prevent corrosion of the connector until it's finally installed (connected).
- C. Connect the individual lead wire copper conductors to the roof plate by the use of the solderless lug connector and S/S bolt and nut as shown after first grinding the interior roof plate to bare metal. Anode supplier to provide a sufficient length of anode lead cable to

connect to the lug without splicing the cable.

- D. After each connection is made, coat the exposed lug connector and any exposed cable copper conductor and bare steel roof plate with epoxy or other approved insulating coating to a thickness of at least 1/16". Slide each individual handhole cover centered and in place on the exterior roof plate and tighten the 1/2" bolt until it is just snug. Do not over tighten.

3.4 METER ENCLOSURE

Mount the meter enclosure box adjacent to the exterior ladder on the exterior of the reservoir by the use of the mounting tabs provided on the box and M8 studs "pin brazed" or "Unistrut" angle iron type mounting hardware welded to the shell as required by the Owner. Attach the box to the studs or mounting angles with stainless steel hexagonal bolts and nuts. Route 3/4" rigid galvanized conduit from the box to the roof plate. Terminate the conduit at the roof plate entry with a 3/4" Type LB galvanized or zinc plated steel conduit fitting. Attach an AWG #14 THWN (black) insulated copper cable from the voltmeter negative (-) terminal to the switch and then to the grounding lug or provided grounding wire in the box as shown.

3.5 PERMANENT REFERENCE ELECTRODE

Suspend the permanent reference electrode from its own lead wire at the location shown on the plans at a maximum of 12" from the floor and shell. On knuckle style roofs, attach the #14 lead wire to the interior ladder with a galvanized or stainless steel beam clamp. Route the electrode lead wire up the interior reservoir shell adjacent to the interior ladder and through the 3/4" conduit fitting and inside the 3/4" steel conduit down to the meter enclosure. Do not splice or nick the electrode cable. Connect the reference lead copper conductor to the voltmeter positive (+) terminal with a ring-tongue solderless connector. Fill both sides of the roof mounted LB conduit interior inlet and outlets and the conduit entry into the meter enclosure with a canned type expandable "foam sealant" to prevent condensation and humidity from entering the 3/4" steel conduit and meter enclosure. Locate the 3/4" conduit entry to the monitoring box on the bottom of the box as shown on the Plans.

PART 4 - TESTING AND WARRANTY

4.1 CATHODIC PROTECTION SYSTEM TESTING

The CP installation Contractor shall accomplish initialization structure-to-water testing of the galvanic anode cathodic protection system. Testing shall be accomplished after the internal coating warranty inspection has been performed (by others) and the reservoir refilled to full. Testing will be conducted per the requirements of NACE Standard SP0196-15. Testing shall consist of measuring (with a high-impedance digital DC voltmeter and calibrated portable CuSO₄ reference electrode) all individual anode open-circuit (unconnected) potentials, initially connected structure-to-water potentials (with all anodes connected) and final structure-to-water potentials after one hour has elapsed. Structure potentials shall be measured from the roof hatch and down the interior shell and behind the interior ladder at 3' ± intervals from the high waterline to the bottom. Contractor shall only be held responsible for supplying the specified anode material, permanent CuSO₄ reference and/or monitoring equipment and not for the system test results unless deficiencies are noted in any materials. Present a letter type report with all results of the testing to the Owner.

4.2 WARRANTY

All materials, especially the anodes, shall be warranted for a period of at least twelve (12) months after the cathodic protection system has been energized (connected). Any deficiencies in the materials, especially in the initial measured anode open-circuit voltage (to CSE) or lack of NSF certification, shall be cause to reject the entire lot of materials. The Contractor shall replace all deficient materials, including labor to reinstall and any retesting required, at no cost to the Owner.

4.3 CLEANUP

All debris, tools, storage materials, cut out roof plates, existing hardware and ICCP system and welding and painting materials shall be removed from the reservoir roof and from the premises at the completion of the work herein specified. Any cost incurred by the Owner to clean up debris or other materials resulting from this work shall be back charged to the Contractor.

END OF SECTION

APPENDIX A CONSTRUCTION BMPs



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Water conservation practices are activities that use water during the construction of a project in a manner that avoids causing erosion and/or the transport of pollutants off site.

Appropriate Applications

- Water conservation practices are implemented on all construction sites and wherever water is used.
- Applies to all construction projects.

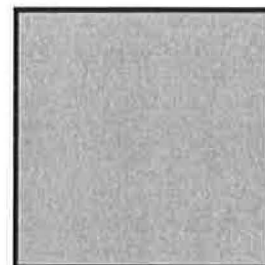
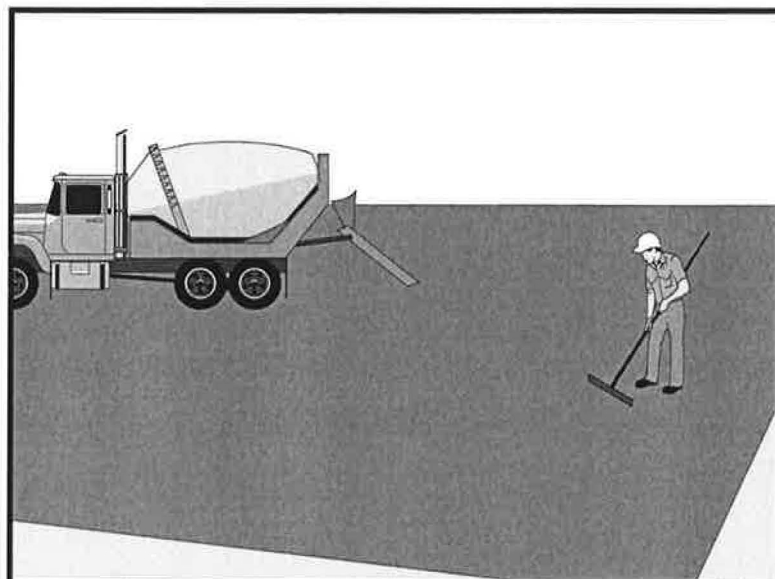
Limitations

- None identified.

Standards and Specifications

- Keep water equipment in good working condition.
- Stabilize water truck filling area.
- Repair water leaks promptly.
- Vehicles and equipment washing on the construction site is discouraged.
- Avoid using water to clean construction areas. Do not use water to clean pavement. Paved areas shall be swept and vacuumed.
- Direct construction water runoff to areas where it can infiltrate into the ground.
- Apply water for dust control in accordance with City approved methods.
- Report discharges to RE immediately.

- Maintenance and Inspection
- Inspect water equipment at least weekly.
 - Repair water equipment as needed.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Procedures and practices for conducting paving, saw cutting, and grinding operations to minimize the transport of pollutants to the storm drain system or receiving water body.

Appropriate Applications These procedures are implemented where paving, surfacing, resurfacing, grinding or sawcutting, may pollute storm water runoff or discharge to the storm drain system or watercourses.

Limitations

- Finer solids are not effectively removed by filtration systems.
- Paving opportunities may be limited during wet weather.

Standards and Specifications

- Substances used to coat asphalt transport trucks, asphalt trucks, and asphalt spreading equipment shall not contain soap and shall be non-foaming and non-toxic.
- Place plastic materials under asphaltic concrete (AC) paving equipment while not in use, to catch and/or contain drips and leaks. See also BMP WM-4, "Spill Prevention and Control."
- When paving involves AC, the following steps shall be implemented to prevent the discharge of uncompacted or loose AC, tack coats, equipment cleaners, or other paving materials:
 - Minimize sand and gravel from new asphalt from getting into storm drains, streets, and creeks by sweeping.
 - Old or spilled asphalt must be recycled or disposed as approved by the Resident Engineer (RE).

- AC grindings, pieces, or chunks used in embankments or shoulder backing must not be allowed to enter any storm drain or watercourses. Install silt fence until structure is stabilized or permanent controls are in place.
- Collect and remove all broken asphalt and recycle when practical; otherwise, dispose using an approved method per City requirements.
- Any AC chunks and pieces used in embankments must be placed above the water table and covered by at least 0.3 m (1 ft) of material.
- During chip seal application and sweeping operations, petroleum or petroleum covered aggregate must not be allowed to enter any storm drain or water courses. Use silt fence until installation is complete.
- Use only non-toxic substances to coat asphalt transport trucks and asphalt spreading equipment.
- Drainage inlet structures and manholes shall be covered with filter fabric during application of seal coat, tack coat, slurry seal, and/or fog seal.
- Seal coat, tack coat, slurry seal, or fog seal shall not be applied if rainfall is predicted to occur during the application or curing period.
- Paving equipment parked onsite shall be parked over plastic to prevent soil contamination.
- Clean asphalt-coated equipment off-site whenever possible. When cleaning dry, hardened asphalt from equipment, manage hardened asphalt debris as described in BMP WM-5, “Solid Waste Management.” Any cleaning onsite shall follow BMP NS-8, “Vehicle and Equipment Cleaning.”
- Do not wash sweepings from exposed aggregate concrete into a storm drain system. Collect and return to aggregate base stockpile, or dispose of properly.
- Allow aggregate rinse to settle. Then, either allow rinse water to dry in a temporary pit as described in BMP WM-8, “Concrete Waste Management,” or dispose of properly.
- Do not allow saw-cut Portland Concrete Cement (PCC) slurry to enter storm drains or watercourses.

Pavement Grinding or Removal

- Residue from PCC grinding operations shall be picked up by means of a vacuum attachment to the grinding machine, shall not be allowed to flow across the pavement, and shall not be left on the surface of the pavement. See also BMP WM-8, “Concrete Waste Management,” and BMP WM-10, “Liquid Waste Management.”

- Collect pavement digout material by mechanical or manual methods. This material may be recycled if approved by the RE for use as shoulder backing or base material at locations approved by the RE.
- If digout material cannot be recycled, transport the material back to a maintenance facility or approved storage site.
- Digout activities shall not be conducted in the rain.
- When approved by the RE, stockpile material removed from roadways away from drain inlets, drainage ditches, and watercourses and stored consistent with BMP WM-3, "Stockpile Management."
- Disposal or use of AC grindings shall be approved by the RE. See also BMP WM-8, "Concrete Waste Management."

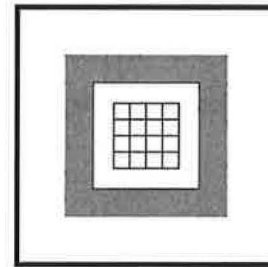
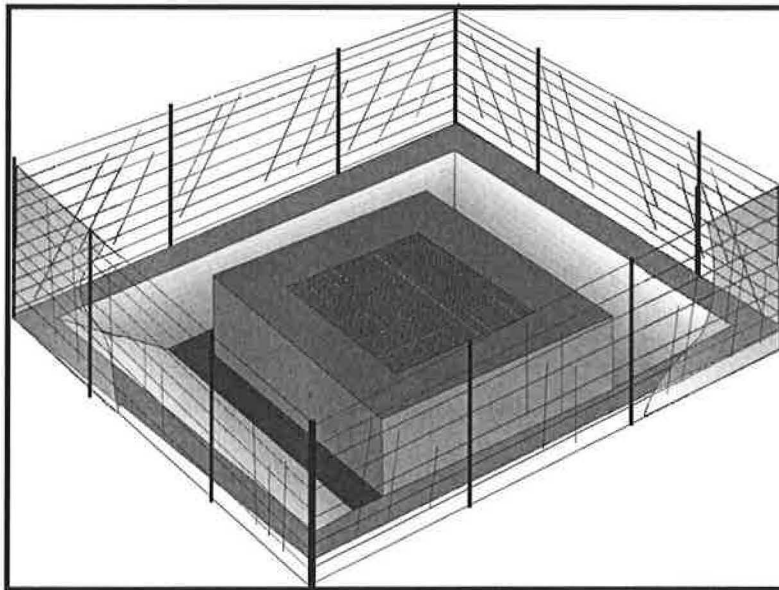
Thermoplastic Striping

- All thermoplastic striper and pre-heater equipment shutoff valves shall be inspected to ensure that they are working properly to prevent leaking thermoplastic from entering drain inlets, the storm water drainage system, or watercourses.
- The pre-heater shall be filled carefully to prevent splashing or spilling of hot thermoplastic. Leave six inches of space at the top of the pre-heater container when filling thermoplastic to allow room for material to move when the vehicle is deadheaded.
- Contractor shall not pre-heat, transfer, or load thermoplastic near drain inlets or watercourses.
- Clean truck beds daily of loose debris and melted thermoplastic. When possible recycle thermoplastic material. Thermoplastic waste shall be disposed of in accordance with City requirements.

Raised/Recessed Pavement Marker Application and Removal

- Do not transfer or load bituminous material near drain inlets, the storm water drainage system or watercourses.
- Melting tanks shall be loaded with care and not filled to beyond six inches from the top to leave room for splashing when vehicle is deadheaded.
- When servicing or filling melting tanks, ensure all pressure is released before removing lids to avoid spills.
- On large scale projects, use mechanical or manual methods to collect excess bituminous material from the roadway after removal of markers.

- Maintenance and Inspection
- Waste shall be disposed of in accordance with City approved methods.
 - Inspect and maintain machinery regularly to minimize leaks and drips.
 - Ensure that employees and subcontractors are implementing appropriate measures during paving operations.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Devices used at storm drain inlets that are subject to runoff from construction activities to detain and/or to filter sediment-laden runoff to allow sediment to settle and/or to filter sediment prior to discharge into storm drainage systems or watercourses.

- Appropriate Applications**
- Where ponding will not encroach into highway traffic.
 - Where sediment laden surface runoff may enter an inlet.
 - Where disturbed drainage areas have not yet been permanently stabilized.
 - Where the drainage area is 0.4 ha (1 ac) or less.
 - Appropriate during wet and snow-melt seasons.

- Limitations**
- Requires an adequate area for water to pond without encroaching upon traveled way and should not present itself to be an obstacle to oncoming traffic.
 - May require other methods of temporary protection to prevent sediment-laden storm water and non-storm water discharges from entering the storm drain system.
 - Sediment removal may be difficult in high flow conditions or if runoff is heavily sediment laden. If high flow conditions are expected, use other on-site sediment trapping techniques (e.g. check dams) in conjunction with inlet protection.
 - Frequent maintenance is required.
 - For drainage areas larger than 0.4 ha (1 ac), runoff shall be routed to a sediment trapping device designed for larger flows. See BMPs SC-2, "Sediment/Desilting Basin," and SC-3 "Sediment Trap."

- Filter fabric fence inlet protection is appropriate in open areas that are subject to sheet flow and for flows not exceeding 0.014 m³/s (0.5 cfs).
- Gravel bag barriers for inlet protection are applicable when sheet flows or concentrated flows exceed 0.014 m³/s (0.5 cfs), and it is necessary to allow for overtopping to prevent flooding.
- Excavated drop inlet sediment traps are appropriate where relatively heavy flows are expected and overflow capability is needed.

Standards and Specifications

Identify existing and/or planned storm drain inlets that have the potential to receive sediment-laden surface runoff. Determine if storm drain inlet protection is needed, and which method to use.

Methods and Installation

- **DI Protection Type 1 - Filter Fabric Fence** - The filter fabric fence (Type 1) protection is illustrated on Page 5. Similar to constructing a silt fence. See BMP SC-1, "Silt Fence." Do not place filter fabric underneath the inlet grate since the collected sediment may fall into the drain inlet when the fabric is removed or replaced.
- **DI Protection Type 2 - Excavated Drop Inlet Sediment Trap** - The excavated drop inlet sediment trap (Type 2) is illustrated in Page 6. Similar to constructing a temporary silt fence, See BMP SC-1, "Silt Fence." Size excavated trap to provide a minimum storage capacity calculated at the rate of 130 m³/ha (67 yd³/ac) of drainage area.
- **DI Protection Type 3 - Gravel bag** - The gravel bag barrier (Type 3) is illustrated in Page 7. Flow from a severe storm shall not overtop the curb. In areas of high clay and silts, use filter fabric and gravel as additional filter media. Construct gravel bags in accordance with BMP SC-6, "Gravel Bag Berm." Gravel bags shall be used due to their high permeability.

Maintenance and Inspection

General

- Inspect all inlet protection devices before and after every rainfall event, and weekly during the rest of the rainy season. During extended rainfall events, inspect inlet protection devices at least once every 24 hours.
- Inspect the storm drain inlet after severe storms in the rainy season to check for bypassed material.
- Remove all inlet protection devices within thirty days after the site is stabilized, or when the inlet protection is no longer needed.
 - Bring the disturbed area to final grade and smooth and compact it. Appropriately stabilize all bare areas around the inlet.
 - Clean and re-grade area around the inlet and clean the inside of the storm drain inlet as it must be free of sediment and debris at the time of final

inspection.

Requirements by Method

■ ***Type 1 - Filter Fabric Fence***

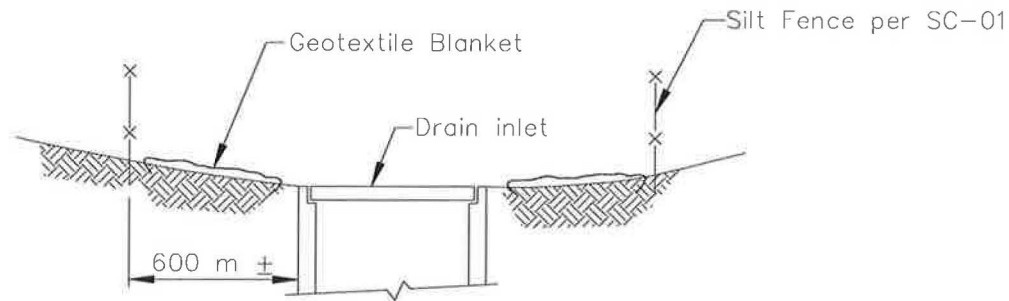
- This method shall be used for drain inlets requiring protection in areas where finished grade is established and erosion control seeding has been applied or is pending.
- Make sure the stakes are securely driven in the ground and are structurally sound (i.e., not bent, cracked, or splintered, and are reasonably perpendicular to the ground). Replace damaged stakes.
- Replace or clean the fabric when the fabric becomes clogged with sediment. Make sure the fabric does not have any holes or tears. Repair or replace fabric as needed or as directed by the RE.
- At a minimum, remove the sediment behind the fabric fence when accumulation reaches one-third the height of the fence or barrier height.

■ ***Type 2 – Excavated Drop Inlet Sediment Trap***

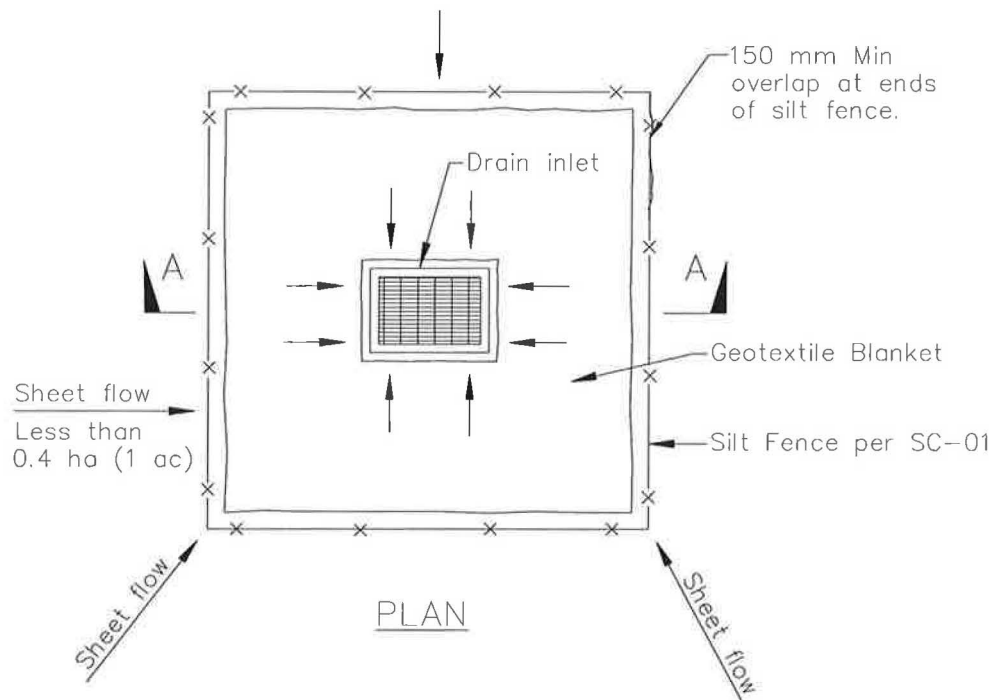
- This method may be used for drain inlets requiring protection in areas that have been cleared and grubbed, and where exposed soil areas are subject to grading.
- Remove sediment from basin when the volume of the basin has been reduced by one-half.

■ ***Type 3 - Gravel Bag Barrier***

- This method may be used for drain inlets surrounded by AC or paved surfaces.
- Inspect bags for holes, gashes, and snags.
- Check gravel bags for proper arrangement and displacement. Remove the sediment behind the barrier when it reaches one-third the height of the barrier.



SECTION A-A

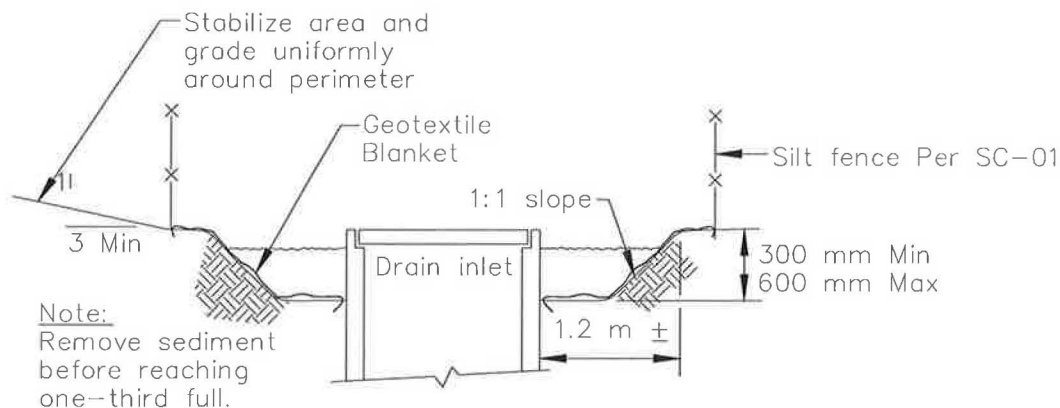


PLAN

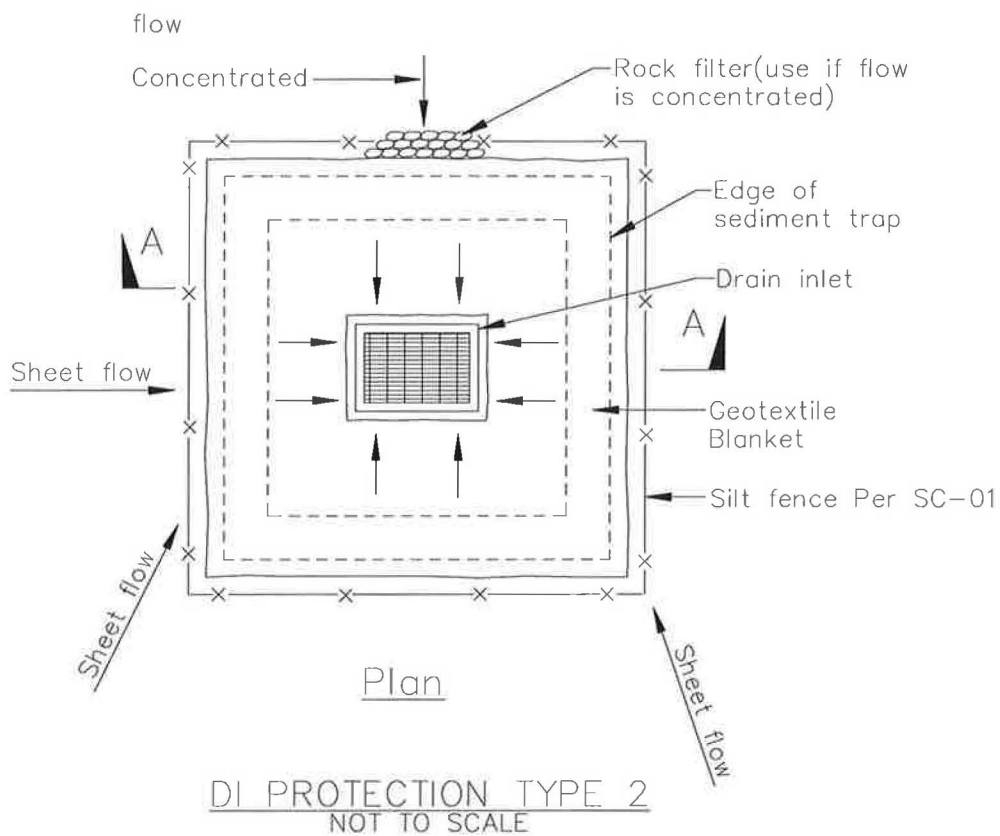
DI PROTECTION TYPE 1
NOT TO SCALE

NOTES:

1. For use in areas where grading has been completed and final soil stabilization and seeding are pending.
2. Not applicable in paved areas.
3. Not applicable with concentrated flows.

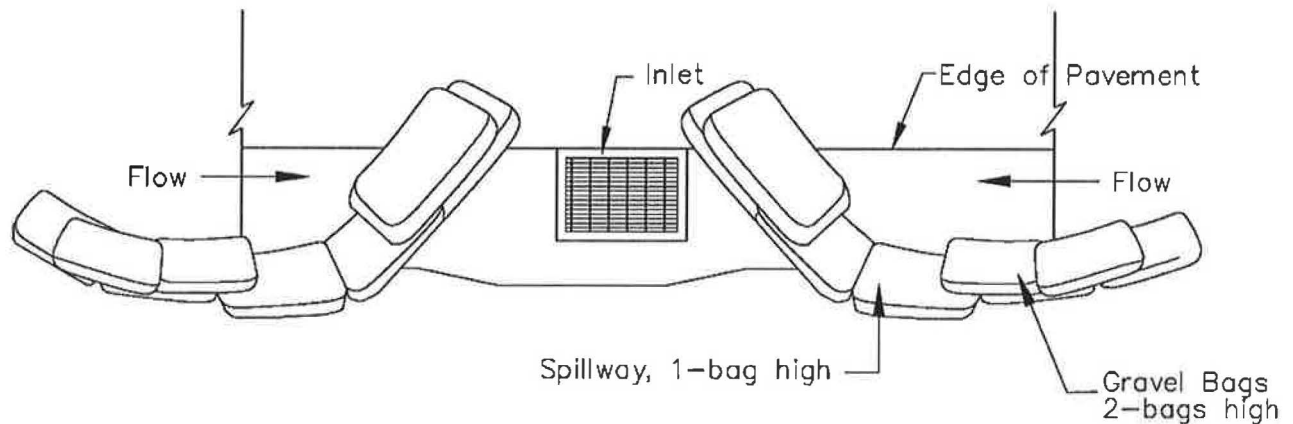


Section A-A

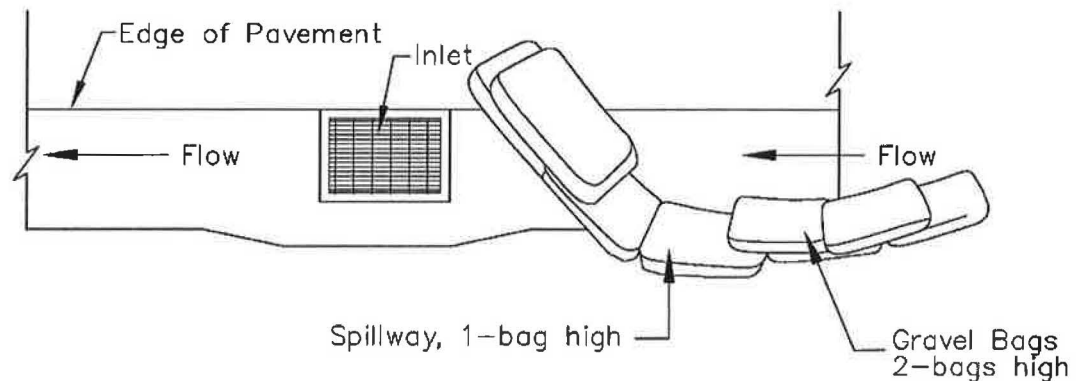


Notes

1. For use in cleared and grubbed and in graded areas.
2. Shape basin so that longest inflow area faces longest length of trap.
3. For concentrated flows, shape basin in 2:1 ratio with length oriented towards direction of flow.



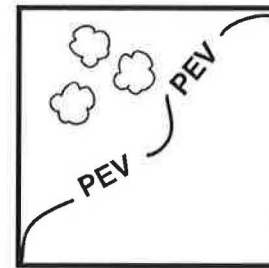
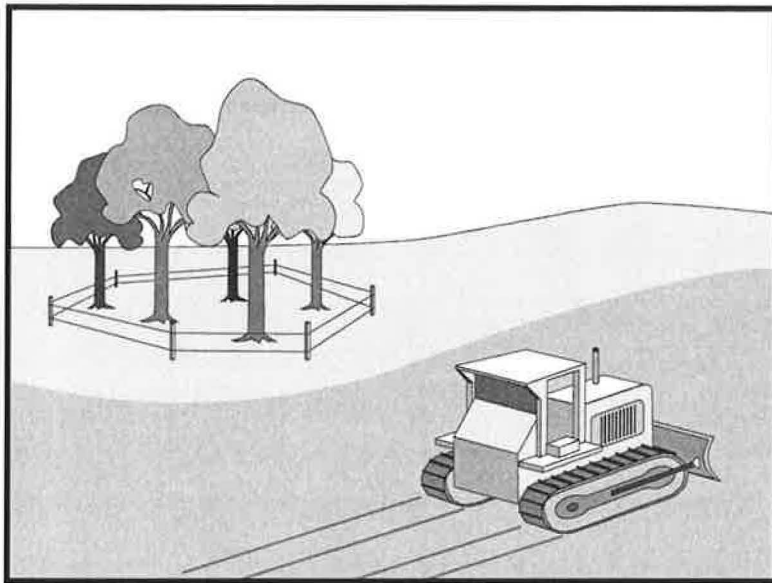
TYPICAL PROTECTION FOR INLET WITH OPPOSING FLOW DIRECTIONS



TYPICAL PROTECTION FOR INLET WITH SINGLE FLOW DIRECTION

NOTES:

1. Intended for short-term use.
2. Use to inhibit non-storm water flow.
3. Allow for proper maintenance and cleanup.
4. Bags must be removed after adjacent operation is completed
5. Not applicable in areas with high silts and clays without filter fabric.
6. The method may only be used when it does not adversely effect pedestrian or vehicular traffic.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Preservation of existing vegetation is the identification and protection of desirable vegetation that provides erosion and sediment control benefits.

- Appropriate Applications**
- Preserve existing vegetation at areas on a site where no construction activity is planned or will occur at a later date.
 - On a year-round basis, temporary fencing shall be provided prior to the commencement of clearing and grubbing operations or other soil-disturbing activities in areas.
 - Clearing and grubbing operations should be staged to preserve existing vegetation.

Limitations Protection of existing vegetation requires planning, and may limit the area available for construction activities.

Standards and Specifications

Timing

- Preservation of existing vegetation shall be provided prior to the commencement of clearing and grubbing operations or other soil-disturbing activities in areas identified on the plans to be preserved, especially on areas designated as Environmentally Sensitive Areas (ESAs).
- Preservation of existing vegetation shall conform to scheduling requirements set forth in the special provisions.

Design and Layout

- Mark areas to be preserved with temporary fencing made of orange polypropylene that is stabilized against ultraviolet light. The temporary fencing shall be at least 1 meter (3.2. ft) tall and shall have openings not larger than 50 mm by 50 mm (2 in by 2 in).
- Fence posts shall be either wood or metal, at the Contractor's discretion, as

appropriate for the intended purpose. The post spacing and depth shall be adequate to completely support the fence in an upright position.

- Minimize the disturbed areas by locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cutting and filling.
- Consider the impact of grade changes to existing vegetation and the root zone.

Installation

- Construction materials, equipment storage, and parking areas shall be located where they will not cause root compaction.
- Keep equipment away from trees to prevent trunk and root damage.
- Maintain existing irrigation systems.
- Employees and subcontractors shall be instructed to honor protective devices. No heavy equipment, vehicular traffic, or storage piles of any construction materials shall be permitted within the drip line of any tree to be retained. Removed trees shall not be felled, pushed, or pulled into any retained trees. Fires shall not be permitted within 30 m (100 ft) of the drip line of any retained trees. Any fires shall be of limited size, and shall be kept under continual surveillance. No toxic or construction materials (including paint, acid, nails, gypsum board, chemicals, fuels, and lubricants) shall be stored within 15 m (50 ft) of the drip line of any retained trees, nor disposed of in any way which would injure vegetation.

Trenching and Tunneling

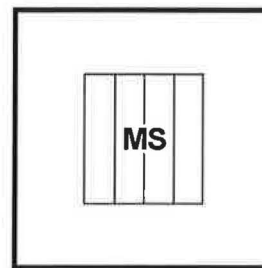
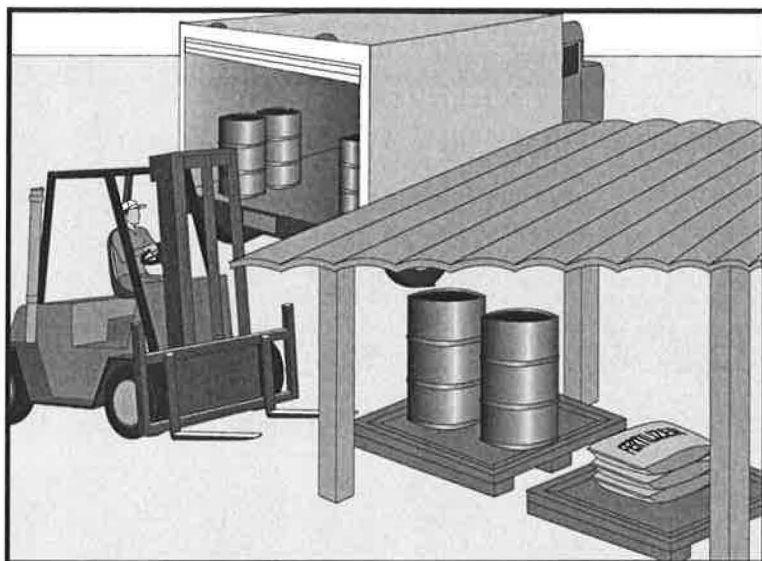
- Trenching shall be as far away from tree trunks as possible, usually outside of the tree drip line or canopy. Curve trenches around trees to avoid large roots or root concentrations. If roots are encountered, consider tunneling under them. When trenching and/or tunneling near or under trees to be retained, tunnels shall be at least 450 mm (18 in) below the ground surface, and not below the tree center to minimize impact on the roots.
- Tree roots shall not be left exposed to air; they shall be covered with soil as soon as possible, protected, and kept moistened with wet burlap or peat moss until the tunnel and/or trench can be completed.
- The ends of damaged or cut roots shall be cut off smoothly.
- Trenches and tunnels shall be filled as soon as possible. Careful filling and tamping will eliminate air spaces in the soil which can damage roots.
- Remove any trees intended for retention if those trees are damaged seriously enough to affect their survival. If replacement is desired or required, the new tree shall be of similar species, and at least 50 mm (2 in) caliper, unless

otherwise required by the contract documents.

- After all other work is complete, fences and barriers shall be removed last. This is because protected trees may be destroyed by carelessness during the final cleanup and landscaping.

Maintenance and Inspection During construction, the limits of disturbance shall remain clearly marked at all times. Irrigation or maintenance of existing vegetation shall conform to the requirements in the landscaping plan. If damage to protected trees still occurs, maintenance guidelines described below shall be followed:

- Serious tree injuries shall be attended to by an arborist.
- During construction, the City Planner shall be contacted to ensure that ESAs are protected.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Procedures and practices for the proper handling and storage of materials in a manner that minimizes or eliminates the discharge of these materials to the storm drain system or to watercourses.

Appropriate Applications These procedures are implemented at all construction sites with delivery and storage of the following:

- Hazardous chemicals such as:
 - Acids,
 - lime,
 - glues,
 - adhesives,
 - paints,
 - solvents, and
 - curing compounds.
- Soil stabilizers and binders.
- Fertilizers.
- Detergents.
- Plaster.
- Petroleum products such as fuel, oil, and grease.
- Asphalt and concrete components.
- Pesticides and herbicides.

- Other materials that may be detrimental if released to the environment.

Limitations

- Space limitation may preclude indoor storage.
- Storage sheds must meet building & fire code requirements.

Standards and Specifications

General

- Train employees and subcontractors on the proper material delivery and storage practices.
- Temporary storage area shall be located away from vehicular traffic.
- Material Safety Data Sheets (MSDS) shall be supplied to the Resident Engineer (RE) for all materials stored.

Material Storage Areas and Practices

- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 shall be stored in approved containers and drums and shall be placed in temporary containment facilities for storage.
- Throughout the rainy season, each temporary containment facility shall have a permanent cover and side wind protection or be covered during non-working days and prior to and during rain events.
- A temporary containment facility shall provide for a spill containment volume able to contain precipitation from a 24-hour, 25-year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest container within its boundary, whichever is greater.
- A temporary containment facility shall be impervious to the materials stored therein for a minimum contact time of 72 hours.
- A temporary containment facility shall be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills shall be collected and placed into drums. These liquids shall be handled as a hazardous waste unless testing determines them to be non-hazardous. All collected liquids or non-hazardous liquids shall be sent to an approved disposal site.
- Sufficient separation shall be provided between stored containers to allow for spill cleanup and emergency response access.
- Incompatible materials, such as chlorine and ammonia, shall not be stored in the same temporary containment facility.
- Materials shall be stored in their original containers and the original product labels shall be maintained in place in a legible condition. Damaged or otherwise illegible labels shall be replaced immediately.

- Bagged and boxed materials shall be stored on pallets and shall not be allowed to accumulate on the ground. To provide protection from wind and rain, throughout the rainy season, bagged and boxed materials shall be covered during non-working days and prior to rain events.
- Stockpiles shall be protected in accordance with BMP WM-3, "Stockpile Management."
- Minimize the material inventory stored on-site (e.g., only a few days supply).
- Have proper storage instructions posted at all times in an open and conspicuous location.
- Do not store hazardous chemicals, drums, or bagged materials directly on the ground. Place these items on a pallet and when possible, under cover in secondary containment.
- Keep hazardous chemicals well labeled and in their original containers.
- Keep ample supply of appropriate spill clean up material near storage areas.
- Also see BMP WM-6, "Hazardous Waste Management", for storing of hazardous materials.

Material Delivery Practices

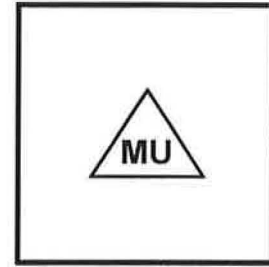
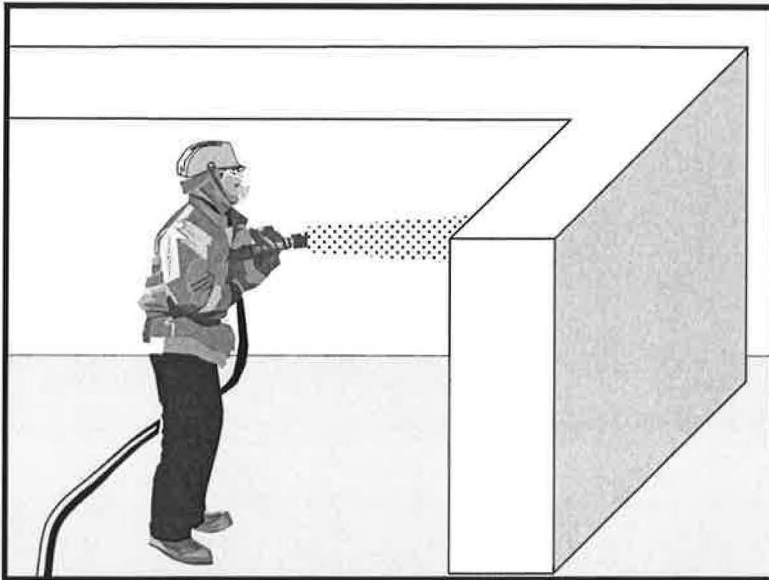
- Keep an accurate, up-to-date inventory of material delivered and stored on-site.
- Employees trained in emergency spill clean-up procedures shall be present when dangerous materials or liquid chemicals are unloaded.

Spill Clean-up

- Contain and clean up any spill immediately.
- If significant residual materials remain on the ground after construction is complete, properly remove and dispose any hazardous materials or contaminated soil.
- See BMP WM-4, "Spill Prevention and Control", for spills of chemicals and/or hazardous materials.

Maintenance and Inspection

- Storage areas shall be kept clean, well organized, and equipped with ample clean-up supplies as appropriate for the materials being stored.
- Perimeter controls, containment structures, covers, and liners shall be repaired or replaced as needed to maintain proper function.
- Inspect storage areas before and after rainfall events, and at least weekly during other times. Collect and place into drums any spills or accumulated rainwater.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose These are procedures and practices for use of construction material in a manner that minimizes or eliminates the discharge of these materials to the storm drain system or to watercourses.

Appropriate Applications This BMP applies to all construction projects. These procedures apply when the following materials are used or prepared on site:

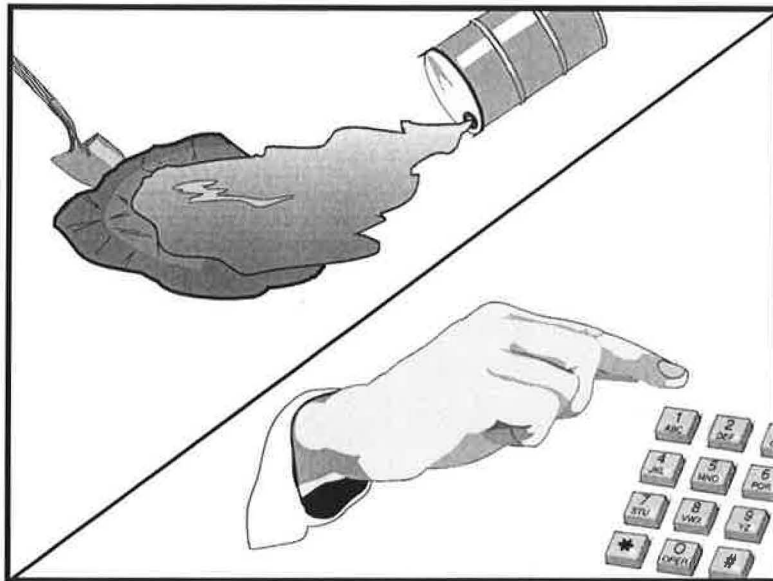
■ Hazardous chemicals such as:

Acids,
lime,
glues,
adhesives,
paints,
solvents, and
curing compounds.

- Soil stabilizers and binders.
- Fertilizers.
- Detergents.
- Plaster.
- Petroleum products such as fuel, oil, and grease.
- Asphalt and concrete components.
- Pesticides and herbicides.

Other materials that may be detrimental if released to the environment.

- Limitations** ■ Safer alternative building and construction products may not be available or suitable in every instance.
- Standards and Specifications** ■ Material Safety Data Sheets (MSDS) shall be supplied to the Resident Engineer (RE) for all materials.
- Latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths, when thoroughly dry and are no longer hazardous, may be disposed of with other construction debris.
 - Do not remove the original product label, it contains important safety and disposal information. Use the entire product before disposing of the container.
 - Mix paint indoors, or in a containment area. Never clean paintbrushes or rinse paint containers into a street, gutter, storm drain or watercourse. Dispose of any paint thinners, residue and sludge(s), that cannot be recycled, as hazardous waste.
 - For water-based paint, clean brushes to the extent practical, and rinse to a drain leading to a sanitary sewer where permitted, or into a concrete washout pit. For oil-based paints, clean brushes to the extent practical and filter and reuse thinners and solvents.
 - Use recycled and less hazardous products when practical. Recycle residual paints, solvents, non-treated lumber, and other materials.
 - Use materials only where and when needed to complete the construction activity. Use safer alternative materials as much as possible. Reduce or eliminate use of hazardous materials on-site when practical.
 - Do not over-apply fertilizers and pesticides. Prepare only the amount needed. Strictly follow the recommended usage instructions. Apply surface dressings in smaller applications, as opposed to large applications, to allow time for it to work in and to avoid excess materials being carried off-site by runoff.
 - Application of herbicides and pesticides shall be performed by a licensed applicator.
 - Contractors are required to complete the "Report of Chemical Spray Forms" when spraying herbicides and pesticides.
 - Keep an ample supply of spill clean up material near use areas. Train employees in spill clean up procedures.
 - Avoid exposing applied materials to rainfall and runoff unless sufficient time has been allowed for them to dry.
- Maintenance and Inspections** ■ Spot check employees and subcontractors monthly throughout the job to ensure appropriate practices are being employed.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose These procedures and practices are implemented to prevent and control spills in a manner that minimizes or prevents the discharge of spilled material to the drainage system or watercourses.

Appropriate Application This best management practice (BMP) applies to all construction projects. Spill control procedures are implemented anytime chemicals and/or hazardous substances are stored. Substances may include, but are not limited to:

- Soil stabilizers/binders.
- Dust Palliatives.
- Herbicides.
- Growth inhibitors.
- Fertilizers.
- Deicing/anti-icing chemicals.
- Fuels.
- Lubricants.
- Other petroleum distillates.

To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110, 117, and 302, and sanitary and septic wastes shall be contained and cleaned up immediately.

Limitations ■ This BMP only applies to spills caused by the contractor.

- Procedures and practices presented in this BMP are general. Contractor shall identify appropriate practices for the specific materials used or stored on-site.

Standards and Specifications

- To the extent that it doesn't compromise clean up activities, spills shall be covered and protected from storm water run-on during rainfall.
- Spills shall not be buried or washed with water.
- Used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose shall be stored and disposed of in conformance with the special provisions.
- Water used for cleaning and decontamination shall not be allowed to enter storm drains or watercourses and shall be collected and disposed of in accordance with BMP WM-10, "Liquid Waste Management."
- Water overflow or minor water spillage shall be contained and shall not be allowed to discharge into drainage facilities or watercourses.
- Proper storage, clean-up and spill reporting instruction for hazardous materials stored or used on the project site shall be posted at all times in an open, conspicuous and accessible location.
- Waste storage areas shall be kept clean, well organized and equipped with ample clean-up supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers and liners shall be repaired or replaced as needed to maintain proper function.

Education

- Educate employees and subcontractors on what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills.
- Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
- Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.
- The Contractor's Water Pollution Control Manager (WPCM) shall oversee and enforce proper spill prevention and control measures.

Cleanup and Storage Procedures

■ Minor Spills

- Minor spills typically involve small quantities of oil, gasoline, paint, etc., which can be controlled by the first responder at the discovery of the spill.
- Use absorbent materials on small spills rather than hosing down or burying the spill.
- Remove the absorbent materials promptly and dispose of properly.
- The practice commonly followed for a minor spill is:
 - Contain the spread of the spill.
 - Recover spilled materials.
 - Clean the contaminated area and/or properly dispose of contaminated materials.

■ Semi-Significant Spills

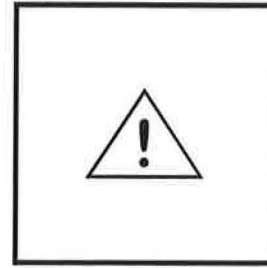
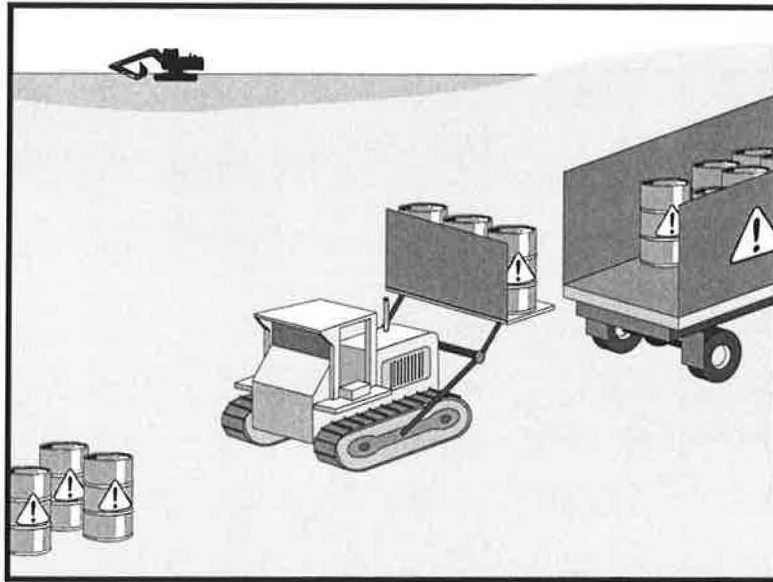
- Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.
- Clean up spills immediately:
 - Notify the project foreman immediately. The foreman shall notify the Resident Engineer (RE).
 - Contain spread of the spill.
 - If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
 - If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
 - If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

■ Significant/Hazardous Spills

- For significant or hazardous spills that cannot be controlled by personnel in the immediate vicinity, the following steps shall be taken:
 - Notify the RE immediately and follow up with a written report.
 - Notify the local emergency response by dialing 911. In addition to 911, the contractor will notify the proper county officials. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
 - Notify the Governor's Office of Emergency Services Warning Center, (805) 852-7550.
 - For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110, 119, and 302, the contractor shall notify the National Response Center at (800) 424-8802.
 - Notification shall first be made by telephone and followed up with a written report.
 - The services of a spills contractor or a Haz-Mat team shall be obtained immediately. Construction personnel shall not attempt to clean up the spill until the appropriate and qualified staff have arrived at the job site.
 - Other agencies which may need to be consulted include, but are not limited to, the Fire Department, the Public Works Department, the Coast Guard, the Highway Patrol, the City/County Police Department, Department of Toxic Substances, California Division of Oil and Gas, Cal/OSHA, RWQCB, etc.

Maintenance and Inspection

- Verify weekly that spill control clean up materials are located near material storage, unloading, and use areas.
- Update spill prevention and control plans and stock appropriate clean-up materials whenever changes occur in the types of chemicals used or stored onsite.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose These are procedures and practices to minimize or eliminate the discharge of pollutants from construction site hazardous waste to the storm drain systems or to watercourses.

- Appropriate Applications**
- This best management practice (BMP) applies to all construction projects.
 - Hazardous waste management practices are implemented on construction projects that generate waste from the use of:
 - Petroleum Products,
 - Asphalt Products,
 - Concrete Curing Compounds,
 - Pesticides,
 - Acids,
 - Paints,
 - Stains,
 - Solvents,
 - Wood Preservatives,
 - Roofing Tar, or
 - Any materials deemed a hazardous waste in California, Title 22 Division 4.5, or listed in 40 CFR Parts 110, 117, 261, or 302.

- Limitations**
- Nothing in this BMP relieves the Contractor from responsibility for compliance with federal, state, and local laws regarding storage, handling, transportation, and disposal of hazardous wastes.
 - This BMP does not cover aerially deposited lead (ADL) soils. For ADL soils refer to BMP WM-7, "Contaminated Soil Management."

Standards and Specifications

Education

- Educate employees and subcontractors on hazardous waste storage and disposal procedures.
- Educate employees and subcontractors on potential dangers to humans and the environment from hazardous wastes.
- Instruct employees and subcontractors on safety procedures for common construction site hazardous wastes.
- Instruct employees and subcontractors in identification of hazardous and solid waste.
- Hold regular meetings to discuss and reinforce hazardous waste management procedures (incorporate into regular safety meetings).
- The Contractor's Water Pollution Control Manager (WPCM) shall oversee and enforce proper hazardous waste management procedures and practices.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.

Storage Procedures

- Wastes shall be stored in sealed containers constructed of a suitable material and shall be labeled as required by Title 22 CCR, Division 4.5 and 49 CFR Parts 172, 173, 178, and 179.
- All hazardous waste shall be stored, transported, and disposed as required in Title 22 CCR, Division 4.5 and 49 CFR 261-263.
- Waste containers shall be stored in temporary containment facilities that shall comply with the following requirements:
 - Temporary containment facility shall provide for a spill containment volume able to contain precipitation from a 24-hour, 25 year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest tank within its boundary, whichever is greater.
 - Temporary containment facility shall be impervious to the materials

stored there for a minimum contact time of 72 hours.

- Temporary containment facilities shall be maintained free of accumulated rainwater and spills. In the event of spills or leaks accumulated rainwater and spills shall be placed into drums after each rainfall. These liquids shall be handled as a hazardous waste unless testing determines them to be non-hazardous. Non-hazardous liquids shall be sent to an approved disposal site.
 - Sufficient separation shall be provided between stored containers to allow for spill cleanup and emergency response access.
 - Incompatible materials, such as chlorine and ammonia, shall not be stored in the same temporary containment facility.
 - Throughout the rainy season, temporary containment facilities shall be covered during non-working days, and prior to rain events. Covered facilities may include use of plastic tarps for small facilities or constructed roofs with overhangs. A storage facility having a solid cover and sides is preferred to a temporary tarp. Storage facilities shall be equipped with adequate ventilation.
- Drums shall not be overfilled and wastes shall not be mixed.
 - Unless watertight, containers of dry waste shall be stored on pallets.
 - Paint brushes and equipment for water and oil based paints shall be cleaned within a contained area and shall not be allowed to contaminate site soils, watercourses or drainage systems. Waste paints, thinners, solvents, residues, and sludges that cannot be recycled or reused shall be disposed of as hazardous waste. When thoroughly dry, latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths shall be disposed of as solid waste.
 - Ensure that adequate hazardous waste storage volume is available.
 - Ensure that hazardous waste collection containers are conveniently located.
 - Designate hazardous waste storage areas on site away from storm drains or watercourses and away from moving vehicles and equipment to prevent accidental spills.
 - Minimize production or generation of hazardous materials and hazardous waste on the job site.
 - Use containment berms in fueling and maintenance areas and where the potential for spills is high.
 - Segregate potentially hazardous waste from non-hazardous construction site

debris.

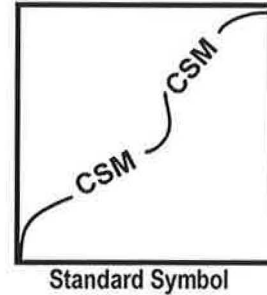
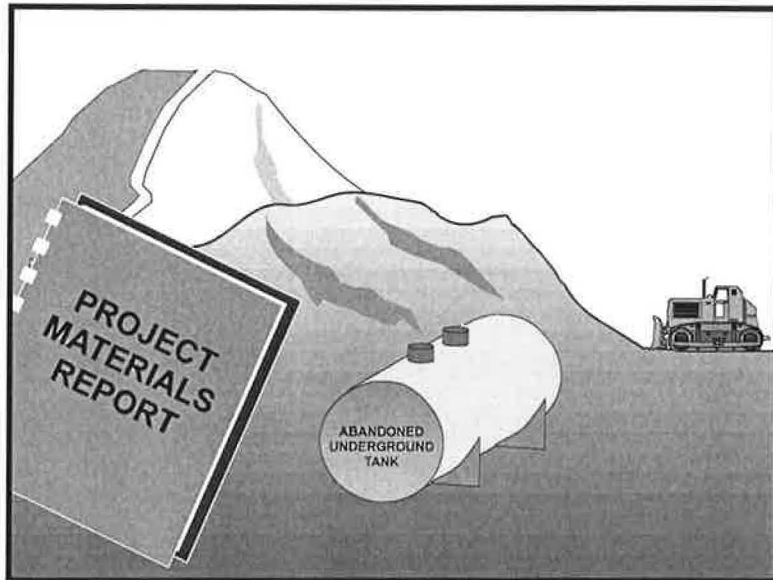
- Keep liquid or semi-liquid hazardous waste in appropriate containers (closed drums or similar) and under cover.
- Clearly label all hazardous waste containers with the waste being stored and the date of accumulation.
- Place hazardous waste containers in secondary containment.
- Do not allow potentially hazardous waste materials to accumulate on the ground.
- Do not mix wastes.

Disposal Procedures

- Waste shall be disposed of outside the highway right-of-way within 90 days of being generated, or as directed by the Resident Engineer (RE). In no case shall hazardous waste storage exceed requirements in Title 22 CCR, Section 66262.34.
- Waste shall be disposed of by a licensed hazardous waste transporter at an authorized and licensed disposal facility or recycling facility utilizing properly completed Uniform Hazardous Waste Manifest forms.
- A Department of Health Services (DHS) certified laboratory shall sample waste and classify it to determine the appropriate disposal facility.
- Make sure that toxic liquid wastes (e.g., used oils, solvents, and paints) and chemicals (e.g., acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for solid waste construction debris.
- Properly dispose of rainwater in secondary containment that may have mixed with hazardous waste.
- Recycle any useful material such as used oil or water-based paint when practical.
- Attention is directed to "Hazardous Material", "Contaminated Material", and "Aerially Deposited Lead" of the contract documents regarding the handling and disposal of hazardous materials.

Maintenance and Inspection

- A foreman and/or construction supervisor shall monitor on-site hazardous waste storage and disposal procedures.
- Waste storage areas shall be kept clean, well organized, and equipped with ample clean-up supplies as appropriate for the materials being stored.
- Storage areas shall be inspected in conformance with the provisions in the contract documents.
- Perimeter controls, containment structures, covers, and liners shall be repaired or replaced as needed to maintain proper function.
- Hazardous spills shall be cleaned up and reported in conformance with the applicable Material Safety Data Sheet (MSDS) and the instructions posted at the project site.
- The National Response Center, at (800) 424-8802, shall be notified of spills of Federal reportable quantities in conformance with the requirements in 40 CFR parts 110, 117, and 302.
- Copy of the hazardous waste manifests shall be provided to the RE.



BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose These are procedures and practices to minimize or eliminate the discharges of pollutants to the drainage system or to watercourses from contaminated soil.

- Appropriate Applications**
- Contaminated soil management is implemented on construction projects in highly urbanized or industrial areas where soil contamination may have occurred due to spills, illicit discharges, and leaks from underground storage tanks.
 - It may also apply to highway widening projects in older areas where median and shoulder soils may have been contaminated by aerially deposited lead (ADL).

- Limitations**
- The procedures and practices presented in this best management practice (BMP) are general. The contractor shall identify appropriate practices and procedures for the specific contaminants known to exist or discovered on site.

Standards and Specifications *Identifying Contaminated Areas*

- Contaminated soils are often identified during project planning and development with known locations identified in the plans and specifications. The contractor shall review applicable reports and investigate appropriate call-outs in the plans and specifications.
- The contractor may further identify contaminated soils by investigating:
 - Past site uses and activities.
 - Detected or undetected spills and leaks.
 - Acid or alkaline solutions from exposed soil or rock formations high in acid or alkaline forming elements.

- Look for contaminated soil as evidenced by discoloration, odors, differences in soil properties, abandoned underground tanks or pipes, or buried debris. Test suspected soils at a certified laboratory.

Education

- Prior to performing any excavation work at the locations containing material classified as hazardous, employees and subcontractors shall complete a safety training program which meets 29 CFR 1910.120 and 8 CCR 5192 covering the potential hazards as identified.
- Educate employees and subcontractors in identification of contaminated soil and on contaminated soil handling and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).

Handling Procedures for Material with Aerially Deposited Lead (ADL)

- Materials from areas designated as containing (ADL) may, if allowed by the contract special provisions, be excavated, transported, and used in the construction of embankments and/or backfill.
- Excavation, transportation, and placement operations shall result in no visible dust.
- Use caution to prevent spillage of lead containing material during transport.
- Monitor the air quality during excavation of soils contaminated with lead.

Handling Procedures for Contaminated Soils

- To minimize on-site storage, contaminated soil shall be disposed of properly in accordance with all applicable regulations. All hazardous waste storage will comply with the requirements in Title 22, CCR, Sections 6626.250 to 66265.260.
- Test suspected soils at a DHS approved certified laboratory.
- If the soil is contaminated, work with the local regulatory agencies to develop options for treatment and/or disposal.
- Avoid temporary stockpiling of contaminated soils or hazardous material.
- If temporary stockpiling is necessary:
 - (1) Cover the stockpile with plastic sheeting or tarps.
 - (2) Install a berm around the stockpile to prevent runoff from leaving the area.
 - (3) Do not stockpile in or near storm drains or watercourses.

- Contaminated material and hazardous material on exteriors of transport vehicles shall be removed and placed either into the current transport vehicle or the excavation prior to the vehicle leaving the exclusion zone.
- Monitor the air quality continuously during excavation operations at all locations containing hazardous material.
- Procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including registration for transporting vehicles carrying the contaminated material and the hazardous material.
- Collect water from decontamination procedures and treat and/or dispose of it at an appropriate disposal site.
- Collect non-reusable protective equipment, once used by any personnel, and dispose of at an appropriate disposal site.
- Install temporary security fence to surround and secure the exclusion zone. Remove fencing when no longer needed.
- Excavation, transport, and disposal of contaminated material and hazardous material shall be in accordance with the rules and regulations of the following agencies (the specifications of these agencies supersede the procedures outlined in this BMP):
 - United States Department of Transportation (USDOT).
 - United States Environmental Protection Agency (USEPA).
 - California Environmental Protection Agency (CAL-EPA).
 - California Division of Occupation Safety and Health Administration (CAL-OSHA).
 - Local regulatory agencies.

Procedures for Underground Storage Tank Removals

- Prior to commencing tank removal operations, obtain the required underground storage tank removal permits and approval from the federal, state, and local agencies, which have jurisdiction over such work.
- Arrange to have tested, as directed by the Resident Engineer (RE), any liquid or sludge found in the underground tank prior to its removal to determine if it contains hazardous substances.
- Following the tank removal, take soil samples beneath the excavated tank and perform analysis as required by the local agency representative(s).

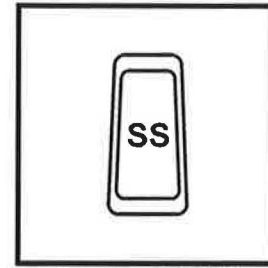
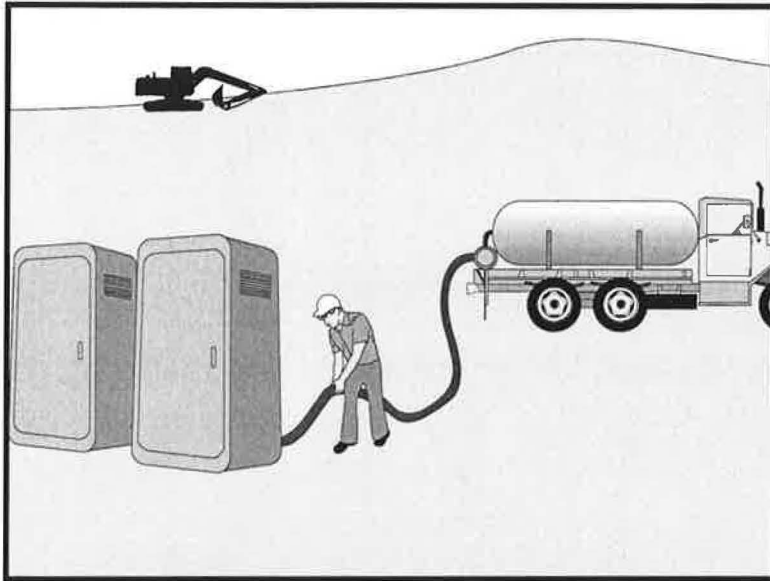
- The underground storage tank, any liquid and/or sludge found within the tank, and all contaminated substances and hazardous substances removed during the tank removal shall be transported to disposal facilities permitted to accept such waste.

Water Control

- Take all necessary precautions and preventive measures to prevent the flow of water, including ground water, from mixing with hazardous substances or underground storage tank excavations. Such preventative measures may consist of, but are not limited to: berms, cofferdams, grout curtains, freeze walls, and seal course concrete or any combination thereof.
- If water does enter an excavation and becomes contaminated, such water, when necessary to proceed with the work, shall be dewatered consistent with BMP NS-2, "Dewatering Operations."

Maintenance and Inspection

- The Contractor's Water Pollution Control Manager, foreman, and/or construction supervisor shall monitor on-site contaminated soil storage and disposal procedures.
- Monitor air quality continuously during excavation operations at all locations containing hazardous material.
- Coordinate contaminated soils and hazardous substances/waste management with the appropriate federal, state, and local agencies.
- Inspect hazardous waste receptacles and areas regularly.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Procedures and practices to minimize or eliminate the discharge of construction site sanitary/septic waste materials to the storm drain system or to watercourses.

Appropriate Applications Sanitary/septic waste management practices are implemented on all construction sites that use temporary or portable sanitary/septic waste systems.

Limitations ■ None identified.

Standards and Specifications

Education

- Educate employees, subcontractors, and suppliers on sanitary/septic waste storage and disposal procedures.
- Educate employees, subcontractors, and suppliers of potential dangers to humans and the environment from sanitary/septic wastes.
- Instruct employees, subcontractors, and suppliers in identification of sanitary/septic waste.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.

Storage and Disposal Procedures

- Temporary sanitary facilities shall be located away from drainage facilities, watercourses, and from traffic circulation. When subjected to high winds or risk.

- Wastewater shall not be discharged or buried within the highway right-of-way.
- Sanitary and septic systems that discharge directly into sanitary sewer systems, where permissible, shall comply with the local health agency, city, county, and sewer district requirements.
- If using an on site disposal system, such as a septic system, comply with local health agency requirements.
- Properly connect temporary sanitary facilities that discharge to the sanitary sewer system to avoid illicit discharges.
- Ensure that sanitary/septic facilities are maintained in good working order by a licensed service.
- Use only reputable, licensed sanitary/septic waste haulers.

Maintenance and Inspection

- The Contractor's Water Pollution Control Manager (WPCM) shall monitor onsite sanitary/septic waste storage and disposal procedures at least weekly.

**APPENDIX B
CITY OF POWAY'S
SEWER OVERFLOW PREVENTION
AND RESPONSE PLAN
TRAINING DOCUMENTS**

SEWER OVERFLOW PREVENTION PLAN

AND

SEWER OVERFLOW RESPONSE PLAN

CITY OF POWAY

November 1996

Revised: November 2011

SEWER OVERFLOW PREVENTION PLAN

In compliance with the San Diego Regional Water Quality Control Board (RWQCB) Permit Order No.2006-0003-DWQ (SSSWDR) (Permit), the City of Poway will prevent, respond to, contain and clean up all sewage and other spills that discharge to its municipal separate storm sewer system (MS4) from any source. In order to accomplish this, the City has developed specific spill prevention and spill response mechanisms described below.

The Sewer Overflow Prevention Plan (SOPP) describes the sewer system and addresses the organization and major activities of the City of Poway's wastewater operations.

ORGANIZATION

The City of Poway operates its wastewater system within the Department of Public Works. The maintenance of the sewage collection system is the responsibility of the Wastewater Collection Division and the Wastewater Pumping Division. The sewage collection system includes the actual wastewater collection system and five sewer lift stations.

The City of Poway maintains a full-time staff responsible for performing continuous maintenance activities on the sanitary sewer system. Exhibit 1 presents the organizational chart of the Public Works divisions responsible for the operation and maintenance of the collection system. These positions are also responsible for emergency response and repair of the system.

SEWAGE COLLECTION SYSTEM

The City of Poway sewage collection system consists of 185.6 miles of pipeline, 4,061 manholes, and four pump stations. The system serves an estimated population of 50,542.

The collection system delivers wastewater to the City of San Diego Point Loma Treatment Plant. The sewage collection system serves only properties within the incorporated boundaries of the City of Poway. Note that the City of Poway's average daily sewage flows include 1.1 mgd from the City of San Diego, which we convey through a portion of our system. The City of San Diego's portion is deducted from Poway's main meter for billing purposes.

MAJOR OPERATIONAL ACTIVITIES

Preventive maintenance is often the most effective method of preventing pollution. The City of Poway actively maintains its sewer collection system and MS4. The majority of the City's sewage collection system is approximately 45 years old. The City has experienced little, if any, problems in the area of major spills over the years. The City has not experienced a sewage spill related to capacity of the system.

Forty-six sites within the collection system area (for a total of approximately 19,804 lineal feet) have been identified for increased flushing. The City of Poway's standard BMP for these 46

sites (19,804 lineal feet) is to flush them quarterly due to grease buildup and root intrusion. The 46 sites have been evaluated for future capital improvement projects.

Maintenance Activities

- Monthly and quarterly flushing at 46 Frequency flushing locations (19,804 lineal feet)
- Annual flushing of 377,144 lineal feet
- Annual video inspection program of approximately 239,237 lineal feet

Infiltration and Inflow

In addition to the rigorous maintenance schedule, the City's spill prevention procedures are designed to prevent infiltration of seepage from sanitary sewer systems to MS4s. Addressing infiltration and inflow is one of the key goals of the Wastewater Collection Division. The City's *Infiltration and Inflow Study*, prepared by Dudek and Associates, is completed. The study was started in the year 2000. Due to several seasons of low precipitation, the study will be completed in 2004. Inflow and Infiltration study was completed "Defect Flow Reduction Report" by Dudek and Associates was completed and submitted to the city in 2005.

The City performed video inspection of areas identified in the study during the wet season to identify the location of the infiltration. Dudek and Associates analyzed the data and provided an action plan to decrease inflow and infiltration. In 2005, 6,296 lineal feet of 15 inch vitrified clay pipe on Community Road and 1,326 lineal feet of 8 inch vitrified clay pipe on Metate Lane were rehabilitated with CIPP to mitigate identified Inflow and Infiltration.

Video Inspection

There is an ongoing TV videotaping program for sewer mains and laterals.

Collection System, Capital Improvements Program

- Master Plan Update completed 1999. Sanitary Sewer Master Plan update is currently in progress, prepared by Atkins North America Inc. The update started in June 2011 and will be completed in June 2012.
- The City has a ten-year work program to rehabilitate 2,000 of its 3,200 manholes. As of June 2003 (the 6th year of the program), 860 manholes have been rehabilitated at a cost of \$1.1 million. The program is ongoing with another 400 manholes scheduled for rehabilitation in fiscal year 2003/04. As of April 2009 2,032 manholes have been rehabilitated at the cost of \$3 million. The system currently has 4,045 manholes in the system.

SEWAGE PUMPING STATIONS

The City of Poway has five sewer lift stations for sewage pumping. The following three sewer lift stations have been completely rehabilitated;

- St. Andrews lift station completed 2011
- Highlands Ranch lift station completed 2009
- Camino Del Valle lift station completed 2003

Preventive Maintenance Actions

- Daily Physical Checks – all five lift stations inspected as per guide list provided for each station (daily checks are accomplished Monday through Friday).
- Electronic Monitoring – stations are real-time monitored (SCADA) via telemetry lines. All stations are equipped with high wet well; pump failure, and dry well flooding alarms. In addition, all stations are equipped with override controls. Sewer lift stations are currently undergoing improvements adding auxiliary power via generators to mitigate power failure.
- Weekly Physical Checks – detailed well inspection.
- Monthly Physical Checks – test all components (pumps, valves, alarms, bubblers) and verify all alarm system set points.
- Record Efforts On Monthly Check-off Form – document discrepancies using maintenance software. Update monthly run hour meter log and computerized maintenance files.
- Water Treatment Plant staff monitor lift stations around the clock through real- time SCADA displays maintained at the plant.

SEWER OVERFLOW RESPONSE PLAN

WASTEWATER COLLECTION SYSTEM

NOTIFICATION

During regular working hours, the Wastewater Collection staff is notified of overflows by the public or a City staff member. The reports are called in to the Public Works Maintenance Operations Office and are immediately reported to the Wastewater Collection Division Supervisor. During off-duty hours, reports of overflows are called in to the Water Treatment Plant. The staff at the Water Treatment Plant immediately calls the wastewater collection on-call worker or standby person.

IMMEDIATE ACTION

During regular working hours, staff and a Vactor truck is immediately dispatched to the scene to clear the stoppage. Recovery crews are dispatched as needed. During off-duty hours, the standby employee responds and calls out crews as needed. A Supervisor is called as soon as possible. An additional Vactor is dispatched for containment as needed.

GUIDELINES

The City of Poway implements all remedial actions to the extent that they are applicable to the discharge, including the following:

- Interception and rerouting of sewage flows around the sewage line failure;
- Vactor truck recovery of sanitary sewer overflows and wash down water;
- Use of portable aerators where complete recovery of the sanitary sewer overflow is not practicable and where severe oxygen depletion in existing surface waters is expected; and
- Cleanup of debris of sewage origin at the overflow site.

Removal of the blockage is the first priority, followed by efforts to contain and recover the overflow. The affected area is disinfected and receives a wash down. All wash downs are contained and recovered by a Vactor. All line segments involved in the overflow are inspected by the division's TV crew. Bilingual warning signs may be posted depending upon the boundaries of the spill. Notification is performed immediately after clearing the stoppage and posting the affected areas. Notification is conducted in accordance with the attached procedures and report form for overflows (Exhibits 2, 3).

SEWER OVERFLOW RESPONSE PLAN

PUMP STATIONS

NOTIFICATION

During regular working hours, the Wastewater Pumping Division staff is notified of any pumping station malfunction by the Water Treatment Plant staff that monitors all incoming pump station alarms.

During off-duty hours, alarms are also monitored by the Water Treatment Plant staff. In the event of a pump station malfunction, the duty operator will immediately dispatch the Treatment Plant on-call worker or standby person.

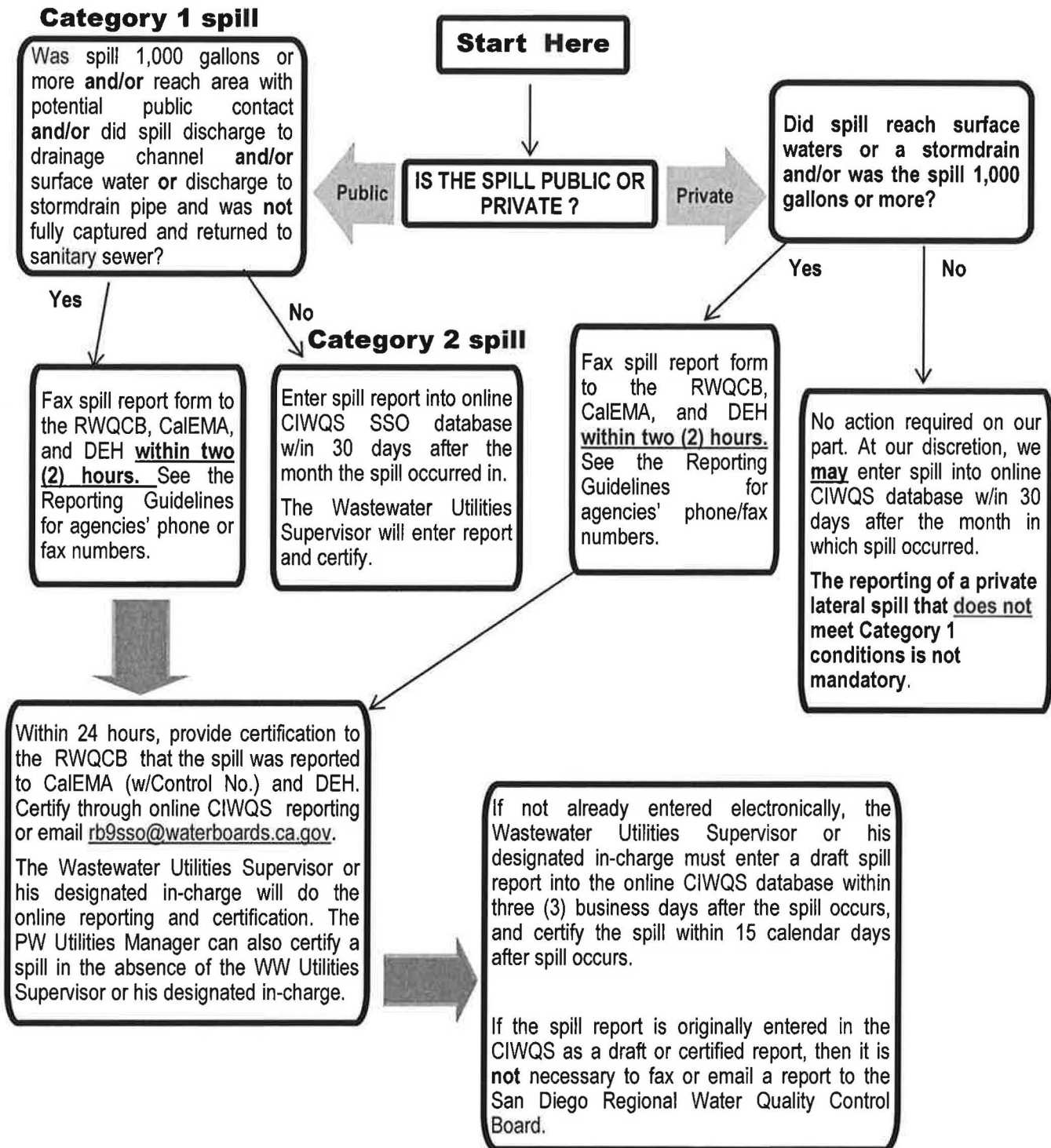
IMMEDIATE ACTION

During regular working hours, the Vactor Crew is dispatched to the site to pump down the wet well and keep it from overflowing. A repair crew is also dispatched to assess and make the necessary repairs to put the station back into operation. During after-hours, the standby employee responds and calls out the necessary crews. A Supervisor is notified as soon as possible.

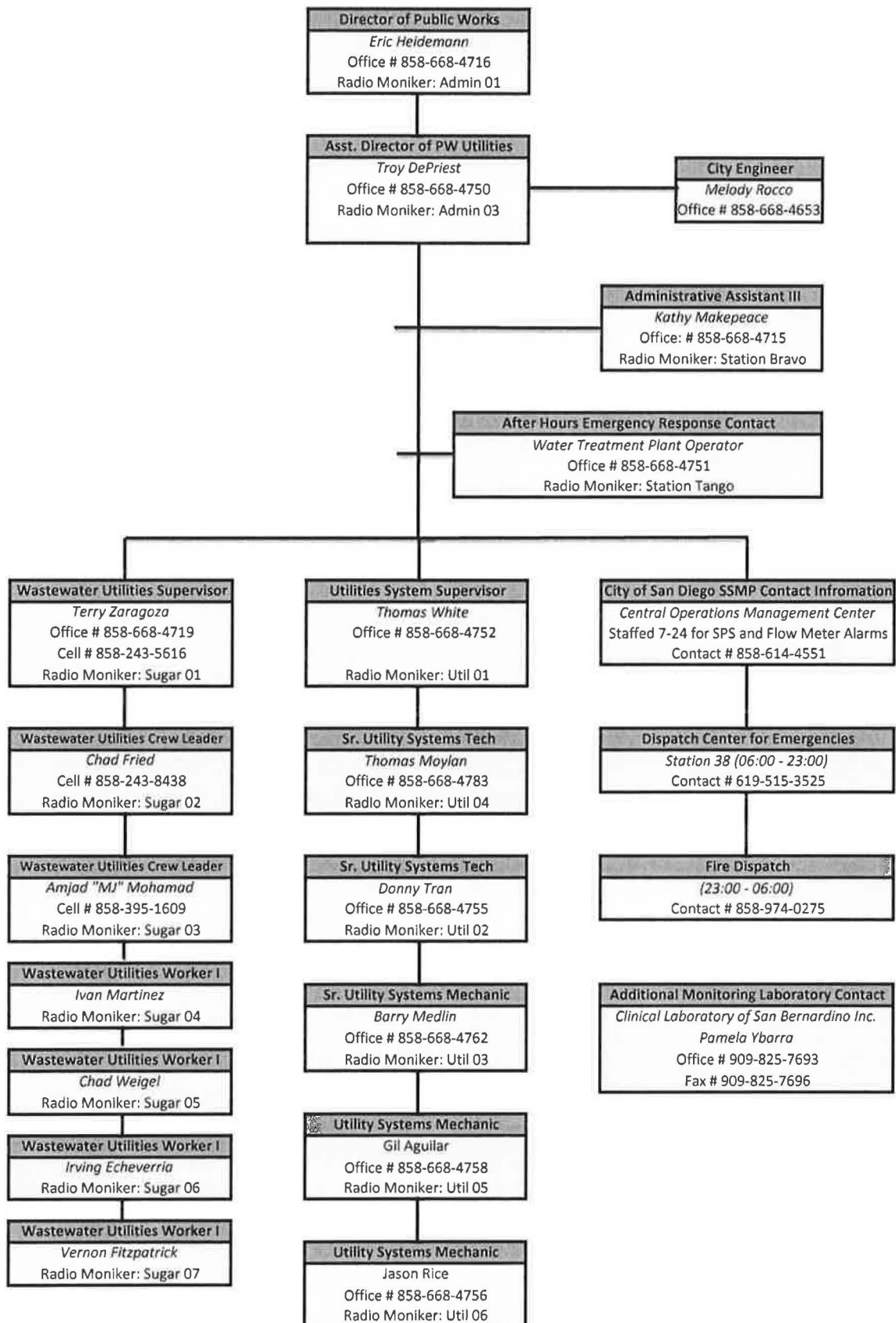
GUIDELINES

The top priority is to prevent any new spillage and contain and recover existing overflow. Concurrent to this process, the repair of the station is of vital importance. All areas exposed to overflow are disinfected and receive a wash down. Bilingual warning signs may be posted depending upon the boundaries of the spill. Notification to RWQCB and health agencies is performed immediately after containing the overflow. The Vactor Crew will remain at the site until the sewer lift station is put back into service. Notification will be done in accordance with the attached procedures and report form for overflows (Exhibits 2, 3).

SANITARY SEWER OVERFLOW (SSO) SPILL REPORTING "QUICKIE" GUIDELINES



**City of Poway Public Works
Wastewater Division
Sewer Overflow Prevention Plan
Contact Information**



SANITARY SEWER OVERFLOW REPORTING CRITERIA



There are three (3) types or classifications of sanitary sewer spills or overflows (called SSO's). Please familiarize yourself with each category in order to determine which reporting process is required. The *SSO Spill Reporting "Quickie" Guidelines* reference sheet is also attached.

CATEGORY 1 SPILLS ARE THE MOST CRITICAL AND ARE CLASSIFIED AS DISCHARGES OF SEWAGE THAT:

- Equal or exceed 1,000 gallons **and/or** any spill to areas with potential public contact; or
- Result in a discharge to a drainage channel and/or surface water (creek, streambed, etc.); or
- Discharge to stormdrain pipe and the discharge was not fully captured and returned to sanitary sewer system.

REPORTING REQUIREMENTS FOR CATEGORY 1 SPILLS:

1. **Within two (2) hours** after we know of the discharge, we must report the spill to the following agencies:

San Diego Regional Water Quality Control Board

- Phone: 858/637-5581 or 858/467-2952 **Fax:** 858/571-6972
- After-hours phone: 858-822-8344

County Department Of Environmental Health (DEH)

- Phone: 858/495-5579 **Fax:** 858/694-3670
- After hours reporting: Call 858/565-5255 and request to have HazMat Duty Specialist paged.

CalEMA (Formerly State Office Of Emergency services or OES)

- **Phone only:** 800/852-7550 or 916/845-8911. Request a Control Number; the control number is required for our reporting form.

2. **No later than 24 hours** after we become aware of a Category 1 spill, we must provide the San Diego Regional Water Quality Control Board with certification that CalEMA and the DEH were notified of the spill. The certification is provided through the online reporting system, CIWQS. If the online CIWQS system is not available, the alternate RWQCB **form** may be used to certify the spill or we can email rb9sso@waterboards.ca.gov. The Wastewater Utilities Supervisor or his designated in-charge **must** certify the spill online. The Public Works Utilities Manager also has authority to certify a spill online in the absence of the Wastewater Utilities Supervisor or his designated in-charge.

CATEGORY 2 SPILLS:

Category 2 spills are all other discharges of sewage resulting from a failure in our collection (sanitary sewer) system.

REPORTING REQUIREMENTS FOR CATEGORY 2 SPILLS

Category 2 spills must be reported through the online (CIWQS) SSO database within 30 days after the end of the calendar month in which the spill occurred. For example, Category 2 spills that happened in the month of January must be entered in the CIWQS database by March 1st. The Wastewater Utilities Supervisor will certify Category 2 spills online.

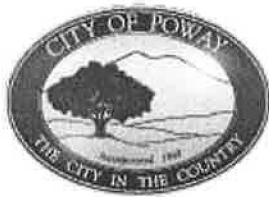
PRIVATE LATERAL SEWAGE DISCHARGES:

A private lateral sewer spill is a sewer discharge that is caused by blockages or other problems within a privately owned lateral.

REPORTING REQUIREMENTS FOR PRIVATE LATERAL SPILLS

Any private lateral sewage spill that meets a Category 1 condition(s) above **must** be reported to the online (CIWQS) SSO database. Any other classified private lateral spill **may** be reported to the online CIWQS SSO database at our discretion.

REPORTING FORM: Our current **SSO reporting form** (attached) was created to incorporate all mandatory information required to report a Category 1, 2 or private lateral spill to the appropriate regulatory agencies.



City of Poway
Sewer Overflow Prevention and Response Plan
Attendance Sheet

Project Title: _____

Presenter: _____

Location: _____

Date: _____ Project #: _____

	Name	Signature
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		