



Castro Valley Sanitary District

STANDARD CONTRACT DOCUMENTS

Inflow & Infiltration Reduction
District Project No. 97
May/2023



*CVSan Specifications
2017 Revision*

TABLE OF CONTENTS

Section No. Title

DIVISION 0 – BIDDING AND CONTRACT REQUIREMENTS

00010	Notice Inviting Bids
00100	Instructions to Bidders
00200	Information Available to Bidders
00300	Bid Form
00310	Bid Schedule
00410	Bid Guaranty Bond
00420	Certification of Bidder’s Experience and Qualifications
00430	Designation of Subcontractors
00440	Site Visit Affidavit
00480	Non-Collusion Affidavit
00490	Affidavit of Safety Compliance
00490	Part A thru E
00491	Certification of Nondiscrimination
00492	Certification of Non-Segregated Facilities
00493	Drug Free Workplace Certification
00500	Agreement for the Construction
00610	Bond of Faithful Performance
00620	Payment Bond
00630	Escrow Agreement for Security Deposits in Lieu of Retention
00650	General Liability Endorsement (Form A-1)
00651	Auto Liability Endorsement (Form B-1)
00700	General Conditions
00800	Supplementary General Conditions

DIVISION 1 – GENERAL REQUIREMENTS

01010	Summary of Work
01025	Measurement and Payment
01035	Modification Procedures
01050	Field Engineering
01060	Regulatory Requirements and Permits
01090	References
01200	Project Meetings
01300	Submittals
01310	Progress Schedules
01400	Quality Control
01510	Temporary Utilities
01560	Temporary Controls
01580	Material and Equipment
01710	Final Clean-up
01720	Project Record Documents

01740 Warranties and Bonds

Section No. Title

DIVISION 2 through 17 – TECHNICAL SPECIFICATIONS

02100	Demolition, Abandonment and Removal
02200	Site Preparation
02210	Water Pollution Control
02240	Dewatering
02245	Sewage Flow Control
02300	Earthwork
02350	Shoring
02500	Asphalt Concrete Paving
02701	Precast Concrete Structures
02735	Sanitary Sewer System Testing
02736	Closed Circuit Television (CCTV) Inspection of Sanitary Sewer System
02739	Building Sewer (Lateral) Construction and Reinstatement
02750	Pipe Bursting
02800	Traffic Control
02930	Site Restoration
02953	Pavement Restoration
03200	Concrete Reinforcement
03300	Cast-in-Place Concrete
03600	Grout
05541	Manhole Frames and Covers
15050	General Piping
15065	Vitrified Clay Pipe
15146	High-Density Polyethylene (HDPE) Pipe

APPENDICES

APPENDIX A – CASTRO VALLEY SANITARY DISTRICT CONFINED SPACE ENTRY PROGRAM

APPENDIX B – CASTRO VALLEY SANITARY DISTRICT STANDARD DRAWINGS (2022)

SECTION 00010

NOTICE INVITING BIDS

Notice is hereby given that sealed bids will be received by the Castro Valley Sanitary District (CVSan) in their office located at 21040 Marshall Street, Castro Valley, CA 94546-6020, at any time prior to **2:00 p.m. on Tuesday, July 11, 2023**, for furnishing all labor, materials, equipment, and services for the construction of improvements designated as:

Inflow and Infiltration Reduction Project District Project No. 97 (2022-01)

Bids will be publicly opened, examined and declared on said day and hour, and will be referred to CVSan's Board of Directors for subsequent action.

A pre-bid conference will be held at 2:00 p.m. on Tuesday, June 27, 2023, through virtual video conference. Please contact CVSan at (510) 756-4200 for virtual video conference details..

All of said work is to be done in accordance with the Contract Documents, at the places and in the particular locations, of the form, sizes and dimensions and of the materials, and to the lines and grades and at the elevations as shown on the Plans and Specifications made therefore and approved by CVSan.

The successful Bidder will have the opportunity to enter into a partnering agreement with CVSan. Partnering consists of a voluntary effort by all parties to develop joint goals and establish a cooperative rather than adversarial atmosphere while executing the Contract. The objective of partnering is effective completion of the work on schedule, within budget, and in accordance with the Contract Documents. Partnering shall commence and be conducted in accordance with industry practice.

Under California Laws and Regulations, CVSan shall inform all prime contractors of public works, to the extent feasible, of relevant public work requirements. Therefore, CVSan hereby advises all bidders that the successful bidder shall:

1. Employ the appropriate number of apprentices on the job site as set forth in California Labor Code 1777.5;
2. Provide workers' compensation coverage, as set forth in California Labor Code Sections 1860 and 1861;
3. Keep and maintain the records of work performed on the public works project, as set forth in California Labor Code Section 1812;
4. Keep and maintain the records required under California Labor Code Section 1776 which shall be subject to inspection pursuant to California Labor Code Section 1776 and

California Code of Regulations, Division 1, Chapter 8, Subchapter 3, Article 6, Section 16400 (e); and

5. Be subject to other requirements imposed by law.

Bidders are hereby notified that, pursuant to the provisions of California Labor Code, Section 1770 et. seq., CVSan has obtained from the Director of the Department of Industrial Relations, the general prevailing rate of per diem wages and a general prevailing rate for holidays, Saturdays and Sundays, and overtime work for public work projects of more than one thousand dollars (\$1,000) in the locality in which the work is to be performed for each craft, classification, or type of worker required to execute the contract. A copy of said prevailing rate of the per diem wage is on file at the offices of CVSan, 20211 Patio Drive, Suite 200, Castro Valley, CA 94546. Said prevailing rate of per diem wages will be made available to any interested party upon request, and a copy thereof shall be posted at the job site. Bidders intending to use a craft or classification not shown on the prevailing rate determinations may be required to pay the rate of the craft or classification most closely related to it. (Ref: http://www.dir.ca.gov/dlsr/statistics_research.html#PWD)

CVSan will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the prevailing wage rates on file as aforesaid. The possibility of a wage increase is one of the elements to be considered by the contractor in determining his/her or its Bid and will not, under any circumstances, be considered as the basis of a claim against CVSan on the Contract.

The successful Bidder and its subcontractors shall employ workers which consistently display and demonstrate proper moral, ethical, and professional conduct to all fellow workers, employees and representatives of CVSan and other involved parties.

Pursuant to the provisions of California Labor Code Section 6707, each Bid submitted in response to this Notice to Contractors shall contain, as a Bid item, adequate sheeting, shoring, and bracing, or equivalent method, for the protection of life and limb in trenches and open excavation, which shall conform to applicable safety orders. By listing this sum, the Bidder warrants that its action does not convey tort liability to CVSan, the Design Consultant, the Construction Manager, and their employees, agents, and subconsultants.

Physical copies of the Contract Documents are now on file and available for public inspection at the CVSan's Capital Improvements Office, 20211 Patio Drive, Suite 200, Castro Valley, CA 94546 where they may be obtained for a non-refundable \$85.00 charge. Contract Documents will be mailed for an additional charge of \$10.00 per set.

Each Bid must conform and be responsive to the invitation, the Plans and Specifications, and all documents comprising the pertinent Contract Documents. Each Bid shall be presented under sealed cover and shall be accompanied by a certified check, cashier's check, cash or bidder's bond, made payable to CVSan, in an amount not less than ten (10) percent of the bid. The said check shall be given as a guarantee that the Bidder will execute the Contract in conformity with the form of agreement contained within the Contract Documents and will furnish bonds and insurance policies as specified within ten (10) days after notification of the award of the Contract to the successful Bidder.

Addenda issued during the time of bidding shall be covered in the Contractor's Bid and shall become part of the Contract Documents.

Bidders shall develop and submit bids at their own expense. CVSan will not reimburse any costs associated with the development and submittal of any and all Bids.

CVSan reserves the sole right to reject any and all Bids and to waive any informality in a Bid.

No Bidder may withdraw its bid for a period of sixty (60) days after the date set for the opening thereof.

Any Bid protest must be submitted in writing to Castro Valley Sanitary District, 21040 Marshall Street, Castro Valley, CA 94546, by 4:30 p.m. of the 5th business day following the Bid opening. The initial protest document must identify the protestant and contain a complete statement of the basis for the protest with reference to any portion of the bid documents which the protestant relies on as the basis of the protest. The above time and content requirements are mandatory, and failure to comply therewith shall constitute a waiver of any further right to pursue a bid protest, including filing a Government Code claim or legal proceedings. Bid protests shall be acted upon by CVSan's Board of Directors.

At the successful Contractor's option, securities may be substituted for the required retention, in accordance with the provisions of Section 22300 of the State of California Public Contract Code.

In accordance with the provisions of California Public Contract Code Section 3300, CVSan has determined that the Contractor shall possess a valid Class A – General Engineering; Class C-34 – Pipeline Contractor; or Class C-42 – Sanitation System Contractor license.

In accordance with the provisions of California Business and Professions Code Section 7028.15, a Bid submitted to CVSan by a Contractor who is not licensed in accordance with Chapter 9 of the California Business and Professions Code shall be considered non-responsive and shall be rejected by CVSan.

The above-mentioned Project is a public work. Therefore, the prime contractor and all subcontractors for the Project must be registered with the California Department of Industrial Relations pursuant to the provisions of Labor Code Section 1725.5 in order to be qualified to bid on, be listed in a bid proposal, or engage in the performance of any work under the Contract for the Project. (All code references herein are to California codes). A bid shall not be accepted nor any contract or subcontract be entered into without proof of the contractor's or subcontractor's current registration to perform public work pursuant to Labor Code Section 1725.5.

Pursuant to Labor Code Section 1771.4, the Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. The prime contractor shall post jobsite notices as prescribed by regulation and the prime contractor and each subcontractor shall furnish the records specified in Labor Code Section 1776 directly to the Labor Commissioner as specified in said Section 1771.4. Pursuant to Labor Code Section 1773.3, CVSan shall provide notice to the Department of Industrial Relations of the award of this Contract within 30 days of the award.

By: _____
Roland Williams, General Manager
Castro Valley Sanitary District

Date: _____

***** END OF SECTION *****

SECTION 00100

INSTRUCTIONS TO BIDDERS

ARTICLE 1 – GENERAL

The work to be performed is described in the Contract Documents titled, Inflow & Infiltration Reduction Project, District Project No. 97 dated 05/19/2023 and prepared by CVSan.

All Bidders shall carefully examine the Contract Documents and satisfy themselves as to their sufficiency; and shall not at any time after the submission of the bid dispute or complain of such Contract Documents and the directions explaining them or interpreting them, nor assert that there is any misunderstanding in regard to the location, extent, nature of amount of work to be performed. The Bidder shall notify CVSan of any discovered conflicts, errors or discrepancies in the Contract Documents prior to the submission of its Bid. Intended Bidders shall have visited the site of the Work and familiarized themselves with the conditions there existing as well as all other conditions relating the construction and labor under which the work will be performed and affecting cost, progress or performance of the Work. The submitting of a Bid shall be considered an acknowledgement on the part of the Bidder of its familiarity with conditions at the site of work.

Bids for the Work shall be made on the forms contained in the following sections and shall include the following completed documents:

<u>SECTION</u>	<u>TITLE</u>
00300	BID FORM
00310	BID SCHEDULE
00410	BID GUARANTY BOND
00420	BIDDER’S EXPERIENCE AND QUALIFICATIONS
00430	DESIGNATION OF SUBCONTRACTORS
00440	PROJECT SITE VISIT AFFIDAVIT
00480	NON-COLLUSION AFFIDAVIT
00490	SAFETY COMPLIANCE AFFIDAVIT

A complete set of Bid forms shall be placed in an envelope, sealed, and addressed to:

CASTRO VALLEY SANITARY DISTRICT
Attn: Board Secretary
21040 Marshall Street, Castro Valley, CA 94546-6098
BID: Inflow & Infiltration Reduction Project, District Project No. 97

A pre-bid conference will be held at the time and place stipulated in Section 00010, **NOTICE INVITING BIDS**. The conference will be conducted by CVSan. Subcontractors and other interested parties are invited and encouraged to attend. A tour of the site of the Work will be conducted if so requested by any of the persons attending the conference.

CVSan reserves the right to postpone the date and time for receiving and/or opening of Bids at any time prior to the date and time established in the Notice Inviting Bids. Postponement notices may be faxed and will subsequently be mailed to plan holders of record in the form of addenda.

Addenda may be issued to all plan holders during the Bid period. Any and all addenda issued shall become a part of the Contract Documents and shall be fully considered by all Bidders during formation of Bids.

Bids shall be made on the blank bid forms prepared by CVSan and issued separately from these Contract Documents. Bid forms included in these Contract Documents shall be used for reference only.

Bids shall give the prices proposed in figures, shall give all other information requested herein, and shall be signed by the Bidder or an authorized representative, including address. By submission of a proposal on the separate forms provided by CVSan, the Bidder attests that the Bidder has purchased a complete set of these Contract Documents and is aware of its entire contents. Bidder is required to provide a complete Bid on all schedules listed in Section 00310, **BID SCHEDULE**.

Bids shall be delivered to CVSan at the above address before the time set for the opening of Bids as provided in Section 00010, **NOTICE INVITING BIDS**.

After the expiration of the time for submission of Bids, all Bids will be publicly opened, read, declared, and referred to CVSan's Board of Directors for action.

ARTICLE 2 – BID PRICES

Bid prices shall include everything necessary for the completion of construction and fulfillment of the Contract. Bid prices shall include all federal, state, and local taxes. Costs for developing, submitting, and presenting Bids are the sole responsibility of the Bidder and claims for reimbursement will not be accepted by.

If the product of a unit price and an estimated quantity does not equal the extended amount quoted, the unit price shall govern, and the correct product of the unit price and the estimate quantity shall be deemed to be the amount Bid. If the sum of two or more items in a bidding schedule does not equal the total amounts quoted, the individual item amounts shall govern and the correct total shall be deemed to be the amount Bid.

ARTICLE 3 – BIDDER’S SIGNATURE AND AUTHORITY

If the Bid is made by an individual, Bidder’s name, signature, and post office address must be shown; if made by a firm or partnership, a list of the partners, and the signature of at least one of the general partners must be shown; if made by a corporation, the Bid shall show the name of the state under the laws of which the corporation is chartered, the name and post office address of the corporation, and the title of the person who signs on behalf of the corporation. If the Bid is made by a corporation, a certified copy of the bylaws or resolution of the Board of Directors of the corporation shall be furnished showing the authority of the officer signing the Bid to execute contracts on behalf of the corporation. If the Bid is made by a joint venture, the Bid shall be signed by a representative of one of the joint venture firms. Additionally, the Bid shall include a copy of the resolution or agreement empowering the representative to execute the Bid and bind the joint venture.

ARTICLE 4 – BID IRREGULARITIES

Each Bid and the information requested shall be enclosed in a sealed envelope and labeled as specified herein. Bidders are warned against making erasures or alterations of any kind, and Bids which contain omissions, erasures, or irregularities of any kind may be rejected. No oral, telegraphic, electronic (including E-Mail), facsimile, or telephonic bids or modifications will be considered.

ARTICLE 5 – MODIFICATION OF BID

Modification of a Bid already received will be considered only if the modification is received prior to the time established for receiving Bids. Modifications shall be made in writing, executed, and submitted in the same form and manner as the original Bid.

ARTICLE 6 – SUBCONTRACTORS AND MAJOR SUPPLIERS

In accordance with California Public Contracting Code Section 4100, et. Seq., each Bid shall have listed in Section 00430, **DESIGNATION OF SUBCONTRACTORS**, the name, portion of work to be performed, and location of the place of business of each subcontractor who will perform work or labor or render service to the Bidder in or about the construction of the Work or improvement, or of any subcontractor licensed by the State of California who, under subcontract to the Bidder, will specifically fabricate and install a portion of the Work or improvement according to detailed drawings contained in the Contract Documents, in an amount in excess of one-half of one percent of the Bidder’s total bid.

If the Contractor fails to designate in its proposal a subcontractor for any portion of the Work as required above, the Bidder shall be deemed to have agreed to perform such portion of the Work itself and shall not be permitted to subcontract said portion of the Work without the written permission of CVSan in accordance with applicable law.

ARTICLE 7 – BID GUARANTY BOND AND CONTRACT AWARD

Bids shall be accompanied by one of the following forms of Bidder's Security: Cash or; a certified or cashier's check payable to CVSan; or a Bidder's Bond (Bid Guaranty Bond) executed by an admitted surety made payable to CVSan. The Bidder's Security shall be in an amount not less than ten (10) percent of the aggregate of the Bid. Said Bidder's Security shall be a guarantee that the Bidder, if awarded the Work, will within five (5) days after award: (1) enter into a Contract in specified form, (2) furnish a bond of faithful performance and a labor and material bond, and (3) furnish specified insurance policies. In case of refusal or failure to enter into said Contract, or to provide said bonds and insurance policies the Bidder's Security shall be forfeited to CVSan, the proceeds therefrom being hereby agreed upon as liquidated damages to the said CVSan on account of the delay in the execution of the Contract and required bonds and the performance of the Work thereunder, and the necessity of accepting a higher or less desirable Bid resulting from such failure or refusal to execute the Contract and the bonds as required.

Upon the execution of the Contract and the approval on behalf of CVSan of the accompanying bonds and insurance policies, all certified checks that accompany Proposals and that have not heretofore been returned, will be returned, each to its maker.

Award of the Contract will be made within sixty (60) days after the opening of Bids to the lowest responsive, responsible bidder complying with these instructions, the Section 00010, **NOTICE INVITING BIDS**, and such other pertinent provisions of the Contract Documents as may apply. The Award of the Contract may be made after the sixtieth (60th) day after the opening of the Bids if mutually agreed to by both CVSan and the successful Bidder in writing. If award is made, it will be based on the lowest responsive, responsible Bid whose Base Bid, not including the Deductive Alternate as listed in Section 00300, **BID FORM**, yields the lowest total Contract price. Selection of any or all alternates shall be at the sole discretion of CVSan. CVSan, however, reserves the right to reject any or all Bids, and to waive any informality in Bids received.

ARTICLE 8 – CONTRACTOR'S LICENSE

Each Bidder shall be licensed in accordance with the provisions of the Contractor's License Law of California as stipulated in Section 00010, **NOTICE INVITING BIDS**.

ARTICLE 9 – WORK PERCENTAGES

The Contractor shall perform with its own organization no less than the work percentage specified in Section 01010-1.07, **WORK PERCENTAGES**.

ARTICLE 10 – COLLUSION

If CVSan has reason to believe that collusion exists among Bidders, CVSan will reject the Bids of the known participants in such collusion and may, at its option, require that all Bidders certify under penalty of perjury, that no collusion has occurred or exists. CVSan also, at its option, may reject all Bids received. In accordance with Public Contract Code Section 7106, the Contractor shall complete and file with its proposal the Non-Collusion Affidavit in Section 00480. Public Contract Code Section 7106 requires that the affidavit must be duly sworn.

ARTICLE 11 – INTERPRETATIONS

No oral representations or interpretations will be made to any Bidder as to the meaning of the Contract Documents. Requests for an interpretation shall be made in writing and delivered to the following address at least five (5) days before the Bids are opened as provided in Section 00010, **NOTICE INVITING BIDS.**

Requests should be made attention to Landon Lochrie, Castro Valley Sanitary District at 21040 Marshall Street, Castro Valley, CA 94546, Telephone (510) 537-0757.

ARTICLE 12 – WITHDRAWAL OF BID

In accordance with Public Contract Code Section 5101 and 5103, within five (5) days after the opening of Bids, a Bidder may withdraw its Bid providing the Bidder can establish to CVSan’s satisfaction that a mistake was made in preparing the Bid. A Bidder desiring to withdraw shall give written notice to CVSan, specifying, in detail, how the mistake occurred and how the mistake made the Bid materially different than it was intended to be. Withdrawal will not be permitted for mistakes resulting from errors in judgment or carelessness in inspecting the site of the Work or in reading the Contract Documents.

ARTICLE 13 – BID PROTEST

Any Bid protest must be submitted in writing to CVSan’s General Manager before 4:00 p.m. on the fifth (5th) working day following Bid opening.

- A. The initial protest document must contain a complete statement of the basis for the protest, and all supporting documentation.
- B. The party filing the protest must have actually submitted a Bid for the Work. A subcontractor of a party submitting a Bid for the Work may not submit a Bid protest. A party may not rely on the Bid protest submitted by another Bidder, but must timely pursue its own protest.
- C. The protest must refer to the specific portion of the Bid document which forms the basis for the protest.
- D. The protest must include the name, address, and telephone number of the person representing the protesting party.
- E. The party filing the protest must concurrently transmit a copy of the initial protest document and any attached documentation to all other parties with a direct financial interest which may be adversely affected by the outcome of the protest. Such parties shall include all other Bidders who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.
- F. CVSan will give the protested Bidder five (5) working days after the receipt of the protest to submit a written response. The responding Bidder shall transmit the response to the protesting Bidder concurrent with delivery to CVSan.

- G. The procedure and time limits set forth in this paragraph are mandatory and are the Bidder’s sole and exclusive remedy in the event of Bid protest. The Bidder’s failure to comply with these procedures shall constitute a waiver of any right to further pursue the Bid protest, including filing a Government Code Claim or legal proceedings
- H. If CVSan determines that a protest is frivolous, the protesting Bidder may be determined to be non-responsible and that bidder may be determined to be ineligible for future contract awards.

ARTICLE 15 – BIDDERS CHECKLIST

This checklist has been prepared and furnished to aid Bidders in including all necessary supporting information with their Bid. Bidder’s submittals shall include, the following, in addition to any other materials which Bidder may wish to submit:

<u>Item</u>	<u>Checked</u>
Bid Form (Section 00300)	_____
Bid Schedule (Section 00310)	_____
Bid Guaranty Bond (Section 00410)	_____
Certification of Experience (Section 00420)	_____
Designation of Subcontractors (Section 00430)	_____
Project Site Visit Affidavit (Section 00440)	_____
Non-Collusion Affidavit (Section 00480)	_____
Safety Compliance Affidavit (Section 00490)	_____

***** END OF SECTION *****

SECTION 00200

INFORMATION AVAILABLE TO BIDDERS

1 ARTICLE 1 – SUBSURFACE CONDITIONS

Subsurface investigation has not been conducted at the site of the Work. Contractors, as bidders, are expected to make a personal inspection of the site and otherwise satisfy themselves as to the conditions affecting the work as detailed in these Contract Documents.

CVSan disclaims responsibility for the Bidder's interpretation of existing soil bearing values and profiles, and soil stability, as well as the presence, level, and extent of underground water for subsurface conditions during construction operations.

2 ARTICLE 2 – RECORD DRAWINGS AND ADDITIONAL INFORMATION

Previous construction activities have occurred at portions of the site. Section 00800-Article 5, **RECORD DRAWINGS AND ADDITIONAL INFORMATION**, lists known available information for review by Bidders.

3 ARTICLE 3 – ACCESS FOR CONTRACTOR'S PRE-BID SITE INVESTIGATION

Additional access to the site(s) for investigations may be desired to assist the Bidders in the development of their Bid. This access shall be scheduled in advance with CVSan. These access requests shall be made through CVSan contact, as provided in Section 00100-Article 11, **INTERPRETATIONS**.

***** END OF SECTION *****

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SECTION 00300

BID FORM

To the:

Date: _____

Castro Valley Sanitary District
21040 Marshall Street
Castro Valley, CA 94545-6098

Name of Bidder: _____

Business Address: _____

The undersigned, as Bidder, declares that it has a complete set of the Contract Documents and carefully examined the location of the proposed Work, the Contract Documents, and the Plans and Specifications therein referred to, and the Bidder proposes and agrees if this proposal is accepted, that it will execute the Agreement specified in Section 00500 and contract with the Castro Valley Sanitary District to provide all labor, materials, necessary machinery, tools, apparatus, and other means of construction and services, and do all the work specified in the Contract in the manner and time hereinafter set forth required for the construction of the Work involved in the improvements designated as:

Inflow & Infiltration Reduction Project, District Project No. 97

ADDENDUM RECEIPT: The receipt of the following Addenda to the Contract Documents is acknowledged:

Addendum No. _____ Addendum No. _____ Addendum No. _____
Addendum No. _____ Addendum No. _____ Addendum No. _____

The Bidder proposes and agrees to contract with CVSan to perform all the above work, including subsidiary obligations as defined in the Contract Documents for the prices indicated in Section 00310, **BID SCHEDULE**.

Further in submitting its Bid, the undersigned Bidder understands and agrees that the Total Base Bid amount is determined by the sum total of all Base Bid Item Amounts in the Bid Schedule. Bid Items include all work as defined in Section 01025, **MEASUREMENT AND PAYMENT**. No Bid items will be excluded from the awarded Contract. If award is made, it will be based on the lowest responsive, responsible Base Bid. Only one Contract will be awarded.

The undersigned has filled in all information required herein and understands that failure to do so is grounds for rejecting the Bid by CVSan.

CVSan reserves the right to change, delete, or add new work to the Contract as per the terms of the General Conditions of the Contract Documents.

The undersigned has checked carefully all the above figures and understands that CVSsan will not be responsible for any errors or omissions on the part of the undersigned in making up this proposal.

If the product of a unit price and an estimated quantity does not equal the extended amount quoted, the unit price shall govern, and the correct product of the unit price and the estimate quantity shall be deemed to be the amount bid. If the sum of two or more items in a bidding schedule does not equal the total amounts quoted, the individual item amounts shall govern and the correct total shall be deemed to be the amount bid.

The undersigned understands that CVSsan reserves the sole right to reject any or all Bids and to waive any informality in Bids received. Award will be made which, in the judgment of CVSsan, is in the best interest of CVSsan.

It is agreed that this proposal may not be withdrawn within a period of sixty (60) days after the date set for the opening thereof, except as allowed in Public Contract Code 5101 and 5103.

Enclosed herewith is the Bidder's Security in the form of a _____ (specify form i.e. cash, certified check, cashier's check, or bidder's bond) for not less than ten percent (10%) of the total amount of this proposal and the undersigned agrees that, in case of its default in executing the Agreement and providing the necessary bonds and insurance policies after award and due notice thereof, said Bidder's Security shall be forfeited to CVSsan, and the said Bidder's Security thereon shall become and remain the property of CVSsan, as liquidated damages without proof of loss after ten (10) days of notice of default by CVSsan. In the event Bidder provides CVSsan with a Bid Guaranty Bond (Bidder's Bond), it shall be on the form enclosed herewith in Section 00410, **BID GUARANTY BOND** and be issued by an admitted surety insurer. The admitted surety insurer shall be authorized to conduct business in California. At its discretion, CVSsan may request that a certified copy of the certificate of authority of the surety issued by the Insurance Commissioner of the State of California be submitted by the surety to CVSsan. At its discretion, CVSsan may also require the surety to provide copies of its most recent annual statement and quarterly statement filed with the Department of Insurance pursuant to Article 10 (commencing with Section 900) of Chapter 1 of Part 2 of Division 1 of the Insurance Code. The Bond and Corporate Surety will be reviewed and approved by CVSsan's counsel.

In accordance with the Contract Documents, the undersigned further agrees to so plan the Work and to prosecute it with such diligence that said Work shall be commenced within five days after the date of Contract execution and notice to proceed and shall be substantially completed within the time specified in Section 00800-1.01, **TIME ALLOWED FOR COMPLETION**.

The undersigned agrees, if awarded the Contract, that there shall be paid by the undersigned and by all subcontractors under him, to all laborers, workers, and mechanics employed in the execution of such Contract or any subcontract thereunder, not less than the general prevailing rate of per diem wages, and rates for overtime and legal holidays in the locality in which the work is to be performed, as ascertained and determined, pursuant to California Labor Code Sections 1770, 1773, 1773.1, 1773.6, and 1773.7, as amended. The Director of the Department of Industrial Relations has determined the general prevailing rate of per diem wages in accordance with the standards set forth in Section 1773 for the locality in which the Work is to be performed. A copy of said wage

rates is available on-line at www.dir.ca.gov/DLSR/PWD. It shall be mandatory upon the Contractor to whom the Work is awarded, and upon any subcontractor under the Contractor, to pay not less than said specified rates to all workers employed by them in the execution of the Work. Said prevailing rate of per diem wages will be made available to any interested party upon request, and a copy thereof shall be posted at the job site by the Contractor. The representations made herein, including the Bidder's licensing information hereinafter furnished, are made under penalty of perjury. The undersigned understands that any bid not containing said licensing information, or containing any information which is subsequently proven false, may be considered non-responsive, and be rejected by CVSan.

The Project is a public work. Therefore, the prime contractor and all subcontractors for the Project must be registered with the California Department of Industrial Relations pursuant to the provisions of Labor Code Section 1725.5 in order to be qualified to bid on, be listed in a bid proposal, or engage in the performance of any work under the Contract for the Project. A bid shall not be accepted nor any contract or subcontract be entered into without proof of the contractor or subcontractor's current registration to perform public work pursuant to Labor Code Section 1725.5. The undersigned Bidder hereby certifies that she/he/it is registered pursuant to that Section.

The representations made herein, including the Bidder's licensing information hereinafter furnished, are made under penalty of perjury. The undersigned understands that any Bid not containing said licensing information, or containing any information, which is subsequently proven false, shall be considered non-responsive, and shall be rejected by CVSan.

Signed	_____
Name	_____
Contractor	_____
By	_____
Title	_____
Contractor License No.	_____
License Classification	_____
Expiration Date	_____
Dated	_____
Address	_____
Telephone	_____

***** END OF SECTION *****

SECTION 00310**BID SCHEDULE****ARTICLE 1 – BASE BID**

Item	Description	Unit	Estimated Quantity	Unit Bid Price	Total Bid Price
1	Mobilization and Demobilization	LS	1	\$	\$
2	Traffic Control Systems and Construction Area Signs	LS	1	\$	\$
3	Excavation, Shoring, Paving a) Saw Cut Existing Sidewalk and Pavement b) Demo and Remove concrete sidewalk and AC Paving c) Excavate Boring Pits d) Excavate Active Service Laterals e) Excavate Open Trench f) Surface Repair g) Trench Backfill	LS	1	\$	\$
4	Water Pollution Control	LS	1	\$	\$
5	Sewer Flow Control (Includes Bypassing and Dewatering)	LS	1	\$	\$
6	Clear and Grub Easement and restoration of landscaping	LS	1	\$	\$
7	Potholing Existing Storm Drain	LS	1	\$	\$
8	Manhole Reconnections	EA	10	\$	\$
9	Service Lateral Reconnections	EA	57	\$	\$
10	Replace Existing VCP Sanitary Sewer with HDPE by Pipe Bursting	LF	1130	\$	\$
11	Remove Existing VCP Sanitary Sewer with HDPE or DIP in Open Cut Trench	LF	350	\$	\$

Name of Bidder: _____

12	Backfill @ Storm Drain Crossing with CLSM (Revokable if not needed)	CY		\$	\$
13	Replace ex. Storm Drain with PVC Pipe (Revokable if not needed)	LF		\$	\$
14	Add a concrete cap over replaced Storm Drain (Revokable if not needed)	CY		\$	\$
15	Add new Sewer Manhole (Revokable if not needed)	EA		\$	\$
16	Excavate Rock (Revocable if not needed)	CY		\$	\$
17	Extra Lateral Repair (Revocable if not needed)	EA		\$	\$
18	Removal of Sags or Joint Offsets for Pipe bursting Repairs (Revocable if not needed)	LF		\$	\$
19	Over Excavation and Special Trench Bedding (Revocable if not needed)	CY		\$	\$
				TOTAL BASE BID	\$

Total amount bid (the summation of bid items 1 through 11),

Base Bid for _____ dollars (amount in words)

\$ _____ (amount in \$).

Bid amount of each of the above Bid Items must be filled in and completed.

Bid items shall be as specified in Section 01025, MEASUREMENT AND PAYMENT, and in the Contract Documents.

***** END OF SECTION *****

SECTION 00310**BID SCHEDULE****ARTICLE 2 – DEDUCTIVE ALTERNATIVE BID****BELLE STREET**

Item	Description	Unit	Estimated Quantity	Unit Bid Price	Total Bid Price
101	Mobilization and Demobilization	LS	1	\$	\$
102	Traffic Control Systems and Construction Area Signs	LS	1	\$	\$
103	Excavation, Shoring, Paving a) Saw Cut Existing Sidewalk and Pavement b) Demo and Remove concrete sidewalk and AC Paving c) Excavate Boring Pits d) Excavate Active Service Laterals e) Excavate Open Trench f) Surface Repair g) Trench Backfill	LS	1	\$	\$
104	Water Pollution Control	LS	1	\$	\$
105	Sewer Flow Control (Includes Bypassing and Dewatering)	LS	1	\$	\$
106	Clear and Grub Easement and restoration of landscaping	LS	1	\$	\$
107	Potholing Existing Storm Drain	LS	1	\$	\$
108	Manhole Reconnections	EA	2	\$	\$
109	Service Lateral Reconnections	EA	8	\$	\$
110	Replace Existing VCP Sanitary Sewer with HDPE by Pipe Bursting	LF	270	\$	\$
111	Backfill @ Storm Drain Crossing with CLSM (Revokable if not needed)	CY		\$	\$

Name of Bidder: _____

112	Replace ex. Storm Drain with PVC Pipe (Revokable if not needed)	LF		\$	\$
113	Add a concrete cap over replaced Storm Drain (Revokable if not needed)	CY		\$	\$
114	Add new Sewer Manhole (Revokable if not needed)	EA		\$	\$
115	Excavate Rock (Revocable if not needed)	CY		\$	\$
116	Extra Lateral Repair (Revocable if not needed)	EA		\$	\$
117	Removal of Sags or Joint Offsets for Pipe bursting Repairs (Revocable if not needed)	LF		\$	\$
118	Over Excavation and Special Trench Bedding (Revocable if not needed)	CY		\$	\$
				TOTAL BASE BID	\$

Total amount bid (the summation of bid items 100 through 110),

Deductive Alternate Bid for _____ dollars (amount in words)

\$ _____ (amount in \$).

Deductive Alternate Bid amount of each of the above Bid Items must be filled in and completed.

Deductive Alternate Bid items shall be as specified in Section 01025, MEASUREMENT AND PAYMENT, and in the Contract Documents.

***** END OF SECTION *****

Name of Bidder: _____

SECTION 00410

BID GUARANTY BOND
(To Accompany Bid)

KNOW ALL PERSONS BY THESE PRESENTS:

THAT _____, hereinafter called the principal, and _____, hereinafter called the Surety, are jointly and severally held and firmly bound unto the Castro Valley Sanitary District, Castro Valley, California, a public entity, hereinafter called the Obligee, each in the penal sum of ten percent of the total amount of the Base Bid Proposal of the Principal for the Work, this sum not to exceed _____ dollars of lawful money of the United States for the payment whereof unto the Obligee, the Principal and Surety jointly and severally bind themselves forever.

WHEREAS, the Principal is herewith submitting its offer for the fulfillment of Obligee’s Contract for:

Inflow & Infiltration Reduction Project, District Project No. 97

NOW, THEREFORE, the condition of this obligation is such that if the Principal is awarded the Contract, and if the Principal within the time specified in the proposal for such Contract enters into, executes and delivers to the Obligee an agreement in the form specified in the Contract Documents complete with evidences of insurance specified in the Contract Documents, and if the Principal within the time specified in the proposal gives to the Obligee the payment and performance bonds specified in the Contract Documents, then this obligation shall be void; otherwise, the Principal and Surety will pay unto the Obligee the difference in money between the total amount of the proposal of the Principal and the amount for which the Obligee legally contracts with another party to fulfill the Contract if the latter amount be excess of the former, but in no event shall the Surety's liability exceed the penal sum hereof.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable under this obligation as Principal, and that nothing of any kind or nature whatsoever that will not discharge the Principal shall operate as a discharge or a release of liability of the Surety.

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

SIGNED AND SEALED THIS _____ day of _____, 20__.

***** END OF SECTION *****

SECTION 00420

**CERTIFICATION OF BIDDER'S
EXPERIENCE AND QUALIFICATIONS**
(To Accompany Bid)

The undersigned Bidder certifies that it is, at the time of bidding, and shall be, throughout the period of the Contract, licensed under the provisions of Chapter 9, Division 3, of the Business and Professions Code of the State of California, to do the type of work contemplated in the Contract Documents. Bidder shall further certify that it is skilled and regularly engaged in the general class and type of work called for in the Contract Documents.

The Bidder represents that it is competent, knowledgeable, and has special skills on the nature, extent, and inherent conditions of the work to be performed. Bidder further acknowledges that there are certain peculiar and inherent conditions existent in the construction of the particular facilities which may create, during the construction program, unusual or peculiar unsafe conditions hazardous to persons and property. Bidder expressly acknowledges that it is aware of such peculiar risks and that it has the skill and experience to foresee and to adopt protective measures to adequately and safely perform the construction work with respect to such hazards.

1 ARTICLE 1 – ESSENTIAL REQUIREMENTS FOR QUALIFICATION

If the answer to any of questions 1 through 3 is “no”, or if the answer to any of questions 4 through 7 is “yes”, the Bidder will be disqualified from being awarded the Contract. Where the bidder is unable to certify to any of the statements in question 8, the bidder shall attach an explanation to this section. Instructions for certification in question 8 and requirements for subcontractor certifications under question 8 are listed in Section 00800-Article 11.

1. Bidder possesses a valid and current California Contractor’s license as required by Specification Section 00010, **NOTICE INVITING BIDS**, for the project for which it intends to submit a bid.
 Yes No
2. Bidder will comply with and provide all insurance as defined in Section 00800-Article 2, **INDEMNITY AND INSURANCE**.
 Yes No
3. Bidder 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
4. Has your contractor’s license been revoked at any time in the last five (5) years?
 Yes No
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?

Name of Bidder: _____

Yes No

6. At the time of submitting this 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

7. At any time during the last five (5) 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

8. Bidder certifies to the best of its knowledge and belief, that it and its principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency;
- b. Have not within a three year period preceding this proposal 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;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
- d. Have not within a three year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

Yes No

2 ARTICLE 2 – PROJECT EXPERIENCE

The Bidder shall list below at least five (5) projects completed in the last five (5) years of at least \$1,000,000 in each Contract Amount involving pipebursting that indicate the Bidder's experience as a Contractor. If the Bid is submitted by a Joint Venture, list at least four (4) completed projects. It is acceptable to submit this information on other forms as long as the information required below is included. Failure to provide this information with the Bid may render the Bid non-responsive and may be the basis for rejection of the Bid.

1. Project Name: _____

Owner: _____

Construction Cost: \$ _____

Construction Time: _____ Calendar Days

Name of Bidder: _____

Owner's Representative: _____

Owner's Telephone No: (____) _____

Date of Substantial Completion: _____

2. Project Name: _____

Owner: _____

Construction Cost: \$ _____

Construction Time: _____ Calendar Days

Owner's Representative: _____

Owner's Telephone No: (____) _____

Date of Substantial Completion: _____

3. Project Name: _____

Owner: _____

Construction Cost: \$ _____

Construction Time: _____ Calendar Days

Owner's Representative: _____

Owner's Telephone No: (____) _____

Date of Substantial Completion: _____

4. Project Name: _____

Owner: _____

Construction Cost: \$ _____

Construction Time: _____ Calendar Days

Owner's Representative: _____

Owner's Telephone No: (____) _____

Date of Substantial Completion: _____

5. Project Name: _____

Owner: _____

Construction Cost: \$ _____

Construction Time: _____ Calendar Days

Name of Bidder: _____

Owner's Representative: _____

Owner's Telephone No: (____) _____

Date of Substantial Completion: _____

3 ARTICLE 3 – SAFETY QUALIFICATION CRITERIA

The following information will be used to determine if you meet the minimum safety requirements for this project. To qualify to bid and be awarded the project, the contractor’s three year average Workers’ Compensation Experience Modification (EMR) must not be greater than 1.1 (110%). The Bidder shall list its Experience Modification Rate for the last three (3) complete years (available from your insurance carrier).

Year	EMR

Three Year Average = _____

To verify the above information, CVSan will contact the Bidder’s Workers’ Compensation Insurance carrier. The Bidder shall authorize its carrier to release this information. Failure to release this information will result in the bid being non-responsive and result in automatic disqualification of the bid.

Worker’s Compensation Insurance Company: _____

Contact Person for Insurance Company: _____

Telephone Number: (____) _____

Signed this _____ day of _____, 20__.

Name of Bidder

Contractor’s License No.

Expiration Date

Name of Bidder: _____

Signature of Bidder

Title of Signatory

*****END OF SECTION*****

Name of Bidder: _____

SECTION 00430

DESIGNATION OF SUBCONTRACTORS

(To Accompany Bid)

In accordance with California Public Contract Code, Section 4100 et. seq., as amended, the following is submitted concerning subcontractors: Each Bidder shall set forth below (a) name and the location of the place of business of each subcontractor who will perform work or labor, fabricate a portion of the Work or improvement according to the Contract Documents, or render service to the Contractor in or about the construction of the Work in an amount in excess of one-half (1/2) of one percent (1%) of the Contractor's total bid; and (b) the portion of the Work (type and trade) which will be done by each such subcontractor.

If a Contractor fails to specify a subcontractor or, if a Contractor specifies more than one subcontractor for the same portion of work to be performed under the Contract in excess of one-half (1/2) of one percent (1%) of the contractor's total Bid for any portion of the Work as above stated, the Contractor agrees that he/she is fully qualified to perform that portion himself/herself, and that the Contractor shall perform that portion himself/herself. Subcontractors work for which no subcontractor was designated in the original Bid and which is in excess of one-half (1/2) of one percent (1%) of the total Contract Price, will be allowed only with written consent of CVSan in accordance with applicable law.

No subcontractor may be listed on a Bid for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

1. Name of Subcontractor: _____ License No.: _____

Business Location/Address: _____ *Status _____

DIR Registration No.: _____ Registration Date: _____ Expiration Date: _____

Description of Work to Be Performed (Type & Trade): _____

2. Name of Subcontractor: _____ License No.: _____

Business Location/Address: _____ *Status _____

DIR Registration No.: _____ Registration Date: _____ Expiration Date: _____

Description of Work to Be Performed (Type & Trade): _____

3. Name of Subcontractor: _____ License No.: _____

Business Location/Address: _____ *Status _____

DIR Registration No.: _____ Registration Date: _____ Expiration Date: _____

Description of Work to Be Performed (Type & Trade): _____

4. Name of Subcontractor: _____ License No.: _____

Name of Bidder: _____

Business Location/Address: _____ *Status _____

DIR Registration No.: _____ Registration Date: _____ Expiration Date: _____

Description of Work to Be Performed (Type & Trade): _____

5. Name of Subcontractor: _____ License No.: _____

Business Location/Address: _____ *Status _____

DIR Registration No.: _____ Registration Date: _____ Expiration Date: _____

Description of Work to Be Performed (Type & Trade): _____

6. Name of Subcontractor: _____ License No.: _____

Business Location/Address: _____ *Status _____

DIR Registration No.: _____ Registration Date: _____ Expiration Date: _____

Description of Work to Be Performed (Type & Trade): _____

7. Name of Subcontractor: _____ License No.: _____

Business Location/Address: _____ *Status _____

DIR Registration No.: _____ Registration Date: _____ Expiration Date: _____

Description of Work to Be Performed (Type & Trade): _____

8. Name of Subcontractor: _____ License No.: _____

Business Location/Address: _____ *Status _____

DIR Registration No.: _____ Registration Date: _____ Expiration Date: _____

Description of Work to Be Performed (Type & Trade): _____

*Status M = Minority Owned Business Enterprise
W = Women Owned Business Enterprise
DV = Disabled Veteran
DBE = Disadvantage Business Enterprise

Additional supporting data may be attached to this section. Each page shall be sequentially numbered, headed "Proposed Subcontractors" and shall be signed.

***** END OF SECTION *****

Name of Bidder: _____

SECTION 00440

SITE VISIT AFFIDAVIT

(To be Executed by Bidder, Notarized and Submitted with Bid)

State of California)
) ss.
County of _____)

_____, being first duly sworn, deposes and says that he or she
(Contractor's Authorized Representative)

is _____ of _____
(Title of Representative) (Contractor's Legal Name)

the party making the foregoing Bid, has visited the Project site as described in the Contract Documents and has examined and familiarized themselves with the existing conditions, as well as all other conditions relating to the construction which will be performed. The submitting of a Bid shall be considered an acknowledgment on the part of the Bidder of familiarity with conditions at the site of the Work and that the site examination has provided adequate and sufficient information related to existing conditions which may affect cost, progress or performance of the Work.

Signature of Authorized Representative

Type/Print Name of Bidder

Type/Print Representative's Name

Type/Print Title

Date

(Certificate of Acknowledgment to be executed by Notary on following page)

Name of Bidder: _____

CERTIFICATE OF ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of the document.

State of California)
County of _____)

On _____ before me, _____
Date *Insert Name and Title of the Officer*

personally appeared _____
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose names(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

Signature of Notary Public

Place Notary Seal Above

***** END OF SECTION *****

Name of Bidder: _____

SECTION 00480

**NON-COLLUSION AFFIDAVIT TO BE EXECUTED
BY BIDDER, NOTARIZED AND SUBMITTED WITH BID
(To Accompany Bid)**

State of California)
) ss.
County of _____)

_____, being first duly sworn, deposes and says that he or she
(Contractor's Authorized Representative)

is _____ of _____ the party making the foregoing Bid;
(Title of Representative) (Contractor's Name)

that the Bid is not made in the interest of, or on behalf of, any undisclosed person, partner-ship, company, association, organization, or corporation; that the Bid is genuine and not collusive or sham; that the Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham Bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to put in a sham Bid, or that anyone shall refrain from bidding; that the Bidder has not in any manner, directly or indirectly sought by agreement, communication, or conference with anyone to fix the bid price of the Bidder or any other Bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other Bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the Bid are true; and, further, that the Bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham Bid.

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

Signature

Name of Bidder

Title

Date

(Certificate of Acknowledgment to be executed by Notary on following page)

Name of Bidder: _____

CERTIFICATE OF ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of the document.

State of California)
County of _____)

On _____ before me, _____
Date *Insert Name and Title of the Officer*
personally appeared _____
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose names(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____
Signature of Notary Public

Place Notary Seal Above

***** END OF SECTION *****

Name of Bidder: _____

SECTION 00490

AFFIDAVIT OF SAFETY COMPLIANCE

(To Accompany Bid)

Inflow & Infiltration Reduction Project, District Project No. 97

The Contractor agrees in accordance with the requirements of Section 00700-4.07, **SAFETY**, that for purposes of California Labor Code Section 6400 and related provisions of law the Contractor, the Contractor's privities and any other entities acting pursuant to this Contract will be "employers" responsible for furnishing employment and a place of employment that is safe and healthful for the employees, if any, of such entities acting pursuant to this Contract and that CVSan will not be responsible for having hazards corrected and/or removed at the location where the work under the Contract is to be performed.

The Contractor hereby acknowledges CVSan's concerns regarding safety at its facility and at the Project worksite. The Contractor shall conduct its operations to eliminate or reduce hazards and risks associated with Contractor's activities, to prevent accidents and injuries, and to prevent property damage. Therefore, the Contractor is fully responsible for and shall be in compliance with all of the most current safety, health, and environmental regulations (federal, state, and local). Non-compliance with these regulations may result in suspension or termination of work in progress. The Contractor's Safety Programs must accomplish the foregoing objectives. The Contractor certifies that its Safety Programs comply and will satisfy these requirements. The Contractor also certifies that each Subcontractor and Sub-subcontractors and other parties with which it has agreements to perform work on the Project worksite will also comply and will satisfy these requirements.

Parts A, B, C, and D of the attached Contractor Safety Operations Requirements are not required to be completed and submitted with the Bid. The completed forms shall be submitted for CVSan's review with the Contractor's Safety Program prior to commencement of work on the Project as required in Section 00700-4.07B, **Safety Program**. The Contractor certifies that it can furnish satisfactory evidence of compliance with the elements identified in the attached Contractor Safety Operations Requirements and the Contractor's Safety Program. The Contractor further acknowledges that its Subcontractors and Sub-subcontractors will provide all Safety Compliance documents to Contractor in accordance with this Section 00490, **AFFIDAVIT OF SAFETY COMPLIANCE** and Section 00700-4.07, **SAFETY**.

The Contractor acknowledges it has read CVSan's Confined Space Entry Program included in Appendix A, understands the existing facilities identified as confined spaces therein and will comply with the safety considerations applicable to this Project.

Executed On: _____, _____

Signature

Name of Bidder

Name (Print)

Title

(Attach a Certificate of Acknowledgement for the Notary to the Affidavit)

Name of Bidder: _____

CERTIFICATE OF ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of the document.

State of California)
County of _____)

On _____ before me, _____
Date *Insert Name and Title of the Officer*
personally appeared _____
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose names(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____
Signature of Notary Public

Place Notary Seal Above

Name of Bidder: _____

CONTRACTOR SAFETY OPERATIONS REQUIREMENTS
(To be submitted with Contractor’s Safety Program prior to commencing work)

PART A - Safety Programs

Please indicate below whether your firm has the following written safety programs. If any of the programs listed do not apply to your operations or this project, please make note of this in the “Comments” column. Include any information that you think would be helpful to us in making this assessment. Those programs that are indicated as mandatory must be available for review before commencing work on this project. Other safety programs may be requested if it is later determined that they are applicable to the Project, and as such, must be made available for review upon request, at no additional charge to CVSan.

Mandatory	Program Name	Written Program		Program meets Cal/OSHA Criteria		Sub will Provide	Project Employees Trained		Training Documented		Comments
		Yes	No	Yes	No		Yes	No	Yes	No	
YES	Injury and Illness Prevention										
YES	Hazard Communication										
YES	Confined Space Operations										
	Respiratory Protection										
YES	Emergency Response										
YES	Hearing Conservation										
YES	Lockout/Tagout										
YES	New Employee Orientation										
YES	Excavation Safety										
YES	Code of Safe Practices										
YES	Personal Protective Equipment (PPE)										
YES	Drugs/Alcohol										
YES	Traffic Control Safety										
YES	Fall Prevention Plan ¹										

¹ If conventional fall protection measures cannot be used.

Name of Bidder: _____

PART B - Safety Equipment

Identify what safety equipment will be available and used for this project.

Type	Description / Comments
[] Gas Detectors	
[] Ventilation Equipment	
[] Approved Harnesses and Lanyards	
[] Mechanical Hoists	
[] Fire Extinguishers	
[] First Aid Kits	
[] Respirators	
[] Hard Hats	
[] Hearing Protection	
[] Safety Goggles	
[] Steel Toed Footwear	
[] Hand Protection	
[] Fall Protection	
[] Confined Space Rescue Equipment	
[]	
[]	
[]	

Name of Bidder: _____

PART C - Specialized Training and Certification

Identify the areas of specialized training or certification that will have been completed by employees who will be assigned to this project. Be prepared to provide documentation as requested.

<input type="checkbox"/>	CPR / First Aid	<input type="checkbox"/>	Fork Lift Operation
<input type="checkbox"/>	Cranes / Hoists Operation	<input type="checkbox"/>	Heavy Equipment Operation
<input type="checkbox"/>	Powder-Actuated Tools Use	<input type="checkbox"/>	Confined Space Operations and Rescue
<input type="checkbox"/>	Respirators	<input type="checkbox"/>	Trenching and Shoring Competent Person
	<input type="checkbox"/> Air-Supplying	<input type="checkbox"/>	Welding
	<input type="checkbox"/> Air-Purifying	<input type="checkbox"/>	Asbestos Abatement
<input type="checkbox"/>	Scaffolding	<input type="checkbox"/>	Flagging
<input type="checkbox"/>	Traffic Control		

Name of Bidder: _____

PART D – Jobsite Safety Practices

1. Name of person who will have responsibility for jobsite safety?

2. Who will be responsible for conducting and documenting accident investigations?

Does your company perform near-miss investigations? _____
Please provide a sample copy of investigation forms.

3. How often are jobsite safety audits or inspections performed? _____

By whom? _____

4. Does the person who is responsible for jobsite safety have authority to take immediate action to correct unsafe conditions of work practices? _____

5. Who will be designated the competent person for excavation safety on the project?

Provide substantiation of training for the competent person.

6. How often are jobsite tailgate or toolbox safety meetings held? _____

7. Briefly describe how you will ensure that workers comply with safety programs and Cal/OSHA requirements? _____

8. Please list any Cal/OSHA citations and penalties you have received in the last three years.

9. Have there been any on-the-job fatalities at any jobsite managed by the Contractor in the last five years? _____ If yes, please explain.

10. Does your company have a safety incentive program? _____

If yes, please explain _____

Name of Bidder: _____

**PART E – Evaluation Worksheet
(FOR USE BY CVSAN ONLY)**

Item	Mandatory Program	Contractor has Written Program	Contractor States Program Meets Cal/OSHA Criteria	Comments
Part A: Safety Programs				
Injury and Illness Protection				
Hazard Communication				
Confined Space Operations				
Lockout /Tagout				
New Employee Orientation				
Personal Protective Equipment				
Excavation Safety				
Code of Safe Practices				
Other Programs				
Part B: Safety Equipment				
Part C: Training & Certification				
Part D: Jobsite Safety Practice				
Responsible Person Named				
Accident Investigations				
Worksite Safety Inspections				
Competent Person				
Safety Meetings				
Compliance w/ Safety Requirements				
Cal/OSHA Citations/Penalties				
Fatalities				
Safety Incentives				

***** END OF SECTION*****

Name of Bidder: _____

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SECTION 00491

CERTIFICATION OF NONDISCRIMINATION

During the performance of this contract, the Contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the contractor's non-compliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contractor will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions

will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance; provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

Adaptation of language. Such necessary changes in language may be made in the equal opportunity clause as shall be appropriate to identify properly the parties and their undertakings. [43 FR 49240, Oct. 20, 1978, as amended at 62 FR 66971, Dec. 22, 1997]

1. During the performance of this contract, contractor and its subcontractors shall not unlawfully discriminate against any employee or applicant for employment because of sex, race, religion, color, national origin, ancestry, physical disability (including HIV and AIDS), mental disability, medical condition (cancer), marital status, age (over 40) or denial of family care leave. Contractors and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination and harassment. Contractors and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12900 (a-f) et seq.) and the applicable regulations promulgated thereunder (California Administrative Code, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12900 (a-f), set forth in Chapter 5 of Division 4 of Title 2 or the California Administrative Code are incorporated into this contract by reference and made a part hereof as if set forth in full. Contractor and its subcontractor shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.
2. The contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

THE UNDERSIGNED CERTIFIES THAT THE CONTRACTOR WILL COMPLY WITH THE ABOVE REQUIREMENTS.

CONTRACTOR OR
SUBCONTRACTOR NAME: _____

CERTIFIED BY:

NAME: _____ TITLE: _____

SIGNATURE: _____ DATE: _____

***** END OF SECTION *****

SECTION 00492

CERTIFICATION OF NON-SEGREGATED FACILITIES

Environmental Protection Agency Region IX
75 Hawthorne Street
San Francisco, California 94105

(Applicable to federally assisted construction contracts and related subcontracts exceeding \$10,000 which are not exempt from the Equal Opportunity Clause.)

The federally assisted construction contractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract. As used in this certification, the term “segregated facilities” means any waiting rooms, work areas, restrooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. The federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specified time period) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause, and that he will retain such certifications in his files.

Signature

Date

Name and Title of Signer (Please Type)

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

***** END OF SECTION *****

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SECTION 00493

DRUG-FREE WORKPLACE CERTIFICATION

CONTRACTOR/APPLICANT:

The contractor named above hereby certifies compliance with Government Code Section 8355 in matters relating to providing a drug-free workplace. The above named contractor will:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations, as required by Government Code Section 8355(a).
2. Establish a Drug-Free Awareness Program as required by Government Code Section 8355(b), to inform employees about all of the following:
 - (a) The dangers of drug abuse in the workplace,
 - (b) The person's or organization's policy of maintaining a drug-free workplace,
 - (c) Any available counseling, rehabilitation and employee assistance programs, and
 - (d) Penalties that may be imposed upon employees for drug abuse violations.
3. Provide as required by Government Code Section 8355(c), that every employee who works on the proposed contract or loan:
 - (a) Will receive a copy of the company's drug-free policy statement, and
 - (b) Will agree to abide by the terms of the company's statement as a condition of employment on the contract or loan.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized legally to bind the contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME:

DATE EXECUTED:

EXECUTED IN COUNTY OF:

CONTRACTOR/APPLICANT SIGNATURE:

TITLE

***** END OF SECTION *****

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SECTION 00500

AGREEMENT FOR THE CONSTRUCTION OF

Inflow & Infiltration Reduction Project

District Project No. 97

THIS AGREEMENT, made and concluded, in triplicate, this ____ day of _____, 20____, between the CASTRO VALLEY SANITARY DISTRICT at 21040 Marshall Street, Castro Valley, California, 94546 (herein after referred to as “CVSan”) party of the first part, and _____ party of the second part (herein after referred to as “Contractor”).

CVSan and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

WITNESSETH:

1. That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the said party of the first part, and under the conditions expressed in the two bonds, bearing even date with these presents, and hereunto annexed, the said party of the second part agrees with the said party of the first part, at his/her own proper cost and expense, to do all the work and furnish all the materials necessary to construct and complete in good workmanlike and substantial manner the project entitled: Inflow & Infiltration Reduction Project, District Project No. 97, in strict conformity with the Contract Documents prepared therefore, which said Contract Documents are hereby specially referred to and by said reference made a part hereof.
2. Now, therefore, in consideration of the mutual covenants and agreements of the parties herein contained and to be performed, the Contractor hereby agrees to complete the Work in accordance with the terms and conditions stipulated in the Contract Documents for the sum of _____ (\$ _____) computed in accordance with Contractor’s accepted proposal dated _____, 20____, which accepted proposal is incorporated herein by reference thereto as if herein fully set forth. Compensation shall be based upon any lump sum bid items plus the unit prices stated in the Bid Schedule times the actual quantities or units of work and materials performed or furnished. The further terms, conditions, and covenants of this Agreement are set forth in the Contract Documents, each of which is by this reference made a part hereof. Payments are to be made to the Contractor in accordance with the provisions of the Contract Documents and the Technical Specifications in legally executed and regularly issued warrants of CVSan, drawn on the appropriate fund or funds as required by law and order of CVSan thereof.

3. Contractor is required to state on their bid submittals, contracts, or other appropriate documentation whether they, an employee of their firm, or a subcontractor have a close personal relationship with a CVSan employee or Board Member.
4. The party of the first part hereby promises and agrees with the said Contractor to employ, and does hereby employ, the said Contractor to provide the materials and to do the Work according to the terms and conditions herein contained and referred to, for the prices aforesaid, and hereby contracts to pay the same at the time, in the manner and upon the conditions above set forth; and the said parties for themselves, their heirs, executors, administrators, successors and assigns, do hereby agree to the full performance of the covenants herein contained.
5. The Contractor and any subcontractor performing or contracting any work shall comply with all applicable provisions of the California Labor Code for all workers, laborers, and mechanics of all crafts, classifications or types, including, but necessarily limited to the following:
 - (a) The Contractor shall comply with all applicable provisions of Section 1810 to 1815, inclusive, of the California Labor Code relating to working hours. The Contractor shall, as a penalty to CVSan, forfeit the sum of twenty-five (25) dollars for each worker employed in the execution of the Contract by the Contractor or by any subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one (1) calendar day and forty (40) hours in any one (1) calendar week, unless such worker receives compensation for all hours worked in excess of eight (8) hours at not less than one and one-half (1-1/2) times the basic rate of pay.
 - (b) Pursuant to the provision of California Labor Code, Section 1770 et. seq., the Contractor and any subcontractor under him shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Pursuant to the provisions of California Labor Code Section 1773.2, the Contractor is hereby advised that copies of the prevailing rate of per diem wages and a general prevailing rate for holidays, Saturdays, and Sundays and overtime work in the locality in which the work is to be performed for each craft, classification, or type of worker required to execute the Contract, are on file in the office of CVSan, which copies shall be made available to any interested party on request. The Contractor shall post a copy of said prevailing rate of per diem wages at each job site.
 - (c) As required by Section 1773.1 of the California Labor Code, the Contractor shall pay travel and subsistence payments to each worker needed to execute the Work, as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with this Section.
 - (d) To establish such travel and subsistence payments, the representative of any craft, classification, or type of workman needed to execute the contract shall file with the Department of Industrial Relations fully executed copies of collective bargaining agreements for the particular craft, classification, or type of work involved. Such agreements shall be filed within ten (10) days after their execution and thereafter shall

establish such travel and subsistence payments whenever filed thirty (30) days prior to the call for bids.

- (e) The Contractor shall comply with the provisions of Section 1775 of the California Labor Code and shall, as a penalty to CVSan, forfeit up to fifty (\$50) dollars for each calendar day, or portion thereof, for each worker paid less than the prevailing rate of per diem wages for each craft, classification, or type of worker needed to execute the contract. The Contractor shall pay each worker an amount equal to the difference between the prevailing wage rates and the amount paid worker for each calendar day or portion thereof for which a worker was paid less than the prevailing wage rate. Contractor is required to pay all applicable penalties and back wages in the event of violation of prevailing wage law, and Contractor and any subcontractor shall fully comply with California Labor Code Section 1775, which is incorporated by this reference as though fully set forth herein.
- (f) As required under the provisions of Section 1776 of the California Labor Code, Contractor and each subcontractor shall keep an accurate payroll record, showing the name, address, social security number, work classification, and 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. Said payroll record 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 the employee or his or her authorized representative on request.
 - (2) A certified copy of all payroll records enumerated in Paragraph 5(f), herein, shall be made available for inspection or furnished upon request to CVSan, 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 Paragraph 5(f), herein, shall be made available upon request by the public for inspection or for copies thereof; provided, however, that a request by the public shall be made through CVSan, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to Paragraph 5(e) herein, the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the Contractor, subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal offices of the Contractor.

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.

Each Contractor shall file a certified copy of the records, enumerated in Paragraph 5(f) with the entity that requested the records within ten (10) days after receipt of a written request. Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by CVSan, 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. The Contractor shall inform CVSan of the location of the records enumerated under Paragraph 5(f) including the street address, city, and county, and shall, within five (5) working days, provide a notice of change of location and address. The Contractor shall have ten (10) days in which to comply subsequent to receipt of written notice specifying in what respects the Contractor must comply with this Paragraph 5(f). In the event that the Contractor fails to comply within the 10-day period, he or she shall, as a penalty to the state or CVSan, forfeit twenty-five (\$25) dollars 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. Responsibility for compliance with Paragraph 5(f) lies with the Contractor.

- (g) The Contractor and any subcontractors shall, when they employ any person in any apprenticeable craft or trade, apply to the joint apprenticeship committee administering the apprenticeship standards of the craft or trade in the area of the construction site for a certificate approving the Contractor or subcontractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected; and shall comply with all other requirements of Section 1777.5 of the California Labor Code. The responsibility of compliance with California Labor Code Section 1777.5 during the performance of this contract rests with the Contractor. Pursuant to California Labor Code Section 1777.7, in the event the Contractor willfully fails to comply with the provisions of California Labor Code Section 1777.5, the Contractor shall be denied the right to bid on any public works contract for up to three (3) years from the date non-compliance is determined and be assessed civil penalties.
- (h) In accordance with the provisions of Article 5, Chapter 1, Part 7, Division 2 (commencing with Section 1860), and Chapter 4, Part 1, Division 4 (commencing with Section 3700) of the California Labor Code, the Contractor is required to secure the payment of compensation to its employees and for that purpose obtain and keep in effect adequate Workers' Compensation Insurance. If the Contractor, in the sole discretion of CVSan, satisfies CVSan of the responsibility and capacity under the applicable Workers' Compensation Laws, if any, to act as self-insurer, the Contractor may so act, and in such case, the insurance required by this paragraph need not be provided.

The Contractor is advised of the provisions of Section 3700 of the California Labor Code, which requires every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code and shall comply with such provisions and have Employer's Liability limits of \$1,000,000 per accident before commencing the performance of the work of this Contract.

The Notice to Proceed with the Work under this Contract will not be issued, and the Contractor shall not commence work, until the Contractor submits written evidence

that it has obtained full Workers' Compensation Insurance coverage for all persons whom it employs or may employ in carrying out the work under this Contract. This insurance shall be in accordance with the requirements of the most current and applicable state Workers' Compensation Insurance Laws. In accordance with the provisions of Section 1861 of the California Labor Code, the Contractor in signing this agreement certifies to CVSan as true the following statement: "I am aware of the provisions of Section 3700 of the Labor Code which requires 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."

A subcontractor is not allowed to commence work on the project until verification of Workers' Compensation Insurance coverage has been obtained and verified by the Contractor and submitted to the Construction Manager for CVSan's review and records.

- (i) In accordance with the provisions of Section 1727 of the California Labor Code, CVSan, before making payment to the Contractor of money due under a contract for public works, shall withhold and retain therefrom all wages and penalties which have been forfeited pursuant to any stipulation in the contract, and the terms of Chapter 1, Part 7, Division 2 of the California Labor Code (commencing with Section 1720). But no sum shall be withheld, retained or forfeited, except from the final payment, without a full investigation by either the Division of Labor Standards Enforcement or by CVSan.
- (j) The Project is a "public work" as defined in Labor Code Section 1720. Therefore, Contractor and all subcontractors for the Project must be registered with the California Department of Industrial Relations pursuant to the provisions of Labor Code Section 1725.5 in order to be qualified to bid on, be listed in a bid proposal, or engage in the performance of any work under the Contract for the Project. A bid shall not be accepted, nor any contract or subcontract be entered into without proof of the contractor or subcontractor's current registration to perform public work pursuant to Labor Code Section 1725.5. Contractor hereby certifies that Contractor is registered pursuant to that Section.

Pursuant to Labor Code Section 1771.4, the Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. Contractor shall post jobsite notices as prescribed by regulation and each subcontractor shall furnish the records specified in Labor Code Section 1776 directly to the Labor Commissioner as specified in said Section 1771.4. Pursuant to Labor Code Section 1773.3, the Authority shall provide notice to the Department of Industrial Relations of the award of the contract for the Project within thirty (30) days of the award.

- 6. It is further expressly agreed by and between the parties hereto that should there be any conflict between the terms of the instrument and the bid proposal of said Contractor, then this instrument shall control, and nothing herein contained shall be considered as an acceptance of the said terms of said proposal conflicting herewith.

7. The Contractor agrees to provide and maintain insurance coverage, and to indemnify and save harmless the parties named and, in the manner set forth in Section 00800-Article 2, **INDEMNITY AND INSURANCE**, of the Supplementary General Conditions of the Specifications.

The duty of Contractor to indemnify and save harmless, as set forth herein, shall include a duty to defend as set forth in Section 2778 of the California Civil Code; provided, however, that nothing herein shall be construed to require Contractor to indemnify against any responsibility or liability in contravention of Section 2782 of the California Civil Code.

8. The Contractor shall diligently prosecute the work so that it shall be substantially completed within the time specified in Section 00800-1.01, **TIME ALLOWED FOR COMPLETION**.
9. Except as otherwise may be provided herein, Contractor hereby expressly guarantees for one (1) full year from the date of the Substantial Completion of the work under this Agreement and acceptance thereof by CVSan, to repair or replace any part of the work performed hereunder which constitutes a defect resulting from the use of inferior or defective materials, equipment or workmanship. If, within said period, any repairs or replacements in connection with the work are, in the opinion of CVSan, rendered necessary as the result of the use of inferior or defective materials, equipment, or workmanship, Contractor agrees, upon receipt of notice from CVSan, and without expense to CVSan, to promptly repair or replace such material or workmanship and/or correct any and all defects therein. If Contractor, after such notice, fails to proceed promptly to comply with the terms of this guarantee, CVSan may perform the work necessary to effectuate such correction and recover the cost thereof from the Contractor or its sureties.

In special circumstances where a particular item of work or equipment is placed in continuous service before substantial completion of the Work, the correction period for that item may start to run from an earlier date. This date shall be agreed upon by the Contractor and CVSan on or before the item is placed in continuous service.

Any and all other special guarantees which may be applicable to definite parts of the work under this Agreement shall be considered as an additional guarantee and shall not reduce or limit the guarantee as provided by Contractor pursuant to this paragraph during the first year of the life of such guarantee.

10. The Contractor shall provide, on the execution of this Agreement, a good and sufficient corporate surety bond in the penal sum of one hundred (100) percent of amount bid, which bond shall be on the form provided by CVSan in Section 00610, **BOND OF FAITHFUL PERFORMANCE**, and be conditioned upon the faithful performance of all Work required to be performed by the Contractor under this Agreement. Said bond shall be liable for any and all penalties and obligations which may be incurred by Contractor under this Agreement. The corporate surety bond shall be issued by a corporate surety approved by CVSan's legal counsel. The corporate surety shall be authorized to conduct business in California. At its discretion, CVSan may request that a certified copy of the certificate of authority of the insurer issued by the Insurance Commissioner of the State of California be submitted by the surety to CVSan. At its discretion, CVSan may also require the insurer to provide copies of its most recent annual statement and quarterly statement filed with the

Department of Insurance pursuant to Article 10 (commencing with Section 900) of Chapter 1 of Part 2 of Division 1 of the Insurance Code.

11. In addition to the bond required under Paragraph 9, hereof, Contractor shall furnish a good and sufficient corporate surety bond in the penal sum of one hundred (100) percent of amount of bid, which bond shall be on the form provided by CVSsan in Section 00620, **PAYMENT BOND**, and conform strictly with the provisions of Chapter 7, Title 15, Part 4, Division 3, of the Civil Code of the State of California, and all amendments thereto. The corporate surety bond shall be issued by a corporate surety approved by CVSsan's legal counsel. The corporate surety shall be authorized to conduct business in California. At its discretion, CVSsan may request that a certified copy of the certificate of authority of the insurer issued by the Insurance Commissioner of the State of California be submitted by the surety to CVSsan. At its discretion, CVSsan may also require the insurer to provide copies of its most recent annual statement and quarterly statement filed with the Department of Insurance pursuant to Article 10 (commencing with Section 900) of Chapter 1 of Part 2 of Division 1 of the Insurance Code.
12. The Contractor may substitute securities for the amounts retained by CVSsan to ensure performance of the Work in accordance with the provisions of Section 22300 of the Public Contract Code.
13. Not Used.
14. As required by Section 6705 of the California Labor Code and in addition thereto, whenever work under the Contract involves the excavation of any trench or trenches five (5) feet or more in depth, the Contractor shall submit in advance of excavations, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plan varies from the shoring system standards established by the Construction Safety Orders of the Division of Industrial Safety in Title 8, Subchapter 4, Article 6, California Code of Regulations, the plan shall be prepared by a registered civil or structural engineer employed by the Contractor, and all costs therefore shall be included in the price named in the Contract for completion of the work as set forth in the Contract Documents. Nothing in this Section shall be deemed to allow the use of a shoring, sloping, or other protective system less effective than that required by the Construction Safety Orders. Nothing in this Section shall be construed to impose tort liability on CVSsan, the Design Consultant, Construction Manager nor any of their agents, consultants, or employees. CVSsan's review of the Contractor's excavation plan is only for general conformance to the California Construction Safety Orders.

Prior to commencing any excavation, the Contractor shall designate in writing to the Construction Manager the competent person(s) with the authority and responsibilities designated in the Construction Safety Orders.
15. Not used
16. In accordance with Section 7104 of the Public Contract Code, whenever any work involves digging trenches or other excavations that extend deeper than four (4) feet below the

surface, the provisions of Section 00700-7.02, **DIFFERING SITE CONDITIONS**, shall apply.

17. In accordance with Section 7103.5 of the Public Contract Code, the Contractor and subcontractors shall conform to the following requirements. In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or subcontractor offers and agrees to assign to CVSan 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. Section 15) or under the Cartwright Act [Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code], arising from purchases of goods, materials, or services pursuant to this Contract or the subcontract. Such assignment shall be made and become effective at the time CVSan tenders final payment to the Contractor, without further acknowledgment by the parties.
18. In accordance with Section 4552 of the Government Code, the Contractor shall conform to the following requirements. In submitting a Bid to CVSan, the Contractor offers and agrees that if the Bid is accepted, it will assign to CVSan 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. Section 15) or under the Cartwright Act [Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code], arising from purchase of goods, materials, or services by the Contractor for sale to CVSan pursuant to the Bid. Such assignment shall be made and become effective at the time CVSan tenders final payment to the Contractor.
19. Pursuant to Public Contract Code Section 7100, the acceptance by the Contractor of an undisputed payment made under the terms of the Contract shall operate as, and shall be, a release to CVSan, and their duly authorized agents, from all claim of and/or liability to the Contractor arising by virtue of the Contract related to those amounts. Disputed contract claims in stated amounts may be specifically excluded by the Contractor from the operation of the release.
20. In accordance with California Business and Professions Code Section 7030, the Contractor is required by law to be licensed and regulated by the Contractors' State License Board which has jurisdiction to investigate complaints against contractors if a complaint regarding a patent act or omission is filed within four (4) years of the date of the alleged violation. A complaint regarding a latent act or omission pertaining to structural defects must be filed within ten (10) years of the date of the alleged violation. Any questions concerning the Contractor may be referred to the Registrar, Contractors' State License Board, P.O. Box 26000, Sacramento, California 95826.
21. The acceptance of each payment made to Contractor under this Agreement shall constitute a warranty that all subcontractors, laborers and material suppliers on the Project have been paid for all work, material, labor provisions, provender, equipment, or other supplies and efforts made toward the construction of improvements.
22. **INDEMNIFICATION.** Contractor shall indemnify, defend with counsel acceptable to Owner, and hold harmless to the full extent permitted by law, CVSan and its officers, officials, employees, agents, and volunteers, Design Consultant and its consultants for the

Work and their respective agents and employees; and if one is designated by CVSan for the work, the Construction Manager and its consultants for the work and their respective agents and employees (collectively “the Indemnified Parties”) in accordance with the requirements of Section 00800-2.13, **Indemnification**.

23. LIQUIDATED DAMAGES.

- (a) CVSan and the Contractor recognize that time is of the essence of the Agreement and that CVSan will suffer financial loss if the work is not completed within the time specified, plus any extensions thereof allowed. It is hereby understood and agreed that it is and will be difficult and/or impossible to ascertain and determine the actual damage which CVSan will sustain in the event of and by reason of the Contractor’s failure to fully perform the work or to fully perform all of its contract obligations that have accrued by the time specified for completion of any scheduled operations or works. It is, therefore, agreed in accordance with California Government Code Section 53069.85 that the Contractor will forfeit and pay to CVSan liquidated damages in the amount set in Section 00800-1.02, **DAMAGES FOR DELAYS**, for each calendar day that expires after the time for substantial completion of the entire project. It is further understood and agreed in accordance with California Government Code Section 53069.85 that the liquidated damages sum specified in this provision is not manifestly unreasonable under the circumstances existing at the time this contract was made, and that CVSan may deduct liquidated damages sums in accordance with this provision from any payments due or that may become due the Contractor.
- (b) Liquidated damages will continue to accrue at the stated rate until substantial completion of the work. Accrued liquidated damages may be deducted by CVSan from amounts due or that become due to the Contractor for performance of the work. Liquidated damages may not be waived or reduced by CVSan unless expressly waived or reduced in writing by the Construction Manager.

24. **MISCELLANEOUS.** The parties hereto by this Agreement do not intend to and do not become joint venturers or partners. Time is of the essence of each provision of this Agreement. Whenever consent or approval of any party is required, that party shall not unreasonably withhold such consent or approval. This agreement shall be binding upon the inure to the benefit of the parties and their successors and assigns. This Agreement is to be construed and interpreted in accordance with the laws of the State of California. This Agreement contains all of the agreements of the parties and cannot be amended or modified except by a written agreement. All provisions, whether covenants or conditions on the part of any party, shall be deemed to be both covenants and conditions. The definitions used in this Agreement shall be used to interpret this Agreement. If it should become necessary for any party to this Agreement to commence an action at law or in equity to enforce any of the provisions of the same or due to the breach of any of the provisions of the same by any other party to this Agreement, the prevailing party in any such litigation shall be entitled to an award of reasonable attorney’s fees, expert witness fees and court costs. The singular includes the plural; the masculine gender includes the feminine; “shall” is mandatory; “may” is permissive. If a part of this Agreement is held to be invalid, the remainder of the Agreement is not affected. The violation of this Agreement by any one party shall not constitute a violation by any other party, and this Agreement shall remain in full force and

effect with regard to all such non-defaulting parties. This Agreement may be executed in any number of original counterparts, all of which evidence only one agreement and only one of which need be produced for any purpose. All recitals and all exhibits referred to in this Agreement are incorporated herein by reference and shall be deemed part of this Agreement for all purposes as if set forth at length herein. This Agreement is for the sole benefit of the parties hereto, their respective successors and permitted assigns, and no other person or entity shall be entitled to rely upon or receive any benefit from this Agreement or any term hereof. This Agreement cannot be assigned in whole or in part by the Contractor without the prior written consent of CVSan, which consent can be withheld for no reason or any reason at CVSan's sole discretion. No consent or waiver, express or implied, by any party to or of any breach of any representation, covenant or warranty, shall be construed as a consent or waiver to or of any other breach of the same or any other representation, covenant, or warranty. All of the rights and remedies of any party under this Agreement are intended to be distinct, separate, and cumulative, and no such right or remedy herein mentioned is intended to be an exclusion of or a waiver of any of the others. The submission of this Agreement for examination does not constitute an offer by or to any party. This Agreement shall be effective and binding only after execution and delivery by the parties hereto. All parties hereto, having had the opportunity to have this Agreement reviewed by their respective counsel, agree that any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not apply to any interpretation of this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement this _____ day of _____, 20_____.

CONTRACTOR

By: _____

Title: _____

CASTRO VALLEY SANITARY DISTRICT

By: _____

Roland P. Williams, Jr., General Manager

***** END OF SECTION *****

SECTION 00610

BOND OF FAITHFUL PERFORMANCE

KNOW ALL PERSONS BY THESE PRESENTS: that, WHEREAS, the Board of Directors of the CVSan, has awarded to:

hereinafter designated as the "Principal", a Contract for constructing

Inflow & Infiltration Reduction
District Project No. 97

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

NOW, THEREFORE, we, the Principal and _____ as Surety, are held and firmly bound unto the Castro Valley Sanitary District, CA, in the penal sum of (\$ _____), lawful money of the United States, being not less than one hundred (100) percent of the Contract amount, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bounded Principal, it or its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and faithfully perform the covenants, conditions, and agreements said Contract and any alterations made as therein provided, on it or their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the CVSan, its officers and agents, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and virtue.

As a condition precedent to the satisfactory completion of the said Contract, the above obligation in the amount of _____ Dollars, (\$ _____), being not less than one hundred (100) percent of the Contract amount, shall hold good for a period of one (1) year after the Substantial Completion and acceptance of the said Work; and through the expiration of Warranty Period; and such additional time thereafter as may be specified in the Contract Documents. If the above bounded Principal, it or its heirs, executors, administrators, successors, or assigns shall fail to make full, complete and satisfactory repair and replacements or totally protect the said CVSan from loss or damage made evident during said Warranty Period, and resulting from or caused by defective materials or faulty workmanship in the prosecution of the work done, the above obligation in said sum of _____ Dollars, (\$ _____), shall remain in full force and virtue otherwise the above obligation shall be void.

And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the Contract Documents accompanying the same shall any wise affect its obligations on this bond; and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the Work, or to the Contract Documents.

In the event the CVSan, or its successors or assigns, shall be the prevailing party in an action brought upon this bond, then in addition to the penal sum hereinabove specified, we agree to pay to said CVSan or its successors or assigns, a reasonable sum on account of attorney's fees in such action, which sum shall be fixed by the court.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under their seals this _____ day of _____ 20____, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

ATTEST:

Principal Secretary

Principal

(SEAL) By _____

Witness as to Principal

Address

Address

Witness to Surety

Surety

Address

Address

Telephone

Attorney-in-Fact

Address

If CONTRACTOR is partnership, all partners must execute BOND.

***** END OF SECTION *****

SECTION 00620

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: that, WHEREAS, the Board of Directors of the CVSan has awarded to:

hereinafter designated as "Principal", a Contract for construction of:

Inflow & Infiltration Reduction
District Project No. 97

WHEREAS, said Principal is required to furnish a bond in connection with said Contract, providing that if said Principal, or any of it or its subcontractors, shall fail to pay for any materials, provisions, or other supplies or teams 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, the Surety of this bond will pay the same to the extent hereinafter set forth:

NOW, THEREFORE, we, the Principal and _____, as Surety, are held and firmly bound unto the Castro Valley Sanitary District, CA, in the penal sum of _____ Dollars, (\$ _____), lawful money of the United States, being not less than one hundred percent of the Contract amount, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if said Principal, it or its heirs, executors, administrators, successors, or assigns, shall fail to pay for any materials, provisions, or other supplies or teams 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, as required by the provisions of Act of the Legislature of the State of California entitled "An Act to secure the payment of persons who furnished materials, contractors in the performance of such work and prescribing the duties of certain public officers with respect thereto", approved May 10, 1919, as amended, (California Civil Code Section 9550, et. seq.), and provided that the persons, companies, or corporations so furnishing said materials, provisions, or other supplies, teams, appliances, or power to be used in, upon for, or about the performance of the Work contracted to be executed or performed, or any person, power for or contributing to said Work to be done, or any person who performs work or labor upon same, or any person who supplies both work and materials therefore, shall have complied with the provisions of said Act, then said Surety will pay the same in or to any amount not exceeding the amount herein above set forth, and also will pay in case suit is brought upon this bond, such reasonable attorney's fee as shall be fixed by the court, awarded and taxed as in the above-mentioned statute provided.

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

And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the Work to be performed thereunder, or the Contract Documents accompanying the same shall in any wise affect its obligations on this bond; and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the Work, or to the Contract Documents.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under their seals this _____ day of _____ the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

ATTEST:

Principal Secretary

Principal

(SEAL) By _____

Witness as to Principal

Address

Address

Witness to Surety

Surety

Address

Address

Telephone

Attorney-in-Fact

Address

If CONTRACTOR is partnership, all partners must execute BOND.

***** END OF SECTION *****

SECTION 00630

ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION

Inflow & Infiltration Reduction Project, District Project No. 97

This Escrow Agreement is made and entered into by and between; the Castro Valley Sanitary District, whose address is 21040 Marshall Street, Castro Valley, CA 94545-6098; hereinafter called "CVSan", and _____

(Contractor)

whose address is _____

hereinafter called "Contractor", and _____

(Escrow Agent)

whose address is _____

hereinafter called "Escrow Agent."

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

1. Pursuant to Section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities which meet the requirements set forth in said Section 22300, with Escrow Agent, as a substitute for retention earnings required to be withheld by CVSan pursuant to the Construction Contract entered into between CVSan and Contractor for _____ in the amount of _____ dated _____ (hereinafter referred to as the "Contract"). Alternatively, on written request of the Contractor, CVSan shall make payments of the retention earnings directly to the Escrow Agent. When Contractor deposits the securities as a substitute for Contract earnings, the Escrow Agent shall notify CVSan within ten (10) days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between CVSan and Contractor. Securities shall be held in the name of CVSan, and shall designate the Contractor as the beneficial Owner.
2. CVSan shall make progress payments to Contractor for such funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.
3. When CVSan makes payment of retentions earned directly to the Escrow Agent the Escrow Agent shall hold them for the benefit of the Contractor until such time as the escrow created under this Contract is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this Agreement and the rights and responsibilities of the parties shall be equally applicable and binding when CVSan pays the Escrow Agent directly.

4. Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account, and all expenses of CVSsan. These expenses and payment terms shall be determined by CVSsan, Contractor, and Escrow Agent.
5. The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to CVSsan.
6. Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from CVSsan to the Escrow Agent that CVSsan consents to the withdrawal of the amount sought to be withdrawn by Contractor.
7. CVSsan shall have a right to draw upon the securities in the event of default by the Contractor. Upon seven (7) days' written notice to the Escrow Agent from CVSsan of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by CVSsan.
8. Upon receipt of written notification from CVSsan certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.
9. Escrow Agent shall rely on the written notifications from CVSsan and the Contractor pursuant to Sections (5) to (8), inclusive, of this Agreement, and CVSsan and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.
10. The names of the persons who are authorized to give written notice or to receive written notice on behalf of CVSsan and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

On Behalf of CVSan:

On Behalf of Contractor:

Title

Title

Name

Name

Signature

Signature

Address

Address

On Behalf of Escrow Agent:

Title

Name

Signature

Address

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

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

CVSan:

Contractor:

Title

Title

Name

Name

Signature

Signature

***** END OF SECTION *****

SECTION 00650

GENERAL LIABILITY ENDORSEMENT (FORM A-1)

CASTRO VALLEY SANITARY DISTRICT (CVSan)

21040 Marshall Street

Castro Valley, CA 94545-6098

Inflow & Infiltration Reduction

District Project No. 97

ARTICLE 1 – POLICY INFORMATION

1. Insurance Company: _____

Policy Number: _____

2. Policy Term (From) _____ (To) _____

Endorsement Effective Date: _____

3. Named Insured: _____

4. Address of Named Insured: _____

5. Limit of Liability Any One Occurrence / Aggregate

\$ _____

6. Deductible or Self-Insured Retention (Nil unless otherwise specified)

\$ _____

ARTICLE 2 – POLICY AMENDMENTS

This endorsement is issued in consideration of the policy premium. Notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any other endorsement attached thereto it is agreed as follows:

1. **INSURED.** CVSan, the Design Consultant, the Construction Manager, CVSan Engineer, and each of their officers, partners, employees, and agents are included as additional insureds with regard to damages and defense of claims arising from: (a) activities performed by or on behalf of the Named Insured, (b) products and completed operations of the Named Insured, or (c) premises owned, leased, or used by the Named Insured.

2. **CONTRIBUTION NOT REQUIRED.** As respects: (a) work performed by the Named Insured for or on behalf of CVSan; or (b) products sold by the Named Insured to CVSan; or (c) premises leased by the Named Insured from CVSan, the insurance afforded by this

policy shall be primary insurance as respects CVSan, the Design Consultant, and the Construction Manager and each of their officers, employees, and agents; or stand in an unbroken chain of coverage excess of the Named Insured's scheduled underlying primary coverage. In either event, any other insurance maintained by CVSan, the Design Consultant, and the Construction Manager and each of their officers, employees, and agents shall be excess of this insurance and shall not contribute with it.

- 3. **SCOPE OF COVERAGE.** The policy: (1) if primary, affords coverage at least as broad as Insurance Services Office Commercial General Liability Coverage (occurrence form CG 0001, Edition 1987); or (2) if excess, affords coverage which is at least as broad as the primary insurance forms referenced in the preceding Section (1).
- 4. **SEVERABILITY OF INTEREST.** The insurance afforded by this policy applies separately to each insured who is seeking coverage or against whom a claim is made or a suit is brought, except with respect to the Company's limit of liability.
- 5. **PROVISIONS REGARDING THE INSURED'S DUTIES AFTER ACCIDENT OR LOSS.** Any failure to comply with reporting provisions of the policy shall not affect coverage provided to CVSan, the Design Consultant, and the Construction Manager and each of their officers, employees, and agents.
- 6. **CANCELLATION NOTICE.** The insurance afforded by this policy shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days' prior notice by Certified Mail with Return Receipt requested has been given to CVSan. Such notice shall be addressed as shown in the heading of this endorsement.

ARTICLE 3 – INCIDENT AND CLAIM REPORTING PROCEDURE

Incidents and claims are to be reported to the insurer at:

Attn: _____

(Title) *(Department)*

(Company)

(Street Address)

(Agency) *(State)* *(Zip Code)*

(Telephone Number)

ARTICLE 4 – SIGNATURE OF INSURER OR UNDERWRITER

I, _____
(print/type name), warrant that I have authority to bind the below listed insurance company and by my signature hereon do so bind this company. By signature below, the surety warrants that if requested by CVSan, it will furnish a certified copy of the certificate of authority issued by the Insurance Commissioner of the State of California.

Signature of: _____
Insurer or Underwriter

(original signature required on endorsement furnished to CVSan)

ORGANIZATION: _____

TITLE: _____

ADDRESS: _____

TELEPHONE: () _____

***** END OF SECTION *****

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SECTION 00651

AUTO LIABILITY ENDORSEMENT (FORM B-1)

CASTRO VALLEY SANITARY DISTRICT (CVSan)

21040 Marshall Street

Castro Valley, CA 94545-6098

Inflow & Infiltration Reduction

District Project No. 97

1 ARTICLE 1 – POLICY INFORMATION

1. Insurance Company: _____

Policy Number: _____

2. Policy Term (From) _____ (To) _____

Endorsement Effective Date: _____

3. Named Insured: _____

4. Address of Named Insured: _____

5. Limit of Liability Any One Occurrence / Aggregate

\$ _____

6. Deductible or Self-Insured Retention (Nil unless otherwise specified)

\$ _____

2 ARTICLE 2 – POLICY AMENDMENTS

This endorsement is issued in consideration of the policy premium. Notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any other endorsement attached thereto it is agreed as follows:

- INSURED.** CVSan, the Design Consultant, the Construction Manager, CVSan Engineer, and each of their officers, partners, employees, and agents are included as additional insureds with regard to damages and defense of claims arising from ownership, operation, maintenance, use, loading, or unloading of any auto owned, leased, hired, or borrowed by the Named Insured, regardless of whether liability is attributable to the Named Insured or

a combination of the Named Insured and CVSan, the Design Consultant, and the Construction Manager and each of its officers, employees, and agents.

- 2. **CONTRIBUTION NOT REQUIRED.** As respects work performed by the Named Insured for or on behalf of CVSan, the insurance afforded by this policy shall: (a) be primary insurance as respects CVSan, the Design Consultant, and the Construction Manager and each of their officers, employees, and agents; or (b) stand in an unbroken chain of coverage excess of the Named Insured’s primary coverage. In either event, any other insurance maintained by CVSan, the Design Consultant, and the Construction Manager and each of their officers, employees, and agents shall be excess of this insurance and shall not contribute with it.
- 3. **SCOPE OF COVERAGE.** The policy affords coverage to the Named Insured, which is at least as broad as Insurance Services Office form number CA 0001 (Ed. 1/87) covering automobile liability, Code 1 (“any auto”).
- 4. **SEVERABILITY OF INTEREST.** The insurance afforded by this policy applies separately to each insured who is seeking coverage or against whom a claim is made or a suit is brought, except with respect to the Company's limit of liability.
- 5. **PROVISIONS REGARDING THE INSURED'S DUTIES AFTER ACCIDENT OR LOSS.** Any failure to comply with reporting provisions of the policy shall not affect coverage provided to CVSan, the Design Consultant, and the Construction Manager and each of their officers, employees, and agents.
- 6. **CANCELLATION NOTICE.** The insurance afforded by this policy shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days' prior notice by Certified Mail with Return Receipt requested has been given to CVSan. Such notice shall be addressed as shown in the heading of this endorsement.

3 ARTICLE 3 – INCIDENT AND CLAIM REPORTING PROCEDURE

Incidents and claims are to be reported to the insurer at:

Attn: _____

(Title) *(Department)*

(Company)

(Street Address)

(Agency) *(State)* *(Zip Code)*

(Telephone Number)

4 ARTICLE 4 – SIGNATURE OF INSURER OR UNDERWRITER

I, _____ (print/type name), warrant that I have authority to bind the below listed insurance company and by my signature hereon do so bind this company. By signature below, the surety warrants that if requested by CVSan, it will furnish a certified copy of the certificate of authority issued by the Insurance Commissioner of the State of California.

Signature of: _____
Insurer or Underwriter

(original signature required on endorsement furnished to CVSan)

ORGANIZATION: _____

TITLE: _____

ADDRESS: _____

TELEPHONE: () _____

***** END OF SECTION *****

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SECTION 00700
GENERAL CONDITIONS
TABLE OF CONTENTS

ARTICLE 1 - GENERAL1

 1.01 Contract Agreement1

 1.02 Written Notice and Service Thereof2

 1.03 Rights of Action2

 1.04 Plans and Specifications2

 1.05 Applicability of all Paragraphs of Specifications3

 1.06 Contract Interpretation by the Construction Manager4

 1.07 Order of Precedence4

 1.08 Bonds5

 1.09 Penalty for Collusion5

 1.10 Rights and Remedies5

ARTICLE 2 - CONTRACT ADMINISTRATION6

 2.01 Administration of the Contract6

 2.02 CVSan's Representative6

 2.03 Construction Manager6

 2.04 Design Consultant8

ARTICLE 3 - CVSAN9

 3.01 General9

 3.02 Attention to Work9

 3.03 Observation and Inspection9

 3.04 CVSan’s Right to Use or Occupy9

 3.05 CVSan’s Right to Carry Out the Work10

 3.06 CVSan’s Right to Perform Work and to Award Separate Contracts10

 3.07 Responsibility of CVSan11

ARTICLE 4 - CONTRACTOR11

 4.01 Status of Contractor and Subcontractors11

 4.02 Contractor’s Representative12

 4.03 Lands and Rights of Way12

 4.04 Fees and Permits13

 4.05 Compliance with Laws13

 4.06 Compliance with Environmental Laws15

 4.07 Safety15

 4.08 Provisions for Handling Emergencies20

 4.09 Nonstandard Working Hours20

 4.10 Cooperation with Other Contractors21

ARTICLE 5 - CONTROL OF WORK AND MATERIAL	21
5.01 Means, Methods and Appliances	21
5.02 Character of Workers	21
5.03 Materials and Workmanship	22
5.04 Existing Utilities	22
ARTICLE 6 - PROGRESS OF THE WORK	24
6.01 Commencement of Work.....	24
6.02 Contract Time	24
6.03 Delays	25
6.04 Time Extensions.....	26
6.05 Liquidated Damages	29
6.06 Suspension of Work.....	29
6.07 Right to Terminate Contract	30
ARTICLE 7 - CHANGES IN THE WORK	31
7.01 Change Orders	31
7.02 Differing Site Conditions.....	32
7.03 Resolution of Disputes.....	33
ARTICLE 8 - PAYMENT	38
8.01 Basis of Payment.....	38
8.02 Partial Payments.....	39
8.03 Right to Withhold Amounts.....	42
8.04 Security Substitution for Withholds.....	42
8.05 Warranty of Title.....	43
8.06 Substantial Completion.....	44
8.07 Final Inspection and Payment.....	45

SECTION 00700

GENERAL CONDITIONS

ARTICLE 1 - GENERAL

1.01 CONTRACT AGREEMENT

A Bidder to whom award is made shall execute a written Agreement and required supplementary documents and submit them to CVSan within ten (10) days after the Notice of Award has been received by the Bidder at the address given in Section 00300, **BID FORM**. The Agreement shall be made in the form adopted by CVSan and incorporated in Section 00500, **AGREEMENT**.

If the lowest responsive, responsible Bidder to whom award is made fails to enter into the Contract, as herein provided, the Bidder's Security will become the property of CVSan, and an award may be made to the next lowest responsive, responsible Bidder, and such Bidder shall fulfill every stipulation embraced herein as if it were the party to whom the first award was made. A corporation, partnership, or joint venture to which an award is made will be required, before the Agreement is finally executed, to furnish evidence of its corporate existence and evidence that the officer signing the Agreement and bonds for the corporation is duly authorized to do so in the form as stated in Section 00100-Article 3, **BIDDER'S SIGNATURE AND AUTHORITY**.

In the event the Contractor is a joint venture of two or more contractors, the grants, covenants, provisos and claims, rights, power, privileges, and liabilities of the Contract shall be construed and held to be several as well as joint. Any notice, order, direct request, or any communication required to be or that may be given by CVSan or the Construction Manager to the Contractor under this Contract, shall be well and sufficiently given to all persons being the Contractor if given to any one or more of such persons. Any notice, request or other communication given by any one of such persons to CVSan or the Construction Manager under this Contract shall be deemed to have been given by and shall bind all persons being the Contractor.

If any part of the work to be done under this Contract is subcontracted, the subcontract shall be in writing and shall provide that all work to be performed thereunder shall be performed in accordance with the terms of the Agreement. The subcontracting of any or all of the work to be done will in no way relieve the Contractor of any part of its responsibility under the Contract. Certified copies of subcontract agreements will be provided by the Contractor to CVSan upon request.

Equipment supplied under this Contract shall be furnished in accordance with a written agreement, and such agreement shall provide that any equipment supply shall be performed in accordance with the terms of the Contract Documents. Certified copies of agreements for equipment supply will be provided by the Contractor to CVSan upon request.

The Contractor shall not assign, transfer, convey, or otherwise dispose of the Contract, or its right, title, or interest therein, or its power to execute such Contract, to any other person, firm, or corporation without previous consent in writing of CVSan.

1.02 WRITTEN NOTICE AND SERVICE THEREOF

Any notice to any party relative to any part of this Contract shall be in writing and considered delivered and the service thereof completed, when said notice is posted, by certified or registered mail, to said party at its last given address, or delivered in person to the said party or its authorized representative of the work. This includes notice of change of address.

1.03 RIGHTS OF ACTION

No right of action shall accrue upon or by reason of this Agreement to or for the use or benefit of anyone other than the parties to this Agreement. The parties to this Agreement are the Contractor and CVSan.

1.04 PLANS AND SPECIFICATIONS

The Contract Documents are complementary; what is called for by one is as binding as if called for by all. It is the intent of the Drawings and Specifications to describe a functionally complete and operable Project (and all parts thereof) to be constructed in accordance with the requirements of the Contract Documents. Any work, materials, or equipment that may reasonably be inferred from the requirements of the Contract Documents or from prevailing custom or trade usage as being required to produce this intended result will be furnished and performed whether or not specifically called for. When words or phrases that have a well-known technical or construction industry or trade meaning are used to describe Work, materials, or equipment, such words or phrases shall be interpreted in accordance with that meaning. The intent of the Drawings specifically includes the intent to depict construction that complies with all applicable laws, codes, and standards. Subject to applicable law, including but not limited to California Public Contract Code Section 4100 et seq., and the terms of this Contract governing subcontracting, the Divisions and Sections of the Specifications and identifications of any Drawings shall not control Contractor in dividing the Work among subcontractors or suppliers or delineating the work to be performed by any specific trade.

Reasonably implied parts of the Work shall be performed as “incidental work” even though absent from the Drawings and Specifications. “Incidental” work shall be performed by Contractor without extra cost to CVSan. Incidental work includes any work not shown on Drawings nor described in the Specifications, which is necessary or required to make each installation satisfactory, legally operable, functional, consistent with the intent of the Drawings and Specifications or the requirements of the Contract Documents. Incidental work shall be treated as if fully described in Specifications and shown on Drawings, and expense thereof shall be included in the Bid Price. Incidental work includes, but is not limited to, tasks required to be performed under Division 1 **GENERAL REQUIREMENTS** of the Specifications.

Upon Notice to Proceed, the Contractor may obtain from CVSan, free of charge, two (2) copies of the conformed Plans (half-size) and Specifications. The Contractor may also obtain from CVSan, free of charge, two (2) sets of full-size prints of the Plans. Additional sets of the Plans and Specifications may be procured at the cost of printing and binding. CVSan will also provide one electronic copy of the conformed Plans and Specifications upon receipt of an executed release from the Contractor. CVSan will furnish the release form at the Contractor's request.

Both the Plans and Specifications will be conformed by incorporating all addenda, which may have been issued during the bid period to the original bid documents. These "Issued for Construction" documents will be provided no later than the date of the Notice to Proceed. The "Issued for Construction" documents will be produced for the convenience and efficiency of all parties involved with construction. In the event of a discrepancy or failure to include a specific item of any addendum, the addendum as issued during the bid period shall take precedence over the "Issued for Construction" documents. Additional sets of the Plans and Specifications may be procured at the cost of printing and binding.

The Contractor shall keep on the work site a copy of the Plans and Specifications and shall at all times give the Construction Manager access thereto. Any Drawings included in the Specifications shall be regarded as part thereof and of the Contract. Anything mentioned in these Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in these Specifications, shall be of like effect as though shown or mentioned in both. The Construction Manager will furnish from time to time such drawings, plans, profiles, and information as it may consider appropriate for the Contractor's guidance. Unless otherwise provided in the Contract Documents, it shall be the duty of the Contractor to see that all provisions are complied with in detail irrespective of the inspections given the work during its progress by the authorized official or its representatives. Any failure on the part of the Contractor to observe the Contract Documents will be sufficient cause for the rejection of the work at any time before its acceptance.

Wherever reference specifications are referred to in these Specifications without designation of year, the reference is to the current or revised specification effective at the time of CVSan receiving bids, unless otherwise referenced in Section 01060, **REGULATORY REQUIREMENTS AND PERMITS**.

1.05 APPLICABILITY OF ALL PARAGRAPHS OF SPECIFICATIONS

The technical specifications are presented in paragraphs for convenience. However, this presentation does not necessarily delineate trades or limits of responsibility. All paragraphs of the Plans and Specifications are interdependent and applicable to the project as a whole.

The Specifications and all notes on the Drawings are directed to the Contractor and all Work shall be performed by the Contractor even though phrases such as "the Contractor shall" or "shall be done by the Contractor" are omitted. Where terms such as "approved," "acceptable," "favorably reviewed," "review," "selected," "directed," "equivalent," "equal," or "satisfactory" are used, it shall mean by or to the Construction Manager and/or Design Consultant.

1.06 CONTRACT INTERPRETATION BY THE CONSTRUCTION MANAGER

Any discrepancies found between the Contract Documents and site conditions or any inconsistencies or ambiguities in the Contract Documents shall be immediately reported, in writing, to the Construction Manager. Questions regarding the meaning and intent of the Contract Documents shall be referred in writing by the Contractor to the Construction Manager with a Request for Information. The Construction Manager shall respond to the Contractor in writing with a decision within fifteen (15) days of receipt of the request, or if it is necessary to extend this period, the Construction Manager shall notify the Contractor in writing as to when a decision will be provided.

Work done by the Contractor after its discovery of such discrepancies, inconsistencies, or ambiguities without such notice and prior to response from the Construction Manager shall be done at the Contractor's risk.

1.07 ORDER OF PRECEDENCE

In resolving inconsistencies among two or more sections of the Contract Documents, precedence shall be given in the following order:

1. Addenda, Supplemental Agreements, and Change Orders, the one dated later having precedence over another dated earlier.
2. Agreement (Section 00500)
3. Permits
4. General Requirements (Sections 01000-01999)
5. Supplementary General Conditions (Section 00800)
6. Instructions to Bidders (Section 00100)
7. General Conditions (Section 00700)
8. Project Plans
9. Technical Specifications (Section 02000 and all others following)
10. Typical Details
11. Reference/Standard Specifications
12. Reference/Standard Plans

Figure dimensions on Drawings shall govern over scaled dimensions, and detailed Drawings shall govern over general or standard Drawings.

1.08 BONDS

The successful Bidder shall, at the time of signing the Agreement, furnish the Bond of Faithful Performance (Section 00610) and the Payment Bond (Section 00620) executed by an admitted surety authorized to conduct business in California and be made payable to the "Castro Valley Sanitary District."

The Payment Bond shall be in amount equal to one hundred percent (100%) of the Contract amount and shall be for payment of just claims for materials, equipment, labor, and subcontractors employed by the Contractor thereon.

The Bond of Faithful Performance shall be in an amount equal to one hundred (100) percent of the Contract amount and shall be for the faithful performance of the Contract, and for the fulfillment of such other requirements as may be provided by Law. The performance bond shall remain in effect to guarantee the repair and replacement of defective equipment, materials, and workmanship, and payment of damages sustained by CVSan on account of such defects, discovered within one (1) year after final acceptance by CVSan, for the Work performed under the Contract which, shall remain in effect for a period of one (1) year, to guarantee the repair and replacement, and payments for damages.

Attorneys-in-fact, who sign bid bonds or contract bonds, must file with each bond a notarized and effectively dated copy of their power of attorney as required on bond forms supplied by CVSan for Contractor use in Sections 00610 and 00620.

The surety company shall familiarize itself with all of the conditions and provisions of this Contract, and it waives the right of special notification of any change or modification of this Contract or of extension of time, or of decreased or increased work, or of the cancellation of the Contract, or of any other act or acts by CVSan or its authorized agents under the terms of this Contract; and failure to so notify the aforesaid surety companies of changes shall not relieve the surety companies of their obligations under this Contract.

1.09 PENALTY FOR COLLUSION

If, at any time, it is found that the person, firm, or corporation to whom the Contract has been awarded has, in presenting any Bid or Bids, colluded with any other party or parties, then the Contract may at CVSan's sole election be declared null and void, and the Contractor and its sureties shall be liable for loss or damage which CVSan may suffer thereby, and CVSan may advertise for new Bids.

1.10 RIGHTS AND REMEDIES

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to, and not a limitation of, any duties, obligations, rights, and remedies otherwise imposed or available by law.

No action or failure to act by CVSan, the Design Consultant, or the Construction Manager shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

ARTICLE 2 - CONTRACT ADMINISTRATION

2.01 ADMINISTRATION OF THE CONTRACT

CVSan's Representative, the Construction Manager, and the Design Consultant will provide administration of the Contract as hereinafter described. These parties are designated in Section 00800-1.05, **CONTRACT ADMINISTRATION**. If the status of any of the above parties should change, CVSan will provide written notice to the Contractor of such change.

In case of the termination of the employment of the Design Consultant or the Construction Manager, CVSan shall appoint a Design Consultant or a Construction Manager whose status under the Contract Documents shall be that of the former Design Consultant or Construction Manager, respectively.

2.02 CVSAN'S REPRESENTATIVE

- A. General - CVSan's Representative has the authority to act on behalf of CVSan on change orders, progress payments, Contract decisions, acceptability of the Contractor's work, and early possession.
- B. Change Orders - CVSan's Representative has the authority to accept or reject Change Orders and cost proposals submitted by the Contractor or as recommended by the Construction Manager.
- C. Progress Payments - CVSan's Representative has the authority to accept or reject requests for progress payments which have been submitted by the Contractor and recommended by the Construction Manager.
- D. Contract Decisions - Should the Contractor disagree with the Construction Manager's decision with respect to the Contract, the Contractor may appeal to CVSan's Representative in accordance with the provisions of the Contract.
- E. Acceptability of Work - CVSan's Representative has the authority to make the final determination of the acceptability of the Work. CVSan's Representative also has the authority to accept or reject the Design Consultant's recommendations regarding retention of defective work as provided.

2.03 CONSTRUCTION MANAGER

- A. General - The Construction Manager is a representative of CVSan employed to act as advisor and consultant to CVSan in construction matters related to the Contract. The term Construction Manager may include more than one individual to perform Contract administration and construction observation. Hereinafter, the term Construction Manager includes any and all designated representatives working under the direction of the Construction Manager.

All instructions to the Contractor and all communications from the Contractor to CVSan or the Design Consultant shall be forwarded through the Construction Manager. The Construction Manager will have authority to act on behalf of CVSan only to the extent provided in the Contract Documents. CVSan has delegated its authority to the Construction Manager to make initial decisions regarding questions which may arise as to the quality or acceptability of materials furnished and work performed, and as to the manner of performance and rate of progress of the work under the Contract. The Construction Manager shall interpret the intent and meaning of the Contract and shall make initial decisions with respect to the Contractor's fulfillment of the Contract and the Contractor's entitlement to compensation. The Contractor shall look initially to the Construction Manager in matters relating to the Contract.

The Construction Manager's authority to act under Section 00700-2.01, **ADMINISTRATION OF THE CONTRACT**, and any decision made by it in good faith either to exercise or not to exercise such authority, shall not be interpreted or construed as control or responsibility of any of the work performed under this Contract.

- B. Representative - The Construction Manager will observe the progress, quality, and quantity of the Work to determine, in general, if the Work is proceeding in accordance with the provisions of the Contract Documents. The Construction Manager shall not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work.

In accordance with the provisions detailed elsewhere in these General Conditions, the Construction Manager will make decisions relative to all matters of interpretation or execution of the Contract Documents.

- C. Observation and Inspections of Construction - The Construction Manager shall observe the construction and shall have the authority to reject work and materials which do not conform to the Contract Documents, and to require special inspection or testing.

Observation and inspection by an inspector is not an authorization to revoke, alter, or waive any requirements of the Specifications. Observation and inspection is the authorization to call the attention of the Contractor to any failure of the Work, materials or workmanship to conform to the Contract Documents. The inspector shall have this authority including the ability to reject materials or, in any emergency, suspend the Work. The Contractor may appeal any such issue which it disagrees with to the Construction Manager for decision. If the decision of the Construction Manager is not satisfactory to the Contractor, the Contractor may appeal such decision to CVSan's Representative.

- D. Acceptability of the Work - The Construction Manager has the authority to make a recommendation as to the acceptability of the Work.

- E. Change Orders - The Construction Manager has the authority to initiate Change Orders; to reject Change Orders proposed by the Contractor or Design Consultant; to negotiate and recommend acceptance of Change Orders; or to order minor changes in the Work at no cost to CVSan.
- F. Construction Schedule - The Construction Manager has the authority to review and recommend acceptance of the Progress Schedule submitted by the Contractor at the start of the Work and subsequent significant revisions for conformance to the specified sequence of work and logic.
- G. Progress Payments - The Construction Manager has the authority to recommend acceptance or rejection of requests for progress payments which have been submitted by the Contractor.
- H. Final Payment - The Construction Manager, with the assistance of the Design Consultant, will conduct inspections to determine the dates of Substantial Completion of the Work and final completion of the Work, and will receive and forward to CVSan, for CVSan's review, written warranties, and related documents required by the Contract and assembled by the Contractor.

2.04 DESIGN CONSULTANT

- A. General - The Design Consultant will have the authority to act on behalf of CVSan only to the extent provided in the Contract Documents.
- B. Interpretations - The Design Consultant has the authority to be the initial interpreter of the technical requirements of the Contract Documents. Either party to the Contract may make written request to the Construction Manager for interpretations necessary for the proper execution or progress of the Work. The Construction Manager shall refer such written requests to the Design Consultant, who will render such interpretations. Where the Contractor has requested an interpretation from the Construction Manager, or been notified by the Construction Manager that such interpretation has been requested by CVSan, any work done before receipt of such interpretations, if not in accordance with same, shall be removed and replaced or adjusted as directed by the Construction Manager without additional expense to CVSan.
- C. Acceptability of the Work - The Design Consultant has the authority to make a recommendation as to the acceptability of the Work. The Design Consultant has the authority to recommend acceptance regarding the retention of defective work.
- D. Submittal - The Design Consultant shall receive, through the Construction Manager, shop drawings, product data and samples for review in accordance with Section 01300, **SUBMITTALS**.

The Design Consultant has the authority to review and take other appropriate action upon the Contractor's submittal such as shop drawings, product data and samples,

but only for conformance with the design concept of the Work and the information given in the Contract Documents.

ARTICLE 3 - CVSAN

3.01 GENERAL

CVSan, acting through CVSan's Representative or the Construction Manager, shall have the authority to act as the sole judge of the Work and materials with respect to both quantity and quality as set forth in the Contract.

3.02 ATTENTION TO WORK

CVSan's, Construction Manager's and Design Consultant's representatives are designated in Section 00800-1.05, **CONTRACT ADMINISTRATION**. The Construction Manager's designated representative will normally be available at the Site of the Work. An alternate representative will be designated when the designated Construction Manager's representative is not available at the Site of the Work.

3.03 OBSERVATION AND INSPECTION

In addition to the Construction Manager's designated representative, CVSan may provide one or more inspectors to the Construction Manager to observe the work and with the same authority as provided for in Section 00700-2.03C, **OBSERVATION AND INSPECTIONS OF CONSTRUCTION**.

Separate and independent from the observations and inspections above, the project may be inspected by Building Officials for code compliance. Such inspectors shall have the authority provided to them by local jurisdiction.

3.04 CVSAN'S RIGHT TO USE OR OCCUPY

CVSan reserves the right, prior to Substantial Completion, to occupy, or use, any completed part or parts of the Work, providing these areas have been approved for occupancy by CVSan. The exercise of this right shall in no way constitute an acceptance of such parts, or any part of the Work, nor shall it in anyway affect the dates and times when progress payments shall become due from CVSan to the Contractor or in any way prejudice CVSan's rights in the Contract, or any bonds guaranteeing the same. The Contract shall be deemed completed only when all the Work contracted has been duly and properly performed and accepted by CVSan.

Prior to such occupancy or use, CVSan and Contractor shall agree in writing regarding the responsibilities assigned to each of them for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, and the commencement of warranties required by the Contract Documents.

In exercising the right to occupy or use completed parts of the Work prior to the Substantial Completion thereof, CVSan shall not make any use which will materially increase the cost

to the Contractor, without increasing the Contract Amount, nor materially delay the completion of the Contract, without extending the time for completion.

The part or parts of the Work, if any, which CVSan anticipates the use or occupancy of prior to Substantial Completion are noted in Section 01010-1.03, **OCCUPANCY REQUIREMENTS**. Failure to include a part of the Work in the above referenced section, shall not limit CVSan's right to use or occupy parts of the Work not listed.

3.05 CVSAN'S RIGHT TO CARRY OUT THE WORK

If the Contractor should neglect to prosecute the Work properly or fail to perform any provision of the Contract, and fails within five days after receipt of written notice from CVSan to commence and continue correction of such neglect or deficiency with diligence and promptness, CVSan may, and without prejudice to any other remedy, make good such default, neglect or failure.

CVSan also reserves the right to perform any portion of the Work due to an emergency threatening the safety of the Work, public, CVSan, and any property or equipment.

In either case, a Change Order shall be issued unilaterally deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies and/or for performing such work, including compensation for the Design Consultant's, the Construction Manager's, and CVSan's additional services made necessary by such default, neglect, failure, or emergency.

3.06 CVSAN'S RIGHT TO PERFORM WORK AND TO AWARD SEPARATE CONTRACTS

CVSan reserves the right to perform work related to the Project with CVSan's own forces, and to award separate Contracts in connection with the Project or other work on the Site. If the Contractor claims that delay, damage, or additional cost is involved because of such action by CVSan, the Contractor shall make such claim as provided elsewhere in the Contract Documents.

When separate Contracts are awarded for different portions of the Project or other work on the Site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Agreement.

CVSan will provide for the coordination of the work of CVSan's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate therewith as provided in Section 00700-4.10, **COOPERATION WITH OTHER CONTRACTORS**.

3.07 RESPONSIBILITY OF CVSAN

CVSan shall not be held responsible for the care or protection of any material or parts of the Work prior to the final Acceptance, except as expressly provided in these Specifications.

ARTICLE 4 - CONTRACTOR

4.01 STATUS OF CONTRACTOR AND SUBCONTRACTORS

- A. It is stipulated and agreed that the Contractor shall be an independent contractor in the performance of this Contract and shall have complete charge of persons engaged in performance of the Work. The Contractor shall perform the Work in accordance with its own methods, subject to compliance with the requirements of the Contract.
- B. Subcontractors will not be recognized as having a direct relationship with CVSan. The persons engaged in the Work, including employees of subcontractors and suppliers, will be considered employees of the Contractor and their work shall be subject to the provisions of the Contract. References in these Contract Documents to actions required of subcontractors, manufacturers, suppliers, or any person other than the Contractor, CVSan or the Construction Manager shall be interpreted as requiring that the Contractor shall require such subcontractor, manufacturer, supplier or person to perform the specified action.

The Contractor shall not employ any subcontractors that are not properly licensed in accordance with State law. Prior to commencement of any work by a subcontractor, the Contractor shall submit verification to the Construction Manager that the subcontractor is properly licensed for the work it will perform.

Contractor shall be fully responsible to CVSan for the performance, acts and omissions of its subcontractors, and of persons directly or indirectly employed by them. Each subcontract shall expressly incorporate by reference the terms of this Contract, including the following provisions:

- Each subcontractor shall carry insurance as required by this Contract, and provide evidence of such insurance, as provided in Section 00800-2.01, **INSURANCE**.
- Each subcontractor shall be obligated to defend, indemnify, and hold CVSan harmless from all claims arising from the subcontractor's portion of the Work in the same manner as Contractor.
- Each subcontractor shall grant CVSan a license to use its drawings and design materials as provided in the Agreement.
- Each subcontract shall acknowledge CVSan's right to suspend or terminate the Contract, and waive any right to anticipate profits in the event of such termination.

The removal and/or substitution of any subcontractor listed in Section 00430, **DESIGNATION OF SUBCONTRACTORS**, shall be made by the Contractor and CVSan as provided for in Public Contract Code Section 4100 et. seq.

4.02 CONTRACTOR'S REPRESENTATIVE

The Contractor shall designate in writing, before starting work, an authorized representative who shall have complete authority to represent and to act for the Contractor. Said authorized representative, or designated alternate, that has the authority to act in matters relating to the Contract, shall be personally present at the work site at all times while work is actually in progress on the Contract. During periods when work is suspended, arrangements acceptable to the Construction Manager shall be made for any emergency work that may be required. The Contractor's authorized representative, or designated alternate(s) shall be fluent and proficient in the English language in order to understand, receive, and carry out oral and written communications or instructions relating to all job functions and responsibilities.

When the Contractor consists of two or more persons, firms, partnerships, or corporations functioning on a joint venture basis, said Contractor shall designate in writing to the Construction Manager, the name of their authorized representative who shall have supreme authority to direct the Work and to whom orders will be given by the Construction Manager, to be received and obeyed by the Contractor.

Information shall include the representative's name, street address, town, and telephone number, and the mailing address if different from the street address.

The Contractor shall give its personal attention to and shall supervise the Work to the end that it shall at all reasonable times be prosecuted faithfully; and when the authorized representative or designated alternate is not personally present on the Work, the representative shall at all reasonable times be represented by a competent superintendent or foreman who shall receive and obey all instructions or orders given under this Contract, and who shall have full authority to supply materials, tools, and labor without delay, and who shall be the legally appointed representative of the Contractor. The Contractor shall be liable for the faithful observation of any instructions delivered to the Contractor or to its authorized representative.

4.03 LANDS AND RIGHTS OF WAY

With the approval of the Construction Manager, the Contractor may use portions of CVSan's site for storage of construction equipment, materials and field offices. CVSan will not accept any responsibility for damage or loss of the Contractor's equipment or materials stored on any project related site caused by vandalism, nature, or otherwise, suffered by the Contractor. Protection of all construction equipment, stores, and supplies shall be the sole responsibility of the Contractor. Where additional work space is desired by the Contractor, it shall be the Contractor's sole responsibility and expense to obtain such a space for its use.

4.04 FEES AND PERMITS

The requirements for fees and permits are specified in Section 01060-1.02, **FEES AND PERMITS**.

4.05 COMPLIANCE WITH LAWS

The Contractor shall keep itself and its subcontractors fully informed of all existing and future legislated State and Federal Laws and City and County ordinances and regulations which in any manner affect those engaged or employed in the Work, or the materials and equipment used in the Work, or which in any way affect the conduct of the Work, and all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the Drawings, Specifications, or in any other part of this Contract, in relation to any such law, ordinance, regulation, order or decree, the Contractor shall forthwith report of the same to the Construction Manager in writing. The Contractor shall at all times observe and comply with all such existing and future laws, ordinances, regulations, orders and decrees; and shall protect and indemnify CVSsan, the Construction Manager, the Design Consultant, and all of their officers, agents, employees and servants against any claim or liability arising from or based upon the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor itself or by its employees.

A. Particular attention is called to the following:

1. The Contractor shall abide by and shall include in its contracts and agreements with subcontractor(s) for the performance of Work on CVSsan's Project, a copy of the provisions the California Labor Code Sections 1771, 1775, 1776, 1777.5, 1813, and 1815.
2. Eight Hour Day Limitation – In accordance with the provisions of Division 2, Part 7, Chapter 1, Article 3 of the Labor Code, State of California, and in particular Sections 1810 to 1815 inclusive, thereof, eight (8) hours labor shall constitute a day's work and no laborer, worker, or mechanic in the employ of said Contractor, or any subcontractor doing or contracting to do any part of the Work contemplated by this Contract, shall be required or permitted to work more than eight (8) hours in any one calendar day, and forty (40) hours in any one calendar week unless compensated at not less than time and a half as set forth in California Labor Code Section 1815. However, if the prevailing wage determination requires a higher rate of pay for overtime than is required under said Section 1815, then the overtime rate must be paid, as specified in California Code of Regulations Title 8, Group 3, Section 16200(a)(3)(F). The Contractor and each subcontractor shall also keep an accurate record showing the names and actual hours worked of all workers employed by them in connection with the work contemplated by this Contract, which record shall be open at all reasonable hours for the inspection of CVSsan or its officers or agents and by the Division of Labor Standards Enforcement of the Department of Industrial Relations, their deputies or agents; and it is hereby further agreed that said Contractor shall forfeit as a penalty to CVSsan, the sum of twenty-five and No/100 Dollars (\$25.00) for each laborer, worker or mechanic employed in the execution of this Contract by the Contractor or by any subcontractor for each calendar day during which such laborer, worker or mechanic is required or permitted

to labor more than eight (8) hours in any one calendar day and forty (40) hours in one calendar week in violation of this stipulation.

- B. Prior to commencing the Work, Contractor shall comply with the provisions of Labor Code 1777.5, including but not limited to the submission of contract award information to an applicable apprenticeship program that can supply apprentices to the site of the Work. Such information shall include an estimate of journeyman hours to be performed under this Contract, the number of apprentices proposed to be employed, and the approximate dates the apprentices would be employed. A copy of this information shall be submitted to CVSan if requested by CVSan.

A determination by the Chief of the Division of Apprenticeship Standards that Contractor or its subcontractors have knowingly violated Labor Code 1777.5 shall forfeit as a civil penalty an amount not exceeding one hundred dollars (\$100) for each full calendar day of noncompliance. Contractor or its subcontractor, who knowingly commits a second or subsequent violation of Labor Code 1777.5 within a three-year period, where the noncompliance results in apprenticeship training not being provided as required, shall forfeit as a civil penalty the sum of not more than three hundred dollars (\$300) for each full calendar day of noncompliance, in accordance with Labor Code 1777.7. Upon the receipt of a determination that a civil penalty has been imposed by the Chief of the Division of Apprenticeship Standards, CVSan shall withhold the amount of the civil penalty from the next progress payment then due or to become due Contractor.

- C. Receipt of Workers' Wages, Fee for Registering or Placing Persons In Public Works - Attention is directed to the provisions of Sections 1778 and 1779 of the California Labor Code, which read as follows:

Section 1778. "Every person, who individually or as a representative of an awarding or public body or officer, or as a contractor or subcontractor doing public work, or agent or officer thereof, who takes, receives or conspires with another to take or receive, for its own use or the use of any other person any portion of the wages of any workman or working subcontractor, in connection with services rendered upon any public work is guilty of a felony."

Section 1779. "Any person or agent or officer thereof who charges, collects, or attempts to charge or collect, directly or indirectly, a fee or valuable consideration for registering any person for public work, or for giving information as to where such employment may be procured, or for placing, assisting in placing, or attempting to place, any person in public work, whether the person is to work directly for the state, or any political subdivision or for a contractor or subcontractor doing public work is guilty of a misdemeanor."

- D. Labor Discrimination. Attention is directed to Section 1735 of the Labor Code, which reads as follows:

"A contractor shall not discriminate in the employment of persons upon public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as otherwise provided in Section 12940 of the Government Code. Every contractor for public works who violates this section is subject to all the penalties imposed for a violation of this chapter."

- E. Worker's Compensation Insurance - The provisions of Section 00800-2.01B, Worker's Compensation Insurance, shall be considered as repeated herein.
- F. Lateral and Subjacent Supports - Attention is directed to Section 832 of the Civil Code of the State of California relating to lateral and subjacent supports, and wherever structures or improvements adjacent to the excavation may be damaged by such excavation, the Contractor shall comply with this law. As provided in Labor Code Section 6707, a separate bid item is provided for costs of shoring and bracing of excavations five feet or more in depth.
- G. Safety Standards - The Contractor shall comply with all applicable provisions of the Safety and Health Regulations of Construction, promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act (40 USC 327 et. seq.) as set forth in Title 29, C.F.R., CAL/OSHA, and the regulations issued thereunder. Compliance shall be the Contractor's sole responsibility, and neither CVSan, the Construction Manager nor the Design Consultant shall have any liability for non-compliance. See Section 00700-4.07, **SAFETY**, for additional safety requirements.
- H. Registration - The Project is a public work. Therefore, Contractor and all subcontractors for the Project must be registered with the California Department of Industrial Relations pursuant to the provisions of Labor Code Section 1725.5 in order to be qualified to bid on, be listed in a bid proposal, or engage in the performance of any work under the Contract for the Project. A bid shall not be accepted nor any contract or subcontract be entered into without proof of the contractor or subcontractor's current registration to perform public work pursuant to Labor Code Section 1725.5

Pursuant to Labor Code Section 1771.4, the Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. Contractor shall post jobsite notices as prescribed by regulation and Contractor and each subcontractor shall furnish the records specified in Labor Code Section 1776 directly to the Labor Commissioner as specified in said Section 1771.4. Pursuant to Labor Code Section 1773.3, CVSan shall provide notice to the Department of Industrial Relations of the award of this contract within five days of the award.

Contractor and each 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 Project in accordance with Labor Code Section 1776. Reference is hereby made to that Section for the full particulars thereof and Contractor hereby agrees to comply therewith.

4.06 COMPLIANCE WITH ENVIRONMENTAL LAWS

During construction, the Contractor shall comply with all pertinent requirements of Federal, State, and local environmental laws and regulations, including, but not limited to, the Federal Clean Air Act, State and local air pollution and noise ordinances, construction site erosion control regulations. Specific requirements are further specified in Section 01060, **REGULATORY REQUIREMENTS AND PERMITS**, and Section 01560, **TEMPORARY CONTROLS**.

4.07 SAFETY

- A. Contractor's Safety Responsibility - The Contractor shall be solely and completely responsible for conditions of the jobsite, including safety of all persons and property during performance of the Work. This requirement shall apply continuously and not be limited to normal working hours. Safety provisions shall conform to U.S. Department of Labor (OSHA), the California Occupational Safety and Health Act, and all other applicable Federal, State, County, and local laws, ordinances, codes, the requirements set forth below, and any regulations that may be detailed in other parts of these Contract Documents. In the event of conflicting requirements, the most stringent requirement as it pertains to the Contractor's safety responsibility, shall apply and shall be followed by the Contractor.

No provision of the Contract Documents shall act to make CVSsan, the Construction Manager, Design Consultant or any other party than the Contractor responsible for safety. The Contractor agrees that for purposes of California Labor Code Section 6400 and related provisions of law the Contractor, the Contractor's privities and any other entities acting pursuant to this Contract will be "employers" responsible for furnishing employment and a place of employment that is safe and healthful for the employees, if any, of such entities acting pursuant to this contract and that neither CVSsan nor the Construction Manager, Design Consultant or their respective officers, officials, employees, agents or volunteers or other authorized representatives will be responsible for having hazards corrected and /or removed at the location(s) where the Work is to be performed. The Contractor agrees that neither CVSsan nor the Construction Manager, Design Consultant or their respective officers, officials, employees, agents or volunteers or other authorized representatives will be responsible for taking steps to protect the Contractor's employees from such hazards, or for instructing the Contractor's employees to recognize such hazards or to avoid the associated dangers. The Contractor agrees that with respect to the Work to be performed under this Contract and the location(s) where such Work is to be performed, the Contractor will be responsible for not creating hazards, and for having hazards corrected and/or removed. The Contractor agrees that through the safety obligations contained in this Contract and the Contractor's own inspection of the site(s) where the Contract Work is to be

performed, the Contractor is aware and has been notified of the hazards to which the Contractor's employees may be exposed in the performance of Contract Work. The Contractor has taken and/or will take appropriate, feasible steps to protect the Contractor's employees from such hazards, and has instructed and/or will instruct its employees to recognize such hazards and how to avoid the associated dangers. The Contractor agrees that neither CVSan nor the Construction Manager, Design Consultant or their respective officers, officials, employees, agents or volunteers or other authorized representatives will be “employers” pursuant to California Labor Code Section 6400 and related provisions of law with respect to the Contractor, the Contractor's privities or other entities acting pursuant to this contract.

The Contractor shall indemnify, defend and hold CVSan and Construction Manager, Design Consultant and their respective officers, officials, employees, agents and volunteers or other authorized representatives harmless to the full extent permitted by law concerning liability related to the Contractor’s safety obligations in accordance with Section 00800-2.01E, **Indemnification**.

If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the Construction Manager and CVSan. In addition, the Contractor shall furnish the Construction Manager with a copy of the Employer's Report of Injury immediately following any incident requiring the filing of said report during the prosecution of the Work under this Contract. The Contractor shall also furnish the Construction Manager with a copy of the Employer's Report of Injury involving any subcontractors on this project. The Contractor shall make all reports as are, or may be, required by any authority having jurisdiction, and permit all safety inspections of the Work being performed under this Contract.

If a claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Construction Manager, giving full details of the claim.

- B. Safety Program - The Contractor shall establish, implement, and maintain a written injury prevention program as required by Labor Code Section 6401.7. Before beginning the Work the Contractor shall prepare and submit to the Construction Manager a Contractor Safety Program that provides for the implementation of all of the Contractor's safety responsibilities in connection with the Work at the site and the coordination of that program and its associated procedures and precautions with safety programs, precautions and procedures of each of its subcontractors and other prime Contractors performing work at the site. The Contractor shall be solely responsible for initiating, maintaining, monitoring, coordinating, and supervising all safety programs, precautions, and procedures in connection with the Work and for coordinating its programs, precautions, and procedures of the other prime contractors and subcontractors performing the Work at the site. The Safety Program should contain all the necessary elements for the Contractor to administer its program on site. At a minimum, this written Safety Program shall address the elements required by Labor Code Section 6401.7.

The Contractor's compliance with requirements for safety and/or the Construction Manager's review of the Contractor's Safety Program shall not relieve or decrease the liability of the Contractor for safety. The Construction Manager's review of the Contractor's Safety Program is only to determine if the above listed elements are included in the program.

- C. Safety Supervisor - The Contractor shall appoint an employee as safety supervisor who is qualified and authorized to supervise and enforce compliance with the Safety Program. The Contractor shall notify the Construction Manager in writing prior to the commencement of work of the name of the person who will act as the Contractor's safety supervisor and furnish the safety supervisor's resume to the Construction Manager.

The Contractor will, through and with its Safety Supervisor, ensure that all of its employees and its subcontractors of any tier fully comply with the Project Safety Policies. The Safety Supervisor shall be a full-time employee of the Contractor whose responsibility shall be for supervising compliance with applicable safety requirements on the work site and for developing and implementing safety training classes for all job personnel. CVSAn shall have the authority to require removal of the Contractor's Safety Supervisor if the representative is judged to be improperly or inadequately performing the duties; however, this authority shall not in any way affect the Contractor's sole responsibility for performing this work safely, nor shall it impose any obligation upon CVSAn to ensure the Contractor performs its work safely.

- D. Safety and Protection - The Contractor shall take all necessary protection to prevent damage, injury, and loss to:

- All employees on the Project, employees of all subcontractors, and other persons and organizations who may be affected thereby;
- All the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and
- Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and underground facilities not designated for removal, relocation, or replacement in the course of construction.

The Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss and shall erect and maintain all necessary safeguards for such safety and protection. The Contractor shall notify owners of adjacent property and of underground facilities and utility agencies when prosecution of the Work may affect them and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All injury or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any subcontractor, supplier or any other person or organization directly or indirectly

employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by the Contractor.

- E. Excavation Safety - In accordance with the provisions of Section 6705 of the Labor Code, the Contractor shall submit, in advance of excavation of any trench or trenches five feet or more in depth, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plans vary from the shoring system standards set forth in the Construction Safety Orders of the Division of Industrial Safety in Title 8, Subchapter 4, Article 6, California Code of Regulations, the plans shall be prepared and signed by a registered civil or structural engineer employed by the Contractor, and all costs therefore shall be included in the price named in the Contract for completion of the Work as set forth in the Contract Documents. Nothing in this section shall be deemed to allow the use of a shoring, bracing, sloping, or other protective system less effective than that required by the Construction Safety Orders. Nothing in this section shall be construed to impose a tort liability on CVSan, the Design Consultant, the Construction Manager, nor any of their agents, consultants, or employees. CVSan's review of the Contractor's excavation plan is only for general conformance to the Construction Safety Orders.

Prior to commencing any excavation, the Contractor shall designate in writing to the Construction Manager the "competent person(s)" with the authority and responsibilities designated in the Construction Safety Orders.

- F. Safety Emergencies - In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Construction Manager, is obligated to act to prevent threatened damage, injury or loss. The Contractor shall give the Construction Manager prompt written notice if the Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby.
- G. Safety Violations - Should the Contractor fail to correct a condition, CVSan shall have the right to notify the Contractor through the Construction Manager that an unsafe condition may exist and must be corrected or the work in question can be stopped in accordance with Section 00700-6.06A, **SUSPENSION OF WORK**, until the condition is corrected to the satisfaction of CVSan. No extension of time or additional compensation will be granted as a result of any stop order so issued. The notification and suspension of such work or the failure to provide such notification and suspension by CVSan shall not relieve the Contractor of its sole responsibility and liability for safety.

CVSan shall have the authority to require the removal from the project of the foreman and/or superintendent in responsible charge of the work where safety violations occur.

- H. Equipment Safety Provisions - The completed Work shall include all necessary permanent safety devices, such as machinery guards and similar ordinary safety

items, required by the State and Federal (OSHA) industrial authorities and applicable local and national codes. Further, any features of the Work, including CVSsan-selected equipment, subject to such safety regulations shall be fabricated, furnished, and installed in compliance with these requirements. All equipment furnished shall be electrically grounded and provided guards and protection as required by safety codes. Where vapor-tight or explosion-proof electrical installation is required by safety codes, this shall be provided. Contractors and manufacturers of equipment shall be held responsible for compliance with the requirements included herein. The Contractor shall notify all equipment suppliers and subcontractors of the provisions of this paragraph.

- I. Confined Spaces – The Work requires work in confined spaces and requires compliance with CAL/OSHA and Federal OSHA requirements. Confined spaces for the purposes of this section shall be as defined by the Division of Industrial Safety. Notwithstanding any classifications relative to the Tunnel Safety Orders, work within confined spaces of this project is subject to the definitions and applicable provisions of Section 5156 et. seq., Title 8, Division 1, Chapter 4, Subchapter 7, Group 16, Article 108 of California Code of Regulations. Including exposure to hydrogen sulfide, methane, carbon dioxide and other gases and vapors commonly found in municipal sewers which could have, or has the potential of having Immediate Danger to Life or Health Conditions (IDLH).
- J. Public Safety and Convenience - The Contractor shall conduct his work so as to ensure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work and to ensure the protection of persons and property. No road or street shall be closed to the public except with the permission of the Construction Manager and the proper governmental authority. Fire hydrants on or adjacent to the work shall be accessible to fire fighting equipment. Temporary provisions shall be made by the Contractor to ensure the use of sidewalks, private and public driveways and proper functioning of gutters, sewer inlets, drainage ditches and culverts, irrigation ditches and natural water courses.
- K. This project is considered an essential service and is expected to continue during the issuance of public health orders (including, but not limited to those pertaining to the COVID-19 disease). Any change in day-to-day operations, means or methods to comply with any such order shall be considered as included in other items of work and no additional compensation shall be paid. The Contractor shall adhere to all local Alameda County, State of California, and Federal CDC COVID-19 prevention requirements and guidelines as required at the time of project work. The Contractor shall also adhere to CVSsan’s COVID-19 Vaccination Policy No. 2196 while in any indoor spaces on CVSsan’s properties.

4.08 PROVISIONS FOR HANDLING EMERGENCIES

It is possible that emergencies may arise during the progress of the Work that may require special treatment or make advisable extra shifts of labor forces to continue the Work for twenty-four (24) hours per day. These emergencies may be caused by damage or possible

damage to nearby existing structures or property by reason of the Work under construction, or by storm, accidents, or leakage. The Contractor shall be prepared in case of such emergencies to make all necessary repairs and shall promptly execute such work when required by the Construction Manager. The determinations made by the Construction Manager for handling emergencies shall be final and conclusive upon the parties.

Upon start of the Work, Contractor shall provide means for immediate emergency notification of Contractor's designated representative and designated emergency alternates.

4.09 NONSTANDARD WORKING HOURS

The Contractor may be required to prosecute the Work at night or outside of the normal working hours defined in Section 01560-1.07, **WORKING HOURS**. Such work may be required due to project and/or operational constraints as defined in Section 01010, **SUMMARY OF WORK**, or if emergencies arise as provided for in Section 00700-4.08, **PROVISIONS FOR HANDLING EMERGENCIES**. When required, ordered, or permitted to work at night, the Contractor shall provide sufficient and satisfactory lighting and other facilities therefore. For work outside of the normal working hours, the Contractor shall receive no extra payment, but compensation shall be considered as having been included in the price stipulated for the Work, except for authorized work performed outside of the Contract requirements.

4.10 COOPERATION WITH OTHER CONTRACTORS

This Paragraph shall serve as notice to the Contractor that CVSan may let other contracts for other work at or near the site of this work. The Contractor shall afford other contractors reasonable opportunity for the delivery and storage of their materials and the execution of their work, and shall properly connect and coordinate its work with theirs.

Should construction be under way by other forces or by other contractors within or adjacent to the limits of the work or in the vicinity of the Work to be done under this Contract, the Contractor shall so conduct its operations as to interfere to the least possible extent with the Work of such other forces or contractors.

Any difference or conflicts which may arise between the Contractor and any other forces or contractors, creating delays or hindrance to each other, shall be adjusted as determined by the Construction Manager.

Section 01010, **SUMMARY OF WORK**, indicates anticipated other potential construction activities within or adjacent to Work to be performed in this Contract.

ARTICLE 5 - CONTROL OF WORK AND MATERIAL

5.01 MEANS, METHODS AND APPLIANCES

The means, methods and appliances adopted by the Contractor shall be planned and executed to, in the opinion of the Construction Manager, produce the highest grade quality of work and will enable the Contractor to complete the Work in the time agreed upon. CVSan and Construction Manager shall not supervise, direct, or have control over, or be responsible for, Contractor's means, methods and appliances of construction or for the safety precautions and programs incident thereto, or for any failure of Contractor to comply with laws and regulations applicable to the furnishing or performance of Work. However, if at any time the means, methods and appliances appear inadequate or of inferior quality, the Construction Manager may order the Contractor to improve their character or efficiency, and the Contractor shall conform to such order; failure of the Construction Manager to order such improvement of methods of efficiency will not relieve the Contractor from its obligation to perform satisfactory work and to finish it in the time agreed upon.

5.02 CHARACTER OF WORKERS

None but competent forepersons and workers shall be employed on work requiring special qualifications; and, when required by the Construction Manager, the Contractor shall remove from the work any person who commits trespass, or is, in the opinion of the Construction Manager, disorderly, dangerous, insubordinate, incompetent, or otherwise objectionable. Such discharge shall not be the basis of any claim for compensation or damages against the Construction Manager, CVSan, or any of its officers or representatives.

5.03 MATERIALS AND WORKMANSHIP

Unless otherwise indicated in these Specifications, materials and equipment for the construction work shall be the best grade in quality of a manufacturer regularly engaged in the production of such materials and equipment or materials and equipment of comparable character. All materials must be of the specified quality and equal to approved samples, if samples have been submitted. All work shall be done and completed in the best workmanlike manner, obtainable in the local market. All permanent materials and equipment shall be new unless otherwise specified.

Notwithstanding any omission from these Specification or the Drawings it shall be the duty of the Contractor to call the Construction Manager's attention to apparent errors or omissions and request instructions before proceeding with the Work. The Construction Manager may, by appropriate instructions correct errors and supply omitted information. Such instructions shall be as binding upon the Contractor as though contained in the original Specifications or Drawings.

All defective work or materials shall be promptly removed from the premises by the Contractor, whether in place or not, and shall be replaced or renewed in such manner as the Construction Manager may direct. All materials and workmanship of whatever

description shall be subjected to the inspection of, and rejection by, the Construction Manager if not in conformance with the Contract Documents.

Any defective material or workmanship, or any unsatisfactory or imperfect work which may be discovered before the final Acceptance of the Work or within one (1) year thereafter, shall be corrected immediately on the requirement of the Construction Manager, without extra charge, notwithstanding that it may have been overlooked in previous inspections and estimates. Failure to inspect work shall not relieve the Contractor from any obligation to perform sound and reliable work as herein described.

5.04 EXISTING UTILITIES

- A. General - The location of known existing utilities and pipelines are shown on the Plans in their approximate locations. However, nothing herein shall be deemed to require CVSan to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the site of the project can be inferred from the presence of other visible facilities, such as buildings, cleanouts, meter and junction boxes, on or adjacent to the site of the construction.

CVSan will assume the responsibility for the timely removal, relocation, or protection of existing main or trunkline utility facilities located on the construction site if such utilities are not identified by CVSan in the Contract Documents or which can reasonably be inferred from the presence of other visible facilities.

- B. Utility Location - It shall be the Contractor's responsibility to determine the exact location and depth of all utilities, including service connections, which have been marked by the respective utility owners and which the Contractor believes may affect or be affected by the Contractor's operations. The Contractor shall not be entitled to additional compensation nor time extensions for work necessary to avoid interferences nor for repair to damaged utilities if the Contractor does not expose all such existing utilities as required by this section.

Pursuant to Government Code Section 4216.2 the Contractor shall contact the appropriate regional notification center at least two (2) working days before, but not more than 14 calendar days prior to commencing any excavation. The Contractor shall request that the utility owners conduct a utility survey and mark or otherwise indicate the location of their service.

After the utility survey is completed, the Contractor shall commence "potholing" or hand digging to determine the actual location of the pipe, duct, or conduit. The Construction Manager shall be given notice prior to commencing potholing operations. The Contractor shall uncover all piping and conduits, to a point one (1) foot below the pipe, where crossings, interferences, or connections are shown in the Contract Documents, prior to trenching or excavating for any pipe or structures, to determine actual elevations. New pipelines shall be laid to such grade as to clear all existing facilities which are to remain in service for any period subsequent to the construction of the run of pipe involved.

- C. Utility Relocation and Repair - If interferences occur at locations other than those indicated in the Contract Documents with reasonable accuracy, the Contractor shall notify the Construction Manager in writing. The Construction Manager will supply a method for correcting said interferences in accordance with the responsibilities of this section and Government Code Section 4215.

CVSan shall compensate the Contractor for the costs of locating and repairing damage not due to the failure of the Contractor to exercise reasonable care, and for removing or relocating such main or trunk-line utility facilities not indicated in the Contract Documents with reasonable accuracy, and for the cost of equipment on the Project necessarily idled during such work. The payment for such costs will be made as provided in Section 00700-7.01, **CHANGE ORDERS**. The Contractor shall not be assessed liquidated damages for delay in completion of the Project, when such delay is caused by the failure of CVSan or utility company to provide for removal or relocation of such utility facilities. Requests for extensions of time arising out of utility relocation or repair delays shall be filed in accordance with Section 01310-1.06, **TIME IMPACT ANALYSES**.

The public utility, where they are the owner of the effected utility, shall have the sole discretion to perform repairs or relocation work or permit the Contractor to do such repairs or relocation work at a reasonable price. The right is reserved to CVSan and the owners of utilities or their authorized agents to enter upon the Work area for the purpose of making such changes as are necessary for the rearrangement of their facilities or for making necessary connections or repairs to their properties. The Contractor shall cooperate with forces engaged in such work and shall conduct its operations in such a manner as to avoid any unnecessary delay or hindrance to the work being performed by such forces and shall allow the respective utilities time to relocate their facility.

When the Contract indicates that a utility is to be relocated, altered or constructed by others, CVSan will conduct all negotiations with the utility company and the work will be done at no cost to the Contractor, unless otherwise stipulated in the Contract.

Temporary or permanent relocation or alteration of utilities desired by the Contractor for its own convenience shall be the Contractor's responsibility and it shall make arrangements and bear all costs for such work.

ARTICLE 6 - PROGRESS OF THE WORK

6.01 COMMENCEMENT OF WORK

Within thirty (30) calendar days after receipt of the required bonds and evidences of insurance and the executed Agreement from the Contractor, written Notice to Proceed will be given by CVSan to Contractor. Notwithstanding other provisions of the Contract, the Contractor shall not be obligated to perform work, and CVSan shall not be obligated to accept or pay for work performed by the Contractor, prior to Notice to Proceed. The

Contractor shall provide the required Contract bonds and evidences of insurance prior to Notice to Proceed and commencing work at the site.

The Contractor shall commence the Work covered by this Contract within ten (10) days after the date established in the Notice to Proceed for the commencement of Contract Time.

The Contractor shall give the Construction Manager written notice not less than two (2) working days in advance of the actual date on which the work will be started. The Contractor shall be entirely responsible for any delay in the Work, which may be caused by its failure to give such notice.

6.02 CONTRACT TIME

Time shall be of the essence of the Contract. The Contractor shall prosecute the Work so that the various portions of the project shall be Substantially Complete and ready for use within the time specified in Section 00800-1.01, **TIME ALLOWED FOR COMPLETION**. It is expressly understood and agreed by and between the Contractor and CVSan that the Contract time for completion of the Work described herein is a reasonable time taking into consideration the average climatic and economic conditions and other factors prevailing in the locality and the nature of the Work. The Contractor is hereby advised that the Contractor's Bid is to be based on the entire Contract Time and the Contractor shall include its field and home office overhead costs in the Bid for the entire Contract Time.

6.03 DELAYS

- A. Notice of Delays - When the Contractor foresees a delay in the prosecution of the Work and, in any event, immediately upon the occurrence of a delay, the Contractor shall notify the Construction Manager in writing of the probability of the occurrence and the estimated extent of the delay, and its cause. The Contractor shall take immediate steps to prevent, if possible the occurrence or continuance of the delay. The Contractor agrees that no claim shall be made for delays, which are not called, to the attention of the Construction Manager at the time of their occurrence.
- B. Non-Excusable Delays - Non-excusable delays in the prosecution of the Work shall include delays which could have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its subcontractors, at any tier level, or suppliers. The Contractor shall receive no compensation for such delay.
- C. Excusable Delays - Excusable delays in the prosecution or completion of the Work shall include delays which result from causes beyond the control of the Contractor and CVSan and which could not have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its subcontractors, at any tier level, or suppliers. The Contractor shall receive no compensation for such delay. Excusable delays are as further defined below.
 - 1. Abnormal Delays - Delays caused by acts of god, fire, unusual storms, floods, tidal waves, earthquakes, strikes, labor disputes, freight embargoes,

and shortages of materials shall be considered as excusable delays insofar as they prevent the Contractor from proceeding with at least seventy-five (75) percent of the normal labor and equipment force for at least five (5) hours per day toward completion of the current critical activity item(s) on the latest Favorably Reviewed Progress Schedule.

2. Weather Delays - Should inclement weather conditions or the conditions resulting from weather prevent the Contractor from proceeding with seventy-five (75) percent of the normal labor and equipment force engaged in the current critical activity item for a period of at least five (5) hours per day toward completion of such operation or operations, and the crew is dismissed as a result thereof, it shall be a weather delay day.
3. Material Shortages - Upon the submission of satisfactory proof to the Construction Manager by the Contractor, shortages of material may be acceptable as grounds for granting a time extension. In order that such proof may be satisfactory and acceptable to the Construction Manager, it must be demonstrated by the Contractor that the Contractor has made every effort to obtain such materials from all known sources within reasonable reach of the proposed Work. Only the physical shortage of material, caused by unusual circumstances, will be considered under these provisions as a cause for extension of time, and no consideration will be given to any claim that material could not be obtained at a reasonable, practical, or economical cost or price, unless it is shown to the satisfaction of the Construction Manager that such material could have been obtained only at exorbitant prices entirely out of line with current rates, taking into account the quantities involved and usual practices in obtaining such quantities. A time extension for shortage of material will not be considered for material ordered or delivered late or whose availability is affected by virtue of the mishandling of procurement. The above provisions apply equally to equipment to be installed in the Work.

D. Compensable Delays - Compensable delays in the prosecution or completion of the Work shall include delays that occur through no fault of the Contractor and prevent the Contractor from proceeding with at least seventy-five (75) percent of the normal labor and equipment force for at least five (5) hours per day toward completion of the current critical activity item(s) on the latest Favorably Reviewed Progress Schedule due to the following cause(s):

1. Delays due solely to the actions and/or inactions of CVSan.
2. Delays due to differing site conditions as defined in Section 00700-7.02, **DIFFERING SITE CONDITIONS**.
3. Delays due to other Contractors employed by CVSan who interfere with the Contractor's prosecution of the Work as defined above.

E. Concurrent Delays - Concurrent delays are those delay periods when the prosecution of the Work is delayed during the same period of time due to causes from a

combination of the delays defined in Sections 00700-6.03B, **Non- Excusable Delays**, 00700-6.03C, **Excusable Delays**, or 00700-6.03D, **Compensable Delays**. During such concurrent delay periods, time extensions will be granted in accordance with Section 00700-6.04, **TIME EXTENSIONS**; however, the Contractor shall not be compensated for its overhead costs as defined in Section 00700-6.04C, **Indirect Overhead**, and CVSsan shall not assess its actual costs as defined in Section 00700-6.04A, **Non- Excusable Delays**.

6.04 TIME EXTENSIONS

Non-Excusable Delays - CVSsan, at its sole option, may grant an extension to milestone or completion dates for non-excusable delays. If CVSsan grants an extension of time for non-excusable delays, the Contractor agrees to pay CVSsan's actual costs, including charges for engineering, inspection and administration incurred during the extension.

A. Excusable or Compensable Delays - If the Contractor is delayed in the performance of its Work as defined in Sections 00700-6.03C, **Excusable Delays**, or 00700-6.03D, **Compensable Delays**, then milestone and Contract completion dates may be extended by CVSsan for such time that, in CVSsan's and Construction Manager's determination, the Contractor's completion dates will be delayed, provided that the Contractor strictly fulfills the following:

1. The Contractor shall provide notification, in accordance with Section 00700-6.03A, **Notice of Delays**, and submit in writing a request for an extension of time to the Construction Manager stating at a minimum the probable cause of the delay and the number of days being requested. The time extension request shall be submitted in accordance with the requirements of Section 01310-1.06, **TIME IMPACT ANALYSES**.
2. If requested by the Construction Manager, the Contractor shall promptly provide sufficient information to the Construction Manager to assess the cause or effect of the alleged delay, or to determine if other concurrent delays affected the Work.
3. Weather Delays. The Contractor will be granted a non-compensable time extension for weather caused delays, pursuant to Section 00700-6.03 C2, **Weather Delays**, over and above an allowance as provided for in Section 00800-1.03, **WEATHER DAYS**. No time extensions for weather delays will be granted until the total number of weather days exceeds this allowance.

Should the Contractor fail to fulfill any of the foregoing, which are conditions precedent to the right to receive a time extension, the Contractor waives the right to receive a time extension.

During such extension of time, neither extra compensation for engineering, inspection, and administration nor damages for delay will be charged to the Contractor. It is understood and agreed by the Contractor and CVSsan that time extensions due to excusable or

compensable delays will be granted only if such delays involve controlling operations which would prevent completion of the whole Work within the specified Contract time.

Should the Contractor fail to complete the Work within the time specified in the Contract, as extended in accordance with this clause if appropriate, the Contractor shall pay to CVSan liquidated damages in accordance with Section 00700-6.05, **LIQUIDATED DAMAGES**.

- B. Indirect Overhead - The Contractor may be entitled to reimbursement of indirect overhead expenses for periods of time when the Work is delayed as defined in Section 00700-6.03D, **Compensable Delays**. Reimbursement for indirect overhead shall not be made for concurrent delays as defined in Section 00700-6.03E, **Concurrent Delays**.

The compensation described in Section 01035-1.05, **MARK-UP ALLOWANCES**, includes provisions for reimbursement of indirect overhead expenses for Change Order work. Compensation as described in this section shall reasonably consider the indirect overhead included in the Mark-Up Allowance, as follows:

1. If CVSan and Contractor agree that the Mark-Up Allowance does not provide sufficient compensation for a compensable delay associated with changed work, this section shall apply.
2. Upon application of this section, an amount equal to the entire Mark-Up Allowance for all Change Order work shall be deducted from the indirect overhead compensation as calculated based on Sections 00700 6.04 C1 (Indirect Field Overhead) and 6.04 C2 (Indirect Home Office Overhead) below.

As a condition precedent to any reimbursement of indirect overhead expense, the Contractor must fulfill all conditions as provided in Section 00700-6.04B, **Excusable or Compensable Delays**. No additional markup for overhead or profit shall be provided for such reimbursable indirect overhead expenses.

Payment to the Contractor for indirect overhead expenses will be made only for the extended Contract time granted for compensable delay(s) which meet the following criteria: The compensable delay(s) period is (are) required to complete the work following the entire depletion of the original Contract time plus any time extensions granted for delays other than compensable time extensions.

3. Indirect Field Overhead - For those allowable delay periods as defined in Section 00700-6.04C, **Indirect Overhead**, the Contractor shall be reimbursed for its indirect field overhead based on:
 - a. Actual invoice costs for on-site field offices and temporary utilities as described in Section 01560, **TEMPORARY CONTROLS**, and Section 01510, **TEMPORARY UTILITIES**.

- b. Actual indirect labor costs, as determined consistent with Section 01035-1.03, **FORCE ACCOUNT PAYMENT**, for field office staff.
 - c. Fair rental values acceptable to the Construction Manager as described in Section 01035-1.03, **FORCE ACCOUNT PAYMENT**, for construction equipment idled due to the delay.
4. Indirect Home Office Overhead - For those allowable delay periods as defined in Section 00700-6.04C, **Indirect Overhead**, the Contractor shall be reimbursed for its unabsorbed home office overhead based on the following formula:

$$\frac{\text{ContractAwardAmount}(\$)}{\text{OriginalContractTime}(\text{Days})} * 0.03 = \text{DailyHomeOfficeOverhead}(\$ / \text{day})$$

The Contract Award Amount is the total amount in the executed Agreement (Section 00500). The Contract Time is as provided in Section 00800-1.01, **TIME ALLOWED FOR COMPLETION**.

As it is impractical to determine the actual home office overhead, such reimbursement shall constitute full payment for any and all home office overhead expenses for such periods of time for the Contractor and all subcontractors, whether greater or less than actual. Distribution of the markup amount among the Contractor and all subcontractors and suppliers is the responsibility of the Contractor.

6.05 LIQUIDATED DAMAGES

- A. CVSsan and the Contractor recognize that time is of the essence of this Agreement and that CVSsan will suffer financial loss if the Work is not completed within the time specified in Section 00800-1.01, **TIME ALLOWED FOR COMPLETION**, and required milestone work if specified in Section 00800-1.02 herein, plus any extensions thereof allowed in accordance with Section 00700-6.04 of the General Conditions. It is hereby understood and agreed that it is and will be difficult and/or impossible to ascertain and determine the actual damage which CVSsan will sustain in the event of and by reason of the Contractor's failure to fully perform the Work or to fully perform all of its Contract obligations that have accrued by the time for completion as specified in Section 00800-1.01 herein and/or as specified for completion of any scheduled operations or works described in Section 00800-1.02. It is, therefore, agreed in accordance with California Government Code Section 53069.85 that the Contractor will forfeit and pay to CVSsan liquidated damages in the amount set forth in Section 00800-1.02, **DAMAGES FOR DELAYS**, per day for each and every calendar day that expires after the time for completion specified in Section 00800-1.01 herein and/or as specified for completion of any scheduled operations or works described in Section 00800-1.02 except as otherwise provided by extension of time pursuant to Section 00700-6.04 of the General Conditions. It is further understood and agreed in accordance with California Government Code Section 53069.85 that the liquidated damages sum specified in this provision is not

manifestly unreasonable under the circumstances existing at the time this Contract was made, and that CVSsan may deduct liquidated damages sums in accordance with this provision from any payments due or that may become due the Contractor.

- B. Liquidated damages will continue to accrue at the stated rate until Substantial Completion of the Work. Accrued liquidated damages may be deducted by CVSsan from amounts due or that become due to the Contractor for performance of the Work. Liquidated damages may not be waived or reduced by CVSsan unless expressly waived or reduced in writing by the Construction Manager.

6.06 SUSPENSION OF WORK

- A. If the Contractor fails to correct defective work as required by Section 00700-5.03, **MATERIALS AND WORKMANSHIP**, or fails to carry out the Work in accordance with the Contract Documents or any other applicable rules and regulations, CVSsan, by a written order of CVSsan's representative or signed personally by an agent specifically so empowered by CVSsan, in writing, may order the Contractor to stop the Work, or any portion thereof. The suspension of Work shall remain in effect until the cause for such order has been eliminated. This right of CVSsan to stop the Work shall not give rise to any duty on the part of CVSsan to exercise this right for the benefit of the Contractor or any other person or entity. All delays in the Work occasioned by such stoppage shall not relieve the Contractor of any duty to perform the Work or serve to extend the time for its completion. Any and all necessary corrective work done in order to comply with the Contract Documents shall be performed at no cost to CVSsan. CVSsan's concurrence that the condition or cause has been eliminated will be provided in writing to the Contractor.
- B. In the event that a suspension of Work is ordered, as provided in this paragraph, the Contractor, at its expense, shall perform all work necessary to provide a safe, smooth, and unobstructed passageway through construction for use by public, pedestrian, and vehicular traffic, during the period of such use by suspension. Should the Contractor fail to perform the Work as specified, CVSsan may perform such work and the cost thereof may be deducted from monies due the Contractor under the Contract.
- C. CVSsan shall also have authority to suspend the Work wholly or in part, for such period as CVSsan may deem necessary, due to unsuitable weather, or to such other conditions as are considered unfavorable for the suitable prosecution of the Work, or for CVSsan's own convenience. Such temporary suspension of the Work will be considered justification for time extensions to the Contract in an amount equal to the period of such suspension if such suspended work includes the current critical activity on the latest Favorably Reviewed Progress Schedule. The Contractor as directed by CVSsan shall provide the provisions as stipulated in Section 00700-6.06B, **SUSPENSION OF WORK**, above. Such additional work shall be compensated as provided for in Section 00700-Article 7, **CHANGES IN THE WORK**.

6.07 RIGHT TO TERMINATE CONTRACT

If at any time the Contractor is determined to be in material breach of the Contract, notice thereof in writing will be served upon the Contractor and its sureties, and should the Contractor neglect or refuse to provide means for a satisfactory compliance with the Contract, as directed by the Construction Manager, within the time specified in such notice, CVSAn or CVSAn's Representative in such case shall have the authority to terminate the operation of the Contract.

Upon such termination, the Contractor shall discontinue the Work, or such parts of it as CVSAn may designate. Upon such termination, the Contractor's control shall terminate and thereupon CVSAn or its fully authorized representative may take possession of all or any part of the Contractor's materials, tools, equipment, and appliances upon the premises and use the same for the purposes of completing the Work and hire such force and buy or rent such additional machinery, tools, appliances, and equipment, and buy such additional materials and supplies at the Contractor's expense as may be necessary for the proper conduct of the Work and for the completion thereof; or CVSAn may employ other parties to carry the Contract to completion, employ the necessary workers, substitute other machinery or materials and purchase the materials contracted for, in such manner as CVSAn may deem proper; or CVSAn may annul and cancel the Contract and reissue the Work or any part thereof. Any excess of cost arising therefrom over and above the Contract price will be charged against the Contractor and its sureties, who will be liable therefore.

In the event of such termination, all monies due the Contractor or retained under the terms of this Contract shall be held by CVSAn; however, such holdings will not release the Contractor or its sureties from liability for failure to fulfill the Contract. Any excess cost over and above the Contract amount incurred by CVSAn arising from the termination of the operations of the Contract and the completion of the Work by CVSAn as above provided shall be paid for by the Contractor. The Contractor shall be entitled to credit against such excess costs and contract funds held by CVSAn. Any contract funds remaining after all valid claims for completion of the Work have been paid, shall be paid to the Contractor sixty (60) days after completion of the Work.

If at any time before completion of the Work under the Contract, it shall be determined by CVSAn that it impossible, impractical, undesirable, or otherwise against the interests of CVSAn to complete the Work, or if the Work shall be stopped by an injunction of a court of competent jurisdiction or by order of any competent authority, CVSAn may, upon ten (10) days written notice to the Contractor, discontinue the Work and terminate the Contract for its convenience. Upon service of such notice of termination, the Contractor shall discontinue the Work in such manner, sequence, and at such times as the Construction Manager may direct. The Contractor shall have no claim for damages for such discontinuance or termination, nor any claim for anticipated profits on the work thus dispensed with, nor any other claim except for the work actually performed up to the time of discontinuance, including any extra work ordered by the Construction Manager to be done, nor for any claim for liquidated damages.

ARTICLE 7 - CHANGES IN THE WORK

7.01 CHANGE ORDERS

- A. Without invalidating the Contract and without notice to sureties or insurers, CVSan through the Construction Manager, may at any time or from time to time, order additions, deletions, or revisions in the Work; these will be authorized by Field Directive, Field Order, or Change Order. A Change Order will not be issued for a Field Directive unless the Construction Manager concurs with an appeal by the Contractor that such Field Directive is a change in the scope of the Contract. The Contractor shall comply promptly with the requirements for all Change Orders, Field Orders, or Field Directives. The work involved in Change Orders shall be executed under the applicable conditions and requirements of the Contract Documents. If any Field Order causes an increase or decrease in the Contract Amount or an extension or shortening of the Contract Time, an equitable adjustment will be made by issuing a Change Order. By the acceptance of a Change Order, the Contractor waives any claim for additional time, not included in the Change Order, for the work covered by that Change Order. Additional or extra work performed by the Contractor without written authorization of a Field Order or Change Order will not entitle the Contractor to an increase in the Contract Amount or an extension of the Contract Time.
- B. Compensable extra work shall be that work required for the completed project, but not shown or detailed on the Contract Drawings, and not called for in the Contract Documents, and not constituting “incidental work” as defined in Section 00700-1.04, **PLANS AND SPECIFICATIONS**. Such work shall be governed by all applicable provisions of the Contract Documents. In giving instructions, the Construction Manager shall have authority to make minor changes in the Work, not involving extra cost, and not inconsistent with the purposes of the Work; but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by CVSan through the Construction Manager, and no claim for an addition to the total amount of the Contract shall be valid unless so ordered.
- C. In case any change increases or decreases the work shown, the Contractor shall be paid for the work actually done at a mutually agreed upon adjustment to the Contract price, based upon the provisions of Section 01035, **MODIFICATION PROCEDURES**.
- D. If the Contractor refuses to accept a Change Order, CVSan may issue it unilaterally. The Contractor shall comply with the requirements of the Change Order. CVSan shall provide for an equitable adjustment to the Contract, and compensate the Contractor accordingly. If the Contractor does not agree that the adjustment is equitable, it may submit a claim in accordance with Section 00700-7.03, **RESOLUTION OF DISPUTES**.

7.02 DIFFERING SITE CONDITIONS

Pursuant to Public Contract Code Section 7104, the Contractor shall promptly, and before such conditions are disturbed, notify the Construction Manager in writing, of any:

- A. Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I Class II, or Class III disposal site in accordance with provisions of existing law.
- B. Subsurface or latent physical conditions at the site differing from those indicated in the Contract documents.
- C. Unknown physical conditions at the site of any unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract.

CVSan shall promptly investigate the conditions, and if it finds that the conditions do materially differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the Work CVSan shall cause to be issued a Change Order under the procedures provided in Section 00700-7.01, **CHANGE ORDERS**.

In the event that a dispute arises between CVSan and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the work the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by Contract or by law which pertain to the resolution of disputes and protests between the contracting parties, Section 00700-7.03, **RESOLUTION OF DISPUTES**.

No claim of the Contractor under this clause shall be allowed unless the Contractor has promptly given the notice required.

7.03 RESOLUTION OF DISPUTES

It is the intent of this Contract that disputes regarding the Contract be resolved promptly and fairly between the Construction Manager and Contractor. However, it is recognized that some disputes will require detailed investigation and review by one or both parties before a determination and resolution can be reached. For the protection of the rights of both the Contractor and CVSan the following provisions are provided for the resolution of disputes which cannot be resolved by the Contractor and Construction Manager within two days after either party should bring verbal notice of dispute or potential dispute to the other's attention and prior to the commencement of such work.

- A. Notice - If the Contractor disagrees with the Construction Manager's decision in Section 00700-1.06, **CONTRACT INTERPRETATION BY THE**

CONSTRUCTION MANAGER, or in any case where the Contractor deems additional compensation or a time extension to the Contract period is due the Contractor for work or materials not covered in the Contract or which the Construction Manager has not recognized as extra work, the Contractor shall notify the Construction Manager, in writing, of its intention to make claim. Notice pertaining to decisions provided in Section 00700-1.06, **CONTRACT INTERPRETATION BY THE CONSTRUCTION MANAGER**, or such other determinations by the Construction Manager shall be filed in writing to the Construction Manager within ten (10) days of receipt of such decision and prior to the commencement of such work. All other notices for extra work shall be filed in writing to the Construction Manager prior to the commencement of such work. Written notice shall use the words "Notice of Potential Claim". Such Notice of Potential Claim shall state the circumstances and the reasons for the claim, but need not state the amount.

Additionally, no claim for additional compensation or extension of time for a delay will be considered unless the provisions of Sections 00700-6.03, **DELAYS**, and 6.04, **TIME EXTENSIONS**, are complied with. No claim filed after the date of final payment will be considered.

Unless notice is properly given, the Contractor shall not recover costs incurred by it as a result of the alleged extra work, changed work or other situation which had proper notice been given would have given rise to a right for additional compensation. The Contractor should understand that timely notice of potential claim is of great importance to the Construction Manager and CVSan, and is not merely a formality. Such notice allows CVSan to consider preventative action, to monitor the Contractor's increased costs resulting from the situation, to marshal facts, and to plan its affairs. Such notice by the Contractor, and the fact that the Construction Manager has kept account of the work in question, shall not in any way be construed as proving the validity of the claim.

- B. Response by Construction Manager - The Construction Manager shall review the "Notice of Potential Claim" and within ten (10) days of receipt of the notice shall respond to the Contractor in writing with its determination, or if it is necessary to extend this period, the Construction Manager shall notify the Contractor in writing as to when a decision will be provided.
- C. Appeals to CVSan's Representative - In the event the Contractor disagrees with any determination of the Construction Manager provided in accordance with Section 00700-7.03B, **Response by Construction Manager**, the Contractor may, within ten (10) days of receipt of such determination, appeal the determination to CVSan's Representative for review. CVSan's Representative shall review the appeal and transmit the decision in writing to the Contractor within thirty (30) days from the date of receipt of the appeal. Failure of the Contractor to appeal the determination of the Construction Manager within said ten (10) day period shall constitute a waiver of the Contractor's right to thereafter assert claim resulting from such determination or decision.

In the event the Contractor disagrees with the determination of CVSan's Representative, the Contractor shall notify the Construction Manager, in writing within ten (10) days of receipt of such determination, of its intention to make claim in accordance with Section 00700-7.03G, **Resolution of Claims**.

- D. Records of Disputed Work - In proceeding with a disputed portion of the Work, the Contractor shall keep accurate records of its costs and shall make available to the Construction Manager, a daily summary of the hours and classification of equipment and labor utilized on the disputed work, as well as a summary of any materials or any specialized services which are used. Such information shall be submitted to the Construction Manager on a monthly basis, receipt of which shall not be construed as an authorization for or acceptance of the disputed work.
- E. Submission of Claim Costs - Within thirty (30) days after the last cost of work for which the Contractor contends it is due additional compensation is incurred, but if costs are incurred over a span of more than thirty (30) days, then within fifteen (15) days after the thirtieth (30th) day and every month thereafter, the Contractor shall submit to the Construction Manager, as best the Contractor is able, its costs incurred for the claimed matter. Claims shall be made in itemized detail and should the Construction Manager be dissatisfied with the format or detail of presentation, upon request for more or different information, the Contractor will promptly comply, with the satisfaction of the Construction Manager. If the additional costs are in any respect not knowable with certainty, they shall be estimated as best can be done. The Construction Manager shall have the right as provided in Section 01035-1.07, **COST PRICING DATA AND ACCESS TO RECORDS**, to review the Contractor's records pertaining to a submitted claim. In case the claim is found to be just, it shall be allowed and paid for as provided in Section 01035, **MODIFICATION PROCEDURES**.
- F. Claim Meetings - From time to time the Contractor may request or the Construction Manager may call a special meeting to discuss outstanding claims should it deem this a means of possible help in the resolution of the claim. The Contractor shall cooperate and attend prepared to discuss its claims, making available the personnel, subcontractors and suppliers necessary for resolution, and all documents which may reasonably be requested by the Construction Manager.
- G. Resolution of Claims - Claims pertaining to this Agreement which cannot be resolved between the parties shall be resolved pursuant to the provisions of Public Contract Code commencing at Section 9204.
 - 1. Said Code sections provide in part that: Under the law (starting at Public Contract Code Section 9204) construction claims on any local public agency construction contracts must be in writing, sent by registered mail or certified mail with return receipt requested, and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment.

CVSan must respond in writing to any written claim within forty-five (45) days of receipt of claim.

If the claimant disputes CVSan's written response (or if CVSan fails to respond within the time periods prescribed above) the claimant may notify CVSan, in writing, and demand an informal settlement conference. CVSan must then schedule a settlement conference within thirty (30) days.

Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, CVSan shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after CVSan issues its written statement. Any disputed portion of the claim, as identified by the contractor in writing, shall be submitted to nonbinding mediation, with CVSan and the claimant sharing the associated costs equally. CVSan and the claimant shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. Unless otherwise agreed to by CVSan and the contractor in writing, the mediation conducted pursuant to Section 9204 shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

Following the settlement conference, if the claim or any portion remains in dispute, the claimant may file a claim as required by the claims statute commencing at California Government Code Section 910. The time within which a Government Code claim must be filed is tolled from the time the claimant submits the Public Contract Code claim until the time when the claim is denied.

2. Claims Not Exceeding \$375,000 – In addition to the provisions set in Public Contract Code Section 9204, claims pertaining to this Agreement for three hundred and seventy-five thousand dollars (\$375,000) or less which cannot be resolved between the parties shall be resolved pursuant to the following provisions of Public Contract Code commencing at Section 20104:

a. CVSan may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant. CVSan's written response to the claim, as further documented, shall be submitted to the claimant within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional

information, whichever is greater, within the time requirements set in Public Contract Code Section 9204.

3. Civil Action Proceedings - If a civil action is filed to resolve the claim, then between thirty (30) and sixty (60) days after the filing of responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by the parties. The parties are given fifteen (15) days to select a disinterested third person as mediator. Mediation must commence within thirty (30) days of submittal and conclude within fifteen (15) days of commencement unless the time is extended for good cause by the court.

Mediation of Disputes: All disputes among the parties arising under this Agreement shall be mediated before resorting to arbitration or Court action. Mediation is a process in which parties attempt to resolve a dispute by submitting it to an impartial neutral mediator who is authorized to facilitate the resolution of the dispute but who is not empowered to impose a settlement on the parties. The mediation fee, if any, shall be divided equally among the parties. Before the mediation begins, the parties agree to sign a document limiting the admissibility and arbitration or any civil action of anything said, any admission made, and any documents prepared in the course of the mediation, consistent with Evidence Code Section 1152.5 or any successor statute. The filing of a judicial action to enable the imposition of a receivership, injunction or other provisional remedy shall not constitute a waiver of the right to mediate under this provision. The mediation shall take place in Alameda County, California. The mediator shall, when possible, be experienced in construction law.

If the matter remains in dispute, the case must be submitted to judicial arbitration pursuant to procedures set forth in the Code of Civil Procedure commencing at Section 1141.10. Discovery is permitted consistent with the rules pertaining to judicial arbitration.

Arbitration of Disputes: All disputes among the parties arising under this Agreement which are not settled through mediation shall be decided by neutral binding arbitration and not by Court action, except as provided by California law for judicial review of arbitration proceedings. The arbitration shall be conducted in accordance with the rules of either the American Arbitration Association (AAA) or Judicial Arbitration and Mediation Services, Inc. (JAMS). The selection between AAA and JAMS rules shall be made by the claimant first filing for the arbitration. The parties to arbitration may agree in writing to use different rules and/or arbitrators. In all other respects, the arbitration shall be conducted in accordance with Part III, Title 9 of the California Code of Civil Procedure. Judgment upon the award rendered by the arbitrator(s) may be entered in any Court having jurisdiction thereof. The parties shall have the right to discovery in accordance with Code of Civil Procedure Section 1283.05. The filing of a judicial action to enable the imposition of a receivership, injunction or other provisional remedy shall not constitute a waiver of the right to arbitrate

under this provision. The arbitration shall take place in Alameda County, California. The arbitrator, if possible, shall be familiar with construction law.

A party who appeals an arbitration award and does not obtain a more favorable judgment shall pay the attorney's fees on appeal of the other party. CVSan must pay interest at the legal rate on any arbitration award or judgment, commencing on the date when suit was filed. Except as otherwise provided in the Contract, CVSan must pay the undisputed portions of any claims.

Should either party to this Contract bring legal action against the other, the case shall be handled by a court of competent jurisdiction in Alameda County, California.

ARTICLE 8 - PAYMENT

8.01 BASIS OF PAYMENT

- A. General - The Contractor shall accept the compensation, as herein provided, as full payment for furnishing all labor, materials, tools, equipment, and incidentals necessary to the completed Work and for performing all work contemplated and embraced under the Contract; also for loss or damage arising from the nature of the Work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the Work, also for all expenses incurred in consequence of the suspension or discontinuance of the Work as herein specified; and for completing the Work according to the Contract Documents. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective work or material.

No compensation will be made in any case of loss of anticipated profits. This includes the event of the termination of the Contract, and therefore no compensation will be made to the Contractor for the loss of anticipated profits associated with the terminated work. Increased or decreased work involving supplemental agreements will be paid for as provided in such agreements.

Full compensation for conforming to all of the provisions of the Contract Documents shall be considered as included in the prices paid for the various Contract items of work and no additional compensation will be allowed therefore.

- B. Payment for Patents and Patent Infringement - All fees or claims for any patented invention, article, or arrangement that may be used upon, or in, any manner connected with the performance of the work or any part thereof shall be included in the price bid for doing the work, and the Contractor and its sureties shall defend, protect, and hold CVSan, the Construction Manager, and Design Consultants, together with all their officers, agents, and employees harmless against liability of any nature or kind for any and all costs, legal expenses, and damages made for such fees or claims and

against any and all suits and claims brought or made by the holder of any invention or patent, or on account of any patented or unpatented invention, process, article, or appliance manufactured for or used in the performance of the Contract, including its use by CVSan, unless otherwise specifically stipulated in the Contract. Before final payment is made on the Contract, the Contractor shall furnish an affidavit to CVSan regarding patent rights for the project. The affidavit shall state that all fees and payments due as a result of the work incorporated into the project or methods utilized during construction have been paid in full. The Contractor shall certify in the affidavit that no other fees or claims exist for work in this project.

- C. Payment of Taxes - The Contractor shall pay and shall assume exclusive liability for all taxes levied or assessed on or in connection with its performance of this Contract, whether before or after acceptance of the work, including, but not limited to, State and local sales and use taxes, Federal and State payroll taxes or assessments, and excise taxes, including any taxes or assessments levied or increased during the performance period of the work. No separate allowance will be made therefore, and all costs in connection therewith shall be included in the total amount of the Contract price.

8.02 PARTIAL PAYMENTS

- A. General - In consideration of the faithful performance of the work prosecuted in accordance with the provisions of these Specifications and the Contract, CVSan will pay the Contractor for all such work installed on the basis of unit prices and/or percentage completion of lump sum Bid Items. Amounts earned for lump sum work will be based on accepted Cost Breakdown (Section 01025, **MEASUREMENT AND PAYMENT**).

Payments will be made by CVSan to the Contractor on estimates duly certified and approved by the Construction Manager, based on the Lump Sum or unit price value of equipment installed and tested, labor and materials incorporated into said permanent work by the Contractor during the preceding month. Payments will not be made for temporary construction unless specifically provided for in the Contract Documents.

Partial payments will be made monthly based on work accomplished as of a day mutually agreed to by CVSan and the Contractor. Additionally, the Contractor shall submit a detailed statement of the Contractor's request for payment of acceptable materials and equipment on hand in compliance with Section 00700-8.02B, **Partial Payments: Inclusion of Materials on Hand**. Each payment request shall list each Change Order executed prior to date of submission, including the Change Order Number.

Upon receipt of Contractor's requests for payment, CVSan shall act in accordance with the following:

1. The Construction Manager shall review the submitted estimates, as soon as practicable after receipt for the purpose of determining that the estimates are a proper request for payment, and shall prepare a certified estimate of the total amount of work done.
2. Any request for payment determined not to be a proper payment request suitable for payment shall be returned to the Contractor as soon as practicable, but not later than seven (7) days after receipt. A request for payment returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the request for payment is not proper.
3. The number of days available to CVSan to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which CVSan exceeds the seven (7) day return requirement set forth in Section 00700-8.02 A2 above.

If requested, the Contractor shall provide such additional data as may be reasonably required to support the partial payment request. The Construction Manager will be available to meet to discuss the partial payment request prior to its resubmittal(s). When the Contractor's estimate of amount earned conforms to the Construction Manager's evaluation, the Contractor shall submit to the Construction Manager a properly completed and signed progress payment request. The Construction Manager will submit the recommended progress payment request for CVSan's approval and processing. Payment will be made by CVSan to the Contractor in accordance with CVSan's normal accounts payable procedures; CVSan shall retain amounts in accordance with Section 00700-8.03, **RIGHT TO WITHHOLD AMOUNTS**.

No such estimate or payment shall be required to be made, when in the judgment of the Construction Manager, the Work is not proceeding in accordance with the provisions of the Contract, or when in the Construction Manager's judgment the total value of the Work done since the last estimate amounts to less than one thousand dollars (\$1,000).

Subject to the provisions of this section, CVSan shall pay the Contractor within thirty (30) days after receipt of undisputed and properly submitted requests for payment from the Contractor. In accordance with Public Contract Code Section 20104.50, if CVSan fails to pay an undisputed request for payment within the allotted thirty (30) days, CVSan shall pay interest to the Contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.

- B. Partial Payments: Inclusion of Materials on Hand - Materials, as used herein, shall be considered to be those items which are fabricated and manufactured material and equipment. Only those materials for which the Contractor can transfer clear title to CVSan will be qualified for partial payment. The Contractor may request payment

of seventy-five (75) percent of the actual net cost of these materials. The request for partial payment will be subject to retention as provided elsewhere in the Contract Documents.

To receive partial payment for materials and equipment not incorporated in the Work, it shall be necessary for the Contractor to submit to the Construction Manager a list of such materials, at least seven (7) days prior to submitting the monthly estimate of amount earned for work completed. At the Construction Manager's sole discretion, it will approve items for which partial payment is to be made subject to the following:

1. Equipment and materials will only be eligible if given conditional or final acceptance by the Design Consultant and are in apparent compliance with Favorably Reviewed Shop Drawings.
 2. Only materials which have received Favorable Review of shop drawings will qualify.
 3. Eligible equipment or materials must be delivered and properly stored, protected, and maintained in a manner Favorably Reviewed by the Construction Manager, at the job site.
 4. The Contractor's actual net cost for the materials must be supported by paid invoices of suppliers, or other documentation requested by the Construction Manager.
 5. Materials or equipment delivered to the Site less than thirty (30) days prior to their scheduled incorporation in the Work shall not qualify.
 6. Final payment shall be made only for materials actually incorporated in the Work and, upon acceptance of the Work, all materials remaining for which advance payments had been made shall revert to the Contractor, unless otherwise agreed, and partial payments made for these items shall be deducted from the final payment for the Work.
 7. Partial payments for materials and equipment on hand shall not be deemed to be final payment for the material nor relieve the Contractor of its obligations under the Contract.
- C. Effect of Payment – Payment will be made by CVSan based on the Construction Manager's observations at the site and the data comprising the progress payment request. Payment will not be a representation that CVSan has:
1. Made exhaustive or continuous on-site inspections to check the quality or quantity of Work;
 2. Reviewed construction means, methods, techniques, sequences or procedures;
 3. Reviewed copies of requisitions received from subcontractors and material suppliers and other data requested by CVSan to substantiate Contractor's right to payment;

4. Made examination to ascertain how or for what purpose Contractor has used money previously paid on account of the Contract Sum; or
5. Accepted all or part of the Work.

8.03 RIGHT TO WITHHOLD AMOUNTS

- A. Retention - CVSan will deduct from the partial payment and retain as part security, five (5) percent of the amount earned until the final payment in accordance with Public Contract Code Section 7201 unless otherwise specified in the Contract Documents. Public Contract Code Section 7201 sunsets on January 1, 2018.
- B. Other Withholds - In addition to the amount which CVSan may otherwise retain under the Contract, CVSan may withhold a sufficient amount or amounts of any payment or payments otherwise due the Contractor, as in its judgment may be necessary to cover:
 1. For defective work not remedied.
 2. A reasonable doubt that the Contract can be completed for the balance then unpaid.
 3. Damage to another contractor or third party, or to property.
 4. Failure of the Contractor to maintain Record Documents current as required in Section 01720, PROJECT RECORD DOCUMENTS.
 5. Cost of insurance arranged by CVSan due to cancellation or reduction of the Contractor's insurance.
 6. Failure to submit, revise, resubmit or otherwise conform to the requirements herein for preparing and maintaining a construction schedule as required in Section 01310, PROGRESS SCHEDULES.
 7. Failure to make proper submissions, as specified herein.
 8. Payments due CVSan from the Contractor.
 9. The Contractor's neglect or unsatisfactory prosecution of the Work including additional engineering and administrative costs related to construction and/or shop drawing errors and the failure to clean up.
 10. Provisions of law that enable or require CVSan to withhold such payments in whole or in part.
 11. Stop Notice claims filed by Contractor's subcontractors, of any tier, or its material suppliers.

When the above reasons for withhold amounts are removed, payment will be made to the Contractor for amount withheld because of them.

8.04 SECURITY SUBSTITUTION FOR WITHHOLDS

For any retention of amount earned by the Contractor under Sections 00700-8.02, **PARTIAL PAYMENTS**, or 00700-8.07, **FINAL INSPECTION AND PAYMENT**, the Contractor may substitute securities as provided in Section 22300 of the Public Contract Code, as amended, which state in part as follows:

"Provisions shall be included in any invitation for bid and in any contract documents to permit the substitution of securities for any moneys withheld by a public agency to ensure performance under a contract; however, substitution of securities provisions shall not be required where federal regulations or policies, or both, do not allow the substitution of securities. At the request and expense of the contractor, securities equivalent to the amount withheld shall be deposited with the public agency, or with a state or federally chartered bank in the State of California as the escrow agent, who shall then pay those monies to the contractor. Upon satisfactory completion of the contract, the securities shall be returned to the contractor."

"Alternatively, the contractor may request and CVSan shall make payment of retentions earned directly to the escrow agent at the expense of the contractor. At the expense of the contractor, the contractor may direct the investment of the payments into securities and the contractor shall receive the interest earned on the investments upon the same terms provided for in this section for securities deposited by the contractor. Upon satisfactory completion of the contract, the contractor shall receive from the escrow agent all securities, interest and payments received by the escrow agent from CVSan, pursuant to the terms of this section."

"Securities eligible for investment under this section shall include those listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposits, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the contractor and the public agency. The contractor shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon."

"Any contractor who elects to receive interest on moneys withheld in retention by a public agency shall, at the request of any subcontractor, make that option available to the subcontractor regarding any moneys withheld in retention by the contractor from the subcontractor. If the contractor elects to receive interest on any moneys withheld in retention by a public agency, then the subcontractor shall receive the identical rate of interest received by the contractor on any retention moneys withheld from the subcontractor by the contractor, less any actual pro rata costs associated with administering and calculating that interest. In the event that the interest rate is a fluctuating rate, the rate for the subcontractor shall be determined by calculating the interest rate paid during the time that retentions were withheld from the subcontractor. If the contractor elects to substitute securities in lieu of retention, then, by mutual consent of the contractor and subcontractor, the subcontractor may substitute securities in exchange for the release of moneys held in retention by the contractor. This subdivision shall apply only to those subcontractors performing more than five percent of the contractor's total bid. No contractor shall require any subcontractor to waive any provision of this section."

The escrow agreement used hereunder shall be null, void, and unenforceable unless it is substantially similar to the form in Section 00630, **ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION**.

Substitution of securities shall not be allowed hereunder if financing for this Contract has been provided by the Farmers Home Administration of the United States Department of Agriculture pursuant to the Consolidated Farm and Rural Development Act (7 U.S.C. Sec. 1921 et seq.), or where federal regulations or policies, or both, do not allow the substitution of securities.

8.05 WARRANTY OF TITLE

No material, supplies, or equipment for the Work under this Contract shall be purchased subject to any chattel mortgage, security agreement, or under a conditional sale or other agreement by which an interest therein or any part thereof is retained by the seller or supplier. The Contractor warrants good title to all material, supplies, and equipment installed or incorporated in the Work and agrees upon completion of all Work to deliver the premises, together with all improvements and appurtenances constructed or placed thereon by the Contractor, to CVSan free from any claim, liens, security interest, or charges. The Contractor further agrees that neither the Contractor nor any person, firm, or corporation furnishing any materials or labor for any work covered by this Contract shall have any right to a lien upon the premises or any improvement or appurtenances thereon, provided that this shall not preclude the Contractor from installing metering devices and other equipment of utility companies or of municipalities, the title of which is commonly retained by the utility company or the municipality.

Nothing contained in this paragraph, however, shall defeat or impair the right of such persons furnishing materials or labor under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of CVSan. The provisions of this Paragraph shall be inserted in all subcontracts and material contracts, and notice of its provisions shall be given to all persons furnishing materials for the work when no formal Contract is entered into for such materials.

8.06 SUBSTANTIAL COMPLETION

When the Contractor considers that the Work is Substantially Complete, the Contractor shall notify the Construction Manager in writing. Upon receipt of the notification, the Construction Manager, CVSan and/or their authorized representatives will make inspection, to determine if the Work and administrative requirements are sufficiently complete in accordance with the Contract Documents so CVSan can occupy or utilize the Work for its intended use. If items are found which prevent such use or occupancy, the Construction Manager shall notify the Contractor in writing of such items by issuing a Corrective Work Item List.

Upon the completion of such corrective work, the Contractor shall so notify the Construction Manager in writing. The Construction Manager shall inspect the Work to

determine its acceptability for Substantial Completion and for determination of the status of any other items which are required to meet the terms of Substantial Completion as listed in the Contract Documents. Upon verification that the project is Substantially Complete, the Construction Manager shall prepare a Certificate of Substantial Completion and the Punch List. The Certificate shall establish the date of Substantial Completion and the responsibilities of CVSsan and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, commencement of warranties required by the Contract Documents, and shall fix the time, not to exceed sixty (60) days, within which the Contractor shall finish all items on the Punch List or remaining work or administrative requirements accompanying the Certificate. When the preceding provisions have been approved by both CVSsan and the Contractor, they shall sign the Certificate to acknowledge their written acceptance of the responsibilities assigned to them in such Certificate. By such acknowledgment, the Contractor agrees to pay CVSsan's actual costs including, but not limited to, charges for engineering, inspection and administration incurred due to the failure to complete the Punch List within the time period provided in the Certificate of Substantial Completion.

8.07 FINAL INSPECTION AND PAYMENT

Upon completion of the Work, including all items on the Punch List, and upon completion of final cleaning, the Contractor shall so notify the Construction Manager in writing. Upon receipt of the notification, the Construction Manager, CVSsan and/or their authorized representatives will make the final inspection, to determine the actual status of the Work in accordance with the terms of the Contract. If materials, equipment, workmanship or administrative requirements are found which do not meet the terms of the Contract, the Construction Manager shall prepare a Final Inspection List of such items and submit it to the Contractor. Following completion of the work to correct all items in the Final Inspection List the Contractor shall notify the Construction Manager. The Construction Manager shall, in turn, notify CVSsan that the Work has been completed in accordance with the Contract. Final determination of the acceptability of the Work shall be made by CVSsan. After completion of the Work, but prior to its Acceptance by CVSsan, the last partial payment will be made to the Contractor in accordance with Section 00700-8.02, **PARTIAL PAYMENTS**.

After receipt of the last partial payment, but prior to Acceptance of the Work by CVSsan, the Contractor shall send a letter to the Construction Manager. The letter, pursuant to California Public Contract Code Section 7100, shall state that acceptance of the final payment described below shall operate as and shall be, a release to CVSsan, the Construction Manager, the Design Consultant, and their duly authorized agents, from all claim of and/or liability to the Contractor arising by virtue of the Contract related to those amounts. Disputed Contract claims in stated amounts previously filed as provided in Section 00700-7.03, **RESOLUTION OF DISPUTES**, may be specifically excluded by the Contractor from the operation of the release.

Following receipt of all required submittals and the Construction Manager's written statement that construction is complete and recommendation that CVSsan accept the project, CVSsan will take formal action on Acceptance.

Within ten (10) days of the Acceptance by CVSan of the completed Work embraced in the Contract, CVSan will cause to be recorded in the office of the County Recorder a Notice of Completion.

Thirty-five (35) days after recording the Notice of Completion of the work involved in the Contract, CVSan will pay the Contractor in lawful money such sums of money as may be due the Contractor including all sums retained but excluding such sums as have previously been paid the Contractor or as may be needed to cover outstanding stop notice claims or disputes. This payment will constitute the final payment to the Contractor under this Contract except for outstanding stop notice claims and disputed amounts.

In the event of a dispute between CVSan and the Contractor, CVSan may in accordance with Public Contract Code Section 7107 withhold from the final payment an amount of one hundred fifty (150) percent of the disputed amount.

***** END OF SECTION *****

1.01 SECTION 00800

SUPPLEMENTARY GENERAL CONDITIONS

ARTICLE 2 - MODIFICATIONS TO THE GENERAL CONDITIONS

2.01 TIME ALLOWED FOR COMPLETION

In accordance with the provisions of Section 00700-6.02, **CONTRACT TIME**, Substantial Completion of this project shall be completed within sixty (60) consecutive working days from the date established in the Notice to Proceed for the commencement of Contract Time.

2.02 DAMAGES FOR DELAYS

In accordance with the provisions of Section 00700-6.05, **LIQUIDATED DAMAGES**, for the period of time that any portion of the Work remains unfinished after the time fixed for Substantial Completion in Section 00800-1.01, **TIME ALLOWED FOR COMPLETION**, as modified by extensions of time granted by CVSan, it is understood and agreed by the Contractor and CVSan that the Contractor shall pay CVSan the damages listed below.

<u>Item</u>	<u>Dollars Per Day Liquidated Damages</u>
Substantial Completion of entire project	\$ 2,000.00

2.03 WEATHER DAYS

In accordance with the provisions of Section 00700-6.04 B3, **Weather Delays**, an allowance of zero (0) working days of weather-caused delay have been included in the time allowed for completion. This allowance represents a reasonable assessment of anticipated lost working days based on historical weather patterns. These weather days shall be included in the Contractor's schedule as specified in Section 01310-1.04, **WEATHER CONDITIONS**.

2.04 NOT USED

2.05 CONTRACT ADMINISTRATION

The following project representatives are hereby designated by CVSan:

- A. Name of CVSan Representative: Landon Lochrie, Associate Engineer

B. Name of Construction Manager: Matthew Lee, Engineering Technician

2.06 NOT USED

ARTICLE 3 - INDEMNITY AND INSURANCE

3.01 INSURANCE

Within ten (10) days after award of the Contract, the Contractor shall promptly obtain, at its own expense, all the insurance required by Section 00800-Article 2, **INDEMNITY AND INSURANCE**, and submit coverage verification for review and approval by CVSan prior to CVSan's execution of the Contract.

The Notice to Proceed with the Work under this Contract will not be issued, and the Contractor shall not commence work, until such insurance has been approved by CVSan. Such insurance shall remain in full force and effect at all times during the prosecution of the Work and until the final completion and Acceptance thereof. In addition, the Commercial General Liability Insurance shall be maintained for a minimum of five (5) years after final completion and acceptance of the Work. The Notice to Proceed does not relieve the Contractor of the duty to obtain such insurance as required herein.

The Contractor shall not allow any subcontractors to commence work on its subcontract until all similar insurance required of the subcontractor, except Builder's Risk Insurance, has been obtained and verified by the Contractor and submitted to the Construction Manager for CVSan's review and records. Subcontractors shall furnish original certificates and endorsements as verification of insurance coverage. The insurance liability limits specified in Section 00800-Article 2, **INDEMNITY AND INSURANCE**, shall apply for all subcontractors listed in Section 00430, **DESIGNATION OF SUBCONTRACTORS**. The Contractor shall designate the insurance liability limits for all other subcontractors.

Companies writing the insurance under this article shall be licensed to do business in the State of California or be permitted to do business under the Surplus Line Law of the State of California. Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A:VII.

All policies of insurance required herein shall not be suspended, voided, canceled, or reduced in coverage or in limits except after thirty (30) days' prior notice by certified mail with return receipt requested has been given to CVSan.

Contractors shall include all costs for all insurance in the Bids.

Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from its operations under this Contract. For any claims related to this project, the Contractor's insurance coverage shall be primary insurance as respects CVSan, the Design Consultant, and the Construction Manager and their officers, officials, employees, agents, and volunteers. Any insurance or

self-insurance maintained by CVSan, its officers, officials, employees, agents, or volunteers shall be in excess of the Contractor's insurance and shall not contribute with it.

Any failure of the Contractor to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to CVSan, the Design Consultant, and the Construction Manager and their officers, officials, employees, agents, or volunteers.

The Contractor shall take out, pay for, and maintain throughout the duration of this Contract and for such additional periods as more specifically required herein the following insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, the Contractor's agents, representatives, employees, or subcontractors.

- A. Commercial General and Automobile Liability Insurance - This insurance shall protect the Contractor from claims for bodily injury and property damage which may arise because of the nature of the work or from operations under this Contract.
 - 1. Additional Insureds –The Commercial General Liability policy of insurance shall include as additional insureds CVSan, each of its officers, employees, and agents; the Design Consultant, the Construction Manager and each of their partners, officers, employees, and agents and coverage provided to such additional insureds. This policy shall provide coverage to each of the said insureds with respect to said work. Both bodily injury and property damage insurance must be on an occurrence basis. Said policy shall be endorsed to provide primary coverage to the full limit of liability stated in the declarations, and if there is any other insurance against the loss covered by said policy, that other insurance shall be excess insurance and not contribute with said policy.
 - 2. Amount of Coverage - The bodily injury and property damage liability of the Commercial General Liability insurance including products and completed operations shall provide coverage in the following limits of liability: \$5,000,000 on account of any one occurrence with an annual general aggregate limit of not less than twice the required occurrence limit. The Automobile Liability insurance policy shall provide minimum limits of \$5,000,000 per accident arising out of the ownership, maintenance, or use of any owned or non-owned vehicles.
 - 3. Subcontractors - The bodily injury and property damage liability insurance shall not be deemed to require the Contractor to have its subcontractors named as insureds in the Contractor's policy, but the policy shall protect the Contractor from contingent liability which may arise from operations of its subcontractors.
 - 4. Included Coverage - The above Commercial General Liability insurance shall also include the following coverage:
 - a. Premises - Operations

- b. Owner's / Independent Contractor's and Contractor's Protective
- c. Products - Completed Operations
- d. Personal Injury - False Arrest, Libel, Wrongful Eviction, etc.
- e. Broad Form Property Damage – including to the Maximum Extent Possible, coverage for the Assumption of Liability Pursuant to Completed Operations
- f. Separation if Insureds / Cross-Liability Provisions
- g. Duty to Defend all Insureds
- h. Deletion of any Limitation on Coverage for Bodily Injury or Property Damage Arising out of Subsidence or Soil or Earth Movement.

A provision that the annual general aggregate and the products and completed operations annual aggregate shall apply separately to each Project for which Contractor provides services away from premises owned by or rented to Contractor.

- i. Pollution Legal Liability Endorsement
- j. XCU - (Explosion, Collapse, Underground Damage) XCU may be deleted when not applicable to operations performed by the Contractor or its subcontractors.
- k. Blanket Contractual Liability including the Indemnification Agreement as herein stated.

- 5. Umbrella Policy - At the option of the Contractor, primary limits may be less than required, with an Umbrella Policy providing the additional limits needed. This form of insurance will be acceptable provided that the Primary and Umbrella Policies both provide the insurance coverages herein required, including all additional insured requirements. The umbrella policy shall be provided on a “following form” basis with coverage at least as broad as provided on the underlying commercial General Liability insurance.

- B. Workers' Compensation Insurance - In accordance with the provisions of Article 5, Chapter 1, Part 7, Division 2 (commencing with Section 1860) and Chapter 4, Part 1, Division 4 (commencing with Section 3700) of the Labor Code of the State of California, the Contractor is required to secure the payment of compensation to its employees and for that purpose obtain and keep in effect adequate Workers' Compensation Insurance.

The Contractor is advised 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 shall comply with such provisions and have Employers' Liability limits of \$1,000,000 per accident before commencing the performance of the work of this Contract.

Before the Notice to Proceed with the Work under this Contract is issued, the Contractor shall submit written evidence that the Contractor has obtained for the

period of the Contract full Workers' Compensation Insurance coverage for all persons whom it employs or may employ in carrying out the work under this Contract. This insurance shall be in accordance with the requirements of the most current and applicable State Workers' Compensation Insurance Laws.

- C. Indemnification - To the fullest extent permitted by Law, the Contractor and each subcontractor as to its portion of the Work shall indemnify, defend, and hold harmless CVSan, the Design Consultant, and the Construction Manager and their agents, consultants, and employees from and against all liability, claims, damages, losses, and expenses, including but not limited to attorneys' fees and other litigation costs, arising out of or in any way connected to the performance of the Work, provided that any such liability, claim, damage, loss, or expense is attributable to bodily injury, sickness, disease, or death (including that sustained by Contractor's or subcontractor's employees), or to injury to or destruction of tangible property (other than the Work itself) including but not limited to the loss of use resulting therefrom. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist.

Contractor's and subcontractor's duty to indemnify and save harmless shall include the duty to defend as set forth in California Civil Code Section 2778; provided, that nothing herein contained shall be construed to require Contractor or subcontractor

to indemnify indemnities against any responsibility or liability in contravention of California Civil Code Section 2782.

3.02 INSURANCE DURING GUARANTEE PERIOD

Contractor shall maintain the above described Worker's Compensation, Public Liability, and Property Damage insurance and comprehensive General Liability insurance in force during the entire performance of all work the Contractor or its subcontractors during the guarantee period.

3.03 INJURY OR ILLNESS REPORTS

The Contractor shall furnish the Construction Manager with a copy of the Employer's Report of Injury as required by CAL/OSHA immediately following any incident requiring the filing of said report during the prosecution of the Work under this Contract. The Contractor shall also furnish the Construction Manager with a copy of the Employer's Report of Injury involving any subcontractor on this project.

3.04 NOTIFICATION OF INSURANCE COMPANIES

The Contractor shall advise all insurance companies to familiarize themselves with all of the conditions and provisions of this Contract, and they shall waive the right of special notification of any change or modification of this Contract or of extension of time, or of decreased or increased work, or of the cancellation of the Contract, or of any other act or acts by CVSan or its authorized employees and agents, under the terms of this Contract, and failure to so notify the aforesaid insurance companies of changes shall in no way relieve the insurance companies of their obligation under this Contract.

ARTICLE 4 - NOT USED

ARTICLE 5 - PARTNERING

The successful Bidder will have the opportunity to enter into a partnering agreement with CVSan. Partnering consists of a voluntary effort by all parties having a major role in the Project to develop joint goals and establish a cooperative rather than an adversarial atmosphere while executing the construction project. The objective of partnering is the effective completion of the work on schedule, within budget, and in accordance with the Contract Documents.

Although partnering is strongly encouraged, it is not a requirement of the Contract. The establishment of a partnering agreement will not change the legal relationship of the parties to the Contract nor relieve either party of any of the terms of the Contract.

To initiate the partnering process, CVSan and Contractor will meet after the Notice of Award to confirm if both parties agree that partnering will be utilized on the Project.

If agreement is reached that partnering will be utilized, the parties will conduct a Partnering workshop prior to the preconstruction conference. Follow-up workshop(s) may also be held throughout the project. All workshops may be conducted by an outside facilitator. It is expected that, at the conclusion of the initial workshop, the parties will express a consensus regarding, among other things, the respective goals in completing the Contract.

A successful partnership will require the participation of the following project personnel:

Contractor:	Company Executive, Project Manager, Superintendent, Foreman, Key suppliers, Subcontractor's supervisory personnel
CVSan:	General Manager, Project Manager, Inspector, Key staff
Design Consultant:	Principal-in-Charge, Project Manager, Project Engineer
Construction Manager:	Principal-in-Charge, Project Manager, Inspectors(s)

CVSan will make all the necessary arrangements for the workshop(s). The Contractor's costs associated with effectuating this partnering agreement will include attendance of appropriate personnel at the workshops. CVSan will pay for the actual site and facilitator costs for the Partnering workshop.

ARTICLE 6 - RECORD DRAWINGS AND ADDITIONAL INFORMATION

The following record information is available for review by the Contractor at CVSan's offices. CVSan makes no warranty as to the accuracy of this information.

Record drawings for each Project site are available for review upon request.

ARTICLE 7 - SUBSTANTIAL COMPLETION

- Open cut spot repair of pipes on Santa maria Avenue, Sheldon Court, and Cameron Street.
- Pipe bursting line replacement on Kinney Court, Omega Avenue, and Watson Street.
- Open cut pipe replacement on Topaz Court.

Substantial completion of the Project as required by Section 00700-8.06, **SUBSTANTIAL COMPLETION**, requires that the following portions of the Work must be completed in accordance with the requirements of the Contract Documents:

- Completion of the Work as required by the Contract Documents to allow CVSan to occupy and utilize the Project for its intended purpose.
- Completion of the Corrective Work Item List as described in Section 00700-8.06, **SUBSTANTIAL COMPLETION**.

- All testing required by the Contract and CVSan's General Provisions and Specifications for the Construction of Sanitary Sewers has been successfully completed.
- All process equipment shall be installed and operational.
- All items related to health and safety of CVSan operations and maintenance staff, including warning signs, guardrails, and safety equipment shall be complete.
- All record drawings have been submitted, updated, reviewed, and approved.

Portions of the Work not essential to the system operation, which can be completed without interruption of system operations, may be completed after the Work is substantially complete, and may include the following items:

- Final Site Clean-Up,
- Completion of the Punch List prepared by the Construction Manager in accordance with Section 00700-8.06, **SUBSTANTIAL COMPLETION**.

***** END OF SECTION *****

SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

Inflow & Infiltration Reduction Project

Under this contract, the work includes the following aspects

- A. Spot repair of 6-inch main on Santa Maria Avenue near Lorena Avenue.
- B. Spot Repair of 8-inch main on Sheldon Court near Veronica Avenue.
- C. Spot repair of 8-inch main on Cameron Street.
- D. Replace existing 6-inch VCP main with new 8-inch HDPE main by pipe bursting on Kinney Court.
- E. Replace existing 6-inch VCP main with new 8-inch HDPE main by pipe bursting on Omega Avenue.
- F. Replace existing 6-inch VCP main with new 8-inch DIP main on Topaz Court via open trench.
- G. Replacement of 6-inch VCP with new 8-inch HDPE by pipe bursting on Belle Street.

1.02 WORK SEQUENCE AND CONSTRAINTS

Project repairs at each site shall be done consecutively, with no more than one project site being affected at one time. Repair work at each project site must be completed prior to starting on a subsequent project site unless authorization is obtained from CVSan's Construction Manager. Contractor shall complete all full line replacement projects first, followed by the point repair projects by region shown in the plans.

The sanitary sewer system operation shall be maintained throughout the construction work. Limited interruptions of sewer service to complete connections and for other work must be approved by the Construction Manager. When performing sewer lateral reinstatement, service connections shall be reestablished to each user as quickly as possible, and shall not exceed four (4) hours from the initial disconnection of the sewer lateral from the sewer main or from the initial service interruption to the user.

Work hours for weekdays shall be defined as the following unless otherwise approved by CVSan: Work shall be done between the daytime hours of 7:00 a.m. and 4:00 p.m. in the public right of way or as otherwise specified by Alameda County Public Works after obtainment of the Encroachment Permit. Hours for closures of traffic lanes for work in the public right of way will be as specified in the County Encroachment Permit.

- A. Discharging

B. Bypassing

Bypassing or discharging of untreated or partially treated sewage to surface waters or drainage courses is prohibited during construction. In the event accidental bypassing or discharging is caused by the Contractor's operations, CVSan shall immediately be entitled to employ others to stop the bypassing or discharging without giving written notice to the Contractor. If a contractor-initiated bypass occurs, Contractor shall pay all expenses incurred by CVSan and any fines imposed by State and Federal agencies, courts, and third party suits.

C. Not Used

D. Specific Sequence and Constraints

The Contractor shall note that only certain structures, tie-ins and constraints are addressed in this section. All work, whether or not addressed here, shall be governed by applicable parts of this section and schedules and procedures further submitted for approval.

The Contractor shall include all work described in this section in the construction schedule. The sequence and constraints identified in this section shall be followed in the construction of the Work. However, alternatives to these sequences and constraints may be submitted by the Contractor for review by the Construction Manager.

Specific Sequences and Constraints:

1. Service shall be maintained at all times in the sanitary sewer system, except where Construction Manager has approved in writing a temporary planned service outage to be performed by the Contractor.

1.03 OCCUPANCY REQUIREMENTS (NOT USED)

1.04 CVSAN FURNISHED MATERIALS (NOT USED)

1.05 TRENCH EXCAVATION

The maximum length of trench excavation in advance of the pipe laying operation shall be 300 lineal feet, and the maximum amount of trench remaining open without backfill shall be 50 feet. No trench in public areas shall be left open during periods when the Contractor is not at the site of work. Trenches in these areas shall either be backfilled and temporarily paved, where applicable, or covered with steel trench plates as specified in Section 02200 EARTHWORK.

1.06 WORK UNDER OTHER CONTRACTS

- A. CVSan, utilities, and others may perform activities within Project area while the Work is in progress. Schedule the Work with CVSan, utilities, and others to minimize mutual interference.
- B. Not Used

1.07 WORK PERCENTAGES

The Contractor shall perform at least seventy-five (75) percent of the Contract bid amount. This portion of work shall encompass the performance of work by the Contractor's forces and equipment and the procurement of materials and equipment by the Contractor.

Subcontractors shall not be responsible for the performance of any work or procurement of materials and equipment within the above Contractor's work percentage allotment.

1.08 UNDERGROUND FACILITIES

The Contractor shall exercise care in all excavations to avoid damage to existing underground facilities. This shall include potholing or hand digging in those areas where underground facilities are known to exist until they have been sufficiently located to avoid damage to the facilities.

Prior to fabrication of any materials, the Contractor shall verify the location and elevations of existing underground piping, utilities and facilities, to ensure proper connection and/or clearance.

The Contractor shall exercise care in maintaining those pipes and facilities to be abandoned and/or removed which are required for the continuing operation of the existing facilities until such time as they can be abandoned. The Contractor shall exercise extreme caution in working in any area adjacent to existing facilities. It is essential that the existing facilities be maintained in service until the new work is ready for full time operation and is placed in service.

No additional compensation shall be provided to the Contractor for compliance with the provisions of this section or for the damage and repair of facilities due to the lack of such care.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

*****END OF SECTION*****

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 GENERAL

- A. Measurements of the completed work shall be in accordance with and by instruments and devices calibrated to United States (U.S) Standard Measures and the units of measurement for payment, and the limits thereof, shall be made as shown on the Plans, Specifications, General Requirements, and Supplementary Conditions.
- B. Units of Measurement
 - 1. Measurements shall be in accordance with U.S. Standard Measures.
 - 2. A pound is an avoirdupois pound.
 - 3. A ton is 2,000 pounds avoirdupois.
 - 4. The unit of liquid measure is the U.S. gallon.
- C. Certified Weights
 - 1. When payment is to be made on the basis of weight, the weighing shall be done on certified platform scales, or when approved by the Construction Manager, on a completely automated weighing and recording system.
 - 2. The Contractor shall furnish the Construction Manager with duplicate licensed weighmaster's certificates showing the actual net weights.
 - 3. CVSan will accept the certificates as evidence of the weights delivered.
- D. Methods of Measurement
 - 1. Materials and items of work which are to be paid for on the basis of measurement shall be measured in accordance with the method stipulated in the particular sections involved.
 - 2. In determining quantities, all measurements shall be made in a horizontal plane unless otherwise specified.
 - 3. Material not used from a transporting vehicle shall be determined by the Construction Manager and deducted from the certified tag.
 - 4. When material is to be measured and paid for on a volume basis and it would be impractical to determine the volume, or when requested by the Contractor in writing and approved by the Construction Manager in writing, the material will be weighed and converted to volume measurement for payment purposes.
 - 5. Factors for conversion from weight measurement to volume measurement will be determined by the Construction Manager and shall be agreed to by the Contractor before such method of measurement of pay quantities will be adopted.

6. Full compensation for all expense involved in conforming to the above requirements for measuring and weighing materials shall be considered as included in the unit prices paid for the materials being measured or weighed and no additional allowances will be made therefore.
7. Quantities of material wasted or disposed of in a manner not called for under the Contract; or rejected loads of material, including material rejected after it has been placed by reason of failure of the Contractor to conform to the provisions of the Contract; or material not unloaded from the transporting vehicle; or material placed outside the lines indicated on the plans or given by the Construction Manager; or material remaining on hand after completion of the Contract, will not be paid for and such quantities will be deducted from the final total quantities.
8. No compensation will be allowed for hauling rejected material.

1.02 BASE BID ITEMS

The Base Bid amounts for each Base Bid Item will be used for comparative bid analysis. The Base Bid amounts will also form the basis of monthly progress payments. Each Lump Sum Bid amount will undergo further breakdown as described later in this section. Unit prices for any unit price Bid Items will be the basis for monthly progress payment determinations and for any changes related to that Work Item. Base Bid Item 3 will also demonstrate the Contractor's compliance with the California Labor Code relating to the price for sheeting, shoring, and bracing of excavations. Base Bid Items are not intended to be exclusive descriptions of work categories and the Contractor shall determine and include in its pricing all materials, labor, and equipment necessary to complete each Base Bid Item (work phase) as shown and specified.

A. Bid Item 1 – Mobilization

1. This bid item shall be lump sum. Payment shall be made at seventy-five (75%) percent of the Bid Item amount on the first progress payment following completion of mobilization and the remaining amount on the final progress payment, with retention withheld as allowed by the contract documents.
2. This Bid Item shall include payment for obtaining all bonds, all Contractor acquired permits, licenses, agreements, certifications, notices of intent, and temporary easements; moving onto the site of all equipment, materials, and staff including obtaining and set up of Contractor's staging area/yard; furnishing and erecting all needed construction facilities, fencing, project signage, project security, demobilization, preconstruction photographs, video recording of surface features, progress schedules and reports, Contract meetings, and record drawings.
3. No payment for mobilization, or any part thereof, will be approved for payment under the Contract until all applicable mobilization items listed above have been completed.

4. This amount shall not exceed five percent (5%) of the total Bid price for the work.

B. Bid Item 2 - Traffic Control System and Construction Area Signs

1. This Bid Item shall be lump sum. Payment for this item will be prorated over the course of the Project based on percentage complete of all items.
2. This Bid Item includes preparing detailed traffic control plans approved by the County of Alameda; placing, adjusting, moving, and removing temporary traffic control measures, such as, but not limited to, flags, cones, barricades, crash barriers, signs, and flaggers (personnel dedicated to controlling and managing traffic), lighted arrow boards, changeable message signs, signs, detours, lighting, pedestrian and traffic ramps, temporary striping, temporary pavement markers, temporary detection devices, and all incidentals necessary for worker, pedestrian, and traffic protection, including furnishing all equipment, materials, and personnel associated therewith, and in accordance with the Contract Documents.

C. Bid Item 3 – Excavation, Shoring, Paving

1. This Bid Item shall be lump sum. Payment for this item will be prorated over the course of the project based on percentage complete of all items, excluding Bid Items 1 and 2, for the purpose of the calculation.
2. This Bid Item includes all excavation support measures required including, but not limited to design, installation, and removal of shoring and bracing required to stabilize and prevent movement of existing ground and to protect and provide for the safety of the Contractor's workers due to sudden collapse or movement of the existing ground, during excavation and trenching operations, including furnishing all equipment, materials, and personnel associated therewith, and in accordance with the Contract Documents and California Labor Code 6700-6708.
3. This bid item includes saw cutting, grinding, surface demolition; removal and proper disposal of concrete, asphalt, and asphalt containing reinforcing fabric; trenching; spoil handling and proper disposal; excavation and disconnection of all service laterals.
4. All labor and materials required for trench backfill and surface restoration. Sub base is to consist of Class II AB or native material compacted to 90% (top 30" to 95% in roadway) and lift height is not to exceed 6". Work shall include place and compact trench backfill; compaction testing as required by Alameda County; place and compact surface restoration and paving, including sidewalks, concrete paving, curbs, gutters, edge grinding retaining walls, driveways, specialty hardscapes, reinforcing fabric.

D. Bid Item 4 – Water Pollution Control

1. This Bid Item shall be lump sum. Payment for this item will be prorated over the course of the project based on percentage complete of all items.

2. This Bid Item includes all water pollution prevention measures required including, but not limited to, installation and removal of erosion and sedimentation control measures to implement temporary construction site best management practices (BMP), including furnishing all equipment, materials, and personnel associated therewith, and in accordance with the Contract Documents.
- E. Bid Item 5 – Sewer Flow Control (Includes Bypass and Dewatering)
1. This Bid Item shall be lump sum. Payment for this item will be prorated over the course of the project based on percentage complete of all items.
 2. This Bid Item includes submittals, plugging, bypass pumping, piping, trench plates, temporary discharge pipe, trenching, traffic ramps where needed, surface restoration, protection of piping from traffic, power supply, sound attenuation for equipment, temporary flow diversions, handling flows from sewer laterals that are temporarily disconnected, restoration of sewer flows, daily cleanup, security, testing, monitoring of system, including furnishing all equipment, materials, and personnel associated therewith, and in accordance with the Contract Documents.
- F. Bid Item 6 – Clear and Grub Easement and Restoration of Landscaping
1. This bid item shall be lump sum. Payment for this item will be prorated over the course of the project based on the percentage complete of all items.
 2. This bid item includes removal and proper disposal of existing vegetation and existing organic soils as needed to complete the pipe excavation. It also includes all plants and materials needed for the restoration of surfaces and repair and reconnection of existing irrigation.
- G. Bid Item 7 – Potholing Existing Storm Drain
1. This bid item shall be lump sum. Payment for this item will be prorated over the course of the project based on the percentage complete of all items.
 2. This bid item shall include all labor and materials necessary for the locating and potholing of existing storm drain lines as shown in the contract drawings.
- H. Bid Item 8 – Manhole Reconnections
1. This bid item shall be paid at the unit price bid per each manhole connected regardless of depth or configuration.
 2. This bid item includes submittals; cutting or chipping to penetrate existing manhole; Excavation, backfill, surface restoration; expanding, repairing, and finishing channels, connection of new pipe to manhole with rubber water stop sealed with non-shrink grout and polymer grout; record drawings; including furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.
- I. Bid Item 9 – Service Lateral Reconnections

1. This bid item shall be paid at the unit price bid per each sanitary sewer service lateral reconnected to the sewer main.
 2. This bid item includes submittals; locating/potholing and protecting existing utilities; reconnection of the service lateral at a saddle on the main sewer line, a lateral extension as necessary to connect with new sewer, and a stainless steel banded rubber coupling connection with the existing lateral; an electro-fusion saddle for HDPE sewer lateral connections, testing; video inspection; cleaning; record drawings; including furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.
- J. Bid Item 10 – Replace Existing Pipe by Pipe Bursting
1. This bid item shall be paid at the unit price bid per foot of installed pipe measured from center of manhole to center of manhole.
 2. This bid item include submittals; locating/potholing and protecting existing utilities; surveying; install sewer pipe; dust control; testing; video inspection; prepare and compact pipe sub base; place and compact pipe bedding; connecting and sealing pipe ends in structures; resetting valve boxes, monuments, traffic signal loops, fences, and other surface features disturbed by the work; cleaning; record drawings; including furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.
- K. Bid Item 11 – Replace Existing Pipe by Open Cut Trench
1. This bid item shall be paid at the unit price bid per foot of installed pipe measured from center of manhole to center of manhole.
 2. This bid item includes submittals; locating/potholing and protecting existing utilities; surveying; install sewer pipe; dust control; testing; video inspection; prepare and compact pipe sub base; place and compact pipe bedding; connecting and sealing pipe ends in structures; resetting valve boxes, monuments, traffic signal loops, fences, landscaping, temporary relocation of residents property, and other surface features disturbed by the work; cleaning; record
 3. drawings: including furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.
- L. Bid Item 12 – Backfill at Storm Drain Crossing with Controlled Low Strength material (CLSM) (Revocable If Not Needed)
1. This bid item shall be paid at the unit price per cubic yard of material installed.
 2. No adjustment in unit price will be made for increase or decrease of quantities for this bid item as set forth in Section 00310, BID SCHEDULE, herein, and Section 4-1.03B, "Increased or Decreased Quantities", and Section 01035 Modification Procedures, Paragraph 1.06. "Increased or Decreased Quantities" shall not apply.

- M. Bid Item 13 – Replace Existing Storm Drain with PVC Pipe (Revocable If Not Needed)
1. This bid item shall be paid at the unit price per linear foot of pipe installed as measured from connection to existing pipe to connection to existing pipe.
 2. No adjustment in unit price will be made for increase or decrease of quantities for this bid item as set forth in Section 00310, BID SCHEDULE, herein, and Section 4-1.03B, "Increased or Decreased Quantities", and Section 01035 Modification Procedures, Paragraph 1.06. "Increased or Decreased Quantities" shall not apply.
- N. Bid Item 14 – Add Concrete Cap Over Existing Storm Drain (Revocable If Not Needed)
1. This bid item shall be paid at the unit price per cubic yard of material installed.
 2. No adjustment in unit price will be made for increase or decrease of quantities for this bid item as set forth in Section 00310, BID SCHEDULE, herein, and Section 4-1.03B, "Increased or Decreased Quantities", and Section 01035 Modification Procedures, Paragraph 1.06. "Increased or Decreased Quantities" shall not apply.
- O. Bid Item 15 – New Sewer Manhole (revocable If Not Needed)
1. This bid item shall be paid at the unit price bid for each installed, which includes all costs for the required manhole including precast manhole sections, base section concrete, miscellaneous metals, reinforcing, utility locating and potholing, excavation, backfilling according to the requirements for backfilling against structures, compaction, compaction testing gasket and mastic materials, removal of existing pipe and structure(s) as required, making pipe connections including outside drop connections where specified; removal and replacement, repaving, removal of PCC, waterproofing, and vacuum/leakage testing and no additional compensation therefore.
- P. Bid Item 16 – Excavate Rock (revocable If Not Needed)
1. This bid item shall be paid at the unit price bid per cubic yard of rock removed as measured in the trench/excavation.
 2. Rock is defined in Section 02300 and determined by the Construction Manager.
 3. No adjustment in unit price will be made for increase or decrease of quantities for this bid item as set forth in Section 00310, BID SCHEDULE, herein, and Section 4-1.03B, "Increased or Decreased Quantities", and Section 01035 Modification Procedures, Paragraph 1.06. "Increased or Decreased Quantities" shall not apply.

4. This bid item includes excavating existing rock and providing suitable backfill and compaction of material to the subgrade level, including furnishing all equipment, materials and personnel associated therewith, and in accordance with these specifications. The Construction Manager during construction operations will make the determination of rock as defined in the Contract Documents.
 5. This bid item is revocable if no rock excavation is required.
- Q. Bid Item 17 – Extra Lateral repair (Revocable If Not Needed)
1. This bid item shall be paid at the unit price bid per lineal foot of sanitary sewer service lateral repaired for Bid Item 9 to the sewer main.
 2. This bid item includes submittals; locating/potholing and protecting existing utilities; Excavation, backfill, surface restoration, a lateral extension as necessary to repair a broken service lateral; including furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.
 3. Sub base is to consist of Class II AB or native material compacted to 90% (top 30” to 95% in roadway) and lift height is not to exceed 6”.
- R. Bid Item 18 – Removal of Sags and Joint Offsets (Revocable If Not Needed)
1. This bid item shall be paid at the unit price bid per foot of sagged pipe as directed by the Construction Manager.
 2. No adjustment in unit price will be made for increase or decrease of quantities for this bid item as set forth in Section 00310 BID SCHEDULE, herein, and Section 4-1.03B, "Increased or Decreased Quantities", and 4-1.03C, "Changes in Character of Work", of the State of California, Department of Transportation Standard Specifications, January 1992 shall not apply.
 3. This bid item includes removal of sags in the pipe by excavating the sewer pipeline and releveling the sewer to meet specified sag limits, including furnishing all equipment, materials and personnel associated therewith, and in accordance with these specifications. The Construction Manager, after review of the video inspection records performed after pipe bursting is complete, will make the determination of sag locations to be repaired, if any.
 4. This unit price will not include or be utilized for repair of sagged pipe sections observed below substantial residential structures such as garages or storage buildings.
 5. This bid item is revocable if no sag repairs are identified by CVSan Construction Manager.
- S. Bid Item 19 – Overexcavation and Special Trench Bedding (Revocable If Not Needed)

1. This bid item shall be paid at the unit price bid per cubic yard of over excavation and backfill beyond the limits indicated on the plan as directed by the Construction Manager.
2. No adjustment in unit price will be made for increase or decrease of quantities for this bid item as set forth in Section 00310 BID SCHEDULE, herein, and Section 01035 Modification Procedures, Paragraph 1.06. "Increased or Decreased Quantities" shall not apply.
3. This bid item includes excavating unsuitable existing soil and providing special trench bedding, including furnishing all equipment, materials and personnel associated therewith, and in accordance with these specifications. The Construction Manager during construction operations will make the determination of unsuitable material.
4. This bid item is revocable if no over excavation and special trench bedding is required.
5. This bid item is revocable if no rock or concrete excavation is required.

The Total amount Base Bid includes the summation of Bid Items 1 through 19 as specified in the Contract Documents and represents the total Base Bid price to complete the Work in the Contract Documents.

1.03 DEDUCTIVE ALTERNATIVE BID ITEMS

The Bid amounts for each Deductive Alternative Bid Item will be used for comparative bid analysis. The Bid amounts will also form the basis of monthly progress payments. Each Lump Sum bid amount will undergo further breakdown as described later in this section. Unit prices for any unit price Bid Items will be the basis for monthly progress payment determinations and for any changes related to that Work item. Deductive Alternative Bid Items are not intended to be exclusive descriptions of work categories and the Contractor shall determine and include in its pricing all materials, labor, and equipment necessary to complete each Deductive Alternative Bid Item (work phase) as shown and specified.

A. Bid Item 101 – Mobilization

1. This bid item shall be lump sum. Payment shall be made at seventy-five (75%) percent of the Bid Item amount on the first progress payment following completion of mobilization and the remaining amount on the final progress payment, with retention withheld as allowed by the contract documents.
2. This Bid Item shall include payment for obtaining all bonds, all Contractor acquired permits, licenses, agreements, certifications, notices of intent, and temporary easements; moving onto the site of all equipment, materials, and staff including obtaining and set up of Contractor's staging area/yard; furnishing and erecting all needed construction facilities, fencing, project signage, project security, demobilization, preconstruction photographs, video recording of surface features, progress schedules and reports, Contract meetings, and record drawings.

3. No payment for mobilization, or any part thereof, will be approved for payment under the Contract until all applicable mobilization items listed above have been completed.
4. This amount shall not exceed five percent (5%) of the total Bid price for the work.

B. Bid Item 102 - Traffic Control System and Construction Area Signs

1. This Bid Item shall be lump sum. Payment for this item will be prorated over the course of the Project based on percentage complete of all items.
2. This Bid Item includes preparing detailed traffic control plans approved by the County of Alameda; placing, adjusting, moving, and removing temporary traffic control measures, such as, but not limited to, flags, cones, barricades, crash barriers, signs, and flaggers (personnel dedicated to controlling and managing traffic), lighted arrow boards, changeable message signs, signs, detours, lighting, pedestrian and traffic ramps, temporary striping, temporary pavement markers, temporary detection devices, and all incidentals necessary for worker, pedestrian, and traffic protection, including furnishing all equipment, materials, and personnel associated therewith, and in accordance with the Contract Documents.

C. Bid Item 103 – Excavation, Shoring, Paving

1. This Bid Item shall be lump sum. Payment for this item will be prorated over the course of the project based on percentage complete of all items, excluding Bid Items 1 and 2, for the purpose of the calculation.
2. This Bid Item includes all excavation support measures required including, but not limited to design, installation, and removal of shoring and bracing required to stabilize and prevent movement of existing ground and to protect and provide for the safety of the Contractor’s workers due to sudden collapse or movement of the existing ground, during excavation and trenching operations, including furnishing all equipment, materials, and personnel associated therewith, and in accordance with the Contract Documents and California Labor Code 6700-6708.
3. This bid item includes saw cutting, grinding, surface demolition; removal and proper disposal of concrete, asphalt, and asphalt containing reinforcing fabric; trenching; spoil handling and proper disposal; excavation and disconnection of all service laterals.
4. All labor and materials required for trench backfill and surface restoration. Sub base is to consist of Class II AB or native material compacted to 90% (top 30” to 95% in roadway) and lift height is not to exceed 6”. Work shall include place and compact trench backfill; compaction testing as required by Alameda County; place and compact surface restoration and paving, including sidewalks, concrete paving, curbs, gutters, edge grinding retaining walls, driveways, specialty hardscapes, reinforcing fabric.

D. Bid Item 104 – Water Pollution Control

1. This Bid Item shall be lump sum. Payment for this item will be prorated over the course of the project based on percentage complete of all items.
 2. This Bid Item includes all water pollution prevention measures required including, but not limited to, installation and removal of erosion and sedimentation control measures to implement temporary construction site best management practices (BMP), including furnishing all equipment, materials, and personnel associated therewith, and in accordance with the Contract Documents.
- E. Bid Item 105 – Sewer Flow Control (Includes Bypass and Dewatering)
1. This Bid Item shall be lump sum. Payment for this item will be prorated over the course of the project based on percentage complete of all items.
 2. This Bid Item includes submittals, plugging, bypass pumping, piping, trench plates, temporary discharge pipe, trenching, traffic ramps where needed, surface restoration, protection of piping from traffic, power supply, sound attenuation for equipment, temporary flow diversions, handling flows from sewer laterals that are temporarily disconnected, restoration of sewer flows, daily cleanup, security, testing, monitoring of system, including furnishing all equipment, materials, and personnel associated therewith, and in accordance with the Contract Documents.
- F. Bid Item 106 – Clear and Grub Easement and Restoration of Landscaping
1. This bid item shall be lump sum. Payment for this item will be prorated over the course of the project based on the percentage complete of all items.
 2. This bid item includes removal and proper disposal of existing vegetation and existing organic soils as needed to complete the pipe excavation. It also includes all plants and materials needed for the restoration of surfaces and repair and reconnection of existing irrigation.
- G. Bid Item 107 – Potholing Existing Storm Drain
1. This bid item shall be lump sum. Payment for this item will be prorated over the course of the project based on the percentage complete of all items.
 2. This bid item shall include all labor and materials necessary for the locating and potholing of existing storm drain lines as shown in the contract drawings.
- H. Bid Item 108 – Manhole Reconnections
1. This bid item shall be paid at the unit price bid per each manhole connected regardless of depth or configuration.
 2. This bid item includes submittals; cutting or chipping to penetrate existing manhole; Excavation, backfill, surface restoration; expanding, repairing, and finishing channels, connection of new pipe to manhole with rubber water stop sealed with non-shrink grout and polymer grout; record drawings; including furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications

- I. Bid Item 109 – Service Lateral Reconnections
1. This bid item shall be paid at the unit price bid per each sanitary sewer service lateral reconnected to the sewer main.
 2. This bid item includes submittals; locating/potholing and protecting existing utilities; reconnection of the service lateral at a saddle on the main sewer line, a lateral extension as necessary to connect with new sewer, and a stainless steel banded rubber coupling connection with the existing lateral; an electro-fusion saddle for HDPE sewer lateral connections, testing; video inspection; cleaning; record drawings; including furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.
- J. Bid Item 110 – Replace Existing Pipe by Pipe Bursting
1. This bid item shall be paid at the unit price bid per foot of installed pipe measured from center of manhole to center of manhole.
 2. This bid item include submittals; locating/potholing and protecting existing utilities; surveying; install sewer pipe; dust control; testing; video inspection; prepare and compact pipe sub base; place and compact pipe bedding; connecting and sealing pipe ends in structures; resetting valve boxes, monuments, traffic signal loops, fences, and other surface features disturbed by the work; cleaning; record drawings; including furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.
- K. Bid Item 111 – Backfill at Storm Drain Crossing with Controlled Low Strength material (CLSM) (Revocable If Not Needed)
1. This bid item shall be paid at the unit price per cubic yard of material installed.
 2. No adjustment in unit price will be made for increase or decrease of quantities for this bid item as set forth in Section 00310, BID SCHEDULE, herein, and Section 4-1.03B, "Increased or Decreased Quantities", and Section 01035 Modification Procedures, Paragraph 1.06. "Increased or Decreased Quantities" shall not apply.
- L. Bid Item 112 – Replace Existing Storm Drain with PVC Pipe (Revocable If Not Needed)
1. This bid item shall be paid at the unit price per linear foot of pipe installed as measured from connection to existing pipe to connection to existing pipe.
 2. No adjustment in unit price will be made for increase or decrease of quantities for this bid item as set forth in Section 00310, BID SCHEDULE, herein, and Section 4-1.03B, "Increased or Decreased Quantities", and Section 01035 Modification Procedures, Paragraph 1.06. "Increased or Decreased Quantities" shall not apply.

- M. Bid Item 113 – Add Concrete Cap Over Existing Storm Drain (Revocable If Not Needed)
1. This bid item shall be paid at the unit price per cubic yard of material installed.
 2. No adjustment in unit price will be made for increase or decrease of quantities for this bid item as set forth in Section 00310, BID SCHEDULE, herein, and Section 4-1.03B, "Increased or Decreased Quantities", and Section 01035 Modification Procedures, Paragraph 1.06. "Increased or Decreased Quantities" shall not apply.
- N. Bid Item 114 – New Sewer Manhole (revocable If Not Needed)
1. This bid item shall be paid at the unit price bid for each installed, which includes all costs for the required manhole including precast manhole sections, base section concrete, miscellaneous metals, reinforcing, utility locating and potholing, excavation, backfilling according to the requirements for backfilling against structures, compaction, compaction testing gasket and mastic materials, removal of existing pipe and structure(s) as required, making pipe connections including outside drop connections where specified; removal and replacement, repaving, removal of PCC, waterproofing, and vacuum/leakage testing and no additional compensation therefore.
- O. Bid Item 115 – Excavate Rock (revocable If Not Needed)
1. This bid item shall be paid at the unit price bid per cubic yard of rock removed as measured in the trench/excavation.
 2. Rock is defined in Section 02300 and determined by the Construction Manager.
 3. No adjustment in unit price will be made for increase or decrease of quantities for this bid item as set forth in Section 00310, BID SCHEDULE, herein, and Section 4-1.03B, "Increased or Decreased Quantities", and Section 01035 Modification Procedures, Paragraph 1.06. "Increased or Decreased Quantities" shall not apply.
 4. This bid item includes excavating existing rock and providing suitable backfill and compaction of material to the subgrade level, including furnishing all equipment, materials and personnel associated therewith, and in accordance with these specifications. The Construction Manager during construction operations will make the determination of rock as defined in the Contract Documents.
 5. This bid item is revocable if no rock excavation is required.
- P. Bid Item 116 – Extra Lateral repair (Revocable If Not Needed)
1. This bid item shall be paid at the unit price bid per lineal foot of sanitary sewer service lateral repaired for Bid Item 9 to the sewer main.

2. This bid item includes submittals; locating/potholing and protecting existing utilities; Excavation, backfill, surface restoration, a lateral extension as necessary to repair a broken service lateral; including furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.
3. Sub base is to consist of Class II AB or native material compacted to 90% (top 30" to 95% in roadway) and lift height is not to exceed 6".

Q. Bid Item 117 – Removal of Sags and Joint Offsets (Revocable If Not Needed)

1. This bid item shall be paid at the unit price bid per foot of sagged pipe as directed by the Construction Manager.
2. No adjustment in unit price will be made for increase or decrease of quantities for this bid item as set forth in Section 00310 BID SCHEDULE, herein, and Section 4-1.03B, "Increased or Decreased Quantities", and 4-1.03C, "Changes in Character of Work", of the State of California, Department of Transportation Standard Specifications, January 1992 shall not apply.
3. This bid item includes removal of sags in the pipe by excavating the sewer pipeline and releveling the sewer to meet specified sag limits, including furnishing all equipment, materials and personnel associated therewith, and in accordance with these specifications. The Construction Manager, after review of the video inspection records performed after pipe bursting is complete, will make the determination of sag locations to be repaired, if any.
4. This unit price will not include or be utilized for repair of sagged pipe sections observed below substantial residential structures such as garages or storage buildings.
5. This bid item is revocable if no sag repairs are identified by CVSan Construction Manager.

R. Bid Item 118 – Overexcavation and Special Trench Bedding (Revocable If Not Needed)

1. This bid item shall be paid at the unit price bid per cubic yard of over excavation and backfill beyond the limits indicated on the plan as directed by the Construction Manager.
2. No adjustment in unit price will be made for increase or decrease of quantities for this bid item as set forth in Section 00310 BID SCHEDULE, herein, and Section 01035 Modification Procedures, Paragraph 1.06. "Increased or Decreased Quantities" shall not apply.
3. This bid item includes excavating unsuitable existing soil and providing special trench bedding, including furnishing all equipment, materials and personnel associated therewith, and in accordance with these specifications. The Construction Manager during construction operations will make the determination of unsuitable material.

4. This bid item is revocable if no over excavation and special trench bedding is required.
5. This bid item is revocable if no rock or concrete excavation is required.

The Total amount Deductive Alternative Bid includes the summation of Deductive Alternative Bid Items 101 through 118 as specified in the Contract Documents and represents the total Deductive Alternative Bid price to complete the Work in the Contract Documents.

1.04 CONTRACTOR'S COST BREAKDOWN (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

***** END OF SECTION *****

SECTION 01035

MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 CHANGES IN CONTRACT PRICE

This section provides supplementary procedures for the administration of changes to the Contract as specified in Section 00700-Article 7, **CHANGES IN THE WORK**. Whenever corrections, alterations, or modifications of the Work under this Contract are ordered by the Construction Manager and approved by CVSan and increase the amount of Work to be done, such added Work shall be known as extra work; and when such corrections, alterations, or modifications decrease the amount of Work to be done, such subtracted Work shall be known as omitted Work.

The difference in cost of the work affected by such change will be added to or deducted from the amount of said Contract price, as the case may be, by a fair and reasonable valuation, which shall be determined in one or more of the following ways as directed by the Construction Manager:

- A. Where applicable, by unit prices accepted by CVSan and stated in the Contract Documents;
- B. By unit prices subsequently fixed by agreement between the parties;
- C. By an acceptable lump sum proposal from the Contractor; or
- D. By Force Account (as described in Section 01035-1.03, **FORCE ACCOUNT PAYMENT**), when directed in writing and administered by CVSan through its agents or representatives.

The prices agreed upon and any agreed upon adjustment in Contract Time shall be incorporated in the written order issued by CVSan, which shall be written so to indicate an acceptance on the part of the Contractor as evidenced by its signature. By signature of the Change Order, the Contractor acknowledges that the adjustments to cost and time contained in the Change Order are in full satisfaction and accord, payment in full, and so waives any right to claim any further cost and time impacts at any time during and after completion of the Contract for the changes encompassed by the Change Order.

1.02 NEGOTIATED CHANGE ORDERS

Under the methods described in Sections 01035-1.01B and 01035-1.01C, the Contractor shall submit substantiating documentation with an itemized breakdown of Contractor and subcontractor direct costs, including labor, material, equipment rentals, and approved services, pertaining to such ordered Work in the form and detail acceptable to the Construction Manager. The direct costs shall include only costs as described in Section 01035-1.04, **DIRECT COST CATEGORIES**.

The Construction Manager will review the Contractor's proposal for the change and negotiate an equitable adjustment with the Contractor. After there is an agreement the Construction Manager will prepare and process the Change Order and make a recommendation for action by CVSan. All Change Orders must be approved by CVSan in writing before the Work can be authorized and the Change Order executed.

1.03 FORCE ACCOUNT PAYMENT

If either the amount of work or payment for a Change Order cannot be determined or agreed upon beforehand, CVSan may direct by written Change Order or Field Order that the work be done on a force account basis. The term "force account" shall be understood to mean that payment for the Work will be done on a time and expense basis, that is, on an accounting of the Contractor's forces, materials, equipment, and other items of cost as required and used to do the work. For the work performed, payment will be made for the documented actual cost of the Work as described in Section 01035-1.04, **DIRECT COST CATEGORIES**.

Prior to the commencement of force account Work, the Contractor shall notify the Construction Manager of its intent to begin work. Labor, equipment, and materials furnished on force account Work shall be recorded daily by the Contractor upon report sheets acceptable to the Construction Manager. The reports, if found to be correct, shall be signed by both the Contractor and Construction Manager, or inspector, and a copy of which shall be furnished to the Construction Manager no later than the working day following the performance of said work. The daily report sheet shall thereafter be considered the true record of force account work provided. If the Construction Manager, or Inspector, do not agree with the labor, equipment, and/or materials listed on the Contractor's daily force account report, the Contractor and Construction Manager, or Inspector, shall sign-off on the items on which they are in agreement. The Construction Manager shall then review the items of disagreement and will advise the Contractor, in writing, of its determination. If the Contractor disagrees with this determination, it shall have the right to file a claim notice as provided in Section 00700-7.03A, **Notice**.

The Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of work paid for on a force account basis and the costs of other operations.

To receive partial payments and final payment for force account Work, the Contractor shall submit, in a manner approved by the Construction Manager, detailed and complete documented verification of the Contractor's and any of its subcontractor's actual costs involved in the force account pursuant to the pertinent Change Order or Field Order. Such costs shall be submitted within thirty (30) days after said work has been performed. No payments will be made for work billed and submitted to the Construction Manager after the thirty (30) day period has expired.

The force account invoice shall itemize the materials used and shall cover the direct costs of labor and the charges for equipment rental, whether furnished by the Contractor, subcontractor, or other forces. The invoice shall be in a form acceptable to the Construction Manager and shall provide names or identifications and classifications of workers, the

hourly rate of pay and hours worked, and the size, type, and identification number of equipment and hours operated. Material charges shall be substantiated by valid copies of vendor's invoices.

1.04 DIRECT COST CATEGORIES

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

CVSan reserves the right to furnish such labor, materials, and equipment as it deems expedient, and the Contractor shall have no claim for profit or added fees on the cost of such items.

A. Direct Labor

The Contractor will be paid the cost of direct craft labor for the workers and foremen (when authorized by the Construction Manager) used or proposed to be utilized in the actual and direct performance of the work.

The direct labor cost will be the actual payroll cost, including wages, subsistence and travel payments, fringe benefits as established by negotiated labor agreements or state prevailing wages. To these actual wages, will be added a labor surcharge set forth in the State of California Department of Transportation publication entitled Labor Surcharge & Equipment Rental Rates. An additional allowance of eleven (11) percent will be added to this labor rate surcharge. No other fixed labor burdens will be considered, unless approved in writing by the Construction Manager.

Except as otherwise provided, the Contractor shall receive no additional compensation for wage premiums resulting from overtime work performed under change conditions without the prior written authorization of the Construction Manager.

B. Materials

The Contractor will be paid the cost of the materials to the purchaser, including tax and delivery if paid. If the Contractor does not furnish satisfactory evidence of the cost of such materials, it shall be deemed to be the lowest current price for the materials delivered to the jobsite for the applicable quantities of the materials.

Small tools and supplies will be paid for based on seven and a half (7.5) percent of the direct labor costs for the change prior to inclusion of the markup allowances provided for in Section 01035-1.05, **MARK-UP ALLOWANCES**. The allowance for small tools and supplies shall be deemed as full compensation for all tools and materials which are incidental to performing work including safety equipment provided by the Contractor to its employees.

C. Construction Equipment

The cost of construction machinery and equipment for changes shall be based on fair rental cost or equivalent rental cost of owned equipment. Such costs will be allowed for only those days or hours during which the equipment is in actual use. Payment shall be based on actual rental and transportation invoices but shall not exceed the rental rates listed for such equipment in the State of California Department of Transportation publication entitled "Labor Surcharge and Equipment Rental Rates," which is in effect on the date upon which the work is performed. Owner-operated equipment rates shall not exceed the rates in the aforesaid Rental Rate publication plus the labor costs as provided in Section 01035-1.04A, **Direct Labor**. The rental cost allowed for equipment will, in all cases, be understood to cover all fuel, supplies, repairs, ownership, and incidental costs and no further allowances will be made for those items, unless specific written agreement to that effect is made. Compensation for idle time of equipment through delays caused by CVSan will be made consistent with Section 8-1.09, Right of Way Delays, of the Caltrans Standard Specifications.

Individual items of construction equipment or small tools which have a replacement value of five hundred dollars (\$500) or less shall not be charged to the Change Order work unless it can be demonstrated that the particular item is needed solely for the completion of the Change Order work.

1.05 MARK-UP ALLOWANCES

The Contractor and subcontractors shall be entitled to compensation for indirect and overhead costs, bond and insurance costs, and profit for Change Order work. This compensation shall be in the form of markup percentages applied to the direct cost of the Change Order work, as further described below. The maximum markup which will be allowed for the Contractor's combined overhead and profit will be:

- A. For work by its own organization, the Contractor may add up to the following percentages:
 - 1. Direct Labor
 - a. Negotiated Change Orders (Section 01035-1.02): 25 percent
 - b. Force Account (Section 010350-1.03): 15 percent
 - 2. Materials: 10 percent
 - 3. Equipment (owned or rented): 15 percent
- B. For all such work performed by subcontractors, such subcontractor may add the same percentages as the Contractor as listed in Section 01035-1.05A above to its actual net increase in costs for combined overhead and profit. The Contractor may add up to five (5) percent of the subcontractor's total for its combined overhead and profit. No further compensation will be allowed for the Contractor's administration of the work performed by the subcontractor.
- C. For all such work done by sub-tier subcontractors, such sub-subcontractors may add the same percentages as the Contractor as listed in Section 01035-1.05A above to its actual net increase in costs for combined overhead and profit. The subcontractor may

add up to five (5) percent of the sub-subcontractor's total for its combined overhead and profit. The Contractor may add up to five (5) percent of the subcontractor's total for its combined overhead and profit. No further compensation will be allowed for the Contractor's administration of the work performed by the subcontractor.

- D. For all such work performed by consultants, engineers, surveyors, etc. the combined total allowable markup for the Contractor and all subcontractors shall be five (5) percent of the fee total.
- E. To the total of the direct costs and markups allowed herein under, not more than two (2) percent shall be added for any and all additional contractor bond and insurance, other than labor insurance. The compensable percentage for additional bonds and insurance shall be based on actual costs for the contractor's bonds and insurance, as substantiated through documentation submitted to the Construction Manager.

When both additional and deleted work are involved in any one change, the markup allowances of this section shall be applied to the net extra cost of the work, if any, after subtraction of the costs for the omitted work from the extra work. For Change Order work which results in a net decrease in cost a minimum of five (5) percent markup shall be added to the sum of the direct labor, materials, and equipment as a deduction for profit, indirect and overhead costs, and reduction in bond and insurance. The Contractor shall not be entitled to nor claim for anticipated profits on work that may be omitted.

The added fixed fees shall be considered to be full compensation, covering the cost of general supervision, overhead, profit, small tools, incidentals, and any other general expenses. The above fixed fees represent the maximum limits which will be allowed, and they include the Contractor's and all subcontractors' indirect field and home office expenses and all other costs for cost proposal preparation, schedule analysis and preparation, operation and maintenance manual documentation, and record documents and Change Order administration.

1.06 INCREASED OR DECREASED QUANTITIES

Increases or decreases in the quantity of a Contract unit price Bid Item of work will be determined by comparing the total pay quantity of such item of work with the Bid Schedule quantity.

If the total pay quantity of any item of work required under the Contract varies from the Bid Schedule quantity by twenty-five (25) percent or less, payment will be made for the quantity of work of said item performed at the Contract unit prices therefore, unless eligible for adjustment pursuant to Section 01035-1.06D, **Changes in Character of Work**.

If the total pay quantity of any item of work required under the Contract varies from the Bid Schedule quantity by more than twenty-five (25) percent in the absence of an executed Contract Change Order specifying the compensation to be paid, the compensation payable to the Contractor will be determined in accordance with Sections 01035-1.06A, 1.06B or 1.06C, as the case may be.

A. Increases of More Than Twenty-Five (25) Percent

Should the total pay quantity of any item of work required under the Contract exceed the Bid Schedule quantity by more than twenty-five (25) percent the work in excess of one hundred twenty-five (125) percent of the Bid Schedule quantity will be paid for by adjusting the Contract unit price, as hereinafter provided. At the option of the Construction Manager, payment for the work involved in such excess will be made on the basis of force account as provided by Section 01035-1.03, **FORCE ACCOUNT PAYMENT**.

Such adjustment of the Contract unit price will be the difference between the Contract unit prices and the actual unit costs, which will be determined as hereinafter provided, of the total pay quantity of the item. If the costs applicable to such item of work include fixed costs, such fixed costs will be deemed to have been recovered by the Contractor by the payments made for one hundred twenty-five (125) percent of the Bid Schedule quantity for such item, and in computing the actual unit cost, such fixed costs will be excluded. Subject to the above provisions, such actual unit cost will be determined by the Construction Manager in the same manner as if the work were to be paid for on a force account basis as provided in Section 01035-1.03, **FORCE ACCOUNT PAYMENT** or such adjustment will be as agreed to by the Contractor and the Construction Manager.

When the compensation payable for the number of units of an item of work performed in excess of one hundred twenty-five (125) percent of the Bid Schedule quantity is less than five thousand (5,000) dollars at the applicable Contract unit price, the Construction Manager reserves the right to make no adjustment in said price if it so elects, except that an adjustment will be further considered if requested in writing by the Contractor.

B. Decreases of More Than Twenty-Five (25) Percent

Should the total pay quantity of any item of work required under the Contract be less than seventy-five (75) percent of the Bid Schedule quantity, an adjustment in compensation pursuant to this Section will not be made unless the Contractor so requests in writing. If the Contractor so requests, the revised quantity will be paid for by adjusting the Contract unit price as hereinafter provided. At the option of the Construction Manager, payment for the quantity of the Work of such item performed will be made on the basis of force account as provided in Section 01035-1.03, **FORCE ACCOUNT PAYMENT**. However, in no case shall the payment for such work be less than that which would be made at the Contract unit price.

Such adjustment of the Contract unit price will be the difference between the Contract unit price and the actual unit cost of the total pay quantity of the item, including fixed costs. Such actual unit cost will be determined by the Construction Manager in the same manner as if the work were to be paid for on a force account basis as provided in Section 01035-1.03, **FORCE ACCOUNT PAYMENT**; or such adjustment will be as agreed to by the Contractor and the Construction Manager.

The payment for the total pay quantity of such item of work will in no case exceed the payment which would have been made for the performance of seventy-five percent (75%) of the Bid Schedule of the quantity for such item at the original Contract unit price.

C. Eliminated Items

In the event that a part of the Work is to be eliminated in its entirety and such Work is covered by unit price(s) contained in the Bid and/or Contract Documents, the price of the eliminated Work item shall be based on the applicable unit price(s). The Contractor shall be paid five (5) percent of the total extended amount (bid price times quantity) for the eliminated Work item in consideration of the Manager of such elimination.

If acceptable material is ordered by the Contractor for the eliminated item prior to the date of notification of such elimination by the Construction Manager, and if orders for such material cannot be canceled, it will be paid for at the actual cost, including a five (5) percent mark-up, to the Contractor. In such case, the material paid for shall become the property of CVSan and the actual cost of any further handling will be paid for. If the material is returnable to the vendor and if the Construction Manager so directs, the material shall be returned, and the Contractor will be paid for the actual costs of charges made by the vendor for returning the material. The actual cost of handling returned material will be paid for by CVSan.

D. Changes in Character of Work

If an ordered change in the Plans and Specifications materially changes the character of Work of a Contract unit price Bid Item from that on which the Contractor based its Bid price, and if the change increases or decreases the actual unit cost of such changed item as compared to the actual or estimated actual unit cost of performing the work of said item in accordance with the Plans and Specifications originally applicable thereto, in the absence of an executed Contract Change Order specifying the compensation payable, an adjustment in compensation therefore will be made in accordance with the following:

The basis of such adjustment in compensation will be the difference between the actual unit cost to perform the work of said item or portion thereof involved in the change as originally planned and the actual unit cost of performing the work of said item or portion thereof involved in the change, as changed. Actual unit costs will be determined by the Construction Manager in the same manner as if the work were to be paid for on a force account basis as provided in Section 01035-1.03, **FORCE ACCOUNT PAYMENT**; or such adjustment will be agreed to by the Contractor and the Construction Manager. Any such adjustment will apply only to the portion of the work of said item actually changed in character. At the option of the Construction Manager, the work of said item or portion of item which is changed in character will be paid for by force account as provided in Section 01035-1.03, **FORCE ACCOUNT PAYMENT**.

If the compensation for an item of work is adjusted under this Section, the costs recognized in determining such adjustment shall be excluded from consideration in making an adjustment for such item of work under the provisions in Sections 01035-1.06A, **Increases of More Than Twenty-Five (25) Percent** and 1.06B, **Decreases of More Than Twenty-Five (25) Percent**.

1.07 COST PRICING DATA AND ACCESS TO RECORDS

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

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

Such books, documents, and other records mentioned above shall include, but are not limited to all those reasonably necessary to determine the accurate amount of direct and indirect costs, job site, and delay and impact costs, however characterized, and shall include the original Bid and all documents related to the Bid and its preparation, as well as, the as-planned construction schedule and all related documents.

Such access shall include the right to examine and audit such records and make excerpts, transcriptions, and photocopies at CVSan's cost.

1.08 TIME EXTENSIONS FOR CHANGE ORDERS

If the Contractor requests a time extension for the extra work necessitated by a proposed Change Order, the request must comply with the applicable requirements of Section 01310-1.06, **TIME IMPACT ANALYSES**.

1.09 COST-REDUCTION INCENTIVE

1.0 General

The cost-reduction incentive program provides a mechanism by which the Contractor can be motivated to use his construction expertise to improve contract performance and thereby

create an overall reduction in the total cost of the Contract. The Contractor and its subcontractors may participate in the cost-reduction program; however, participation of the subcontractors shall be through the Contractor. In addition, the sharing arrangement between the Contractor and his subcontractor must be mutually agreed upon by the Contractor and its subcontractor, and written evidence of such agreement will be submitted along with the submittal of the cost-reduction proposal.

No cost-reduction proposals shall be submitted for which CVSsan's share in the participation of the proposal is not greater than \$5,000.

Cost-reduction proposals shall comply with the following conditions:

1. The proposed change shall not impair, in any manner, the essential functions or characteristics of the project, including but not limited to, service life, economy of operation, ease of maintenance, desired appearance, or design and safety standards.
2. The proposed change will not cause undue interruption of the Contract Work, nor shall the proposed change be allowed to extend the Contract completion date of the project unless an extension provides a specific project benefit.
3. The proposed change shall be in compliance with all local permits and regulations and code requirements as set forth in the Contract Documents.
4. The proposed change shall not involve payment of royalties by CVSsan to the Contractor.

2.0 Proposal Submittal

The cost-reduction proposal shall generally conform to Section 01300, SUBMITTALS.

The cost-reduction proposals shall contain as a minimum the following information:

1. Name of individuals associated with the development and preparation of the cost-reduction proposal.
2. A detailed description and duly signed Plans and Specifications showing Work as presently designed and the proposed changes. Clear identification of all advantages and disadvantages for each change proposed.
3. A summary of estimated costs which shall include, but not be limited to the following:
 - a. Project construction costs before and after the cost-reduction proposal. This shall be a detailed estimate identifying the following items:
 - 1) Quantities of material and equipment,

- 2) Unit prices of materials and equipment,
 - 3) Labor hours and rates for installation,
 - 4) Equipment hours and rates for installation,
 - 5) Subcontractor and prime contractor markups,
 - 6) Other estimate items necessary to evaluate the proposal.
- b. Operation and maintenance costs before and after the cost-reduction proposal.
 - c. Costs for implementing the cost-reduction proposal not included in item 3a above.
 - d. Other costs as required to meet all local permits, regulations, and code requirements as set forth in the Contract Documents.
 - e. Time required for execution of the proposed change.
4. A preliminary schedule indicating the general time impacts for implementing the proposed change. Also indicate the date that the cost-reduction proposal needs to be approved for implementation.
 5. If CVSsan advises the Contractor that the proposed change will be reviewed for more detailed consideration and approval, a detailed procedure and schedule for implementing the proposed change shall be submitted. This detailed procedure and schedule shall include all necessary Contract amendments. This submittal shall also include a copy of the current Contractor's schedule showing all changes which would occur if the cost-reduction proposal were accepted.

The provisions of Section 01035-9.0, **COST-REDUCTION INCENTIVE** shall not be construed to require CVSsan or Design Consultant to consider any cost-reduction proposal which may be submitted. CVSsan will not be liable to the Contractor for failure to accept or act upon any cost-reduction proposal submitted pursuant to this section nor for any delays to the work attributable to any such proposal. CVSsan shall not be responsible or liable for payment of any of the Contractor's costs associated with a non-accepted proposal.

If a cost-reduction proposal is similar to a change in the Contract Documents under consideration by CVSsan at the time said proposal is submitted, or if such a proposal is based upon or similar to standard specifications, standard special provisions, or standard plans adopted by CVSsan after the advertisement for the Contract, CVSsan will not accept such proposal, and CVSsan reserves the right to make such changes without cost-reduction compensation to the Contractor under the provisions of this section.

The Contractor shall continue to perform the Work in accordance with the requirements of the Contract until an executed Change Order, incorporating the cost-reduction proposal has been issued. If an executed Change Order has not been issued by the date upon which the Contractor's cost-reduction proposal specifies that a decision thereon should be made, or such other date as the Contractor may subsequently have specified in writing, such cost-reduction proposal shall be deemed rejected.

CVSan shall be the sole judge of the acceptability of the cost-reduction proposal and the estimated net savings in construction costs from the adoption of all or any part of such proposal. In determining the estimated net savings, the right is reserved to disregard the Contract Bid prices if in the judgment of CVSan, such prices do not represent a fair measure of the value of work to be performed or to be deleted.

CVSan reserves the right, where it deems such action appropriate, to require the Contractor to share in CVSan's costs of investigating a cost-reduction proposal submitted by the Contractor as a condition of considering such proposal. Where such a condition is imposed, the Contractor shall indicate its acceptance thereof in writing, and such acceptance shall constitute full authority for CVSan to deduct amounts payable to CVSan from any monies due or may become due to the Contractor under the Contract.

3.0 Acceptance

If the Contractor's cost-reduction proposal is accepted in whole or in part, such acceptance will be by a Contract Change Order, which shall specifically state that it is executed pursuant to Section 01035, MODIFICATION PROCEDURES. Such Change Order shall incorporate the changes in the Plans and Specifications, which are necessary to be put into effect and shall include any conditions upon which CVSan's approval thereof is based if the approval of CVSan is conditional. The Change Order shall also set forth estimated net savings in construction costs attributable to the cost-reduction proposal effectuated by the Change Order and shall further provide that the Contractor be paid fifty (50) percent of said estimated net savings amount. The Contractor's cost of preparing the cost-reduction proposal and CVSan's costs of investigating a cost-reduction proposal, including any portion thereof paid by the Contractor, shall be excluded from consideration in determining the estimated net savings in construction costs.

Acceptance of the cost-reduction proposal and performance of the Work thereunder shall not extend the time of completion of the Contract, unless specifically provided for in the Contract Change Order authorizing the use of the cost-reduction proposal.

The amount specified to be paid to the Contractor in the Change Order which effectuates a cost-reduction proposal shall constitute full compensation to the Contractor for the cost-reduction proposal and the performance of the Work thereof pursuant to the said Change Order.

CVSan expressly reserves the right to adopt a cost-reduction proposal for general use on contracts administrated by CVSan when it determines that said proposal is suitable for the application to other contracts. When an accepted cost-reduction proposal is adopted for general use, only the Contractor who first submitted such proposal will be eligible for compensation pursuant to this section, and in that case, only as to those contracts awarded to this same Contractor prior to submission of the accepted cost-reduction proposal and as to which such cost-reduction proposal is also submitted and accepted. Cost-reduction proposals identical or similar to previously submitted proposals will be eligible for consideration and compensation under the provisions of this section, if the identical or similar previously submitted proposals were not adopted for general application to other contracts administered by CVSan.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

*****END OF SECTION*****

SECTION 01050

FIELD ENGINEERING

PART 1 - GENERAL

1.01 DATUM

Vertical and horizontal datum is based on the coordinates and elevations shown on the Drawings. The Contractor shall establish other control and reference points from these CVSan furnished reference points as required to properly layout the Work. The Contractor shall confirm all relative elevations between manholes identified on the plan prior to start of construction. All connections shall be installed based on actual elevations of existing structures to which connections are made.

Contractor shall protect control points and preserve permanent reference points during construction. Any control points or monuments lost, disturbed, or destroyed by the Work shall be replaced by the Contractor's surveyor.

1.02 QUALITY ASSURANCE

The Contractor's surveyor or engineer responsible for surveying specified herein shall be a registered land surveyor in the state of California.

1.03 LINES AND GRADES

The Contractor shall lay out all Work, including structures and pipelines, and shall be responsible for any errors resulting therefrom. In all questions arising as to proper location of lines and grades, the Construction Manager's decision will be final.

As part of the bid price for the construction of the improvements, the Contractor shall provide and be responsible for the layout of all work. The Contractor shall provide all necessary surveys, field staking, and positioning for the construction of all components at the proper alignment, elevations, grades, and positions, as indicated on the Drawings and as required for the proper operation and function. The Contractor shall stake its work limits.

The Contractor's layout shall be based on existing structures, survey control, and bench marks established by CVSan.

The Contractor shall supply such labor as required, at no extra charge, to aid and assist the Construction Manager in checking location and grades of the work as set by the Contractor if the Construction Manager desires to perform this checking. This shall include moving materials and equipment located between monuments and the construction work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

***** END OF SECTION *****

SECTION 01060

REGULATORY REQUIREMENTS AND PERMITS

PART 1 - GENERAL

1.01 APPLICABLE CODES

Contractor shall comply with all codes applicable to the Project; see Technical Specifications for applicable codes as well as those identified in the following list. The omission of a code on the list shall not excuse nor relieve the Contractors obligation to comply with any such code applicable to the Work.

Castro Valley Sanitary District Code
CVSan General Provisions and Specifications for the Construction of Sanitary Sewers

1.02 FEES AND PERMITS

The Contractor shall obtain necessary encroachment permits from the County of Alameda, EBMUD, PG&E, or other agency having jurisdiction over the construction area, and shall be responsible for satisfying all requirements, calling for inspections, and obtaining final approvals. The Contractor shall notify the Construction Manager of the need and the readiness of all required inspections. All inspections are to be coordinated with the Construction Manager. The Contractor shall comply with all construction conditions stipulated in the permits. The Contractor shall initially pay for all permits, fees and inspections required for local agency and code requirements. The Contractor shall submit invoice to the Construction Manager for CVSan's reimbursement of such costs.

The Contractor shall be responsible for and CVSan shall not provide reimbursement for any costs required for the reinspection of defective work or additional costs due to the Contractor's failure to properly schedule the inspections.

1.03 STORM WATER QUALITY CONTROLS

- A. The Contractor shall provide all materials, equipment, and labor necessary to furnish, place, and maintain all water pollution control systems, including construction, maintenance, and inspection of said systems, as required to perform the work in accordance with Section 13, "Water Pollution Control," Section 5-1.36, "Property and Facility Preservation," of the Standard Specifications.
- B. The Contractor shall submit an Erosion and Sedimentation Control Plan (ECP) to the Engineer for review and must be accepted prior to beginning of work and submitted through CVSan. The Contractor shall be fully responsible for implementing, maintaining, and repairing all storm water pollution controls as described in his approved ECP for the duration of the construction contract. The Contractor shall make any repairs to the storm water pollution controls and amend the ECP if, in the opinion of the Engineer, the Contractor is not in compliance with the ECP.

- C. The Contractor shall be responsible for any fines imposed by the Regional Water Quality Control Board or other agency as a result of noncompliance, negligence, or violation of permit conditions.
- D. Construction vehicles and equipment entering existing paved areas shall be free of mud, silt and other debris during all phases of work. No mud, silt and other debris shall be tracked on paved surfaces. If such materials are tracked on the streets or other paved areas both public and private, the Contractor shall immediately remove these materials prior to these materials entering into the storm drain system.
- E. Stockpiling of materials on the street will not be allowed unless otherwise approved by the Engineer. The Contractor shall cover with plastic any construction or excavated materials which may possibly erode and enter the storm drain system of paved streets or other paved areas both public and private. Stockpiling of dirt on paved areas will not be allowed.
- F. The Contractor shall sweep the work area and clean up the work site daily before leaving the site or more frequently as may be directed by the Engineer.
- G. The Contractor shall be responsible throughout the duration of the project for installing, constructing, inspecting and maintaining the control measures included in the ECP and any amendments thereto and for removing and disposing of temporary control measures.
- H. To ensure the proper implementation and functioning of temporary erosion control measures, the Contractor shall regularly inspect and maintain the construction site for the control measures identified in the ECP. The Contractor shall identify corrective actions and time frames to address any damaged measures or reinstate any measures that have been discontinued.
- I. During the length of the project, inspections of the construction site shall be conducted by the Contractor to identify deficient measures. The inspections shall be, but not limited to as follows:
 - 1. Prior to a predicted storm;
 - 2. After all precipitation which causes runoff capable of carrying sediment from the construction site;
 - 3. At 24 hours intervals during extended precipitation events; and
 - 4. Routinely, on a minimum daily basis.
 - 5. If the Contractor identifies a deficiency in the deployment or functioning of an identified control measure, the deficiency shall be corrected in a timely manner.
 - 6. If the Engineer identifies a deficiency in the deployment or functioning of an identified control measure, the Contractor will be notified and the deficiencies shall be corrected by the Contractor in a timely manner.

7. Failure to make the necessary repairs or other necessary maintenance when directed by the Engineer shall result in the necessary repair work being done by CVSan's forces the Contractor will be billed at double the rate of all District's expenses.
- J. Records of all inspections and compliance reporting must be retained as part of the ECP for review at any time by the Engineer. Upon completion of the project construction records shall be retained by the District's/operator with a copy of the final ECP.

1.04 EXISTING UTILITIES AND IMPROVEMENTS

A. General

1. Access shall be provided at all times to all fire hydrants
2. Contractor shall contact USA/North 811 one week in advance of starting excavation to provide for marking of utilities. Shutdown of utilities shall be performed only by the utility owner.
3. The Contractor shall protect all existing utilities, pavement, sidewalks, curbs, fences, landscaping, and other improvements that are not designated for removal, from damage by his operations. Any such features that are damaged or temporarily relocated by the Contractor during construction shall be repaired or restored by the Contractor to a condition equal to or better than they were prior to such damage or temporary relocation all in accordance with requirements of the contract documents and at no expense to CVSan.
4. The location of known existing utilities and pipelines are shown on the drawings in their approximate locations. Some of the locations include multiple conduits. The Contractor shall exercise care in avoiding damage to those facilities which are to remain in service subsequent to the work, and shall be held responsible for their repair if damaged. The Contractor shall also exercise care in maintaining those facilities which will be removed or abandoned by the work until such time as they can be removed or abandoned.
5. It shall be the Contractor's responsibility to ascertain the actual location of all existing utilities and other improvements that will be encountered in his construction operations, and to see that such utilities or other improvements are adequately protected from damage due to such operations. There is no guaranty that all utilities or obstructions are shown or that the locations indicated are accurate. The Contractor shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary. The cost of repair of any damages to existing utilities shown on the Plans, marked in the field, or attributable to negligence on the part of the Contractor shall be at the Contractor's expense.

6. Nothing herein shall be deemed to require the public agency to indicate the presence of existing overhead power, telephone and TV cable or underground service laterals and appurtenances when the presence of such utilities on the site of the construction can be inferred from the presence of visible facilities, such as poles, buildings, or meter and junction boxes, on or adjacent to the site of construction; provided, however, nothing herein shall relieve the public agency from identifying buried main or trunk lines in the Plans and Specifications.

B. Owner's Right of Access

1. The right is reserved to CVSan and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the Work of this Contract.

C. Exploratory Excavation

1. The Contractor shall verify the exact locations and depths of all utilities shown on the Plans or by USA/North 811. Prior to trenching or excavating for any pipe or structure, the Contractor shall make exploratory excavations to completely expose all utilities shown on the drawings, or located by USA/North 811 that may interfere with the work. Excavations around underground electrical ducts and conduits shall be performed using extreme caution to prevent injury to workers or damage to the electrical ducts or conduits.
2. The Contractor shall contact the owner of each utility to determine if they permit potholing of their utility or if they pothole with their own personnel. All such exploratory excavations shall be performed as soon as practicable after award of the contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the Contractor's work.
3. New pipeline shall be laid to such grade as to clear all existing facilities which are to remain in service for any period subsequent to the construction of the run of pipe involved. A sufficient number of exploratory excavations shall be made for each utility to determine the alignment and grade of the utility.
4. The cost for performing said excavations shall be included in the Contractor's Bid Price. If the Contractor does not expose all required utilities, it shall not be entitled to additional compensation for work necessary to avoid interferences or for repair to damaged utilities.
5. When such exploratory excavations show the utility location as shown to be in conflict with the work, the Contractor shall so notify the Construction Manager and a method for correcting the conflict will be supplied by the Construction Manager. The Contractor will be reimbursed for the cost of correcting the conflict in accordance with Section 00700-Article 7, **CHANGES IN THE WORK.**

D. Utilities to be Moved

1. Where the proper completion of the work requires the temporary removal and/or relocation of an existing utility or other improvement the Contractor shall remove and, without unnecessary delay, temporarily replace or relocate such utility or improvement in a manner satisfactory to the Construction Manager and the owner of the facility. In all cases of such temporary removal or relocation, restoration to former location shall be accomplished by the Contractor in a manner that will restore or replace the utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal.
2. In case it shall be necessary to permanently move any existing utility or improvement, the Contractor shall notify the Construction Manager a sufficient time in advance for the necessary measures to be taken to prevent interruption of service or delay of the work.

E. Underground Utilities Shown or Indicated

1. Existing utility mains and improvements that are shown on the Plans or the locations of which are indicated to the Contractor prior to excavation and that are to be retained, and all utility lines that are constructed during the work shall be protected from damage during excavation and backfilling, and if damaged, shall be immediately repaired by the Contractor at no expense to CVSan. This provision shall also apply to existing utility services whose locations can be inferred from meters, vaults, valves, and other markings, or that are indicated by the owner of the utility.
2. All buried utilities shall be considered to be correctly shown or indicated if their true locations are within ten (10) horizontal feet of the locations shown either on the Plans or marked on the ground by the utility's owner regardless of depth.
3. The Contractor shall receive no additional compensation for extra work or delay for locating such correctly shown or indicated utilities.

F. Underground Utilities Not Shown or Indicated

1. If the Contractor encounters any existing utility mains that are not shown or correctly shown on the Plans, and the locations of which are not correctly indicated to the Contractor prior to excavation, he shall immediately make a written report to the Construction Manager. If directed by the Construction Manager, repairs shall be made by the Contractor under the provisions for changes and extra work. This provision shall also apply to existing utility services whose locations cannot be inferred from meters, vaults, valves, or other markings, and are not indicated to the Contractor prior to excavation by the owner of the utility.
2. The Contractor shall be reimbursed for repair, removal, and/or relocation of these utilities, provided that he exercised reasonable care to avoid causing

the damage. Reimbursement will be limited to extra materials, extra labor, and idled equipment that was actually working on the portion of the work that was stopped due to the damage and could not reasonably be reassigned to another task of the work.

3. The Contractor shall not be assessed liquidated damages for delay in completion of the Project when such delay was due to utilities that were not shown or located, or could not be inferred from visual evidence.

G. Approval of Repairs

1. The utility or improvement owner shall have the sole discretion to perform repairs or relocation work or permit the Contractor to do such repairs or relocation work at a reasonable price.
2. All repairs to a damaged improvement are subject to inspection and approval by an authorized representative of the improvement owner before being concealed by backfill or other work.

H. Maintaining in Service

1. All oil and gasoline pipelines; railroad facilities; power, telephone or communication cable ducts; gas and water mains; irrigation, sewer, and storm drain lines; and overhead power and communication poles, wires and cables, encountered along the line of the work shall remain continuously in service during all the operations under the contract, unless other arrangements satisfactory to the Construction Manager are made with the owner of said facilities.
2. Planned facility shutdowns shall be accomplished as required by the owner of the facility. In some cases, this may require night or weekend work which shall be at no additional cost to CVSan. The Contractor shall program its work so that service will be restored in the minimum possible time and shall cooperate with CVSan in reducing shutdowns of utility systems to a minimum. No utility interruption will be permitted without the prior approval of the Construction Manager and the specific utility.
3. The Contractor shall be responsible for all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

I. Interruption of CVSan Facilities

1. Construction will occur adjacent to existing sanitary sewers crossing above, below, and parallel to the new trunk sewer. The Contractor shall exercise extreme caution in working adjacent to existing sewerage facilities.
2. It is essential that all existing facilities be maintained in service for full-time operation, except where approved temporary facilities are installed as part of the work. Where wastewater flow in existing facilities is interrupted or

must be diverted for construction, the Contractor shall conduct this work in accordance with this paragraph and Section 02245, **SEWAGE FLOW CONTROL AND SEWER DEWATERING**.

3. Construction of connections between existing facilities and new facilities shall be scheduled to minimize disruption to sewer service. The Contractor shall coordinate the schedule for all work on existing facilities during periods acceptable to CVSan. Contractor shall notify CVSan at least 48 hours prior to such work.
4. When working on existing sewers, the Contractor shall investigate and ensure that temporary sewage flow stoppage does not cause the backing up and flooding of residences and businesses connected upstream of the location in question. Any lateral flow stoppage work requiring greater than 1/2 hour shall be approved in advance by CVSan staff in writing.
5. The Contractor shall advise the Construction Manager in writing at least five (5) calendar days prior to interrupting flow in any sanitary sewer main.
6. The Contractor shall immediately contact PG&E by calling (800) 743-5000 should any damage occur to the pipelines, cables, appurtenances, or overhead power lines.

1.05 RIGHTS-OF-WAY

- A. The Contractor shall not do any work that would affect any existing oil, gas, sewer, or water pipeline; any existing telephone, telegraph, or electric transmission line; any fence; any railroad facility; or any other structure, nor shall the Contractor enter upon the rights-of-way involved until notified by the Construction Manager that the Owner has secured authority therefore from the proper party. After authority has been obtained, the Contractor shall give said party due notice of its intention to begin work, comply with any preconstruction easement conditions, and shall give said party convenient access for removing, shoring, supporting, or otherwise protecting such pipeline, transmission line, ditch, fence, or structure, and for replacing same.
- B. When two or more contracts are being executed at one time on the same or adjacent land in such manner that work on one contract may interfere with that on another, the CVSan shall determine the sequence and order of the work. When the territory of one contract is the necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the CVSan to the Contractor so desiring, to the extent, amount, in the manner, and at the times permitted. No such decision as to the method or time of conducting the work or the use of territory shall be made the basis of any claim for delay or damage, except as provided in the General Conditions for temporary suspension of the work, Section 00700-6.06, **SUSPENSION OF WORK**.

1.06 CULTURAL RESOURCES

- A. The Contractor's attention is directed to the National Historic Preservation Act of 1966 (16 U.S.C. 470) and PRM 75-27 which provides for the preservation of

potential historical architectural, archeological, or cultural resources (hereinafter called "cultural resources").

- B. The Contractor shall conform to the applicable requirements of the National Historic Preservation Act of 1966 as it relates to the preservation of cultural resources. Fair compensation to the Contractor for delays resulting from such cultural resources investigations shall be made.
- C. In the event potential cultural resources are discovered during subsurface excavations at the site of construction, the following procedures shall be instituted:
 - 1. The Construction Manager will issue a Stop Work Order directing the Contractor to cease all construction operations at the location of such potential cultural resources find.
 - 2. Such Stop Work Order shall be effective until such time as a qualified archaeologist can be called to assess the value of these potential cultural resources and make recommendations to CVSan. Any Stop Work Order shall contain the following:
 - a. A clear description of the work to be suspended
 - b. Any instruction regarding issuance of further orders by the Contractor for material services
 - c. Guidance as to action to be taken on subcontracts
 - d. Any suggestions to the Contractor as to minimization of his costs
 - e. Estimated duration of the temporary suspension
- D. If the archaeologist determines that the potential find is a bona fide cultural resource, at the direction of CVSan, the Engineer shall extend the duration of the Stop Work Order in writing, and the Contractor shall suspend work at the location of the find.
- E. Equitable adjustment of the construction contract time shall be made in the following manner:
 - 1. Time Extension. If the work temporarily suspended is on the "critical path," the total number of days for which the suspension is in effect shall be added to the number of allowable contract days. If a portion of work at the time of such suspension is not on the "critical path", but subsequently becomes work on the critical path, the allowable contract time will be computed from the date such work is classified as on the critical path.
 - 2. Additional Compensation. If, as a result of a suspension of the work, the Contractor sustains a loss which could not have been avoided by his judicious handling of forces, and equipment, or redirection of forces or equipment to perform other work on the contract, there shall be paid to the Contractor an amount as determined by the Construction Manager to be fair and reasonable compensation for the Contractor's actual loss in accordance with the following:

- a. Idle Time of Equipment. Compensation for equipment idle time will be determined on a force account (time and materials) basis, and shall include the cost of extra moving of equipment and rental loss. The right-of-way delay factor for each classification of equipment shown in the California Department of Transportation publication entitled, Equipment Rental Rates and the General Prevailing Wage Rates, will be applied to any equipment rental rates.
 - b. Idle Time of Labor. Compensation for idle time of workers will be determined by the Engineer as “Labor” less any actual productivity factor of this portion of the work force.
 - c. Increased Costs of Labor and Materials. Increased costs of labor and materials will be compensated only to the extent such increase was in fact caused by the suspension, as determined by the Engineer.
3. Compensation for actual loss due to idle time of either equipment or labor shall not include markup for profit.
 4. The hours for which compensation will be paid will be the actual normal working time during which such delay condition exists, but will in no case exceed eight hours in any one day.
 5. The days for which compensation will be paid shall be full or partial calendar days, excluding Saturdays, Sundays, and legal holidays, during the existence of such delay.

1.07 SPECIAL WORK HOURS FOR SPECIFIC ITEMS OF WORK

- A. The following items of work are required to be completed during the specified time period:
 1. General working hours shall be defined in Section 01560-1.07
 2. At least one lane of traffic in each direction shall be maintained between 9:00 a.m. and 3:30 p.m.
 3. All traffic lanes shall be opened between 3:30 p.m. and 9:00 a.m. except during the “night work” as specified below.

1.08 NIGHT WORK

- A. The Contractor shall coordinate with CVSan regarding work related to the interior of the Flume structure with CVSan so that it occurs at night during periods of low sewage flow. Work within the Flume will need to occur when existing epoxy coating defects are exposed and accessible.

1.09 PROTECTION OF STREET OR ROADWAY MARKERS

- A. It is the responsibility of the Contractor to protect all survey monuments, survey markers, and street markers in the area of his work.

- B. Prior to breaking pavement or starting excavation, the Contractor shall reference all survey monuments and markers that will be affected by his work, and reset such monuments and markers after construction, in accordance with the requirements of Alameda County.
- C. Referencing and resetting of survey monuments and markers shall be done by a land surveyor registered in the State of California who is hired by the Contractor.

1.10 WORK WITHIN PRIVATE PROPERTY

- A. The Contractor shall restrict operations to cause the least amount of damage to the surrounding property and to save as many trees and plants as possible. If damage to the surrounding property has occurred, the Contractor shall restore the property to a condition equal to or better than that which existed prior to the Contractor's entry, or as required as part of these Contract Documents.
- B. After restoration work has been completed on the surrounding property, that contractor shall request the Construction Manager to schedule a meeting between the resident, contractor and CVSan to confirm that all restoration work has been completed and approved by the resident and CVSan

1.11 CONSTRUCTION AND DEMOLITION DEBRIS ORDINANCE

- A. The Contractor is hereby notified that the Castro Valley Sanitary District Code Sections 5702 recognizes Section 470 "Construction and Demolition Debris Management" which was added to the Alameda County Municipal Code Chapter 1508, Building Code on June 30, 2009 regarding the processing of construction and demolition (C&D) debris, which will apply to this project, with exception that recycling and reuse amounts shall be as stated in Section 01560-1.11, **REMOVED MATERIALS**.
- B. The Notice to Proceed will not be issued unless the Construction and Demolition Debris Management Plan is submitted to and approved by CVSan.
- C. The Contractor shall submit all weight tickets documenting materials recycled or landfilled to the Construction Manager. The contractor shall keep copies of the Management Plan and all weight tickets for submittal upon completion of the project.
- D. The project will not be accepted by CVSan unless the completed Construction and Demolition Debris Management Plan is submitted to and approved by the Alameda County Public Works.
- E. The following construction debris will be generated on this project:
 - 1. Asphalt: as defined in Section 39, "Asphalt Concrete" of the State Standard Specifications or Section 02953 **PAVEMENT RESTORATION**. Asphalt concrete may include pavement reinforcing fabric.

2. Concrete: Portland cement concrete as defined in Section 40, “Portland Cement Concrete Pavement” and in Section 90, “Portland Cement Concrete” of the State Standard Specifications and Section 03301 **CAST-IN-PLACE CONCRETE**.
 3. Earth Debris: dirt material indigenous to surrounding area or pipe backfill which may consist of native material and/or other imported material.
 4. Plant & Tree Trimmings: plants, shrubs, bushes, free trimmings such as branches, twigs, etc.
 5. Rock/Gravel: crushed rock/gravel used for bedding material for sanitary sewers or other pipeline/utilities crossings.
 6. Sanitary Sewer Pipeline: Segments of sanitary sewers or laterals, which may be composed of VCP or other types of piping materials typically used in sewer construction.
 7. Wood: includes both treated and untreated wood
- F. Information regarding recyclable materials and available facilities can be obtained by calling the Alameda County recycling hotline at (877) 786-7927 or from the Alameda County Waste Management Authority internet address: www.stopwaste.org
- G. Full compensation for complying with the provisions set forth herein shall be considered as included in the various items of work and no separate payment will be made therefor.
- H. Failure to comply with the provisions set forth herein will result in the following sanctions:
1. If CVSan finds that the Contractor has not met the Construction and Demolition Debris ordinance requirements set forth herein and in the Code, including submission of the Construction and Demolition Debris Management Recycling Summary Report that demonstrates compliance, the Contractor shall forfeit up to three (3) percent of the contract amount to CVSan, with a minimum amount of \$1,000. This amount will be subtracted from the contract retention at final payment.
 2. If, within a five-year period following a determination by the Alameda County Public Works Agency or CVSan that the Contractor has not met the Construction and Demolition Debris Management Ordinance requirements, the Alameda County Public Works Agency or CVSan determines that there has been another violation of Ordinance requirements by the same Contractor, or his or her or its successor, in a separate contract, that Contractor or the successor shall forfeit one percent (1%) of the contract amount from the contract retention. In addition, the Contractor or the successor shall be declared by the Board of Directors to be a non-responsible bidder and will be ineligible to bid on future CVSan Contracts for a period of two (2) years following the Board’s determination.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

***** END OF SECTION *****

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SECTION 01090

REFERENCES

PART 1 - GENERAL

1.01 CODES AND STANDARDS

- A. Whenever reference is made to a code or standard, it means the latest edition in effect the date that the Contract Documents are dated. Where codes, standards and reference documents are referred to in the Contract Documents, the Contractor may submit a written request to the Construction Manager for assistance in locating such documents. Within three days of receipt of such request, the Construction Manager will notify the Contractor as to where the document(s) can be reviewed.
- B. No provision of any such standard, specifications, manual, code or instruction shall be effective to change the duties and responsibilities of CVSan, CVSan's representative, or any of their consultants, agents, or employees from those set forth in the Contract Documents. Nor shall any of the aforementioned be effective to assign to CVSan or CVSan's representative, or any of their consultants, agents, or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

1.02 DEFINITIONS OF WORDS AND TERMS

- A. Where used in the Contract Documents, the following words and terms shall have the meanings indicated. The meanings shall be applicable to the singular, plural, masculine and feminine of the words and terms.
 - 1. Acceptance - Formal action of CVSan in determining that the Contractor's work has been completed in accordance with the Contract and in notifying the contractor in writing of the acceptability of the work.
 - 2. Acts of God - "Acts of God" shall include only the following occurrences or conditions and effects: earthquakes in excess of a magnitude of 3.5 on the Richter Scale and tidal waves.
 - 3. Addenda - Supplemental written specifications or drawings issued prior to bid submittal which modify or interpret these Contract Documents by addition, deletion, clarification, or corrections.
 - 4. Agreement - The written document covering the performance of the Work as more fully described in Section 00500 AGREEMENT FOR CONSTRUCTION.
 - 5. Bid - Offer of a bidder submitted on the prescribed form setting forth prices of the Work to be performed.
 - 6. Bidder - Individual, partnership, corporation, or a combination thereof, including joint venturers offering a bid to perform the Work.

7. Clarification Letter - A Clarification Letter is issued by the Construction Manager to address the clarification of Contract issues raised by the Construction Manager, Design Consultant or CVSan.
8. Completion - The word completion shall indicate Substantial Completion.
9. Construction Manager - The person designated, in writing, by CVSan to act as its representative at the construction site and to perform construction inspection services and administrative functions relating to this Contract. Initial contact by the Contractor with CVSan shall be through the Construction Manager.
10. Contract - The word "Contract" means this Contract, as set forth in the Agreement and the Contract Documents.
11. Contract Change Order - A written order to the Contractor, covering changes in the plans or quantities, or both, and establishing the basis of payment and time adjustments for the work affected by the changes. Also referred to as a Change Order.
12. Contract Documents - The words "Contract Documents" shall mean any or all of the following items, as applicable:
 - a. Notice Inviting Bids
 - b. Instructions to Bidders
 - c. Bid Form and Bid Schedule
 - d. Designation of Subcontractors
 - e. Bid Guaranty Bond
 - f. Agreement
 - g. Performance Bond
 - h. Payment Bond
 - i. Insurance Endorsements
 - j. Project Site Visit Affidavit
 - k. Non-Collusion Affidavit
 - l. General Conditions
 - m. Supplementary General Conditions
 - n. General Requirements
 - o. Specifications
 - p. Drawings
 - q. Addenda, if any
 - r. Executed Change Orders, if any
 - s. Field Orders
 - t. Notice to Proceed
 - u. Permits

Each of these items is to be considered by reference as part of the Contract Documents, also referred to as Contract.

13. Contract Price (also referred to as Contract Amount) - The amount payable to the Contractor under the terms and conditions of the Contract based on the price given on the bidding schedule, with adjustments made in accordance with the Contract. The Total Base Amount given in the Bid Schedule (Section 00310) shall be either a lump sum bid or the summation of the unit price bids multiplied by the estimated quantities set forth in the bid form.
14. Contract Time - Number of calendar days stated in the Contract for the completion of the Work.
15. Contractor - The individual partnership, corporation, or combination thereof including joint venturers who enter into the Contract with CVSan for the performance of the Work. The term appropriately extends to subcontractors, sub-tier subcontractors, consultants, equipment and material suppliers and their employees which are utilized by the Contractor.
16. Contractor's Plant and Equipment - Equipment, material, supplies, and all other items, except labor, brought onto the site by the Contractor to carry out the work, but not to be incorporated in the work.
17. Corrective Work Item List - List of incomplete items of work, incomplete administrative requirements and items of work which are not in conformance with the Contract, prepared by the Construction Manager and issued to the Contractor as an attachment to the response to the Contractor's notification of Substantial Completion.
18. CVSan - The word "CVSan" refers to the Castro Valley Sanitary District, the governing body of which is termed the Board.
19. CVSan Representative - The person designated in writing by CVSan to act as its agent on specified matters relating to this Contract. CVSan's Representative is not the Construction Manager, but an employee or Consultant of CVSan who has been designated to represent CVSan.
20. Days - The word "Days" shall mean calendar days, including legal holidays, Saturdays and Sundays, unless specifically noted otherwise.
21. Design Consultant - The engineer or architect designated by CVSan to have design control over the Work or a specified portion of the Work, acting either directly or through duly authorized representatives. Such representatives shall act within the scope of the particular duties delegated to them. The Design Consultant may also furnish inspection services as provided by the Contract.
22. Direct - Action of CVSan or Construction Manager by which the Contractor is ordered to perform or refrain from performing work under the Contract.
23. Drawings - Also referred to as "Plans". That part of the Contract Documents consisting of the graphical and technical requirements of the Contract as included on the plan sheets.

24. Engineer - Engineer shall refer to either the Construction Manager or Design Consultant based on their roles as defined in Section 00700 **GENERAL CONDITIONS**, and their separate contracts with CVSan.
25. Favorable Review - "Favorable Review" means that the person or entity acting on behalf of CVSan has reviewed a proposal or submittal and found it acceptable as to the aspects for which review was sought. "Favorable Review" does not imply any approval of deviations from the Contract Documents which can only be made by formal Field Directive, Field Order or Contract Change Order.
26. Field Directive - Written documentation of the actions of CVSan or Construction Manager in directing the Contractor. Also referred to as a Directive.
27. Field Order - A written instruction given to the Contractor authorizing work that is a change to the scope of work carried out on a time and material basis.
28. Final Inspection List - List of materials, equipment, workmanship, or administrative requirements, which are not in conformance with the Contract. The list shall be prepared by the Construction Manager and submitted to the Contractor following the Contractor's notice of completion of the Work, including all items on the Punch List.
29. Float - Float or "total float" shall be defined as provided in the Associated General Contractors of America "CPM in Construction, A Manual for General Contractors".
30. Furnish - To deliver to the job site or other specified location any item, equipment or material.
31. General Conditions - Sections 00700, **GENERAL CONDITIONS**, and 00800, **SUPPLEMENTARY GENERAL CONDITIONS**, which form the part of the Contract Documents representing the general clauses that establish how the project is to be administered.
32. General Requirements - Division 1, **GENERAL REQUIREMENTS**, which forms the part of the Contract Documents establishing special conditions or requirements peculiar to the work and supplementary to the General Conditions.
33. Herein - Refers to information presented in these Contract Documents.
34. Holidays - Legal holidays shall include the following holidays designated by CVSan: New Year's Day, Martin Luther King Jr.'s Birthday, President's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, the day after Thanksgiving, Christmas Eve, Christmas Day, and New Year's Eve.
35. Install - Placing, erecting, or constructing complete in place any item, equipment, or material.

36. Notice to Proceed - Notice to Proceed shall mean the written notice issued by CVSan to Contractor authorizing him to proceed with the work and establishing the date of commencement of the Contract Time. Notice to Proceed may or may not include separate dates establishing the date of commencement of the submittal process.
37. Paragraph - For reference or citation purposes, a paragraph shall refer to the paragraph, or paragraphs, called out by paragraph number and alphanumeric designator.
38. Person - The term, person, includes firms, companies, corporations, partnerships, and joint ventures.
39. Plans - See “Drawings.”
40. Project - The undertaking to be performed under the provisions of the Contract.
41. Provide - Furnish and install, complete in place.
42. Punch List - List of incomplete items of work, incomplete administrative requirements and items of work which are not in conformance with the Contract, prepared by the Construction Manager and issued to the Contractor as an attachment to the Certificate of Substantial Completion.
43. Request for Information - Also referred to as “Request for Clarification.” A Request for Information (RFI) is issued by the Contractor to the Construction Manager to request resolution of a question on a Contract issue. A RFI is not to be used for request for material/equipment substitutions or value engineering/cost reduction incentive proposals.
44. Request for Quotation - A request for a proposed cost made of the Contractor by the Owner to add, delete or change the Work. A Contract Change Order is issued upon Agreement of Price and nature of the change of the Work.
45. Shall - The use of “shall” or “will” means that the Contractor or CVSan, as appropriate, is contractually or legally obligated to take the required action, unless another meaning is clearly indicated.
46. Shown - Refers to information presented on the drawings, with or without reference to the drawings.
47. Specifications - That part of the Contract Documents consisting of written descriptions of the technical features of materials, equipment, constructions systems, standards, and workmanship.
48. Specify - Refers to information described, shown, noted or presented in any manner in any part of the Contract.
49. State of California Specifications - The State of California Department of Transportation Standard Specifications in effect at the time of advertising the Work. Also referred to as State Standard Specifications and Caltrans Standard Specifications.

50. Subcontractor - A subcontractor is a person or entity who has a direct contract with the Contractor or a sub-tier subcontractor who has a direct contract with a subcontractor to perform any of the Work associated with the Project. The term subcontractor, does not include any separate contractor or any separate contractor's subcontractors.
51. Submittals - The information which is specified for submission to the Construction Manager in accordance with these Contract Documents.
52. Substantial Completion - "Substantial Completion" means that there is sufficient completion of the Project or an agreed to portion thereof that CVSan can effectively utilize. Determination of substantial completion is solely at the discretion of CVSan. Substantial Completion does not mean Complete in accordance with the Contract nor shall Substantial Completion of all or any part of the Project entitle the Contractor to Acceptance under the Contract.
53. Substantial Completion Date - Date when CVSan puts into service, the Project, or that portion of the Project, which CVSan has been determined to be Substantially Complete.
54. Sub-subcontractor - A sub-subcontractor is a person or entity who has a direct or indirect contract with a subcontractor to perform any of the Work at the Site. The term sub-subcontractor means a sub-subcontractor or an authorized representative thereof, also referred to as sub-tier-subcontractor.
55. Supplier - Any person, firm, corporation, or organization who supplies materials or equipment for the Work, including that fabricated to a special design, and may also be a Subcontractor or a Sub-contractor.
56. Surety - The person, firm, corporation, or organization that joins with the Contractor in assuming the liability for the faithful performance of the Work and for the payment of all obligations pertaining to the Work in accordance with the Contract Documents by issuing the Bonds required by the Contract Documents or by law.
57. Total Base Bid - The original Contract Price as established from Section 00310 **BID SCHEDULE** as completed by the Contractor as a part of his Bid for the work.
58. Warranty Period - Period where the Contractor is responsible for repairs to equipment or the Work at no cost to CVSan after Substantial Completion. Length of period is as established in Section 01740 **WARRANTIES AND BONDS**, and/or elsewhere in the Contract Documents.
59. Will - See definition of shall.
60. Work - The term "Work" means all labor, materials, equipment, supplies, services, and other items necessary for the execution, completion and fulfillment of the Contract.
61. Work Day - Any day except Saturday, Sunday, and legal holidays. For time extension purposes a work day is equivalent to 1.45 calendar days.

1.03 ABBREVIATIONS

Whenever the following terms are used, the intent and meaning shall be as follows:

Abbreviation Stands For

AASHTO	American Association of State and Highway and Transportation Officials
AAMA	Architectural Aluminum Manufacturers Association
ABMA	American Boiler Manufacturers Association
ACI	American Concrete Institute
ADC	Air Diffusion Council
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AMCA	Air Moving and Conditioning Association
ANSI	American National Standard Institute (formerly United States of America Standards Institute)
APA	American Plywood Association
API	American Petroleum Institute
AREA	American Railway Engineers Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Construction Managers
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing and Materials
AWPA	American Wood-Preserver's Association
AWS	American Welding Society
AWWA	American Water Works Association
CAGI	Compressed Air and Gas Institute CAL/OSHA State of California Department of Industrial Relations, Division of Industrial Safety
CBM	Certified Ballast Manufacturers
CBR	California Bearing Ratio
CI	Chlorine Institute
CISPI	Cast Iron Soil Pipe Institute
CMAA	Crane Manufacturers Association of America
CPSC	Consumer Products Safety Commission
CRA	California Redwood Association
CRSI	Concrete Reinforcing Steel Institute
CTI	Cooling Tower Institute
DFPA	Douglas Fir Plywood Association
EIA	Electronic Industries Association
<u>Abbreviation</u>	<u>Stands For</u>
EPA	U.S. Environmental Protection Agency
ETL	Electronic Testing Laboratory
FM	Factory Mutual Insurance Company
FPS	Fluid Power Society

FS	Federal Specifications
GO 95	General Order No. 95, California Public Utilities Commission Rules for Overhead Electric Line Construction
HI	Hydraulic Institute
HMI	Hoist Manufacturers Institute
IAPMO	International Association of Plumbing and Mechanical Officials
IBR	Institute of Boiler and Radiator Manufacturers
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineering Society
IPCE	International Power Cable Engineers Association
ISA	Instrument Society of America
MIL	Military Specifications
MSS	Manufacturer's Standardization Society
NAAMM	National Association of Architectural Metal Manufacturers
NBS	National Bureau of Standards
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Act
PCMAC	Prestressed Concrete Manufacturers Association of California
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SSPC	Structural Steel Painting Council TCA Tile Council of America
UBC	Uniform Building Code
UFC	Uniform Fire Code
UPC	Uniform Plumbing Code
UL	Underwriters Laboratories
WCLIB	West Coast Lumber Inspection Bureau
WIC	Woodwork Institute of California

***** END OF SECTION *****

SECTION 01200
PROJECT MEETINGS

PART 1 - GENERAL

1.01 PRE-CONSTRUCTION CONFERENCE

Prior to the start of construction CVSan will conduct a pre-construction conference that shall be attended by the Contractor's Project Manager/Project Engineers and major subcontractors and major equipment and material suppliers, affected utilities and others as determined by the Contractor and Construction Manager. At the conference, CVSan will review the Contractor's proposed schedule of operations and the construction procedure and sequence requirements. Also discussed will be the Contractor's field organization, submittals, progress payments, change order procedures, safety requirements, permits and inspections, and other matters.

1.02 PROGRESS MEETINGS

The Construction Manager shall schedule, arrange and conduct progress meetings. These meetings shall be conducted not more than once per week and shall be attended by the Contractor's superintendent and representatives of all subcontractors, utilities, and others, who are active in the execution of the Work. The purpose of these meetings shall be to review the Contractor's three (3) week schedule provided in accordance with Section 01310-1.07, **WEEKLY ACTIVITIES PLAN**, resolve conflicts, and in general, coordinate and expedite the execution of the Work.

The agenda of progress meetings shall include, as a minimum, review of progress and schedule, clarifications, changes, quality of work, progress payment request, and record documents. The Construction Manager shall prepare and distribute minutes to the meetings.

1.03 OTHER PROJECT MEETINGS

The Contractor shall attend and require the participation of other subcontractors or suppliers for other project related meetings when requested by the Construction Manager or CVSan.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

*** END OF SECTION ***

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 SUMMARY

- A. Where the Contractor is required by these Specifications to make submittals, they shall be made to the Construction Manager with a letter of transmittal and in accordance with the requirements of this Section.
- B. The Contractor shall submit the following items to the Construction Manager. Five (5) copies are to be submitted unless other provisions of the Contract Document stipulate a different quantity or other arrangements are made with the Construction Manager in writing.
 - 1. Safety Program
 - 2. Substitutions
 - 3. Construction and Demolition Debris Management Plan
 - 4. Shop Drawings
 - 5. Material Safety Data Sheets
 - 6. Working Drawings
 - 7. Warranty Data
 - 8. Others as Specified in the Technical Specifications
- C. Three (3) copies of submittals, which require review, will be returned to the Contractor with review comments, if any, noted.
- D. Reviewed copies of the Construction Schedule and the Final Operation and Maintenance Manuals will not be returned to the Contractor. It shall be the Contractor's responsibility to copy and/or conform reviewed submittals in sufficient numbers for its files, subcontractors, and vendors.

1.02 CONTRACTOR'S RESPONSIBILITIES

- A. The Contractor shall submit, at its own expense, samples, submittals and details of structural and reinforcing steel, equipment, material, electrical controls, architectural fabrications, pipe, pipe joints, special pipe sections, and any other appurtenances as required in Technical Specifications.
- B. All samples, submittals and supporting data, catalogs, schedules, etc., shall be submitted as the instruments of the Contractor, who shall be responsible for their accuracy and completeness and coordination. Such responsibility shall not be delegated in whole or part to subcontractors or suppliers. These submittals may be

prepared by the Contractor, subcontractors, or suppliers, but the Contractor shall ascertain that submittals meet all of the requirements of the Contract Documents, while conforming to structural, space, and access conditions at the point of installation. Designation of work "by others," if shown in submittals, shall mean that the work will be the responsibility of the Contractor rather than the subcontractor or supplier who prepared the submittals.

- C. The Contractor shall insure that there is no conflict with other submittals and notify the Construction Manager in each case where its submittal may affect the work of another contractor or CVSan. The Contractor shall insure coordination of submittals among the related crafts and subcontractors. The Contractor accepts the responsibility and expense for additional costs and delays which may result from Work performed without Favorably Reviewed submittals.
- D. Submittals shall be prepared in such form that data can be identified with the applicable Specification paragraph. The data shall clearly demonstrate compliance with the Contract Plans and Specifications and shall relate to the specific equipment to be furnished. Where manufacturer's standard drawings are employed, they shall be marked clearly to show what portion of the data is applicable to this project.

1.03 MATERIAL AND EQUIPMENT SUBSTITUTIONS

A. General

1. In preparing these Contract Documents, the Design Consultant has named those products which to its knowledge meet the Technical Specifications and are equivalent in construction, functional efficiency, and durability.
2. Wherever catalog numbers and specific brands or trade names preceded by "similar and equal" or followed by the designation "or equal" are used in conjunction with a designated material, product, thing, installation, or service mentioned in these Specifications, they are used to establish the standards of quality and utility required.
3. The first-named manufacturer is the basis for the project design and the use of alternative named or unnamed manufacturer's products proposed by the Contractor may require modifications in the project design and construction.
4. Where only one product has been named by brand, it is the only brand, trade name, or manufactured product known to the Design Consultant that meets the requirements of the Technical Specifications. Bidders will have until ten (10) days prior to the date set for the opening of bids to submit data substantiating a request for a substitution of "an equal" item.
5. CVSan has made a determination that no substitution will be considered and that the following listed materials and/or equipment must be furnished as designated below in order to match others in use by CVSan or because it is a unique or novel product application required to be used by CVSan:

No Sole Source Materials or Equipment Identified

B. Substitutions

1. Substitutions, which are equal in quality and utility to those specified, will be permitted, subject to the following provisions. For this purpose, the contractor shall submit to the Construction Manager within five (5) days of the Notice of Award, a typewritten list containing a description of each proposed substitute item or material. Sufficient data, drawings, samples, literature, calculations, or other detailed information as will demonstrate to the Design Consultant that the proposed substitute is equal in quality and utility to the material specified shall be appended to this list. The Design Consultant will Favorably Review in writing such proposed substitutions as are, in its opinion, equal in quality to the items or materials specified. In the event that a substitute is Favorably Reviewed, fifty (50) percent of all savings shall be credited to CVSan.
2. Failure of the Contractor to submit proposed substitutions for review in the manner described above and within the time prescribed shall be sufficient cause for rejection by the Construction Manager of any substitutions otherwise proposed.

C. Modifications and Costs

1. If alternative named or substitutions are proposed by the Contractor and Favorably Reviewed by the Design Consultant, the Contractor is responsible for providing, at no additional cost to CVSan, any electrical, mechanical, structural, or other related changes or testing that may be required to accommodate or provide the particular material or equipment the Contractor desires to use. Any deviation from the Specifications or the Drawings resulting from the type of material or equipment to be used shall not be the basis for any "extra charges" above and in excess of the original bid price of the work.
2. In addition, the Contractor is responsible for all additional costs to CVSan, and its agents and representatives, for evaluation of data submitted by the Contractor for alternative named or substitutions and any redesign necessary. CVSan shall deduct said costs from the Contract monies due the Contractor.

1.04 SUBMITTAL AND MATERIAL LIST

- A. Within five (5) days after the Award of Contract and prior to the submission of the initial shop drawings, the Contractor shall submit a complete list of all required submittals to the Construction Manager for favorable review.
- B. The Submittal and Material List shall include a description of each item, Specification reference and the anticipated submittal date. The List shall include all items of equipment and materials for mechanical, piping, electrical, heating and

ventilating, equipment piping, and plumbing work; and the names of manufacturers with whom purchase orders have been placed.

- C. Items on the List shall be arranged in the same order as in these Specifications, and shall contain sufficient data to identify precisely the items of material and equipment the Contractor proposes to furnish. The List shall reference the applicable Specification section or Drawing.
- D. After the submission is Favorably Reviewed and returned to the Contractor by the Construction Manager, it shall become the basis for the submission of detailed manufacturer's drawings, catalog cuts, curves, diagrams, schematics, data, and information on each separate item for review.
- E. An incomplete submittal list shall not be the basis for avoiding a submittal required by the Contract Documents. No work shall proceed on any item until it has been submitted and favorably reviewed. An incomplete submittal list is not a basis for avoiding a submittal required by the Specifications.

1.05 TRANSMITTAL PROCEDURES

A. Transmittal Form

1. A separate transmittal form shall be used for each specific item, class of material, equipment, and items specified in separate, discrete sections, for which the submittal is required.
2. Submittal documents common to more than one piece of equipment shall be identified with all the appropriate equipment numbers. Submittals for various items shall be made with a single form when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or review of the group or package as a whole.
3. The specification section and subsection or paragraph to which the submittal is related shall be indicated on the transmittal form.
4. A unique number, sequentially assigned, shall be noted on the transmittal form accompanying each item submitted. Original submittal numbers shall have the following format: "XXX"; where "XXX" is the sequential number assigned by the Contractor. Resubmittals shall have the following format: "XXX-Y" where "XXX" is the originally assigned submittal number and "Y" is a sequential letter assigned for resubmittals, i.e., A, B, or C being the 1st, 2nd, and 3rd resubmittals, respectively. Submittal 25B, for example, is the second resubmittal of Submittal 25.

B. Deviations from the Contract

1. If the submittals show any deviations from the Contract requirements, the Contractor shall submit with the submittal submission a separate written description of such deviations and the reasons therefore.
2. If CVSan accepts such deviation, CVSan shall issue an appropriate Contract Change Order, except that, if the deviation is minor, or does not involve a change in price or in time of performance, a Change Order need not be issued.
3. If any deviations from the Contract requirements are not noted on the submittal, the review of the shop drawing shall not constitute acceptance of such deviations.

C. Submittal Completeness

1. The Contractor shall review and check all submittals before submitting them to the Construction Manager.
2. The Contractor shall stamp and certify on the transmittal letter and on each shop drawing that they have been checked, are in compliance with the Plans and Specifications, and all deviations from the Contract requirements are noted.
3. If the Contractor submits an incomplete submittal, the submittal will be returned to the Contractor without review.
4. A complete submittal shall contain sufficient data to demonstrate that the items comply with the Specifications, shall meet the minimum requirements for submissions cited in the technical specifications, shall include materials and equipment data and seismic anchorage certifications where required, and shall include any necessary revisions required for equipment other than first named.
5. It is considered reasonable that the Contractor shall make a complete and acceptable submittal to the Construction Manager at least by the second submission of data.
6. CVSan reserves the right to deduct monies from payments due the Contractor to cover additional costs of review beyond the second submission.

D. Submittal Period

1. All submittals shall be completed within fifteen (15) business days after the Notice to Proceed unless the Construction Manager accepts an alternate schedule for submission of submittals proposed by the Contractor.
2. Submittals shall be submitted in time to allow appropriate time for review and response to submittals as provided for herein prior to the incorporation of materials and equipment in the Work.

3. Certificates of Compliance
 4. For materials furnished and installed in accordance with Division 2 of these Specifications and for standard “off-the-shelf” materials where the Contractor is furnishing the materials listed in the Contract Documents, the Contractor may furnish a Certificate of Compliance in lieu of a full shop drawing for such materials.
 5. The Certificate of Compliance shall be submitted as otherwise stipulated in Section 01300-1.05, **TRANSMITTAL PROCEDURES**. The certificate shall be signed by the manufacturer or supplier of the material and shall state that the materials involved comply in all respects with the requirements of the Contract Documents.
 6. The fact that material is used on the basis of a Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating material in the Work which conforms to the requirements of the Contract Documents.
- E. Alternate Submittals
1. If a submittal is approved and the Contractor elects to submit an alternate item for review for the same application, the Contractor shall be responsible for the review costs for the alternate submittal.

1.06 REVIEW PROCEDURE

- A. Submittals shall be submitted to the Construction Manager for review and returned to the Contractor within four (4) business days after receipt.
- B. Review of submittals by the Design Consultant has as its primary objective the completion for CVSan of a project in full conformance with the Contract Plans and Specifications, unmarred by field corrections, and within the time provided.
- C. In addition to this primary objective, submittal review as a secondary objective will assist the Contractor in its procurement of equipment that will meet all requirements of the project Plans and Specifications, will fit the structures detailed on the Plans, will be completed with respect to piping, electrical, and control connections, will have the proper functional characteristics, and will become an integral part of a complete operating facility.
- D. After review by the Design Consultant of each of the Contractor's submissions, the material will be returned to the Contractor with actions defined as follows:
 1. **NO EXCEPTIONS NOTED (RESUBMITTAL NOT REQUIRED)** - Accepted subject to its compatibility with future submissions and additional partial submissions for portions of the work not covered in this submission. Does not constitute approval or deletion of specified or required items not shown in the partial submission.

2. **MAKE CORRECTIONS NOTED (RESUBMITTAL NOT REQUIRED)** - Same as A, except that minor corrections as noted shall be made by the Contractor.
 3. **MAKE CORRECTIONS NOTED (RESUBMIT)** - Rejected because of major inconsistencies or errors which shall be resolved or corrected by the Contractor prior to subsequent review by the Design Consultant.
 4. **NOT ACCEPTABLE (RESUBMIT)** - Submitted material does not conform to Plans and Specifications in major respect, i.e.: wrong size, model, capacity, or material.
- E. Items A and B above (no resubmittal required) are considered "Favorable Review." Items C and D above (correction and resubmittal required) are considered "unfavorable review."

1.07 EFFECT OF REVIEW OF CONTRACTOR'S SUBMITTALS

- A. The Design Consultant's Favorable Review of submittals shall be obtained prior to the fabrication, delivery and construction of items requiring submittal review.
- B. Favorable Review of submittals does not constitute a Change Order to the Contract requirements.
- C. The Favorable Review of all submittals by the Design Consultant shall apply in general design only and shall in no way relieve the Contractor from responsibility for errors or omissions contained therein.
- D. Favorable Review by the Design Consultant shall not relieve the Contractor of its obligation to meet safety requirements and all other requirements of laws, nor constitute a Contract Change Order.
- E. Favorable Review will not constitute acceptance of any responsibility for the accuracy, coordination, and completeness of the submittals or the items of equipment represented on the submittals.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

***** END OF SECTION *****

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SECTION 01310

PROGRESS SCHEDULES

PART 1 - GENERAL

1.01 GENERAL

The Contractor shall provide a construction schedule that includes a procedural outline of any system shutdowns and proposed tie-in procedures, which shall be subject to the favorable review of the Construction Manager and CVSan.

1.02 NOT USED

1.03 CONSTRUCTION SCHEDULE

A. General

The Construction Schedule for this Project will also be referred to as the Base Schedule.

The Contractor shall designate, in writing, an authorized representative in its firm who will be responsible for the preparation, revising, and updating of the Base Schedule. The Contractor's representative shall have direct project control and complete authority to act on behalf of the Contractor in fulfilling the construction scheduling requirements set forth herein, and such authority will not be interrupted throughout the duration of the Project. The requirements for the Base Schedule are included to assure adequate planning and execution of the Work and to assist the Construction Manager in appraising the reasonableness of the proposed schedule and evaluating progress of the Work.

B. Preliminary Progress and Base Schedule

1. Within five (5) days after notice of award of Contract, the Contractor shall submit a Preliminary Progress Schedule covering the following project phases and activities:
 - a. Procurement and Submittals, including shop drawings and fabrication and delivery of key and long lead time procurement activities.
 - b. All activities planned in the execution of the Work.
 - c. The total duration of the summary activities shall equal the Contract Time.
 - d. Approximate duration for each summary activity representing the Contractor's best estimate for the work the summary activity represents.
2. The Preliminary Progress Schedule shall describe the activities to be accomplished and their dependency subject to all requirements under these

Construction Schedule provisions, as appropriate. The Preliminary Progress Schedule will be used temporarily to record and monitor the progress of the Work until a Base Schedule has been completely developed and Favorably Reviewed. Recorded data on the Preliminary Progress Schedule shall be incorporated into the Base Schedule during the first schedule update.

3. The Construction Manager shall review the schedule and provide any comments, its Favorable Review of the schedule, or request a meeting to review the schedule with the Contractor within five (5) days of receipt of the schedule. If requested, the Contractor shall participate in a review and evaluation of the schedule with the Construction Manager. Any revisions necessary as a result of this review shall be resubmitted for review by the Construction Manager within five (5) days.
4. The Base Schedule shall be used in implementation of the work and progress of the work will be compared to the Base Schedule at each weekly progress meeting.

1.04 WEATHER CONDITIONS

Seasonal weather conditions shall be considered in the planning and scheduling of work influenced by high or low ambient temperatures or precipitation to ensure the completion of the Work within the Contract Time. No time extensions will be granted for the Contractor's failure to take into account such weather conditions for the location of the Work and for the period of time in which the Work is to be accomplished.

The expected loss of working days specified in the Supplementary General Conditions, Section 00800-1.03, **WEATHER DAYS**.

1.05 UPDATES

A. Submittal Period

The Contractor shall submit at weekly intervals a report of the actual construction progress. Each weekly report shall cover the previous week's progress. If, in the opinion of the Construction Manager, the project is behind schedule, the report shall include a revised tabular report showing the Contractor's proposed revised schedule to complete the project by the designated Contract Time.

1.06 TIME IMPACT ANALYSES

A. When Change Orders are initiated or delays are experienced, the Contractor shall submit to the Construction Manager a written Time Impact Analysis illustrating the influence of each change, delay, or Contractor request on the current Progress Schedule completion date.

1. Construction Schedule – Analysis

- a. The analysis shall demonstrate the time impact based on the beginning and ending date of the occurrence, change, delay or revision; the status of construction at that point in time immediately

preceding the occurrence, change, delay or revision; and the event time computation of all affected activities.

- b. The event times used in the analysis shall be those included in the latest updated copy of the Construction Schedule or as adjusted by mutual agreement between the Construction Manager and Contractor.

B. Activity time delays will not automatically mean that an extension of Contract Time is warranted or due the Contractor.

1. It is possible that an excusable delay or contract modification will not affect existing critical activities or cause noncritical activities to become critical, i.e., a delay or modification may result in only absorbing a part of the available total float that may exist within an activity chain of the network, thereby not causing any effect on the Contract completion date or Contract Time.
2. The Contractor acknowledges and agrees that mitigation for delays due to changes, differing site conditions, and other causes will require revision of preferential sequences of the Work. Accordingly, to mitigate delays, the activities shall be resequenced prior to the Contractor proposing an updated schedule which supports a delay to the Project as a whole. When a delay to the Project as a whole can be avoided by revising preferential sequencing, and the Contractor chooses not to implement the revisions, the Contractor will be entitled to a time extension but is not entitled to compensation for indirect overhead for this extended duration.
3. Actual delays in activities which do not affect the critical path work or which do not move the Contractors planned completion date beyond a milestone or the Contract completion date will not be the basis for an adjustment to the Contract Time.
4. Extensions of time can be granted for a delayed or impacted activity only for the duration of the time adjustment which exceeds the total float for the schedule path wherein the activity is located. The adjustment is only applicable during the time the delay occurred or when the change is ordered.

C. Time Impact Analyses shall be submitted within five (5) days after a delay occurs or with the Contractor's cost proposal in response to a notice of change from the Construction Manager. In cases where the Contractor does not submit a Time Impact Analysis for a specific Change Order, delay, or other Contractor requested time extension within the specified period of time, then it is mutually agreed that the particular Change Order, delay, or Contractor request has no time impact on the Contract completion date and no time extension is required.

1. Approval or rejection of Time Impact Analyses by the Construction Manager and CVSan will be made within five (5) days after receipt of the Time Impact Analysis unless subsequent meetings and negotiations are necessary.

2. Upon approval, a copy of the Time Impact Analysis signed by the Construction Manager and CVSan will be returned to the Contractor.
3. Upon mutual agreement by both parties, schedule revisions illustrating the influence of Change Orders, delays, and/or Contractor requests will be incorporated into the next schedule update.

1.07 WEEKLY ACTIVITIES PLAN

On the last working day of every week the Contractor shall submit to the Construction Manager the Contractor's Plan of Activities for the following three weeks. The Plan of Activities shall describe the activity and location of the activity and include the activity number as provided in the Construction Schedule.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

****** END OF SECTION ******

SECTION 01400
QUALITY CONTROL

PART 1 - GENERAL

1.01 INSPECTION AND TESTING

Additional requirements for tests are described in Chapter 9 of CVSan's General Provisions and Specifications for the Construction of Sanitary Sewers and the Contract Documents.

A. General

Where the Contract Documents require work to be tested or approved, it shall be tested in the presence of the Construction Manager or its authorized representative. The Construction Manager shall have the right to witness all on-site tests performed by the Contractor and any shop tests. The results of any tests performed by the Contractor shall be made available for the information of the Construction Manager.

Inspections, tests or Favorable Reviews by the Construction Manager or others shall not relieve the Contractor from its obligation to perform the work in accordance with the requirements of the Contract Documents or for its sole responsibility for the quality of workmanship and materials.

Except as specifically required under the Technical Specifications for testing and inspection, all tests for materials furnished by the Contractor will be done in accordance with commonly recognized standards of national organizations. Where tests are to be performed by the Construction Manager or by an independent laboratory or agency, the Contractor shall furnish such samples of all materials as required by the Construction Manager without charge. The sample or samples of materials to be tested shall be selected by such laboratory or agency, or the Construction Manager, and not by the Contractor. No material for which the Contract Documents require the submittal and approval of tests, certificates of compliance or other documentation shall be incorporated in the Work until such submittal has been made and approved.

The Contractor shall provide safe access for the Construction Manager and inspectors to adequately inspect the quality of work and the conformance with the Contract Documents. The Contractor shall furnish the Construction Manager the necessary labor and facilities for such things as excavation in the compacted fill to the depths required to take samples. The Contractor shall provide adequate lighting, ventilation, ladders and other protective facilities as may be necessary for the safe performance of inspections.

Records shall be available at all reasonable hours for inspection by other local or State agencies to ascertain compliance with laws and regulations.

Upon completion of the Work the Construction Manager will conduct a final inspection as provided for in Section 00700-8.07, **FINAL INSPECTION AND PAYMENT**.

B. Notice

The Contractor shall notify the Construction Manager at least 24 hours before any field testing or special inspections are required to be performed by the Construction Manager or independent laboratory furnished by CVSan. The Contractor shall notify the Construction Manager at least two hours before any inspection is required to be performed or to witness the Contractor's on-site field testing.

Whenever the Contractor varies the period during which work is carried on each day, the Contractor shall give due notice to the Construction Manager so that proper inspection may be provided. Any work done in the absence of the Construction Manager shall be subject to rejection.

The Contractor shall give the Construction Manager written notification at least 30 days prior to the shipment of materials and equipment to be tested and/or inspected at the point of origin. Satisfactory tests and inspections at the point of origin shall not be construed as a final acceptance of the materials and equipment nor shall such tests and inspections preclude retesting or reinspection at the site of the Work.

C. Costs of Testing

1. The Contractor shall be responsible for, and shall pay for, all quality control and off-site tests of materials required including all source and mix design tests for the approval of soil and concrete materials. CVSan will perform the soils and concrete confirmation tests detailed in the Technical Specifications during the performance of the Work. CVSan will retain and pay a qualified testing agency to perform soil compaction testing and work identified as requiring special inspections and testing as defined by UBC section 1701. All other testing required by the Technical Specifications shall be the responsibility of the Contractor.
2. The Contractor shall be responsible for, and shall pay for, all source quality control and all on-site tests of materials required, except those tests specifically noted to be performed and paid for by CVSan.
3. The Construction Manager shall have the authority to require additional tests or inspections due to the manner in which the Contractor executes its work. Examples of such additional tests and inspections include; tests of materials substituted for previously accepted materials, or substituted for specified materials, or retests made necessary by failure of material to comply with the requirements of the Specifications. Where such tests and inspections are required by Contract to be performed by CVSan, CVSan

will pay for the additional tests and inspections but will issue a unilateral Change Order to deduct these costs from the Contract price.

4. In the event the Contractor prematurely notifies of testing, inspection, special inspection, or on site inspection in accordance with Section 01400-1.01B, and the Contractor is not prepared or the project has not progressed to the point requiring testing, inspection, special inspection, or on site inspection, the Contractor shall pay for all costs associated with the premature notification of testing and inspection personnel and equipment.

D. Work Covered Prior to Inspection and/or Testing

Work requiring inspection and/or testing shall not be concealed or buried prior to the acceptance of such inspection or testing. Work covered without the favorable review or consent of the Construction Manager shall, if required by the Construction Manager, be uncovered for inspection and/or testing at the Contractor's expense.

E. Work Covered With Prior Inspection and/or Testing

If the Construction Manager considers it necessary or advisable that covered work which was favorably inspected and tested be uncovered for reinspection and/or retesting, the Contractor, at the Construction Manager's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Construction Manager may require, that portion of the work in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such work is defective, the Contractor will bear all expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such work is not found to be defective the Contractor will be allowed an increase in the Contract price or an extension of the Contract time, or both, directly attributable to such uncovering, exposure, observation, testing and reconstruction, and a Change Order shall be issued for such additional work.

F. Coordination of Other Inspections

The Contractor is completely responsible for scheduling all agency inspections in accordance with the agency requirements. The Contractor shall notify the Construction Manager of all building and other work component inspection notices and schedules. Failure of the Contractor to properly coordinate and schedule these inspections shall not be cause for time extensions.

1.02 TEST WATER

The Contractor shall furnish and dispose of the water which is required for testing of piping and structures. The Contractor shall dispose of all testing water without damage to property, and in accordance with applicable regulations.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

***** END OF SECTION *****

SECTION 01510

TEMPORARY UTILITIES

PART 1 - GENERAL

1.01 ELECTRICAL SERVICE

The Contractor shall arrange, at its own cost, with the local utility to provide adequate temporary electrical service at a mutually agreeable location. The Contractor shall then provide adequate jobsite distribution facilities conforming to applicable codes and safety regulations. The Contractor shall provide, at its own cost, all electric power required for construction, testing, general and security lighting, and all other purposes whether supplied through temporary or permanent facilities.

1.02 WATER

The Contractor shall pay for and shall construct all facilities necessary to furnish water for its use during construction. Water used for human consumption shall be kept free from contamination and shall conform to the requirements of the State and local authorities for potable water. The Contractor shall pay for all water used for the Contractor's operations prior to final Acceptance.

1.03 TEMPORARY LIGHTING

The Contractor shall provide temporary lighting in all work areas sufficient to maintain a lighting level during working hours not less than the lighting level required by California OSHA standards. As permanent lighting facilities are completed they may be used in lieu of temporary facilities, provided however, that bulbs, lamps, or tubes of such facilities used by the Contractor shall be replaced prior to final Acceptance of the Work.

1.04 HEATING AND VENTILATION

The Contractor shall provide means for heating and ventilating all work areas as may be required to protect the Work from damage by freezing, high temperatures, weather, or to provide a safe environment for workers. Un-vented direct fired heaters shall not be used in areas where freshly placed concrete will be exposed to the combustion gases until at least two hours after the concrete has attained its initial set.

1.05 SANITARY CONVENIENCES

The Contractor shall provide suitable and adequate sanitary conveniences for the use of all persons at the site of the Work. Such conveniences shall include chemical toilets or water closets and shall be located at appropriate locations at the site of the Work. All sanitary conveniences shall conform to the regulations of the public authority having jurisdiction over such matters. At the completion of the Work, all such sanitary conveniences shall be removed and the site left in a sanitary condition.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

***** END OF SECTION *****

SECTION 01560

TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 TEMPORARY FACILITIES

- A. Construction hoists, elevators, scaffolds, stages, shoring, and similar temporary facilities shall be of ample size and capacity to adequately support and move the loads to which they will be subjected. Railings, enclosures, safety devices, and controls required by law or for adequate protection of life and property shall be provided.

1.02 STAGING AND FALSEWORK

- A. Temporary supports shall be designed by a registered professional engineer with an adequate safety factor to assure adequate seismic and load bearing capability. The Contractor shall submit design calculations for staging and shoring prior to commencement of work and as required by Section 02250-1.05.
- B. Excavation support shall be in accordance with Section 02250 – SHORING.

1.03 PROTECTION OF WORK, PROPERTY AND PERSONS

- A. The Contractor shall be responsible for the care of all work until its completion and final Acceptance; and the Contractor shall, at its own expense, replace damaged or lost material and repair damaged parts of the Work, or the same may be done by CVSan, and the Contractor and its sureties shall be liable therefor. The Contractor shall make its own provisions for properly storing and protecting all material and equipment against theft, injury, or damage from any and all causes. Damaged material and equipment shall not be used in the Work. The Contractor shall take all risks from floods and casualties, or for delays from such causes. The Contractor may, however, be allowed a reasonable extension of time on account of such delays, subject to the conditions herein before specified. The Contractor shall remove from the vicinity of the completed work all plant, buildings, rubbish, unused material, concrete forms, sheeting or equipment belonging to the Contractor or used under its discretion during construction; and in the event of the Contractor's failure to do so, the same may be removed by CVSan at the expense of the Contractor, and the Contractor and its sureties shall be liable therefor.
- B. The Contractor shall adopt all practical means to minimize interference to traffic and inconvenience, discomfort, or damage. The Contractor shall protect against damage, any piling, duct or structures crossing trenching or encountered in the Work and shall be responsible for any damage done to such structures, or damage therefrom. The Contractor shall support or replace any such structures without delay and

without any additional compensation, to the entire satisfaction of the Construction Manager. All obstructions to traffic shall be guarded by flagmen as required and by barriers and illuminated at night. The Contractor shall be responsible for all damage to persons and property directly or indirectly caused by its operations, and under all circumstances the Contractor shall comply with the regulations of the County, and the laws and regulations of the State of California, relative to safety of persons and property and the interruption of traffic and the convenience of the public within the respective jurisdiction, and the Contractor shall be solely responsible for any damages caused by failure to provide proper safety.

- C. The Contractor will be held responsible for and be required to make restitution, at its own expense, for all damage to persons or property caused by the Contractor or subcontractor, or the agents, or employees of either during the progress of the Work and until its final Acceptance.

1.04 FENCES

- A. Except as otherwise provided, the Contractor shall enclose the site of the Work with a fence adequate to protect the Work and temporary facilities against acts of theft, violence, or vandalism.

- B. In the event all or a part of the site is to be permanently fenced, this permanent fence or a portion thereof may be built to serve for protection of the Work site, provided however, that any portions damaged or defaced shall be replaced prior to final acceptance.

- C. Temporary openings in existing fences shall be protected to prevent intrusion by unauthorized persons. During night hours, weekends, holidays, and other times when no work is performed at the site, the Contractor shall provide temporary closures or guard service to protect such openings. Temporary openings shall be fenced when no longer necessary.

1.05 TEMPORARY ENCLOSURES

- A. When sandblasting, spray painting, spraying of insulation, or other activities inconveniencing or dangerous to property or the health of employees or the public are in progress, the area of activity shall be enclosed adequately to contain the dust, over-spray, or other hazard. In the event there are no permanent enclosures of the area, or such enclosures are incomplete or inadequate, the Contractor shall provide suitable temporary enclosures.

1.06 ABOVE GRADE PROTECTION

- A. On multi-level structures, the Contractor shall provide safety protection that, as a minimum, shall meet the requirements of Title 8, California Code of Regulations.

1.07 WORKING HOURS

- A. Construction shall be allowed only between the hours of seven (7:00) a.m. and four (4:00) p.m. on weekdays in public right of way and eight (8:00) a.m. and four (4:00) p.m. on private property and, upon prior approval from CVSan, nine (9:00) a.m. to six (6:00) p.m. on weekends and holidays, unless otherwise approved by CVSan. Hours for closures of traffic lanes are different than allowed construction working hours. Hours for closures of traffic lanes for work in the public right of way will be as specified in the County Encroachment Permit and in Section 01010-1.02 WORK SEQUENCE AND CONSTRAINTS.
- B. The Contractor shall be responsible for any inspection and additional administration costs incurred by CVSan, or its agents and representatives, for work by the Contractor outside regular defined working hours on weekdays, or any work on weekends or holidays recognized by CVSan.
- C. If an inspection is required at any time other than during the work hours identified, Contractor shall notify the Construction Manager (or shall make such request for overtime inspection at the office of CVSan) at least one (1) hour prior to the end of the work day. A fee shall be charged for overtime inspection and shall be determined as follows: the Inspector's hourly rate of pay in effect at that time shall be doubled; such double-time rate shall then be multiplied by a minimum chargeable time of two (2) hours. If the Inspector is required to stay on the job more than two hours, the double-time rate shall be paid for each hour thereafter; portions of hours shall be charged as a full hour. Such costs shall be withheld from the succeeding monthly progress payment.
- D. Any work in Section 01010, SUMMARY OF WORK, specifically required to be performed outside the normal working hours is excluded from the provisions of this paragraph. CVSan may also exclude other work performed outside the normal working hours from the provisions of this paragraph.
- E. The Contractor shall notify the Construction Manager at least 48 hours prior to any work outside the normal working hours defined above for work planned on weekends or holidays.

- F. The Contractor shall be responsible for any inspection and additional administration costs incurred by CVSan, or its agents and representatives for the following conditions:
 - 1. For work by the Contractor outside the hours defined above on weekdays, or any work on weekends or holidays recognized by CVSan.
 - 2. For overtime costs beyond ten (10) hours in any one workday shift, regardless if the ten (10) hours occur in the allowed working hours.
- G. Such costs shall be withheld from the succeeding monthly progress payment. Any work in Section 01010, SUMMARY OF WORK, specifically required to be performed outside the normal working hours is excluded from the provisions of this paragraph.

1.08 DUST CONTROL

- A. During the performance of all Work under this Contract, the Contractor shall assume all responsibility for dust control and shall furnish all labor, equipment, and means required to carry out proper and efficient measures wherever and whenever dust control is necessary to prevent the Contractor's operations from producing dust damage and nuisance to persons and property.
- B. The Contractor shall implement Bay Area Air Quality Management District (BAAQMD) basic control measures for dust control, including:
 - 1. Maintain dust control within the site and provide adequate measures to prevent a dust problem for neighbors. Use water sprinkling, temporary enclosures, and other suitable methods to limit the rising of dust and dirt. Dust control will be adequate to ensure that no visible dust clouds extend beyond the project boundaries or extend more than 50 feet from the source of any onsite project construction activities. The use of dry power sweeping is prohibited.
 - 2. Load trucks in a manner that will prevent materials or debris from dropping on streets. Trim loads and remove all material from shelf areas of vehicles to prevent spillage. Take precautions when necessary to avoid creating dust and litter by watering the load after trimming and by promptly sweeping the pavement to remove dirt and dust.
 - 3. Cover all trucks hauling soil, sand, and other loose materials.
 - 4. Pave, apply water, or apply nontoxic soil stabilizers or rock on all unpaved access roads, parking areas, and staging areas at construction sites.
 - 5. Sweep daily with water sweepers all paved access roads, parking areas, and staging areas at construction sites.
 - 6. Sweep streets daily with water sweepers if visible soil material is carried onto adjacent public streets.

7. Enclose, cover, water, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.).
 8. Limit traffic speeds on unpaved road surfaces to 15 miles per hour.
 9. Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
 10. Replant vegetation in disturbed areas as quickly as possible.
- C. Unless the construction dictate otherwise, and unless otherwise approved by the Construction Manager, the Contractor shall furnish and operate a self-loading motor sweeper with spray nozzle at least once each working day to keep paved areas acceptably clean whenever construction, including restoration, is incomplete.
- D. If the contractor does not provide and/or conduct dust control as required above or otherwise approved in writing by the Construction Manager, CVSan has the right to contract such services separately and withhold those costs from the contractor.
- E. Any claims resulting from dust damage or nuisance shall be borne solely by the Contractor.

1.09 FIRE EXTINGUISHER

- A. Sufficient number of fire extinguishers of the type and capacity required to protect the Work and ancillary facilities, shall be provided and maintained by the Contractor in readily accessible locations.

1.10 USE OF EXPLOSIVES

- A. The use of explosives is prohibited.

1.11 REMOVED MATERIALS

- A. All concrete, paving, reinforcing steel, fencing materials, rock, soil, strips, and other waste material and construction debris shall be removed from the site by the Contractor and disposed of in accordance with applicable regulations and laws.
- B. The diversion requirements for removed materials shall be as follows:
1. At least seventy-five (75) percent of the asphalt, concrete, and earth debris generated by the project shall be diverted from landfills via Reuse or Recycling.
 2. At least fifty (50) percent of the total of all other debris generated by the project shall be diverted from landfills via Reuse or Recycling.
 3. Debris consisting of hazardous waste, contaminated earth or soil, or materials without any use or market value even after re-manufacturing shall be exempted from the foregoing diversion requirements.

- C. The Contractor shall prepare and submit, at the pre-construction meeting or no later than ten (10) days following the award of the project, whichever is earlier, a Construction and Demolition Debris Management Plan for approval by CVSan. Said plan shall include an estimate of all waste that will be removed from the project site, whether the waste will be recycled, salvaged or landfilled, and the names and locations of the facilities that will receive each of the materials.
- D. Weight tickets, receipts, or invoices that specifically identify the project generating the material shall be submitted to the Construction Manager upon disposal of materials. Said documents must be from recyclers and/or disposal site operators that can legally accept and process the materials. Receipts must indicate that the materials will be recycled. If materials are taken to an inert backfill site and weight tickets, receipts, or invoices are not available, the Contractor shall provide documentation on its letterhead identifying the address to which materials were taken, name of owner/operator, type of materials, and amount of material disposed, specifically identifying the project generating the materials.
- E. Upon completion of the project, the Contractor shall prepare and submit a Construction & Demolition Debris Management Recycling Summary Report to CVSan and County for verification of compliance. The Contractor shall certify that information presented in the report is supported by all weight tickets previously submitted to CVSan.
- F. Information regarding recyclable materials and available facilities can be obtained by calling the Alameda County recycling hotline at (877) 786-7927 or from the Alameda County Waste Management Authority internet address: www.stopwaste.org
- G. DEFINITIONS
 1. CONTAMINATED EARTH OR SOIL: For the sole purposes of calculating the quantity of material to be exempted from the base quantity of material to be diverted from landfills, contaminated earth or soil is defined as material restricted by State or Federal regulations such that it must be disposed of at a landfill or hazardous material storage facility. Contractor shall make a determination of what materials are considered within this category in the management plan submitted to CVSan.
 2. ASPHALT: The term “asphalt” shall mean asphalt concrete as defined in Section 39, “Asphalt Concrete” of the Standard Specifications or Section 02740 AC PAVING. Asphalt concrete may include pavement reinforcing fabric.
 3. CONCRETE: The term “concrete” shall mean Portland cement concrete as defined in Section 40, “Portland Cement Concrete Pavement” and in Section 90, “Portland Cement Concrete” of the Standard Specifications and Section 03301 CAST-IN-PLACE CONCRETE.

4. EARTH DEBRIS: The term “earth debris” shall mean natural material indigenous to the surrounding area or material that has previously been imported for backfill. No material categorized as clean earth debris should be expected at the work site.
5. DIVERTED FROM LANDFILLS: For purposes of this specification, materials delivered to a landfill site may nevertheless be considered diverted from landfill if the material is accepted by the landfill operator for reuse or recycling, including for use as Alternative Daily Cover or Beneficial Use as defined by Title 27, California Code of Regulations, Division 2, or as amended. Said operator shall provide written certification to CVSan for such uses.

1.12 CONSTRUCTION CLEANING

- A. Throughout the period of construction the Contractor shall keep the Work site (including work, storage, parking, and employee areas) free and clean of all rubbish and debris, and shall promptly remove from the site, or from property adjacent to the site of the Work, all unused and rejected materials, surplus earth, concrete, plaster, and debris. In particular the Contractor shall keep the site clean to maintain safe access and to avoid fire hazard.

1.13 NOISE ABATEMENT

- A. Operations at the Work site shall be performed so as to minimize unnecessary noise. Special measures shall be taken to suppress noise during night hours. Noise levels due to construction activity shall not exceed the levels specified by the Alameda County Noise Ordinance.
- B. CVSan Construction Manager will be responsible for responding to noise complaints during the construction phases. The name and phone number of CVSan Construction Manager will be conspicuously posted at construction areas and on all advanced notifications. This person will take steps to resolve complaints, including periodic noise monitoring, if necessary. Results of noise monitoring will be presented at regular project meetings with the project contractor, and the Construction Manager will coordinate with the contractor to modify any construction activities that generated excessive noise levels.
- C. Contractor will be required to implement appropriate noise controls to reduce daytime construction noise levels to meet the 75-dBA daytime speech interference criterion. For nighttime construction, all work sites located within 2,000 feet of any noise-sensitive receptors will be required to implement appropriate noise controls to maintain noise levels at or below the Alameda County Noise Ordinance nighttime noise limit or a 50-dBA nighttime sleep interference criterion at the closest sensitive receptors.
- D. Noise controls could include any of the following, as appropriate:

1. Best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) will be used for all equipment and trucks in order to minimize construction noise impacts.
2. If impact equipment (e.g., jack hammers, pavement breakers, and rock drills) is used during project construction, hydraulically or electric-powered equipment will be used wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust will be used. External jackets on the tools themselves will be used, where feasible. Quieter procedures, such as drilling rather than impact equipment, will be used whenever feasible.
3. Where shoring of pipeline trenches or pits is required, alternative methods such as trench boxes shall be utilized to the extent feasible to avoid noise impacts associated with sheetpile driving. If sheetpile driving is required, sonic or vibratory pile drivers will be used instead of impact pile drivers if feasible (sonic pile drivers are only effective in some soils). Any sheetpile driving activities shall be prohibited during the evening and nighttime hours (7 p.m. to 7 a.m.).
4. Operation of equipment requiring use of back-up beepers will be avoided near sensitive receptors to the extent feasible during nighttime hours (10 p.m. to 7 a.m.).
5. Stationary noise sources will be located as far from sensitive receptors as feasible. If they must be located near receptors, adequate muffling (with enclosures where feasible and appropriate) will be used to ensure local noise ordinance limits are met. Enclosure opening or venting will face away from sensitive receptors. If any stationary equipment (e.g., ventilation fans, generators, dewatering pumps) is operated beyond the time limits specified by the pertinent noise ordinance, this equipment will conform to the affected jurisdiction's pertinent day and night noise limits.
6. Material stockpiles as well as maintenance/equipment staging and parking areas will be located as far as feasible from residential and school receptors.
7. If construction within 100 feet of school classrooms or childcare facilities must occur when school is in session, interior noise levels in classrooms will not exceed 60 dBA if possible to avoid speech interference problems
8. Proposed jack-and-bore pits will be located as far from sensitive receptors as technically feasible. If ventilation fans, dewatering pumps, or generators are required as part of this type of pipeline crossing, such equipment will comply with daytime and nighttime noise limits specified in the Alameda County Noise Ordinance.
9. Wherever necessary, temporary or permanent noise barriers will be erected to maintain construction noise levels at or below the 75-dBA daytime

speech interference criterion and the 50-dBA nighttime sleep interference criterion.

10. Haul truck operations shall be restricted to designated haul routes to the extent feasible and will be prohibited on non-designated haul routes during the more noise-sensitive nighttime hours (10 p.m. to 7 a.m.)
11. Internal combustion engines used on the Work shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated without said muffler.

1.14 DRAINAGE CONTROL

- A. In excavation, fill, and grading operations care shall be taken to disturb the pre-existing drainage pattern as little as possible. Particular care shall be taken not to direct drainage water onto private property or into streets or drainage ways inadequate for the increase flow. Drainage means shall be provided to protect the Work.

1.15 EROSION CONTROL

- A. All excavated areas shall be provided with temporary erosion control measures.
- B. Temporary erosion control shall be required for all areas where natural ground cover is disturbed, all temporary excavation stockpiles, including structures and trench excavations.
- C. Erosion control shall be by means of filter fabric fences or hay bales placed to completely circumvent the down-slope side of any excavated stockpile.
- D. Protected areas shall be regularly inspected and maintained by the Contractor during the course of the Work.
- E. All excavations, spills, and waste materials shall not be placed in areas subject to washout, flooding or natural drainage.
- F. See Section 01060, REGULATORY REQUIREMENTS AND PERMITS for additional requirements

1.16 WARNING DEVICES AND BARRICADES

- A. The Contractor shall adequately identify and guard all hazardous areas and conditions by visual warning devices and, where necessary, physical barriers. Such devices shall, as a minimum, conform to the requirements of Cal/OSHA.
- B. The Contractor is responsible for providing and maintaining barricades necessary to prevent accidental falls through any unattended open hatches or trenches, or entrances into potentially hazardous work areas in the Contractor's work area.

1.17 TRAFFIC REGULATIONS

A. General

1. All requirements provided in Section 02800, TRAFFIC CONTROL shall be followed.
2. The Contractor shall take all necessary steps to minimize inconvenience to the general public throughout all work under this Contract. No driveways or private roads shall be blocked without notifying the property owner and access must be restored during all non-working hours. Safe access must be maintained for pedestrian traffic throughout the work area at all times.
3. At least one lane of traffic in each direction must be kept open at all times unless prior approval is provided by CVSan and Alameda County which has authority for the right-of-way. No roads shall be blocked or made inaccessible, due to the Contractor's work, without prior written approval of CVSan, Alameda County, and other the affected agencies. More stringent requirements may be imposed in the right-of-way permits.
4. The Contractor shall not block or obstruct fire lanes at any time.
5. The Contractor shall adopt all practical means to minimize interference to traffic and inconvenience, discomfort, or damage. The Contractor shall protect against damage, any pilling, duct or structures crossing trenching or encountered in the Work and shall be responsible for any damage done to such structures or damage therefrom. The Contractor shall support or replace, any such structures without delay and without any additional compensation, to the entire satisfaction of the Construction Manager. All obstructions to traffic shall be guarded by flagmen as required and by barriers and illuminated at night. The Contractor shall be responsible for all damage to persons and property directly or indirectly caused by its operations, and under all circumstances the Contractor shall comply with the regulations of CVSan and County, and the laws and regulations of the State of California, relative to safety of persons and property and the interruption of traffic and the convenience of the public within the respective jurisdiction, and the Contractor shall be solely responsible for any damages caused by failure to provide proper safety.

B. Haul Routes

1. In addition to any haul routes that may be designated in the Contract Documents, or at the preconstruction conference, the Contractor shall furnish evidence that the Alameda County which has authority for the right-of-ways proposed to be utilized by the Contractor for haul routes has approved the proposed route(s) for all construction traffic created by the Project. Upon approval, the Contractor shall strictly adhere to that route(s) only, unless written permission is obtained from such Alameda County to change the route(s).

C. Traffic Control

1. Traffic control shall be in accordance with the California Manual of Uniform Traffic Control Devices. The Contractor shall submit for approval, by CVSan and Alameda County, its traffic control plans prior to work on public streets.
2. Traffic control shall include signs, warning lights, reflectors, barriers, and other necessary safety devices and measures, including sufficient flaggers to direct vehicular traffic through the construction areas.
3. No material or equipment shall be stored/parked where it will interfere with the free and safe passage of public traffic, and at the end of each day's work, and at other times when construction operations are suspended for any reason, the Contractor shall remove all equipment and other obstructions from the public right-of-way.
4. Should the Contractor appear to be negligent in furnishing warning and protective measures, as above provided, the Construction Manager may direct attention to the existence of a hazard, and the necessary warning and protective measures shall be furnished and installed by the Contractor at its expense.

1.18 ROADS AND FENCES

- A. Roads subject to interference by the prosecution of the Work covered by this Contract shall be kept open, and fences subject to interference shall be maintained by the Contractor during the Work and shall be replaced to their original condition unless specifically shown otherwise on the Drawings. Such signs and barricades as are required by local laws and as necessary for the safe prosecution of the Work shall be provided.
- B. Excavated dirt shall not be stored on roads, paths, or planted areas. Care shall be taken to protect improvements.

1.19 PARKING AND STAGING AREAS (NOT USED)

1.20 TREES AND SHRUBS

- A. Except as noted on the plans, the Contractor shall not remove trees or shrubs without authorization of the Construction Manager. Injuries to tree roots and limbs shall be avoided. No roots shall be cut or limbs pruned, without prior notification to and review of Contractor's proposed methods by the Construction Manager.

1.21 NOT USED

1.22 CONTRACTOR'S WORK AND STORAGE AREA

- A. The Contractor shall make its own arrangements for staging, storage and shop areas necessary for the proper execution of the Work.

- B. The Contractor's construction equipment, vehicles, and materials shall not remain in public streets during non-working hours. It shall be the responsibility of the Contractor to transport and store such items at the Contractor's own facility or within construction easements on nonpublic areas at the end of each workday.

1.23 CONSTRUCTION MANAGER'S FIELD OFFICE (NOT USED)

1.24 PHOTOGRAPH AND VIDEO RECORDING OF SITE CONDITIONS

- A. Existing conditions throughout the project site shall be photographed and videotaped by Contractor before starting construction. Recording shall include and show every detail of existing location, including the current condition of the curb, gutter, sidewalk, landscaping, streetlights, and structures near the project including backyards, face of buildings, canopies, shades, decking, fences, concrete, irrigation systems, driveways, canals, access roads, plants and landscaping, and any other features within the limits of work, including Contractor staging areas. Photos and videotape shall be performed in the presence of the Construction Manager.
- B. The Contractor shall provide additional photos and video recording as deemed necessary by the Construction Manager at no additional cost to CVSan.
- C. The Contractor shall not start any Work on site until the photos and video images are submitted and approved by Construction Manager.

1.25 LIMITATIONS ON EXHAUST EMISSIONS

To limit exhaust emissions from diesel powered equipment, the Contractor will incorporate into the Work the following BAAQMD Exhaust Controls requirements:

- A. Use line power instead of diesel generators where feasible at all construction sites where line power is available.
- B. Limit the idling of all mobile and stationary construction equipment to five minutes.
- C. If stationary equipment (such as generators or dewatering pumps) must be operated continuously, locate such equipment at least 100 feet from homes or schools where possible.
- D. Perform low-emissions tune-ups and perform such tune-ups regularly for all equipment, particularly for haul and delivery trucks.
- E. Require use of diesel particulate filters wherever feasible.

1.26 LIMITATIONS ON CONSTRUCTION RELATED VIBRATION CONDITIONS

- A. If sheetpile driving is utilized in the project, it shall be performed in a manner to reduce the potential for cosmetic damage to adjacent structures during project construction. Impact sheetpile driving equipment shall be operated to maintain a

peak particle velocity of less than 1 in/sec at a distance of 20 feet from the trench and in no case shall the peak particle velocity exceed 0.2 in/sec within 10 feet of any adjacent residential structures unless the structure has been inspected and categorized using CVSan environmental standards as having a higher vibration limit.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

***** END OF SECTION *****

SECTION 01580

MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 SALVAGING AND STORAGE OF EQUIPMENT AND MATERIALS

In addition to any items identified in the Technical Specifications the following existing equipment, piping, materials, fittings and appurtenances which are removed and not reincorporated in the Work, shall be salvaged by the Contractor and shall remain the property of the Authority, and shall be delivered and stored by the Contractor at the location on the site designated by the Construction Manager:

No salvage of materials is anticipated in this project. All material and items, including all junk or scrap material, removed by the Contractor shall be removed and properly disposed by the Contractor from the site.

All other existing equipment, piping, materials, fittings and appurtenances, junk, scrap materials, and all other items removed by the Contractor and not retained by the Authority, shall be removed by the Contractor from the site.

1.02 CONTRACTOR STORAGE AREAS

The Contractor shall take all responsibility for storage of materials. No equipment for incorporation in the project may be stored in any area subject to natural or man-made flooding.

The Contractor's construction equipment, vehicles, and materials shall not remain in public streets during non-working hours unless approved by the Construction Manager in writing. It shall be the responsibility of the Contractor to transport and store such items at the Contractor's own facility or within construction easements on nonpublic areas at the end of each workday.

Should the Contractor elect to use private property or other property not owned by CVSan for construction purposes or storage of materials for the Project, the Contractor shall defend, indemnify and hold harmless CVSan from any claims arising from such storage or use, to the fullest extent permitted by law.

1.03 HAZARDOUS MATERIALS

All hazardous materials shall be stored and handled in strict accordance with the Safety Data Sheets for the products. Safety Data Sheets shall be submitted to the Construction

Manager prior to the delivery of materials to the project. The storage and handling of potential pollution causing and hazardous materials, including but not necessarily limited to, gasoline, oil and paint shall be in accordance with all local, state and federal requirements.

1.04 DISPOSAL OF EXCAVATED MATERIAL

The Contractor shall be responsible for making its own arrangements for disposal of all excavated material or other materials at a legal disposal site. No soil testing has been performed by CVSan for this project.

It shall be the responsibility of the Contractor to conduct tests to determine the level of contaminants present in the soil to be exported from the site. Soil samples should be collected by a reputable testing firm and submitted to a state certified laboratory and analyzed for total petroleum hydrocarbons in the diesel (TPHd) and motor oil (TPHmo) ranges (EPA Test Method 8015), 17 California Assessment Manual (CAM) metals (EPA Test Method 6000/7000), organochlorine pesticides (EPA Test Method 8081), and polychlorinated biphenyls (PCBs) (EPA Test Method 8082), polynuclear aromatic hydrocarbons (PAHs) (EPA Test Method 8270SIM), and any other tests required by the receiver of the soil.

The Contractor shall assume that all soil has levels of contamination that exceeds environmental screening levels listed by the California Regional Water Quality Control Board for residential land use or commercial/industrial land use, but is non-regulated and non-hazardous. All soils should be assumed to possess levels of contaminants that exceed RWQCB Tier 1 environmental screening levels (ESLs) for residential land use and for commercial/industrial land use listed in "Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater", Prepared by: California Regional Water Quality Control Board, San Francisco Bay Region, INTERIM FINAL - November 2007, (Revised May 2008).

All exported material shall be disposed of in a Class II landfill. The Contractor shall dispose of all materials at a facility with all-weather access.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

***** END OF SECTION *****

SECTION 01710

FINAL CLEAN-UP

PART 1 - GENERAL

1.01 FINAL SITE CLEAN-UP

- A. Upon completion of the Work, and prior to final Acceptance, the Contractor shall remove from the vicinity of the Work all plant, surplus material, and equipment belonging to the Contractor or used under its direction during construction.
- B. The final cleanup at each repair site on private property shall take place within two weeks of the completion of the repair and backfill of material at that site.
- C. In addition to general broom cleaning of paved surfaces and rake cleaning of other surfaces of grounds, the following shall be performed at completion of the Work:
 - 1. Remove waste and debris from the entire site.
 - 2. Sweep paved areas.
 - 3. Clean/landscape areas.
 - 4. Clean storm drains.

1.02 FINAL BUILDING CLEAN-UP

- A. On all building projects and wherever else applicable, besides final site cleanup, the following special cleaning shall be performed at completion of the Work:
 - 1. Putty stains and paint shall be removed from glass; glass shall be washed inside and outside. Care shall be exercised so as not to scratch glass.
 - 2. Marks, stains, fingerprints, and other soil and dirt shall be removed from painted, decorated, or stained work.
 - 3. Waxed woodwork shall be cleaned and polished.
 - 4. Hardware shall be cleaned and polished of all traces; this shall include removal of stains, dust, dirt, paints, and blemishes.
 - 5. Spots, soil, paint, plaster, and concrete shall be removed from tile; tile work shall be washed afterwards.
 - 6. Fixtures, equipment, and visible piping and ducts shall be cleaned and stains, paint, dirt, and dust shall be removed.
 - 7. Temporary floor protections shall be removed; floors shall be cleaned, waxed, and buffed.
 - 8. Dust, cobwebs, and traces of insects and dirt shall be removed.

- B. Marred surfaces shall be repaired, patched, and touched up to specified finish to match adjacent surfaces.
- C. All interior spaces including inside cabinets shall be vacuum cleaned.
- D. Air handling filters and light bulbs shall be replaced if units were operated during construction. Ducts, blowers and coils shall be cleaned if air-handling units were operated without filters during construction.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

***** END OF SECTION *****

SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section contains instructions for creating and maintaining Project Records.

1.02 RECORD DOCUMENTS

- A. Maintain at the Project site, available to CVSan and Construction Manager, one (1) copy of the Contract Documents, shop drawings and other submittals, in good order.
 - 1. Mark and record field changes and detailed information contained in submittals and Change Orders.
 - 2. Record actual depths, horizontal and vertical location of underground pipes, duct banks and other buried utilities. Reference dimensions to permanent surface features.
 - 3. Identify specific details of pipe connections, location of existing buried features located during excavation, and the final locations of piping, equipment, electrical conduits, manholes, and pull boxes.
 - 4. Identify location of spare conduits including beginning, ending and routing through pull boxes, and manholes. Record spare conductors, including number and size, within spare conduits, and filled conduits.
 - 5. Provide schedules, lists, layout drawings, and wiring diagrams.
 - 6. Make annotations with erasable colored pencil conforming to the following color code:
 - a. Additions: Red
 - b. Deletions: Green
 - c. Comments Blue
 - d. Dimensions: Graphite
- B. Maintain documents separate from those used for construction. Label documents "RECORD DOCUMENTS."
- C. Record Documents shall be updated at least once each week and shall be available to the Construction Manager for review. Keep documents current. Record required information at the time the material and equipment is installed and before permanently concealing.

- D. Deliver Record Documents with transmittal letter containing date, Project title, Contractor's name and address, list of documents, and signature of Contractor prior to request for Final Payment.
- E. Record documents shall be available for the Construction Manager to review to ascertain that changes have been recorded.
- F. Failure of the Contractor to keep current with the updating of the Record Documents shall be grounds for withholding monies from partial payment estimates as specified in Section 00700-8.03B, **OTHER WITHHOLDS**.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

***** END OF SECTION *****

SECTION 01740

WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 GUARANTEE OF WORK

The Contractor hereby agrees to make, at its own expense, all repairs or replacements necessitated by defects in materials or workmanship, supplied under terms of this Contract, and pay for any damage to other works resulting from such defects, which becomes evident within one (1) year after the date of the Substantial Completion date of the Project, or Acceptance date of the Project for items of work listed on the Punch List(s) or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents. The Contractor's guarantee applies to all work and materials provided by subcontractors or manufacturers of packaged equipment components. The Contractor also agrees to indemnify, defend, and hold CVSan harmless from liability of any kind arising from damage due to said defects.

Specific items of equipment or work may be placed in continuous service by CVSan prior to the Substantial Completion of the Project. At CVSan's discretion, the specific items may be accepted as Substantially Complete, commencing the warranty period for those specific items.

The Contractor shall execute and submit a completed Warranty Form in the format as appended to this section for the Work, and any portion of the Work possessed in accordance with Section 00700-3.04, **CVSAN'S RIGHT TO USE OR OCCUPY**. The Warranty Form shall be submitted prior to the Substantial Completion date or the final acceptance of the project or within five (5) days of the occupancy or use of a portion of the Work, whichever is applicable.

The Contractor shall, upon the receipt of notice in writing from CVSan, promptly make all repairs arising out of defective materials, workmanship, or equipment. CVSan is hereby authorized to make such repairs, and the Contractor and its Surety shall be liable for the cost thereof, if ten (10) days after giving of such notice to the Contractor, the Contractor has failed to make or undertake the repairs with due diligence. In case of emergency, where in the opinion of CVSan delay could cause serious loss or damage, repairs may be made without notice being sent to the Contractor, and the expense in connection therewith shall be charged to the Contractor, and its Surety shall be liable for the cost thereof.

Prior to the expiration of the Warranty period, CVSan reserves the right to hold a meeting and require the attendance of the Contractor. The purpose of the meeting is to review warranties, bonds and maintenance requirements and determine required repair or replacement of defective items.

For the purpose of this paragraph, Acceptance of the Work or a portion of the Work by CVSan, shall not extinguish any covenant or agreement on the part of the Contractor to be performed or fulfilled under this Contract which has not, in fact, been performed or fulfilled at the time of such Acceptance. All covenants and agreements shall continue to be binding on the Contractor until they have been fulfilled.

CVSan and the Contractor agree that warranty on the parts of the work possessed and used by CVSan in accordance with Section 00700-3.04, **CVSAN'S RIGHT TO USE OR OCCUPY**, shall commence on the date that CVSan takes possession of such Work and so notifies the Contractor in writing. CVSan and the Contractor further agree that such possession, and use of the work shall not be deemed as Substantial Completion or Acceptance of any other part of the Work.

If, after installation, the operation or use of the materials or equipment furnished under this Contract proves to be unsatisfactory to the Construction Manager or CVSan, CVSan shall have the right to operate and use such materials or equipment until it can, without damage to CVSan, be taken out of service for correction or replacement. Such period of use of the defective materials or equipment pending correction or replacement shall in no way decrease the Warranty Period. Warranty Period for equipment shall be extended by the number days from the date the equipment is found by CVSan to be non-functional or defective to the date the contractor repairs and makes fully operational the same equipment.

Nothing in this Section shall be construed to limit, relieve or release the Contractor's, subcontractor's and equipment supplier's liability to CVSan for damages sustained as the result of latent defects in the equipment furnished shall it be deemed to be a waiver by CVSan of any rights or remedies, or time limits in which to enforce such rights or remedies, it may have against the Contractor, subcontractors, or suppliers of the equipment to be furnished under these Specifications.

WARRANTY FORM

Warranty For

_____ (Project/Component) _____

_____ (Location) _____

We hereby guarantee the _____ (Project/Component) _____ that we have constructed for a period of one (1) year from _____ (Date) _____ the date of acceptance of the work/substantial completion by the _____ Castro Valley Sanitary District _____.

The following are excluded from the provisions of this warranty:

We agree that if any of the equipment should fail due to any reason other than improper maintenance or improper operation, if any pipe or appurtenances should develop leakage, or if any settlement of fill or backfill occurs, or should any portion of the work fail to fulfill any of the requirements of the Specifications, we will, within ten days after written notice of such defects, commence to repair or replace the same together with any other work which may be damaged or displaced in so doing.

In the event of our failure to comply with the above mentioned conditions within a reasonable time after being notified, or should the exigencies of the case require repairs or replacements to be made before we can be notified or respond to notification, we do hereby authorize the Castro Valley Sanitary District to proceed to have the defect repaired and made good at our expense, and we will pay the cost therefore upon demand.

The warranty provided herein shall not be in lieu of, but shall be in addition to any warranties or other obligations otherwise imposed by the Contract Documents and by law.

Contractor: _____

Signed: _____

Titled: _____

Date: _____

***** END OF SECTION *****

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SECTION 02100

DEMOLITION, ABANDONMENT, AND REMOVAL

PART 1 - GENERAL

1.01 SUMMARY

- A. This specification addresses demolition, removal and abandonment of facilities and associated debris generated in the execution of the contract work.
 - 1. Do not begin demolition until authorization is received from the Construction Manager.
 - 2. Remove rubbish and debris from the job site daily.
 - 3. Store materials that cannot be removed daily in the Contractor's approved lay down and storage areas, following all requirements established by the property owner and associated permitting jurisdiction.
 - 4. Properly dispose of materials and debris removed from the Project. Disposal shall comply with all federal, state and local regulations.
- B. Related Sections
 - 1. Section 01300, **SUBMITTALS**
 - 2. Section 01560, **TEMPORARY CONTROLS**
 - 3. Section 02300, **EARTHWORK**
 - 4. Section 02800, **TRAFFIC CONTROL**

1.02 REFERENCES

- A. Castro Valley Sanitary District
 - 1. District Code and Standard Drawings
- B. American National Standards Institute (ANSI)
 - 1. ANSI A10.6 – Demolition Operations-Safety Requirements

1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01300 SUBMITTALS.
 - 1. Demolition Plan, including proposed demolition and removal procedures.
 - 2. Demolition Plan shall include a detailed description of methods and equipment to be used for each operation and of the sequence of operations.

1.04 WORK AND SAFETY REQUIREMENTS

Comply with federal, state, and local hauling and disposal regulations. Work safety requirements shall conform with ANSI A10.6, "Demolition Operations – Safety Requirements."

1.05 DUST AND DEBRIS CONTROL

- A. Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area.
- B. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, flooding, or pollution.
- C. Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to vehicles.

1.06 PROTECTION

- A. Traffic Control Signs - Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Refer to Section 02800 TRAFFIC CONTROL for additional requirements.
- B. Existing Work - Protect existing work which is to remain in place. Repair items which are to remain, and which are damaged during performance of the work to their pre-construction condition or replace with new. Do not overload pavements to remain. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. Repairs, reinforcement, or structural replacement must have District and Alameda County approval. Refer to Section 01560 TEMPORARY CONTROLS for additional requirements.
- C. Facilities - Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities. Refer to Section 01060 REGULATORY REQUIREMENTS and 01560 TEMPORARY CONTROLS for additional requirements.

1.07 BURNING AND EXPLOSIVES

Burning and the use of explosives will not be permitted.

1.08 RELOCATIONS

Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Repair items to be relocated which are damaged or replace damaged items with new undamaged items as approved by the District and governing jurisdiction.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 EXISTING FACILITIES TO BE REMOVED

A. Removal of Existing Pipes, Manholes and Related Equipment

1. Remove indicated existing sanitary sewer mains and manholes to the horizontal limits shown on the drawings. Existing alignment is shown based on record information. Actual locations of existing utilities may be different from that shown.
2. Submit to the Construction Manager a plan and coordinated construction schedule for removal of existing active sewer facilities and reconnecting existing system elements to the permanent facilities as shown on the drawings.

B. Paving and Slabs

1. Remove asphaltic concrete paving and slabs, and concrete paving and slabs, including aggregate base in areas subject to proposed work.
2. Trench wing width shall be one foot. Asphalt concrete paving shall be removed a minimum of 12 inches from the edge of trench on both sides of the trench. Where the distance from the lip of concrete gutter to the saw cut edge of the trench is less than half of the width of the trench, the remaining pavement between the saw cut edge of the trench and the lip of the concrete gutter shall also be removed and replaced during this work.
3. Provide neat sawcuts at limits of pavement removal as indicated.
4. Contractor shall comply with all environmental regulations and local codes and dispose of all material at State approved recycling facilities or landfills identified by the Contractor.

3.02 DISPOSITION OF MATERIAL

A. Title to Materials

1. Except where specified in other sections, or on the drawings, all materials and equipment removed shall become the property of the Contractor and shall be removed.
2. Title to materials resulting from demolition, and materials and equipment to be removed, is vested in the Contractor upon approval by the Contracting Officer of the contractor's demolition and removal procedures, and authorization by the Construction Manager to begin demolition.
3. The District will not be responsible for the condition or loss of, or damage to, such property after notice to proceed.

4. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.

3.03 CLEANUP

A. Debris and Rubbish

1. Remove and transport debris and rubbish in a manner that will prevent spillage on pavements, streets or adjacent areas.
2. Clean up spillage from pavements, streets and adjacent areas.

*****END OF SECTION*****

SECTION 02200

SITE PREPARATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Site preparation which consists of protecting and replacing any existing features damaged during construction.

1.02 REFERENCED SECTIONS

- A. The following Sections are referenced in this Section
 1. Section 00700 – **GENERAL CONDITIONS**
 2. Section 01060 – **REGULATORY REQUIREMENT AND PERMITS**
 3. Section 01560 – **TEMPORARY CONTROLS**

1.03 EXISTING CONDITIONS:

- A. The Drawings indicate the condition of the site as it affects this portion of work related to items to be cleared, grubbed or demolished as part of this project. Existing landscaped improvements shall be protected wherever possible.
- B. The Contractor shall replace, in kind, all sidewalks, curbs and gutters, pavement, driveways, and other improvements that are removed during site preparation or construction.
- C. Approval shall be obtained from the Construction Manager in writing prior to removing items that cannot practicably be replaced in kind, such as trees and limbs.

1.04 PROTECTION:

- A. Site
 1. Site preparation shall not damage existing improvements, structures or other surface features on or adjacent to the site.
 2. The Contractor shall repair or replace any damage as a result of work to a pre-construction condition.
 3. Special care shall be taken to protect existing improvements during construction.
- B. Trees
 1. The Contractor is responsible for the protection of all trees including roots and canopies.

2. The Contractor shall be responsible for any damage to trees along the pipeline alignment caused by construction of the Project as specified in Sections 01560.

C. Work Within Roadways

1. Where possible, Contractor shall perform all work so as to minimize damage to existing pavement.
2. Damaged pavement, sidewalks, curbs, gutters, medians, and signage outside of limits shown on the drawings shall be at Contractor's expense at no additional cost to CVSAn.
3. Any pavement, curb, gutter, median, or sidewalk, driveway, access road, which is damaged due to activity by the Contractor, shall be removed and replaced by the Contractor at no cost to CVSAn.
4. For a minimum period of one (1) year following the date of final acceptance of the work, the Contractor shall promptly patch, maintain, repair, and/or replace any pavement, driveway, access road, curb, or sidewalk which settles or becomes damaged due to settlement or defective materials or workmanship.
5. If settlement has occurred, the pavement, driveway, access road, curb, or sidewalk shall be removed, and the subbase and/or base course restored to proper grade before restoration of the surface course.
6. All damages or claims resulting from improper maintenance of pavements, driveway, access road, curbs, and sidewalks shall be borne entirely by the Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 PRECONSTRUCTION DOCUMENTATION

- A. Contractor shall conduct a preconstruction audio/video survey of the project site.
 1. Documentation shall consist of DVD format recording of existing surface conditions.
 2. Video shall have date of recording.
 3. Video shall progress from downstream to upstream.
 4. A pre and post monumentation survey shall be conducted and shall meet the requirements of the County of Alameda.

3.02 DEMOLITION AND REMOVAL

- A. Structures

1. Demolition and removal of structures consist of removal of abandoned superstructures, foundation walls, footings, slabs, storm drain catch basins, and any other structures.
2. Excavations caused by existing foundations shall be cleared of waste, debris and loose soil, and refilled as specified.

B. Pavement

1. When portions of asphalt pavements and concrete pads are to be removed and later construction is to be connected, edges shall be saw cut, on a neat line at right angles to the curb face.
2. Sidewalks, curbs and concrete pavement shall be removed at the nearest expansion joint. Mid-joint saw cutting shall not be allowed.

C. Salvage

1. CVSan has the right to salvage any items scheduled for removal.
2. The Contractor shall notify the Construction Manager 7 days prior to any salvage or demolition work to determine the disposition of items to be removed.
3. The Construction Manager will mark items to be salvaged.
 - a. Such items shall be properly disconnected, removed from their foundations, cleaned, and stored at a location identified by the Construction Manager.

3.03 UTILITY INTERFERENCE

- A. Where existing utilities interfere with the prosecution of the work, the Contractor shall relocate them in accordance with Section 00700 and Section 01060.

*****END OF SECTION*****

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SECTION 02210

WATER POLLUTION CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Storm water pollution and prevention control.

1.02 REFERENCED SECTIONS

- A. The following Sections are referenced in this Section
 - 1. Section 00700 – **GENERAL CONDITIONS**
 - 2. Section 01060 – **REGULATORY REQUIREMENT AND PERMITS**

1.03 WATER POLLUTION CONTROL:

The Contractor shall comply with all air pollution, water quality, and other environmental control rules, regulations, ordinances and statutes as apply to the project and the executing of the work performed pursuant to the Contract.

The Contractor shall submit an erosion and sedimentation control plan for approval by the Engineer. The Contractor shall implement construction site best management practices for the control of non-storm water and point discharges, erosion and sediment control.

The Contractor shall be required to implement temporary construction site best management practices (BMP's) in accordance with the *Construction Site Best Management Practices (BMP's) Manual* issued by the State of California, Department of Transportation. The temporary construction site best management practices required for this Contract shall include, but are not limited to:

- A. Stockpile Management:
- B. Mobile Operations:
- C. Wind Erosion Controls:
- D. Tracking Controls:
- E. Non-Storm Water and Waste Management and Materials Pollution Controls:

PART 2 - PRODUCTS (NOT USED)

2.01 BMP'S

- A. BMP's shall be supplied in accordance with the *Construction Site Best Management Practices (BMP's) Manual* issued by the State of California, Department of Transportation.

PART 3 - EXECUTION

3.01 IMPLEMENTATION

- A. Stockpile Management: Implement BMP's, as appropriate, for soil stabilization and sediment control as applicable to stockpile of various materials.
- B. Mobile Operations: Implement BMP's, as appropriate, for the control of equipment fueling and maintenance, concrete mixing and wash out, hauling and storage of materials. BMP's shall control the specific situations that mobile operations can create.
- C. Wind Erosion Controls: Implement BMP's, as appropriate, for all disturbed soils on the project site that are subject to wind erosion when wind and dry conditions exist.
- D. Tracking Controls: Implement BMP's, as appropriate, for the control of sediments and debris from the collection system.
- E. Non-Storm Water and Waste Management and Materials Pollution Controls: Implement BMP's, as appropriate, to control the discharge of materials other than storm water to the storm water collection system.

The Contractor shall inspect BMP's regularly. Improperly installed, damaged or ineffective BMP's shall be corrected immediately.

*****END OF SECTION*****

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SECTION 02240

DEWATERING

PART 1 - GENERAL

1.01 SUMMARY OF WORK

- A. Although groundwater was not encountered in the geotechnical investigation the Contractor is advised that groundwater may be present in most of the proposed excavation, depending on site location, soil conditions and time of year. As necessary, the Contractor shall keep excavations free from water during construction.
- B. Groundwater shall be collected in temporary storage tanks for settling, filtration, and testing prior to discharge.
- C. The discharge location for dewatered groundwater is CVSan's collection system as specified in this Section.
- D. The Contractor shall develop an excavation dewatering plan in accordance with this Section.
- E. The Contractor shall qualitatively monitor for odor or visual discrepancies indicative of hydrocarbon contamination in groundwater during dewatering operations. The Contractor shall notify CVSan immediately if potential contamination is encountered.

1.02 REFERENCED SECTIONS

- A. The following Sections are referenced in this Section
 - 1. Section 01010 – **SUMMARY OF WORK**
 - 2. Section 01200 – **PROJECT MEETINGS**
 - 3. Section 01300 – **SUBMITTALS**
 - 4. Section 02300 – **EARTHWORK**

1.03 DEFINITIONS

- A. Dewatering: Practices that manage the discharge of groundwater and accumulated precipitation from a work location so that construction work may be accomplished.

1.04 DISCHARGE TO COLLECTION SYSTEM

- A. All effluent discharges must be in compliance with CVSan limits and conditions set forth in Article 6, Chapter 2 – Regulations of the Castro Valley Sanitary District Code.

- B. The Contractor shall coordinate groundwater discharge into the collection system with CVSan, including verifying water quality requirements, discharge flow limitations into the collection system, and location of discharges into the collection system. Discharged flows into the collection system is contingent on available sewer system capacity as determined by CVSan. In no case shall the Contractor's groundwater disposal operation surcharge the collection system (i.e., full pipe flow).
- C. If the project site has known contamination, the Contractor must contact CVSan, Construction Manager and the Environmental Compliance department for additional monitoring and pre-treatment requirements prior to the commencement of the project.

1.05 SUBMITTALS

- A. Comply with Section 01300.
- B. Dewatering Plan: Signed and sealed by professional engineer.
 - 1. Prepare a dewatering plan and submit to the Engineer for approval prior to implementation. This plan shall be submitted a minimum of two weeks before the groundwater extraction begins. The plan shall be coordinated with the shoring plan.
 - 2. Indicate dewatering system layout, extraction depths, screen lengths if applicable, dewatering pump locations, pipe sizes and capacities, grades, dewatering tank sizes, particulate/sediment filter specifications, surface water control devices such as valves totalizers, and water disposal method and location.
 - 3. If applicable, indicate primary and standby power system location and capacity. If pumps operating by fuel, location, storage and amount of fuel contained at the site.
 - 4. Include detailed description of dewatering and monitoring system (e.g. piezometers to conform effectiveness of dewatering system) including installation procedures and maintenance of equipment.
 - 5. Include description of emergency procedures to follow when problems arise.
 - 6. Include the initial extracted groundwater sampling results.
 - 7. Include a description of design shoring and dewatering systems to mitigate against washout of materials from existing utility trenches. Reconstruction of the structural section of the road will be completed at the Contractor's expense.
- C. Product Data: Submit data for each of the following:
 - 1. Dewatering Pumps: Indicate sizes, capacities, priming method, engine or motor characteristics.
 - 2. Pumping equipment for control of surface water within excavation.
 - 3. Pumping equipment for control of discharge to sanitary sewer.

4. Size of temporary dewatering/storage tank(s).
 5. Specifications and size of particulate filter for meeting discharge requirements.
 6. Totalizer size and discharge to sewer.
- D. Design Data: Shall be Signed and sealed by Professional Engineer.
1. Indicate design values, analyses, and calculations to support design.
 2. Indicate the monitoring system to maintain and control the excavation dewatering.
 3. Include the system to initially dewater the excavation and the system to maintain the excavation dewatering during the construction process.
- E. Traffic Control Plan:
1. Provide traffic control plans around tanks, hoses and other dewatering equipment per Contract Documents.
- F. Closeout Submittals:
1. Once the storage tank(s) are no longer needed, clean and remove from the site and return the area to original condition.
 2. Provide a document of the total amount of groundwater extracted and discharged to CVSan sanitary sewer.

1.06 QUALITY ASSURANCE

- A. If wells are used, obtain a drilling permit from Alameda County Water District.
- B. Comply with all sampling, discharge flow and daily volume requirements.
- C. Perform Work in accordance with State, County of Alameda and the Unified Building Codes.
- D. Maintain one copy of the permit documents on site.

1.07 QUALIFICATIONS

- A. Design, install, and monitor operation of dewatering under direct supervision of Professional Engineer experienced in design of this Work and licensed in the State of California.

1.08 PRE-INSTALLATION MEETINGS

- A. Comply with Section 01200, Paragraph 1.04 – Other Project Meetings.
- B. Convene minimum one week prior to commencing work of this section.

1.09 SEQUENCING

- A. Comply with Section 01010, Paragraph 1.02 – Work Sequence and Constraints.
- B. Sequence work to obtain required permits before start of dewatering operations.

- C. Sequence work to install dewatering and surface water control systems minimum 7 days before starting excavation.

1.10 COORDINATION

- A. Coordinate work to permit the following construction operations to be completed on stable substrate.
- B. Excavation and trenching specified in Section 02300.
- C. Coordinate with the Castro Valley Sanitary District prior to any groundwater discharge to the sanitary sewer system.
- D. Coordinate with the Engineer prior to the commencement of any soil excavation and groundwater discharge.
- E. Coordinate with Alameda County Water District for installation and removal of any dewatering wells or piezometers.

PART 2 - PRODUCTS

2.01 DEWATERING EQUIPMENT

- A. Select dewatering equipment to meet specified performance requirements.

2.02 MONITORING EQUIPMENT

- A. Flow Measurement: Furnish devices as follows:
 - 1. Install and monitor a flow totalizer for the discharged volume and rate of flow to CVSan sanitary sewer system.
 - 2. Monitor the flow rate and pressure within the particulate/sediment filter, and replace filters as necessary to maintain a sediment free flow.
 - 3. Install and monitor the groundwater accumulation within the excavation and control the extraction of the groundwater to maintain a water free work conditions.
- B. Groundwater Level Monitoring: Furnish devices as follows:
 - 1. Install and monitor piezometers outside of and adjacent to the excavation to monitor the groundwater levels prior to and while the excavation is open.
 - 2. Monitor and record the groundwater level in the piezometers no less than once daily.

2.03 ACCESSORIES

- A. Valves and Fittings: Furnish valves, fittings and backflow prevention to isolate each extraction well from header pipe that discharges to the storage tank and to prevent loss of pump prime. Provide valves, fitting and backflow prevention devices for the discharging of extracted groundwater to the sanitary sewer.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verification of existing conditions before starting work.
- B. Call Castro Valley Sanitary District at 510-537-0757 not less than three working days before any discharge of groundwater to the sanitary sewer.
 - 1. Conduct all groundwater discharge work in accordance with the Castro Valley Sanitary District requirements and as specified in the permit.

3.02 DEWATERING SYSTEM OPERATIONS

- A. Install dewatering system in accordance with the approved Dewatering Plan.
 - 1. Secure CVSan approved areas for siting of groundwater storage tanks and treatment systems. Locate system components to allow continuous dewatering operations without interfering with the excavation Work.
 - 2. Install the dewatering system in accordance with State, local and Unified Building Code standards.
- B. Remove water from the excavation in accordance with the approved Dewatering Plan. The Dewatering Plan shall meet all of the following minimum performance criteria.
 - 1. Keep excavations free from water during construction.
 - 2. Treat all water from the dewatering operations as required for removal of sediment or contaminants prior to discharge. Water discharged to CVSan's collection system shall comply with Section 6206 of Castro Valley Sanitary District Specifications.
 - 3. Draw down the static water level a minimum of 3 feet below the bottom of excavations to maintain the undisturbed state of natural soils and allow the placement of any fill to the specified density. Excavation shall not commence until piezometers indicate that the groundwater level has been drawn down to a minimum of 3 feet below excavation bottom.
 - 4. Operate dewatering systems continuously until backfill has been completed to 1-foot above the normal static groundwater level.
 - 5. Control the release of groundwater to its static level to prevent disturbance of the natural foundation soils or compacted fill and to prevent flotation or movement of structures or pipelines.
 - 6. Control groundwater to prevent softening of the bottom of excavations, or formation of "quick" conditions. Dewatering systems shall not remove natural soils.
 - 7. Control surface runoff to prevent entry or collection of water in excavations.

- C. Notify CVSan and stop excavation work should the dewatering system not adequately control water within the excavation.
 - 1. Supplement or modify dewatering system and provide other remedial measures to control water within excavation.
 - 2. Demonstrate dewatering system operation complies with performance requirements before resuming excavation operations.
- D. Maintain all equipment in an operable state.
 - 1. Inspect equipment daily and repair or replace as needed.
 - 2. Clean accumulated sediment from tanks as needed.
- E. Remove dewatering systems after dewatering operations are discontinued.
 - 1. The Contractor shall be responsible for sampling and disposal of sediments collected in storage tanks, as well as other waste materials related to groundwater disposal.
 - 2. Repair damage caused by dewatering systems or resulting from failure of systems to protect property.
 - 3. Residual water from dewatering systems and vessels cannot be discharged into storm water conveyance systems or the storm drain.
- F. To minimize noise levels, obtain electrical power from Pacific Gas and Electric in lieu of providing power by portable generator. If use of utility power is not practicable, generator power may be provided by sound-attenuated electrical generators provided with sound barriers or enclosures. Diesel generators shall not be utilized unless they are provided with sound barriers or enclosures, as necessary to comply with local ordinances.
- G. For dewatering pumping outside normal working hours, engines shall be equipped and/or shielded in a manner to keep noise to a minimum. Testing is required to show compliance with local ordinances. Conduct all work to minimize the impact of construction noise on nearby residential neighborhoods. The County of Alameda Noise Ordinance will be enforced.

3.03 FIELD QUALITY CONTROL

- A. Allow for CVSan Representative to field inspect system periodically to ensure system workability, public safety and design controls are met.
- B. Monitor and record the following daily.
 - 1. Average discharge flow rate to the sanitary sewer system.
 - 2. Total discharged volume to the sanitary sewer system.
 - 3. Total extracted from the excavation to the storage/surge tank.
 - 4. Turbidity measurements daily for the first week, then weekly thereafter.
 - 5. Groundwater level in piezometers.

- C. Monitor particulate/sediment filter for solids content. Replace filters as necessary to ensure sediment free discharge to the sanitary sewer system.
- D. Submit required monitoring reports including the following:
 - 1. Dewatering flow rates and total volume discharged to CVSan sanitary sewer system.

*****END OF SECTION*****

SECTION 02245

SEWAGE FLOW CONTROL

PART 1 - GENERAL

1.01 SUMMARY

- A. Provide bypass pumping during replacement of the sewer main by pipe bursting. Accommodate flows from building sewers (laterals) at all times.
- B. Coordinate directly with residents to minimize wastewater flows during scheduled work.
- C. This Section specifies the requirements for temporary bypassing, dewatering, and disposal of water and wastewater from the sewer facilities as required to perform the work. Extract, pump, and/or dispose of wastewater from bypassing and dewatering gravity, sanitary sewer pipelines, building sewers (laterals), and cleanouts.

1.02 PROJECT REQUIREMENTS

- A. Provide labor, materials, and full-time supervision, as required, to set up necessary equipment, and contain, bypass, dewater, and dispose of raw wastewater, treated wastewater, and storm drain flows, as necessary, for abandonment, television inspections, spot repairs, replacements, connections, rehabilitation, and other modifications made to complete the work.
- B. Spill of sanitary wastewater can result in costs and/or fines levied against the District. The Contractor shall be responsible for fines, penalties and charges due to sanitary sewer spills resulting from the Contractor's operations and/or failure of bypass pumping.
- C. The work shall not result in water or wastewater flows to surcharge or exceed the limits specified in this Section. Surcharge shall be defined as the condition where the depth of flow exceeds the crown elevation in any pipe in any existing gravity pipe systems.

1.03 SUBMITTALS

- A. Submit a detailed Bypass Pumping Plan consisting of drawings and complete design data. Submittal shall show all proposed methods, layout, equipment, and discharge locations for bypassing and dewatering.
- B. The Submittal shall include the following information:

1. A site plan showing the size and layout of pumps, valves, and temporary pipelines. Layout shall show how temporary facilities will be protected during use.
2. Narrative description of system staffing and monitoring.
3. Catalog data on pump controls and audible alarms.
4. Catalog data for portable generators when electric pumps are used.
5. Drawings indicating the locations of temporary plugs, taps, pumping systems, suction and discharge piping, and locations of sanitary sewers and manholes to receive discharges of raw or treated wastewater.
6. Data that includes the locations and elevations of existing sanitary sewer systems, and the capacities of duty and standby pumps, prime movers, power and standby power, and other equipment.
7. Design calculations that prove the adequacy of the bypassing, dewatering, and disposal system(s) and selected equipment. Design calculations shall confirm that the bypassing and pumping operations shall not cause surcharge in any portion of the existing sanitary sewer system. Design calculations shall be signed and sealed by a civil engineer registered in the State of California qualified to perform said analysis.
8. An emergency response plan that provides in detail the procedure to be followed in the event of a failure of the bypass pumping systems.
9. Odor mitigation plan.

1.04 JOB CONDITIONS

A. Available Data

1. Existing dry weather and estimated peak wet weather flows will be provided by the District at the preconstruction meeting.
2. The Contractor shall be responsible for flow verification, design, construction, and operation of an adequate and properly functioning bypass and dewatering system.
3. Any testing or gathering of flow data is the responsibility of the Contractor.
4. Coordinate all sewer bypassing and dewatering operations with the Construction Manager.

B. Protection

1. Where bypassing is required, ensure that service for connecting laterals is not disrupted. All bypassed flow shall be discharged into the nearest (downstream) sanitary sewer manhole. Take appropriate steps to ensure odor control at the discharge manholes.

2. Bypassing and dewatering operations resulting in discharges to the ground surface, streams, creeks, culverts, ditches, storm drains, or groundwater shall not be permitted. Perform work so as to protect the public from potential health hazards, and shall protect the environment from contamination.
- C. Scheduling
1. The bypassing and dewatering systems shall not be shut down between shifts, during work stoppages, or during any periods when flows through the main sewer have not been properly restored.
 2. Provide ten (10) days written notice to the Construction Manager prior to performing all bypassing, dewatering, and disposal work.
- D. Permits and Approvals
1. Obtain approval from CVSan for the proposed Bypass Pumping Plan.

PART 2 - EXECUTION

2.01 PLUGGING, BLOCKING, AND PUMPING

- A. Flow control will be required for this Project. Bypass pumping will be allowed only during Contractor's working hours. At the end of every working day, flows must be properly restored to the sanitary sewer. Any emergency pumping operations that are required outside of the Contractor's working hours must be approved in advance by CVSan.
- B. Furnish, install and operate pumps, plugs, conduits, and other equipment to dewater existing sewer pipelines or to divert the flow of wastewater around the pipeline reach in which work is to be performed, and to maintain service to all properties connected to the sewer being replaced. Plugs shall be so designed that all or any portion of the wastewater can be released. Plugs shall be provided with a tag line.
- C. The pumping system shall be of sufficient capacity to manage existing flows plus additional flow that may occur during a rainstorm. If pumping is required outside normal working hours, engines shall be equipped and/or shielded in a manner to keep noise to a minimum. Noise level shall conform to the noise ordinance requirements of the governing jurisdiction.
- D. Engines shall be equipped with mufflers and/or shall be enclosed to comply with all local noise ordinances. Pumps and bypass lines shall be of adequate capacity and size to handle the flows. All bypassed flow shall be discharged to the nearest downstream manhole.

- E. Bypass pumping shall be completed in such a manner as will not damage private or public property, or create a nuisance or public health menace. The pumped wastewater shall be in an enclosed hose or pipe that is adequately protected from traffic, and shall be redirected into the sanitary sewer system. Dumping or free flow of wastewater on private property, gutters, trenches, streets, sidewalks, or into storm sewers is prohibited. The Contractor shall be liable for all damages associated with this work. After the work is completed, flow shall be restored to original conditions and temporary facilities removed.

2.02 SEWER DEWATERING

- A. Extract, pump, and/or dispose of wastewater from dewatering the existing sewers.
- B. Dewater all sagged or submerged portions of the existing sewer as required for abandonment, or as otherwise required to complete the work.

2.03 SEWER BYPASSING

- A. Where Contractor's work on constructing the project pipeline requires sanitary sewers to be removed temporarily from operation, sewer bypassing shall be accomplished by pumping or diverting the upstream flow around the Contractor's work in accordance with this Section.
- B. Unless otherwise specified, bypass flow around the work whenever the Contractor's equipment is operating in the sewer, or work related to the sewer provides an obstruction or otherwise restricts flow and causes the depth of flow as measured at the inlet pipe to the upstream manhole adjacent to the Contractor's work to exceed half of the diameter of the pipe.

2.04 STANDBY EQUIPMENT

- A. Maintain on site sufficient equipment and materials to ensure continuous and successful operation of the bypass and dewatering systems. Standby pumps shall be fueled and operational at all times.
- B. Maintain on site a sufficient number of valves, tees, elbows, connections, tools, sewer plugs, piping and other parts or system hardware to ensure immediate repair or modification of any part of the system as necessary.
- C. Bypassing and dewatering system(s) shall have one hundred percent (100%) redundancy.

2.05 MONITORING

- A. Provide monitoring of flow levels and pump operation to assure continued operation of bypass pumping.

- B. Monitoring by Contractor's personnel shall take place at all times that bypass pumps are in operation (including 24-hour, around-the-clock operation if required during an emergency). An audible alarm system shall be installed to notify workers when the pumps fail to operate.
- C. In the event the pumps fail, workers shall immediately evacuate trenches until the bypass pumping system is operational.

2.06 ODOR MITIGATION

- A. Submit an odor mitigation plan.
- B. When working inside manholes and sewer lines, exercise caution and comply with CAL/OSHA requirements when working in the presence of hydrogen sulfide. Contractor is warned that the existing sewers and the structures associated with the project contain high levels of hydrogen sulfide gas, a natural gaseous by-product of sanitary sewage. Take all the necessary precautions, such as portable hydrogen sulfide detectors per CAL/OSHA requirements, to ensure that the environment is safe for those at the work site.
- C. The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work.
- D. To minimize the dispersal of sewer odors above ground the Contractor shall:
 - 1. Seal all open sanitary manholes or access openings in the sewers when his operations have been suspended for a period of two hours or more.
 - 2. During construction operations when open manholes or access openings can not be sealed, vent and filter hydrogen sulfide gases upstream of the openings in the sewer.
- E. Odor related to construction around the work shall be controlled through the use of filters, chemical addition to the wastewater, and masking agents as needed to limit the levels of hydrogen sulfide gas to 5 parts per million (by volume) 25 feet from the source or at the outside wall of any habitable structure.

2.07 TRAFFIC IMPACTS

- A. The bypass pumping system must be coordinated with Section 02800 TRAFFIC CONTROL. This may require that bypass piping and facilities be buried in temporary trenches

*****END OF SECTION*****

SECTION 02300

EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies earthwork which consists of excavation, filling, grading, and disposal of excess material, including contaminated materials.

1.02 REFERENCES

- A. Castro Valley Sanitary District (CVSan)
 - 1. District Code and Standard Drawings
 - 2. Geotechnical Investigation prepared by Cornerstone Earth Group, dated March 8, 2016, See Section 00200 information available to bidders.
- B. Alameda County Public Works Department
 - 1. Standard Plans and Specifications
- C. American Society for Testing and Materials (ASTM)
 - 1. ASTM C136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
 - 2. ASTM C150 – Standard Specification for Portland Cement
 - 3. ASTM C260 – Standard Specification for Air-Entraining Admixtures for Concrete
 - 4. ASTM C494 – Standard Specification for Chemical Admixtures for Concrete
 - 5. ASTM C618 – Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
 - 6. ASTM D1557 - Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in. (457-mm) Drop
 - 7. ASTM D2487 - Classification of Soils for Engineering Purposes
 - 8. ASTM D2922 - Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

9. ASTM D3017 – Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
- D. State of California, Department of Transportation (Caltrans)
1. California Test Method 205 – Method for Determining Percentage of Crushed Particles
 2. California Test Method 216 – Relative Compaction of Untreated and Treated Soils and Aggregates
 3. California Test Method 217 – Sand Equivalent
 4. California Test Method 301 – Resistance "R" Value of Treated and Untreated Bases, Subbases and Basement Soils (Stabilometer)

1.03 DEFINITIONS

- A. Backfill: Material, native or foreign, used in refilling a cut, trench or other excavation. For this project, all backfill shall be imported material.
- B. Clear Width of Trench: Width of trench as measured at the top of the pipe or conduit.
- C. Compaction: The process of mechanically stabilizing a material by increasing its density at a controlled moisture condition. "Degree of Compaction" is expressed as a percentage of the maximum density obtained by the test procedure described in ASTM D1557 for general soil types.
- D. Fine Grading Material: Material placed at the bottom of the excavated trench prior to installation of pipe, conduit or pipeline accessories.
- E. Excavation: All of the below ground surface work (including cutting and removal of pavement and stockpiling topsoil) necessary to install the sewer line and structures.
- F. Excavation Slope: An inclined surface formed by removing material from below existing grade.
- G. Hard Material: Weathered rock, dense consolidated deposits, or conglomerate materials (excluding man made materials such as concrete) which are not included in the definition of "rock" but which usually require the use of heavy excavation equipment, ripper teeth, or jack hammers for removal.
- H. Imported Material: Fill material that is processed at an off-site facility, purchased by the Contractor and hauled to the site for use as backfill material.

- I. In-Place Density of Compacted Backfill: Density determined in the field in accordance with ASTM D 2922 and ASTM D 3017.
- J. In-Situ Soil: Existing in place soil.
- K. Lift: A layer (or course) of soil placed on top of subgrade or a previously prepared or placed soil in a fill or backfill.
- L. Maximum Density: Density obtained in the laboratory when tested in accordance with Method C of ASTM D 1557.
- M. Maximum Density (Caltrans Method): Wet density obtained in the laboratory when tested in accordance with Caltrans Test Method 216.
- N. Native Material: Natural soils that exist below surficial fill material, generally consisting of fine-grained silts and clays with medium to high plasticity.
- O. Optimum Moisture Content (ASTM Method): The ratio, expressed as a percentage, of the weight of water in the solid material to the weight of the solids which occurs at the maximum dry density as determined by ASTM D1557.
- P. Optimum Moisture Content (Caltrans method): The ratio, expressed as a percentage, of the weight of the water in the soil material to the weight of the solids which occurs at the maximum wet density as determined by Caltrans Test Method 216.
- Q. Pipe Foundation: The pipe foundation shall be the twelve (12) inches of material below the sewer subgrade. Sewer subgrade is defined as a horizontal plane located six (6) inches below the bottom of the pipe barrel. This material may be in-situ soil or special trench bedding.
- R. Pipe Embedment Material: Pipe embedment material shall mean that portion of the material placed within the trench from the sewer subgrade, six (6) inches below the bottom of the pipe barrel, to a point twelve (12) inches above the outside top of the pipe barrel.
- S. Relative Compaction (ASTM Method): The ratio expressed as a percentage, of the dry density of the backfill material as compacted in the field, to the maximum dry density of the same material determined in the laboratory by ASTM D1557.
- T. Relative Compaction (Caltrans Method): The ratio expressed as a percentage, of the wet density of the backfill material as compacted in the field, to the maximum wet density of the same material determined in the laboratory by Caltrans Test Method 216.
- U. Rock: Solid homogeneous interlocking crystalline material with firmly cemented, laminated, or foliated masses or conglomerate deposits, neither of which can be removed without systematic drilling and blasting, drilling and the use of expansion

jacks or feather wedges, or the use of backhoe-mounted pneumatic hole punchers or rock breakers; also large boulders, buried masonry, or concrete other than pavement exceeding 1/3 cubic yard in volume. Removal of "hard material" will not be considered rock excavation because of intermittent drilling or use of above mentioned equipment that is performed merely to increase production.

- V. Special Trench Bedding: In areas of trench bottom or base instability, special trench bedding will be placed. Bedding shall be permeable material surrounded by filter fabric.
- W. Subgrade: The material in excavation (cuts) and fills (embankments) immediately below any subbase, base, pavement, or other improvement. Also, as a secondary definition, the level below which work above is referenced.
- X. Trench Backfill: Trench backfill is considered to be all material placed in the trench between the pipe embedment material and the road bed or ground surface.
- Y. Unsatisfactory Material: In-Situ soil or other material which can be identified as having insufficient strength characteristics or stability to carry intended loads in the trench without excessive consolidation or loss of stability. Also backfill material which contains refuse, frozen material, large rocks, debris, soluble particles, and other material which could damage the pipe or cause the backfill not to compact. Materials classified as PT, OH, or OL by ASTM D 2487 are unsatisfactory.
- Z. Unstable or Unsuitable Material: Material in the trench bottom which lacks firmness to maintain alignment and prevent joints from separating in the pipe, conduit, or appurtenance structure during backfilling. This may be material otherwise identified as satisfactory which has been disturbed or saturated.

1.04 SUBMITTALS

- A. Submit the following in accordance with Section 1300.
 - 1. For all proposed pipe embedment material, and trench backfill material, imported backfill material, and other materials required by this section, submit:
 - a. Material source.
 - b. Gradation.
 - c. Moisture-density curves.
 - d. Name of testing laboratory and lab qualifications and certifications.
 - e. Material sample not less than 0.25 cubic feet in size of proposed material to be submitted 10 days prior to use.

1.05 QUALITY ASSURANCE

- A. The County of Alameda, coordinated through the Construction Manager, will take samples and perform moisture content, gradation, compaction, and density tests during placement of backfill materials to check compliance with these specifications.
- B. Remove backfill and trench surface material at locations designated by the Construction Manager and provide such assistance as necessary for sampling and testing. The District may direct the Contractor to construct inspection trenches in compacted or consolidated backfill to determine that the Contractor has complied with these specifications.
- C. Representative material samples for gradation conformance testing will be required as follows:
 - 1. One sample of all imported material.
 - 2. One sample when directed by the Construction Manager.
 - 3. Tests will be made in accordance with the requirements of the County of Alameda.
- D. Compaction testing of pipe embedment material and trench backfill will be required as follows:
 - 1. One field compaction test for every 2 vertical feet of pipe embedment material plus trench backfill depth at each location of excavation.
- E. Initial testing will be paid for by the District. However, the Contractor shall be responsible for all costs associated with retesting materials which fail to meet County standards and other requirements outlined in this specification.
- F. If compaction fails to meet specified requirements, perform remedial work by one of the following methods:
 - 1. Remove and replace backfill at proper density.
 - 2. Bring density up to specified level by other means acceptable to the Construction Manager and County.
- G. Compaction tests for re-tests shall be twice as frequent as the frequency specified for the initial confirmation tests, and shall be paid by the Contractor. All costs due from the Contractor for retesting will be charged against the contract and deducted from monies due or to become due to the Contractor.
- H. Provide excavation and any and all safety devices including and not limited to shoring at the locations and depths required to verify that the required compaction

is being obtained. Compaction testing shall be performed at the convenience of the District and County.

- I. Flooding and/or jetting will not be allowed as a method of compaction.

1.06 REGULATORY REQUIREMENTS

- A. Materials and workmanship specified herein with reference to State Standard Specifications shall be in accordance with the referenced articles, sections, and paragraphs of the standard except that contractual and payment provisions do not apply.
- B. In accordance with the provisions of State Labor Code Section 6705, submit in advance of excavation, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. The plan shall be prepared and sealed by a registered civil or structural engineer.
- C. Nothing in this section shall be deemed to allow the use of a shoring, sloping, or protective system less effective than that required by the Construction Safety Orders.
- D. Nothing in this section shall be construed to impose tort liability on the awarding body or any of its employees.
- E. The terms "public works" and "awarding body", as used in this section, shall have the same meaning as in Sections 1720 and 1722, respectively, of the Labor Code.
- F. Full compensation for complying with the provisions of this requirement shall be included in the separate bid item therefore.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store materials in a manner to prevent contamination, segregation, freezing, and other damage.

1.08 PROTECTION

- A. Movement of construction machinery and equipment over pipes and utilities during construction shall be at the Contractor's risk.
- B. Perform work adjacent to existing utilities as indicated in accordance with procedures outlined by utility company.
- C. Excavation made with power-driven equipment is not permitted within two feet of known utility or subsurface construction.

- D. For work immediately adjacent to or for excavations exposing a utility or other buried obstruction, excavate by hand.
- E. Start hand excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured.
- F. Support uncovered lines or other existing work affected by the contract excavation until the District Construction Manager grants approval for backfill.
- G. Report damage to utility lines or subsurface construction immediately to the District Construction Manager and the utility owner.

PART 2 - PRODUCTS

2.01 TRENCH BACKFILL AND PIPE EMBEDMENT MATERIALS CLASSIFICATION

- A. Ballast Rock
 - 1. Shall be 1-1/2 by 3/4-inch crushed quarry rock conforming to the following gradation
 - a. Sieve Size = 2 inch (Percent Passing = 100)
 - b. Sieve Size = 1-1/2 inch (Percent Passing = 90-100)
 - c. Sieve Size = 3/4 inch (Percent Passing = 5-30)
 - d. Sieve Size = 3/8 inch (Percent Passing = 0-10)
 - e. Sieve Size = No. 200 (Percent Passing = 0-4)
 - 2. Wherever ballast rock is used, it shall be completely wrapped with geotextile filter fabric.
- B. Pipe Embedment Material
 - 1. Pipe Embedment backfill material shall consist of 3/4 inch maximum Class 2 Aggregate Base conforming to Section 26-1.02A of the State Standard Specifications, and the District's General Provisions and Specifications for the Construction of Sanitary Sewers. Pipe Embedment backfill shall conform to the following:
 - a. Pipe Embedment backfill material shall be unwashed creek or bank gravel, crushed gravel, crushed rock, bank run rock, or a mixture of these materials. Aggregate may include or consist of material processed from reclaimed asphalt concrete, Portland cement concrete, lean concrete base, cement treated base, glass or a combination of any of these materials. Aggregate base

incorporating reclaimed glass shall not be placed at locations where surfacing will not be placed over the aggregate base

- b. Class 2 AB shall be free from roots, vegetable matter, or other deleterious substances and shall be of such nature and so graded that it will bind readily when watered and compacted to the requirement specified herein.
2. When tested in accordance with Section 6 of State Standard Specifications, the material shall meet the following requirements unless otherwise approved by the Construction Manager:
 3. The material shall be of such size that the percentage composition by weight, as determined by laboratory sieves, will conform to the following gradation:
 - a. Sieve Size = 1 inch (Percent Passing = 100)
 - b. Sieve Size = 3/4 inch (Percent Passing = 90-100)
 - c. Sieve Size = No. 4 (Percent Passing = 35-60)
 - d. Sieve Size = No. 30 (Percent Passing = 10-30)
 - e. Sieve Size = No. 200 (Percent Passing = 2-9)
 4. The material shall also have a minimum sand equivalent of 22 and a resistance (R) value of 78 minimum.

C. Trench Backfill Material

1. Trench backfill material shall consist of 3/4 inch maximum Class 2 Aggregate Base conforming to Section 26-1.02A of the State Standard Specifications, and the District's General Provisions and Specifications for the Construction of Sanitary Sewers or native material from the trench excavation. Trench backfill shall conform to the following:
 - a. Trench backfill material shall be unwashed creek or bank gravel, crushed gravel, crushed rock, bank run rock, or a mixture of these materials. Aggregate may include or consist of material processed from reclaimed asphalt concrete, Portland cement concrete, lean concrete base, cement treated base, glass or a combination of any of these materials. Aggregate base incorporating reclaimed glass shall not be placed at locations where surfacing will not be placed over the aggregate base
 - b. Class 2 AB shall be free from roots, vegetable matter, or other deleterious substances and shall be of such nature and so graded

that it will bind readily when watered and compacted to the requirement specified herein.

- c. Native material shall be free from vegetable matter, debris and refuse, shall contain no concrete, stones or clods larger than four (4) inches in any dimension and shall contain sufficient fines so that all voids will be filled when compacted, and shall be so constituted that compaction requirements can be met.
2. When tested in accordance with Section 6 of State Standard Specifications, the material shall meet the following requirements unless otherwise approved by the Construction Manager:
 - a. The material shall be of such size that the percentage composition by weight, as determined by laboratory sieves, will conform to the following gradation:
 - i. Sieve Size = 1 inch (Percent Passing = 100)
 - ii. Sieve Size = 3/4 inch (Percent Passing = 90-100)
 - iii. Sieve Size = No. 4 (Percent Passing = 35-60)
 - iv. Sieve Size = No. 30 (Percent Passing = 10-30)
 - v. Sieve Size = No. 200 (Percent Passing = 2-9)
 - b. The material shall also have a minimum sand equivalent of 22 and a resistance (R) value of 78 minimum.

D. Control Low Strength Material (CLSM)

1. Control low strength material (CLSM) or Control density fill (CDF) shall be manufactured in accordance with the following referenced standards. It shall be a hand-excavatable mixture of aggregate, cement, pozzolan, water and admixtures to be used as fill material where indicated in this specification and on the drawings. CLSM may be placed in lieu of trench backfill and pipe embedment material in and around structures or pipelines and shall be as specified in the following paragraphs.
2. CLSM material shall have the following properties:
 - a. Cement shall be Type II in accordance with ASTM C150
 - b. Pozzolan shall be Type F in accordance with ASTM C618.
 - c. Coarse aggregate shall consist of a well-graded mixture of crushed rock, soil, or sand with a maximum size aggregate of 3/8 inch. One hundred percent shall pass the 1/2-inch sieve. Not more than 30 percent shall be retained by the 3/8-inch sieve and not more than 12 percent shall pass the No. 200 sieve. All material shall be free

from organic matter and not contain more alkali, sulfates or salts than the native soils at the site of the work.

- d. Air entraining shall be used to improve the workability of the mixture in accordance with ASTM C260. Entrained air content shall be between 8 and 20 percent.
- e. Water reducing agent shall be added to improve the workability and shall be in accordance with ASTM C494.
- f. Water shall be potable, clean and free from objectionable quantities of silty organic matter, alkali, salts and other impurities.
- g. CLSM shall be a flowable material similar in all respects to Pozzolanic International Flowable Compacting Fill by RMC Lonestar, or equal. The 28-day compressive strength shall be between 50 and 150 psi.
- h. CLSM that has a 28-day compressive strength in excess of 150 psi shall be removed as directed by the Construction Manager and replaced with CLSM meeting the specifications at no additional cost to the Owner.
- i. Contractor shall take field samples of CLSM, when poured/installed in the field to ensure that the strength characteristics are met.

2.02 SOIL MATERIALS

- A. Soil shall have a maximum particle size not exceeding three (3) inches and be free of debris, roots, wood, scrap material, vegetable matter, refuse, soft unsound particles, ice, or other deleterious and objectionable materials. Soil is allowed only in landscaped areas, and only as the final layer above imported backfill as shown on the construction documents.
- B. Unsuitable Materials
 - 1. Existing material which in the opinion of the District is unsuitable as a foundation, includes but is not limited to unstable material, ground water, vegetal matter, garbage and junk piles; and materials classified in ASTM D 2487 as PT, OH, and OL.
 - 2. Unsatisfactory materials also include "bay mud", man-made fills, refuse, and unsuitable backfills from previous construction, either on the surface or buried.
 - 3. Unsuitable material shall also be materials too wet to properly support the utility pipe, conduit, or appurtenant structure.

2.03 GEOTEXTILE FABRIC

- A. Geo-textile fabric shall be a nonwoven material consisting of polyester, nylon, polypropylene filaments formed into a stable network. The fabric shall be permeable, not act as a wicking agent, be inert to commonly encountered chemicals, be rot-proof, and resistant to ultraviolet light.
- B. The geo-textile fabric shall also conform to the following physical properties:
 - 1. Weight
 - a. Minimum Test Value: 5.4 oz/yd²
 - b. Test Method: ASTM D3776/D5261
 - 2. Grab tensile strength
 - a. Minimum Test Value: 150 lb
 - b. Test Method: ASTM D4632
 - 3. Elongation at break
 - a. Maximum Test Value: 50%
 - b. Test Method: ASTM D4632
 - 4. Puncture strength
 - a. Minimum Test Value: 80 lb
 - b. Test Method: ASTM D4833
 - 5. Burst strength
 - a. Minimum Test Value: 300 psi
 - b. Test Method: ASTM D3786
 - 6. Apparent opening size
 - a. Maximum Test Value: #70
 - b. Test Method: ASTM D4751
 - 7. Permittivity
 - a. Minimum Test Value: 1.0 sec⁻¹
 - b. Test Method: ASTM D4491
 - 8. UV resistance
 - a. Minimum Test Value: 70%
 - b. Test Method: ASTM D4355
- C. The geotextile fabric shall be Mirafi 160N, Linq Industrial Fabrics 150 EX, or equal.

PART 3 - EXECUTION

3.01 CONTRACTOR'S RESPONSIBILITY

- A. Attention is called to the various Safety Orders of the California State Industrial Accident Commission which are adopted by reference as part of these Specifications. See Standard Specification Section 7-1.01E for additional requirements.
- B. The excavation shall be made to enable the sewer to be laid to the grade and alignment designed on the Drawings. The Contractor shall avoid pipes or other man-made obstructions identified by Underground Service Alert (USA), or private utility laterals, or other obstructions as identified through the location of above-ground surface structures.
- C. It shall be the responsibility of the Contractor to conform to all the requirements of all permits obtained from all agencies and to make the construction site safe against injury to people and/or animals by erection of adequate posted barricades and/or temporary fences and covering the excavations with plating.
- D. Free access shall be maintained to all fire hydrants, water gates, meters, and private drives, and means shall be provided so that clean water can flow in the gutters without interruption.
- E. Any pavement, curb, or sidewalk constructed or reconstructed which is subsequently damaged due to activity under this Contract shall be removed and replaced by the Contractor at no additional cost to the District. For a period of one (1) year following the date of final acceptance of the work, the Contractor shall promptly patch, maintain, repair, and/or replace any pavement, curb, or sidewalk which settles or becomes damaged due to settlement or defective materials or workmanship. If settlement has occurred, the pavement, curb, or sidewalk shall be removed and the subbase and/or base course restored to proper grade before restoration of the surface course.
- F. Any landscaping, trees, bushes, ground cover, walkways, driveways, and other soft- and hardscaping shall be protected from damage. Any damaged facilities shall be replaced and restored to pre-construction conditions before acceptance of work.
- G. Shoring and sheeting shall be in conformance with Section 02350 SHORING FOR SURFACE STRUCTURES, TRENCHES, AND OPEN CUT EXCAVATIONS.
- H. It shall be the responsibility of the Contractor to conduct tests to determine the level of contaminants present in the soil to be exported. Soil samples should be collected by a reputable testing firm and submitted to a state certified laboratory and analyzed for total petroleum hydrocarbons in the diesel (TPHd) and motor oil (TPHmo) ranges (EPA Test Method 8015), 17 California Assessment Manual (CAM) metals (EPA Test Method 6000/7000), organochlorine pesticides (EPA

Test Method 8081), and polychlorinated biphenyls (PCBs) (EPA Test Method 8082), polynuclear aromatic hydrocarbons (PAHs) (EPA Test Method 8270SIM), and any other tests required by the receiver of the soil. The Contractor shall assume that all soil has levels of contamination that exceed environmental screening levels listed by the California Regional Water Quality Control Board for residential land use or commercial/industrial land use, but is non-regulated and non-hazardous. Only disposal of contaminated soil or contaminated groundwater which is encountered in the Work that has levels of contaminants sufficient to be considered a regulated hazardous waste will be considered extra work, unless such contaminated soil or contaminated groundwater is designated as hazardous waste in the Contract Documents. Only the disposal of regulated hazardous waste will be considered as a differing site condition.

- I. Contractor shall dispose of all material at a landfill with all weather access.

3.02 OFFHAUL

- A. A spoil disposal area has not been identified and no area is indicated on the Drawings. It is Contractor's responsibility to identify spoil disposal areas that may be used and to negotiate any agreements that are needed with land owners.
- B. Remove all excavated material from the construction site and dispose off site in accordance with applicable ordinances and environmental requirements. Submit authorization of disposal site or sites prior to beginning excavation, and dispose of all material in a lawful manner at the designated location.
- C. Prior to offhaul, excavated materials shall not obstruct the flow of runoff, streams, endanger a partly finished structure, impair the efficiency or appearance of any facilities, or be detrimental to the completed work.
- D. When hauling is done over highways or city streets, the loads shall be trimmed and the vehicle shelf areas shall be cleaned after each loading. The loads shall be watered and covered after trimming to eliminate dust.

3.03 SURFACE PREPARATION

- A. Cutting Pavement, Curbs, and Gutters
 - 1. Saw cut with neat, parallel, straight lines one foot wider than trench width on each side of trenches and one foot beyond each edge of pits.
- B. Removing Existing Pavement
 - 1. In cutting and breaking up surfacing, the Contractor shall not use equipment that will damage the adjacent pavement.
 - 2. Score all pavement surfaces with concrete sawing equipment and remove to clean, straight lines. If a strip of existing pavement less than half of the

trench width is left, it shall be removed and new pavement placed in its stead in accordance with the latest specifications, rules, and regulations, and subject to inspection of and by Alameda County.

3. Concrete sidewalks, curbs and gutters required to be removed in connection with the work shall be cut to the nearest score mark and shall be replaced with the same kind or better by the Contractor in accordance with the latest specifications, rules, and regulations, and subject to inspection of and by Alameda County.
4. During subsequent trench excavation and backfill activities, minimize disturbance of the adjoining pavement.
5. Replace asphalt concrete in accordance with the requirements of Section 02500 ASPHALT CONCRETE PAVING.

3.04 DEWATERING

- A. See section 02240.

3.05 GENERAL EXCAVATION AND TRENCHING

- A. Keep excavations free from water while construction is in progress. Notify the Construction Manager immediately in writing if it becomes necessary to remove rock or hard, unstable, or otherwise unsatisfactory material to a depth greater than indicated. Notification does not in itself indicate a changed condition.
- B. Make trench sides as nearly vertical as practicable. Sides of trenches shall not be sloped from the bottom of the trench up to the elevation of the top of the pipe. Excavate ledge rock, boulders, and other unyielding material to an overexcavated depth at least 6 inches below the bottom of the pipe and appurtenances unless otherwise indicated or specified. Blasting will not be permitted.
- C. Excavated materials may include rock, hard material, soil, and obstructions. No changes in the Contract Price or Contract Time will be authorized for excavation and removal of this material, and off-site disposal of such material if indicated in the contract documents or through visible surface features.
- D. Provide protection for roots over one inch in diameter that are cut during construction operations. Coat cut faces with an emulsified asphalt or other acceptable coating formulated to use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.
- E. Do not construct fill and backfill when weather conditions detrimentally affect the quality of the finished course. Do not construct fill and backfill in the rain or on saturated subgrades.

- F. Place fill and backfill only if the atmospheric temperature is above freezing in the shade and is rising.
- G. If weather conditions are windy, hot or arid, with high rate of evaporation, schedule the placement in cooler portions of the day and furnish equipment to add moisture to the fill or backfill during and after placement.

3.06 OPEN TRENCHING

- A. No more than 300 lineal feet for open cut installation and no more than 50 feet for pipe bursting of excavated trench shall remain open at any one time. In addition, only the length of trench that can be backfilled with the pipe installed by the end of the day shall be excavated. At the end of each working day, temporarily plug the open end of the pipe with a close-fitting stopper, fully backfill trenches and place temporary asphalt patch over removed pavement.
- B. Open trench during nonworking hours shall not be permitted. Open trench that is not backfilled shall be covered with steel plates as specified in this Section.
- C. At Contractor's option, the last 50 feet of excavated trench can remain open. Install heavy steel trench plates entirely covering the excavation and adequately install bracing against the trench walls to prevent collapse of the face of the excavation.
- D. Maintain six-inch minimum and nine-inch maximum clearance between the outer wall of the pipe barrel and the shoring or bracing at levels below the top of the pipe. Trench width at levels above the top of the pipe shall be determined by the Contractor. Trench width shall not exceed maximum trench widths allowed by Alameda County.
- E. Excavate trench to a level section and to such elevation as will give a uniform bearing and true flow line elevation when the sewer pipe is laid. All loose dirt in the bottom of the trench must be removed.
- F. Extract all sheets/shoring extending no deeper than the bottom of the excavation by static pull only, without the use of vibratory equipment.

3.07 TRENCH PLATES

- A. When backfilling trenches and excavations, whether transverse or longitudinal, and the work cannot be properly completed within the same working day, trench plates with non-skid surface treatment will be required to maintain all vehicular, bicycle and pedestrian traffic flow. The following conditions shall apply:
 - 1. All trench plates shall have a skid resistant surface treatment, having a minimum coefficient of friction equivalent to 0.35 per California Test Method 342.

2. For trenches and excavation with spans greater than four feet (4'), a structural design shall be prepared by a Civil Engineer licensed by the State of California. Designs shall be submitted to the Construction Manager.
3. A Rough Road Sign (W33) shall be used in advance of all trench plates.
4. All trench plating shall be designed for HS20-44 Truck loading per the Caltrans Bridge Design Manual.
5. All steel trench plates shall extend beyond the edge of the trench wall a minimum of twelve inches (12").
6. All steel trench plates shall be fully supported around the perimeter to prevent tipping.
7. Trenches and excavations shall be adequately shored or braced to withstand highway traffic loads.
8. All trench plates shall be tack welded together at the end of each day.
9. All trench plates shall be pinned in each corner to prevent movement.
10. Temporary paving or cold-mix asphalt concrete (cutback) shall be placed around all edges of the trench plates.
11. A maximum of fifty (50) lineal feet of trench plating shall be allowed unless otherwise approved in writing by the Construction Manager.
12. Trench plates shall be minimum 1 ¼ inches thick and maximum length of 10 feet.
13. Steel trench plate deformation may occur during loading; however, if a steel plate is deformed without loading to at least ½-inch per 8 feet of length, the plate shall be removed and replaced.

3.08 OVEREXCAVATION

- A. If the bottom of excavation is found to consist of soft or unstable material which is incapable of properly supporting pipe, the Construction Manager will direct the Contractor to overexcavate to adequate supporting soils.
- B. Fill the overexcavated space to the specified elevation with ballast rock wrapped with geotextile fabric. The quantity and placement of additional ballast rock and fabric shall be paid for in the bid item identified for this work. Compact the ballast rock mechanically using two to four passes of a Vibraplate 220Y Wacker with a 12-inch-square shoe, or equal.

- C. If the necessity for such additional ballast rock has been required by an act or failure to act on the part of the Contractor, or is required for the control of groundwater, the Contractor shall bear the expense of the additional excavation and bedding. Any other overexcavation not directed by the Construction Manager will be at the Contractor's own expense.

3.09 HARD ROCK EXCAVATION

- A. Rock or hard material may be encountered.
- B. Where rock is encountered in an open cut excavation, excavate trench to a minimum depth of nine (9) inches below the sewer bottom and backfill to sewer subgrade with pipe embedment material.
- C. Rock excavation shall include removal and disposal of the following from open-cut excavations:
 - 1. All boulders measuring 1/3 of a cubic yard or more in volume.
 - 2. Concrete or masonry structures which have been abandoned.
 - 3. Rock which exceeds moderately hard rock hardness, as defined in "Subsurface Manual for Design and Construction of Buildings," 1976, published by the American Society of Civil Engineers. These definitions are summarized in the following:
 - a. Very Hard - Cannot be scratched with knife or sharp pick. Breaking of hand specimen requires several hard blows of geologist's pick.
 - b. Hard – Can be scratched with knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.
 - c. Moderately Hard - Can be scratched with knife or pick. Gouges or grooves to 1/4 inch deep can be excavated by hard blow of point of a geologist's pick. Hand specimens can be detached by moderate blow.
 - d. Medium - Can be grooved or gouged 1/16 inch deep by firm pressure on knife or pick point. Can be excavated in small chips to pieces about 1 inch maximum size by hard blows of the point of a geologist's pick.
 - e. Soft - Can be gouged or grooved readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of pick point. Small thin pieces can be broken by finger pressure.

- f. Very Soft - Can be carved with knife. Can be excavated readily with point of pick. Pieces 1 inch or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.
- D. Material exceeding moderately hard rock hardness shall be excavated by mechanical means and paid for at the unit price established for the Open-Cut Rock or Hard Material Excavation bid item.

3.10 DISTURBED SUBGRADE

- A. Where disturbed and loosened soils are present at the bottom of any excavation as a result of Contractor's operation, they shall be removed or compacted to at least ninety percent (90%) relative compaction prior to placing pipe foundation materials or pit slab foundation materials. The Contractor shall receive no extra compensation for such work.
- B. Disturbed subgrade resulting from inadequate dewatering of trench and pit excavations shall be removed as directed by the Construction Manager and restored to grade with ballast rock wrapped in geotextile fabric in accordance with the Drawings and thoroughly compacted as specified in this Section. The Contractor shall receive no extra compensation for such materials or work.

3.11 SUBGRADE FOR PAVEMENT

- A. All trench backfill within the trench region that is thirty (30) inches below the pavement surface shall be compacted to at least ninety-five percent (95%) of the maximum density as determined by Caltrans Test Method 216.

3.12 EARTHWORK FOR STRUCTURES

- A. For Manholes, Vaults and Other Pipeline Accessories, provide excavations sufficient to leave at least twenty-four (24) inches clear between their outer surfaces and the face of the excavation or any shoring, which may be used to support the face of the embankment.
- B. Backfill shall be similar to Section 3.13. C. 5 Trench Backfill for pipelines and conduits.

3.13 EARTHWORK FOR PIPELINES AND CONDUITS

- A. The bottom of the trench shall be carried to the specified lines and grades with proper allowance for pipe thickness and for bedding as specified. Where shown on the drawings or ordered by the Construction Manager, a pipeline foundation consisting of compacted ballast rock wrapped in geotextile fabric shall be emplaced to the line of the trench subgrade in accordance with this Section.
- B. Pipeline Trench and Installation Pit Backfill

1. All material shall be imported fill.
2. All material shall be placed in uniform lifts not to exceed six (6) inches per compacted lift using mechanical compaction and/or vibration. No jetting or flooding shall be allowed. Trench or pit excavations shall be backfilled with materials as shown on the drawings.
3. Contractor shall take necessary precautions in placement and compaction of pipe embedment material to prevent displacement of piping. In the event there is movement of the pipe, re-excavate re-lay, and backfill the pipe.
4. Do not use water-settling methods to consolidate Trench Backfill Material.

C. Pipe Zone Backfill

1. The Contractor shall not proceed with backfill placement in excavated areas until the subgrade has been inspected by the Construction Manager. All pipe shall have a minimum thickness of pipe embedment material below the barrel of the pipe as shown on the drawings. Pipe embedment material shall be placed in the bottom of the trench, leveled and compacted to a minimum of 90% relative compaction at or near optimum moisture content.
2. Depressions for Assembly of Joints
 - a. Dig holes for bell or coupling assembly after pipe embedment material has been placed at the trench bottom and fine graded to the design elevation.
 - b. Create sufficient width and depth to provide ample room for inspecting joints, and completing joint assembly activities.
 - c. Excavate holes only as necessary in making joints. Ensure that pipe rests upon prepared trench bottom and is not supported by any portion of the joint.
3. No backfill shall be deposited over a sewer line and/or appurtenances until placed pipe has been inspected and approved for backfilling operations.
4. That portion from the sewer subgrade to a point 12 inches above the outside top of the pipe shall be pipe embedment material. This import shall be installed in two stages.
 - a. STAGE ONE – Trench shall be from the sewer subgrade to the outside bottom of the sewer pipe. After a “bell hole” has been excavated, grade the imported fill so that the pipe can be laid to proper line and grade. Seat the pipe embedment material by

mechanically compacting with a Vibraplate 220Y Wacker with a 12-inch square shoe, or equal. A minimum of four passes uniformly over the surface shall be performed, with additional passes as required to meet specified compaction.

- b. STAGE TWO - After the pipe has been installed to the proper line and grade, install the remaining pipe embedment material around the pipe, in 6-inch maximum compacted lifts, from the outside bottom of the pipe to a point 12 inches above the outside top of the pipe barrel. Hand shovel slice the pipe embedment material around the pipe before compaction to ensure the absence of voids beneath the pipe haunches. No material shall be placed and/or compacted into the “bell hole”. After pipe embedment has been placed to a point 12 inches above the top outside of the pipe barrel, mechanically compact the surface with a minimum of four passes of a Vibraplate 220Y Wacker with a 12-inch square shoe, or equal, with additional passes as required to meet specified compaction.
- c. After the pipe has been laid to alignment and grade, unless otherwise specified, place additional pipe embedment material in layers for the full width of the trench to the spring line of the pipe and compact to densities as specified. Place pipe embedment material simultaneously on both sides of the pipe, keeping the level of backfill the same on each side. Carefully place and compact around the pipe to ensure that the pipe barrel is completely supported and that no voids or uncompacted areas are left beneath the pipe. Use particular care in placing material on the underside of the pipe to prevent lateral movement during backfilling.
- d. Place additional pipe embedment material in layers the full width of the trench to the minimum thickness of pipe embedment material above the barrel of the pipe as shown on the Drawings, and compact as specified.
- e. Impact tampers shall not be used directly above the pipe to mitigate damaging the pipe in accordance with pipe manufacturer’s recommendations. Each 6-inch lift shall be compacted to a minimum of ninety percent (90%) relative compaction below the pipe and ninety percent (90%) relative compaction around and to 12 inches above the pipe. Compaction of pipe embedment material to be based on Caltrans California Test 216. .

5. Trench Backfill

- a. Trench backfill material, placement and compaction above the pipe embedment zone shall be as specified. Backfill above the pipe

bedding shall not commence until pipe embedment material has been inspected and accepted by the Construction Manager.

- b. In paved areas or future paved areas, compact the specified trench backfill material to a minimum of 90 percent relative compaction to within 30 inches of the pavement surface and 95 percent relative compaction within the upper 30 inches of backfill. Relative compaction in paved areas to be determined by Caltrans California Test 216. The moisture content of the trench backfill material being placed shall be at or above optimum moisture content to achieve required compaction.
- c. Place trench backfill in horizontal layers no thicker than 8 inches uncompacted. Each layer shall be moistened, if necessary, tamped, rolled or otherwise compacted to the density shown on the Drawings and listed above.
- d. Compaction testing of trench materials within paved areas shall be done in accordance with the requirements of the State Standard Specifications and referenced standard tests. The compaction tests shall be California Test 216. Compaction testing of trench materials within unpaved areas shall be done in compliance with ASTM D1557 (Modified Proctor Test). Maximum or relative densities refer to dry soil densities obtainable at optimum moisture content.
- e. Unless otherwise specified, trench backfill material shall be Class 2 Aggregate Base or control low strength material and shall be used in the trench zone under all paved and unpaved roadways and paved and unpaved roadway shoulders, roadway embankments, in all public right-of-ways and easements, parking lots or other paved areas. Backfill trench to an elevation which will permit the placement of the specified surface or paving. Paving shall be as specified in Section 02500. Other surfaces shall be restored, including compaction, to the condition existing prior to construction including restoration of yard areas.

3.14 EXPLOSIVES AND BLASTING

- A. Blasting or use of explosives shall not be permitted.

3.15 CONTROL LOW STRENGTH MATERIAL

- A. General: CLSM may be placed in lieu of trench backfill and pipe embedment material in and around structures or pipelines and shall be as specified in the following paragraphs.

- B. Structure Backfill: CLSM shall be placed around structures as part of backfill as shown on the drawings evenly so that uneven loading of the structure does not occur as a result of the CLSM placement. A minimum of two lifts shall be used in placing the CLSM around structures. Where structures have pipes entering/exiting the structure, CLSM shall be placed in accordance with placement of CLSM for pipe installation locations.
- C. Pipe Backfill
 - 1. CLSM shall be placed into the trench around the pipe so that the CLSM is placed evenly on both sides of the pipe to prevent uneven loading of the pipe. CLSM shall not be placed directly onto the pipe. The maximum depth of the first lift of CLSM shall not allow the pipe to move or float. Subsequent lifts of CLSM shall be placed so that the pipe does not shift or float. CLSM placed in trenches with steep slopes shall be placed in lifts to prevent flotation of the pipe, and the Contractor shall install approved anchor blocks as needed to secure the pipe in place during placement of the CLSM. Use of anchor blocks or deadman concrete collars may be used by Contractor with written approval by the Construction Manager.
 - 2. Placement of fill, backfill, pavement structural sections or concrete shall not be allowed until the CLSM passes the ball drop test described in ASTM D6024.
 - 3. No equipment or traffic shall be allowed on the control low strength material (CLSM) until the surface of the CLSM will withstand the weight of the equipment or traffic without displacement or damage.
 - 4. To prevent displacement or damage, provide steel trench plates that span the trench or other means that prevent equipment or traffic contact with CLSM immediately after placement and until such time as the CLSM has obtained sufficient strength to support equipment and traffic loads.
 - 5. Use caution when backfilling with CLSM and plastic pipe to prevent flotation.

3.16 REMOVAL OF ASBESTOS AND HAZARDOUS SUBSTANCES

- A. When the presence of asbestos or hazardous substances are not shown on the plans or indicated in the specifications and the Contractor encounters materials which the Contractor reasonably believes to be asbestos or a hazardous substance as defined in Section 25914.1 of the Health and Safety Code, and the asbestos or hazardous substance has not been rendered harmless, the Contractor may continue work in unaffected areas reasonably believed to be safe. The Contractor shall immediately cease work in the affected area and report the condition to the Engineer in writing.
- B. In conformance with Section 25914.1 of the Health and Safety Code, removal of asbestos or hazardous substances including exploratory work to identify and

determine the extent of the asbestos or hazardous substance will be performed by separate contract.

- C. If delay of work in the area delays the current controlling operation, the delay will be considered a right of way delay and the Contractor will be compensated for the delay in conformance with the provisions in Standard Specifications Section 5-1.116 Differing Site Conditions.
- D. Soils excavated from roadway sections in the Castro Valley area are known to have trace amounts of substances at levels that are non-regulated, non-hazardous materials. The presence of these materials will not represent a change of condition and will not be considered as differing site conditions under Section 0700-7.01 CHANGES IN THE WORK and Section 0700-7.02 DIFFERING SITE CONDITIONS.

3.17 FINISH OPERATIONS

A. Finishing Subgrades Under Structures and Pavements

1. Finish surface of top lift of fill or top of subgrade to the elevation and cross section indicated.
2. Finished surface shall be smooth and of uniform texture.
3. Lightly scarify or blade the finished surface to bring the finished surface to within 0.05 feet of the indicated grade and to eliminate imprints made by compaction and shaping equipment.
4. Surface shall show no deviations in excess of 3/8 inch when tested with a 10-foot straightedge.

SECTION 02350

SHORING FOR SURFACE STRUCTURES, TRENCHES, AND OPEN CUT EXCAVATIONS

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes design and construction parameters for Contractor-designed temporary shoring as necessary for trenches or structures.
- B. Shoring refers to providing all components of the excavation support system, including, but not limited to, bracing, steel soldier piles or sheet piles, struts, wales, or any other support including internal bracing, where applicable. Use other methods of support only when approved by the District. Shoring shall be designed, provided, maintained, and where applicable, removed by the Contractor, in accordance with this Section and the Contract Documents.
- C. As required by Section 6705 of the California Labor Code and in addition thereto, whenever work under the contract involves the excavation of any trench or trenches five (5) feet or more in depth, including temporary construction pits and manhole excavations, the Contractor shall submit to the Construction Manager a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plans vary from the shoring system standards established by the Construction Safety Orders of the Division of Industrial Safety, in Title 8, Subchapter 4, Article 6, California Code of Regulations, the plans shall be prepared and signed by a registered civil or structural engineer employed by the Contractor.
- D. Shoring system plans for pits or other large excavations in excess of five (5) feet or more in depth shall be prepared and signed by a civil or structural engineer, registered in California and employed by the Contractor. All costs therefore shall be included in the bid price named in the contract for completion of the work as set forth in the contract documents.
- E. Nothing in this Section shall be deemed to allow the use of a shoring, sloping or other protective system less effective than that required by the Construction Safety Orders. Nothing in this Section shall be construed to impose tort liability on the District, Construction Manager, Design Consultant, or any of their officers, agents, representatives, or employees.
- F. Horizontal strutting below the barrel of a pipe and the use of pipe as support are not acceptable.

G. The sheeting, shoring, and bracing system shall be designed and constructed to meet all of the following minimum performance requirements:

1. Protect personnel that enter excavations.
2. Assure worker safety and optimal conditions for pipe installation.
3. Protect adjacent existing utilities, pipelines, pavements, and structures.
4. Installation of support system shall not cause settlement or heave of the ground surface nor produce construction vibrations that could damage adjacent utilities or structures.
5. Prevent lateral movement of excavation walls and associated loss of adjacent ground support and adjacent ground lateral shifting/settlement.
6. Prevent heaving of the excavation bottom.
7. When removal is permitted, allow for the removal of support system in a manner that does not damage the pipeline, cause settlement or heave of the ground surface, nor produce construction vibrations that cause damage to adjacent utilities or structures.

H. Related Sections

1. Section 00700, **GENERAL CONDITIONS**
2. Section 02300, **EARTHWORK**
3. Section 03600, **GROUT**
4. Section 15050, **GENERAL PIPING**
5. Section 15065, **VITRIFIED CLAY PIPE**

1.02 REFERENCE

A. Castro Valley Sanitary District (CVSD)

1. District Code and Standard Drawings

1.03 SYSTEM DESCRIPTION

A. Design Requirements

1. Design and construct the shoring system in accordance with all applicable codes, and in accordance with the specific requirements described herein.
2. At all times furnish, install, and maintain sufficient shoring and bracing in trenches and pits to insure safety of the workmen and to protect and

facilitate the work. System shall be designed and constructed in accordance with Section 00700 of the General Conditions. The Contractor shall:

- a. Design each member or support element to support the maximum lateral earth pressures, hydrostatic pressures, lateral loads from traffic, construction equipment, and spoils loads that can occur during construction with appropriate safety factors.
- b. Design the support system to prevent raveling, running, and flowing of excavation walls and associated loss of adjacent ground and adjacent ground surface settlement or existing trench material at utility crossings. Design the support system to retain non-cohesive granular soils subject to raveling, flowing, and/or running upon vibration from construction equipment including compaction of backfill.
- c. Prevent heave and/or piping (boiling) of the excavation bottom.
- d. Design excavation support systems in accordance with all CAL/OSHA, and OSHA, requirements.
- e. Take into account all surcharge loadings. Surcharge loadings can be due to such items as material or soil stockpiles, sloping ground adjacent to shoring, and adjacent building foundations. Contractor shall assure that his assumed conditions and loadings are not exceeded in the field during construction.
- f. Design shoring to withstand any construction loading.
- g. The design of shoring shall conform to accepted engineering practice in this field. The District's approval of the Contractor's plans and methods of construction does not relieve the Contractor of his responsibility for the adequacy of this support.

B. Performance Criteria

1. The Contractor shall be solely responsible for, and bear the sole burden of cost for, any and all damages resulting from improper shoring or failure to shore.
2. The safety of workmen, the protection of adjacent structures, property and utilities, and the installation of adequate supports for all excavations shall be the sole responsibility of the Contractor.
3. The design, planning, installation, (and removal, if required) of all shoring shall be accomplished in such a manner as to maintain stability of the required excavation and to prevent movement of soil and rock that may

cause damage to adjacent shoring systems, structures and utilities, damage or delay the work, or endanger life and health.

1.04 SUBMITTALS

A. Shop Drawings

1. Submit plans for shoring to the Construction Manager for review at least ten (10) days prior to commencement of work. No excavations shall be started until the District has reviewed the Contractor's shoring design. The shoring and bracing system plans shall be in accordance with Section 00700 of the General Conditions and to permit the Construction Manager to review the overall completeness and effectiveness of the proposed system. Review of the shoring and bracing plans by the Construction Manager in no way relieves the Contractor of complete responsibility for providing effective and safe shoring and bracing of the construction area and/or pipeline under construction. Shoring and bracing submittals shall demonstrate coordination with the dewatering method and submittal.
2. Include:
 - a. Design assumptions, analyses, calculations, and information on Contractor's proposed method of installation (and removal, if required) of all shoring. The design and calculations shall be performed by, sealed and signed by a professional engineer registered in the State of California and experienced in the design of earth retaining structures.
 - b. The maximum design load to be carried by the various members of the support system.
 - c. Detailed excavation support drawings, showing all pertinent dimensions, spacings, and relationships among the components of the shoring, as well as construction sequence and scheduling.
 - d. The method of bracing.
 - e. The full excavation depth and depth(s) below the main excavation to which the support system will be installed.
 - f. Detailed sequence of construction and bracing removal and backfilling.
 - g. Detailed drawings and descriptions of the method to be used by the Contractor to monitor shoring and adjacent ground/structure movements.

1. Contract Drawings do not show all utilities. Contractor shall notify the Underground Service Alert (USA) and field-check locations of utilities prior to commencing work. The Contractor shall protect any overhead wires and any sewer, water, gas, electric or other pipelines or conduits uncovered during work from damage caused by the work of this contract.
 - a. Where utilities are anticipated or encountered unexpectedly, excavate by hand or other excavation methods acceptable to the utility owner.
 - b. If existing utilities identified interfere with Contractor's proposed method of support, any required modification or relocation shall be performed at no additional cost to the District.

PART 2 - PRODUCTS

To be selected by the Contractor within the guidelines described in this Section.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify Surface Conditions and utility locations. Protect utilities and improvements, as called for in the Contract Documents, or required by the Utility Company(s).
- B. Verify field measurements indicated on Drawings.
- C. Verify layout of work before beginning installation.

3.02 EXCAVATION

- A. Protect or repair utilities damaged by operations of this Section. Protect adjacent structures and property from damage and disfiguration.
- B. Provide necessary groundwater control and drainage in accordance with Section 02300 EARTHWORK. Contractor should expect that dewatering will be required to allow placement of shoring in soil under "dry" conditions and to prevent flowing, raveling, or running of soil, prior to shoring placement.
- C. The methods of constructing the temporary shoring are at the option of the Contractor and subject to review and approval by the Construction Manager. Excavations shall be made to the lines, grade, and dimensions shown on the Contractor's Shop Drawings. If the excavation is found to be deviating from the true lines and grade, the Contractor shall immediately make the necessary changes in operation to bring the operation back to the correct position. Any excess deviation beyond that specified herein shall be remedied by the Contractor at their own expense.

- D. All materials encountered shall be regarded as unclassified and shall be excavated, regardless of the nature thereof, and all excavated material must be removed and disposed of as described in 02100 DEMOLITION, ABANDONMENT, AND REMOVAL and Section 02300 EARTHWORK.
- E. Complete excavation in such manner as to provide adequate support at all times to adjacent conduits, structures, or roads and so as to offer no hazard to train, truck or automobile operations. Bracing and shoring shall be substantial and safe, and all work shall be done in full conformity and subject to the inspection of all affected parties. If and when required and to the degree necessary, the Contractor shall provide additional support as may be necessary at no additional cost.
- F. Take every precaution to prevent the entry of water, mud and foreign matter into the excavation at all times. It is the intention of these Specifications that all construction work described herein shall be carried out under dry conditions. The Contractor shall promptly and continuously control water inflow and dispose of all water from any source that may accumulate in the excavation. This shall include all necessary pumping, bailing, draining and sedimentation prior to discharge.
- G. Any and all excess excavation or over-excavation performed by the Contractor for any purpose or reason, except as may be ordered in writing by the District, shall be at the expense of the Contractor. Any damage done to the work by the Contractor's operations shall be repaired by and at the expense of the Contractor and in a manner approved by the District.
- H. Excavate only as much as can safely stand unsupported prior to installing shoring, but in no case more than 4 feet shall be left unsupported at any time. Install lagging immediately after excavation.

****END OF SECTION****

SECTION 02500

ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section addresses the installation of temporary and permanent asphalt concrete and striping for roadways in which pipeline construction is performed, as required in these Contract Documents. Other roadway or pavement areas requiring asphalt concrete as shown on the Contract Drawings or to be determined later, shall also be governed by these specifications.
- B. Related Sections
 - 1. Section 01300, **SUBMITTALS**
 - 2. Section 02300, **EARTHWORK**

1.02 REFERENCES

- A. Castro Valley Sanitary District
 - 1. District Code and Standard Drawings
- B. Alameda County Public Works Department
 - 1. Standard Plans and Specifications
- C. American Society for Testing and Materials (ASTM)
 - 1. ASTM C136 - Sieve Analysis of Fine and Coarse Aggregates
 - 2. ASTM D1557 - Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in. (457-mm) Drop
 - 3. ASTM D2041 – Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
 - 4. ASTM D2172 - Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
- D. State of California, Department of Transportation (Caltrans)
 - 1. California Test Method 304 – Preparation of Bituminous Mixtures for Testing

2. California Test Method 339A – Determination of Distributor Spread Rate
3. California Test Method 375 - Determining the In-Place Density and Relative Compaction of AC Pavement

1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01300.
 1. Job-mix formula (less than one year old) for each type of asphaltic concrete 14 days before asphalt concrete placement. Ensure formula is within the specified design range.
 2. Copies of weighmaster's certificates or certified delivery tickets for each truck load of material.
- B. Certificates
 1. Aggregates for base course and asphalt concrete
 2. Asphalt cement
 3. Liquid asphalt
 4. Asphaltic emulsion
 5. Paint

1.04 QUALITY ASSURANCE

- A. Materials and workmanship specified herein with the referenced State Standard Specifications shall be in accordance with the referenced articles, sections and paragraphs of the Standard, except that contractual and payment provisions do not apply.

1.05 TESTING

- A. Testing will be conducted by the County of Alameda, or other entity, as coordinated through the Construction Manager to determine compliance with the specified degree of compaction and asphalt content.

1.06 ENVIRONMENTAL CONDITIONS

- A. Install hot mix asphaltic concrete in accordance with Alameda County requirements.
- B. Apply paint to clean, dry surfaces and unless otherwise approved, only when air and pavement temperatures are above 40 degrees F for oil-based materials, 50 degrees F for water-based materials, and are less than 95 degrees F.

- C. Maintain paint temperature within these same limits.

1.07 EQUIPMENT

- A. Mixing Plant and Construction Equipment shall comply with Section 39 of State Standard Specifications.
- B. Painting Equipment
 - 1. Use a stripe painting machine of proper type and adequate capacity capable of producing replacement marking and striping indicated.
 - 2. Provide equipment having a compressor capacity of at least 105 cubic feet and capable of operating at an air pressure of 125 psi.
 - 3. Provide striping machine with a pointer so the machine will hold exactly to alignment.
 - 4. Provide propelling vehicle with a speedometer or tachometer, and with a suitable device for determining quantity of paint in the container.
 - 5. Mechanically agitate paint while equipment is in operation.
 - 6. A glass bead dispenser located behind the paint applicator nozzle and which is controlled simultaneously with the paint applicator nozzle, if necessary.
 - 7. Clean paint container and spray nozzles on machine before starting work each day.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Aggregates
 - 1. Base Course: In accordance with Section 26 of State Standard Specifications, Class 2, 3/4-inch maximum size gradation.
- B. Asphalt Materials
 - 1. Asphalt Cement: In accordance with Section 92 of State Standard Specifications, PG 64-10
 - 2. Liquid Asphalt: In accordance with Section 93 of State Standard Specifications, Grade SC-70.
 - 3. Asphaltic Emulsion: In accordance with Section 94 of State Standard Specifications, Grade SS-1h.

4. Asphalt Concrete: In accordance with Section 39-2.02 of State Standard Specifications, Type A, 3/4-inch maximum medium grading for initial and 1/2-inch for final lift
 - a. Asphalt Binder: PG 64-10 viscosity graded asphalt in accordance with Section 92 of the State Standard Specifications
 - b. Asphalt binder mixed with aggregate shall be such that the air void content of the resulting asphalt concrete shall be not less than 3 percent nor more than 5 percent.
 - c. Stabilometer value as determined by California Test Method No. 304 shall be 38 minimum.
- C. Paint
 1. In accordance with State Standard Specifications, Section 84 and Standard Details
 2. Colors shall match standards and be approved by Alameda County
- D. Markers
 1. In accordance with State Standard Specifications, Section 85 and Standard Details
 2. Colors shall match standards and be approved by Alameda County.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Subgrade
 1. Requirements for subgrade are specified in Section 02300.
 2. Prior to construction of base course, clean previously constructed subgrade or subbase of foreign substances.
- B. Asphalt Concrete Preparation
 1. Uniformly mix mineral aggregate with bituminous material in a central plant in accordance with Section 39 of State Standard Specifications.
 2. The asphalt concrete mix design shall have an air void ratio between between three and five percent.
- C. Striping and Pavement Markings

1. Before obliterating any pavement delineation that is to be replaced on the same alignment and locations, as determined by the Construction Manager, pavement delineation shall be referenced by the Contractor, with a sufficient number of control points to re-establish the alignment and location of the new pavement delineation. The references shall also include the limits or changes in striping pattern, including one and two-way barrier lines, limit lines, crosswalks and other pavement markings.
2. At the end of each working day, the Contractor shall install temporary raised reflective markers, temporary pavement markings and temporary crosswalks to replace existing striping and markings that have been removed or damaged by the work.
3. Allow new permanent pavement surfaces to cure for at least 3 days before permanent striping is applied.
4. Clean pavement surfaces immediately prior to painting by power vacuuming. Power brooming, or power blowing using compressed air will not be permitted.
5. Thoroughly clean pavement surface of water, oil, grease or other objectionable matter.
6. Do not use solvent material that will damage pavement.
7. All pavement markers removed or damaged during the work shall be replaced with identical type markers or as necessary to meet requirements of Alameda County.

3.02 INSTALLATION

A. Base and Subbase Course Installation

1. Place aggregate base in accordance with requirements of Sections 25 and 26 of State Standard Specifications.
2. Within thirty (30) inches of the pavement surface elevation, grade and compact in 6-inch layers to at least 95 percent of maximum density, Caltrans Test Method 216.
3. Maintain base course in proper condition until asphaltic concrete is in place, including drainage, rolling, shaping, and watering.
4. Maintain sufficient moisture at the surface to prevent a dusty condition by light sprinkling with water.
5. Recondition, reshape, and recompact areas of completed base course damaged by freezing in accordance with the specified requirements.

- B. Tack Coat - Apply asphaltic emulsion to the existing pavement surfaces in accordance with Section 39-4 of State Standard Specifications.
- C. Asphalt Concrete Installation
1. Temporary paving wearing surface thickness shall be a minimum of one and one-half (1-1/2) inches of premixed asphaltic paving material. Permanent paving wearing surface thickness shall be based on existing pavement thickness as identified on the Drawings.
 2. Placing - Deliver bituminous mixtures to the roadbed at temperatures specified in Section 39 of State Standard Specifications. Asphalt concrete shall be placed in a minimum of two lifts and shall be spread and compacted with the number of layers and thicknesses in conformance with Section 39-6 of State Standard Specifications.
 3. Compaction - Initial or breakdown rolling and the final rolling of the uppermost layer of the asphalt concrete shall be in accordance with Section 39 of State Standard Specifications. Compaction by vehicular traffic shall not be permitted.
 4. Joining Pavement - Carefully make joints between old and new pavements and of successive days' work in such manner as to ensure a continuous bond between old and new sections of the course. Expose and clean edges of existing pavement. Where joint edge has raveled or has been damaged during trenching operations, sawcut a new edge with straight, vertical surfaces. Paint joints with a uniform coat of tack coat before the fresh mixture is placed. Prepare joints in the new pavement in accordance with Section 39-6 of State Standard Specifications.
- D. Striping Pavements
1. Application
 - a. Traffic painting and pavement marking shall conform to the provisions of Section 84, "Traffic Stripes and Pavement Markings," of the Standard Specifications and these Special Provisions.
 - b. Work shall include replacing painted stop bars, stop messages, center striping, lane lines, and other existing pavement markings affected by project construction and as directed by District Construction Manager.
 - c. Painting shall meet all applicable State Standard Specifications.

- d. All applications of paint shall be two coats. The paint shall be applied within ten (10) days of completing the permanent paving on each street or designated section thereof.
- e. All paint shall be to the satisfaction of the District Construction Manager.
- f. Surfaces which are to receive paint shall be thoroughly cleaned, free from loose materials and dry, and such areas shall be prepared by the Contractor to the satisfaction of the District Construction Manager.
- g. Any damage to the existing or newly painted markings due to the failure of the Contractor to protect the work shall be repaired by the Contractor at no additional cost to the District.

3.03 FIELD QUALITY CONTROL

All field quality control tests will be performed by Alameda County or other designated entity under Encroachment Permit requirements and at the direction of the District Construction Manager. Testing frequency may differ from condition listed below. Initial testing costs will be the responsibility of the District. Where finished work does not meet specified requirements and follow up testing is required, Contractor will be responsible for all follow up testing costs for that item.

A. Base Course Finish Surface

- 1. Surface tolerance shall conform to Section 26 of State Standard Specifications.
- 2. When base course is constructed in more than one layer, specified smoothness requirements apply only to top surface.

B. Pavement Smoothness

- 1. Test wearing course in accordance with Section 39-6 of State Standard Specifications.
- 2. Make one test for each 300 square yards of pavement.

C. Pavement Thickness

- 1. Permanent pavement thickness shall be as shown on the Drawings.
- 2. One test for each 300 square yards of completed pavement will be taken.
- 3. Contractor shall replace pavement where samples are removed.

D. Gradation

1. Asphalt Concrete Gradation

- a. Asphalt concrete gradation tests will be completed in accordance with ASTM C136.
- b. One test for each 50 tons of material will be taken.

E. Asphalt Content of Asphalt Concrete

1. Percent asphalt content by extraction will be measured in accordance with ASTM D 2172, Method A.
2. One test for each fifty (50) tons of material will be taken.

F. Asphalt Concrete Compaction

1. Asphalt concrete compaction will be measured in accordance with Caltrans Test Method 375.
2. No single compaction test shall represent more than 275 tons or one day's production, whichever is smaller.
3. If test results for any lot of asphalt concrete indicate that the relative compaction is below 95.0 percent, but above 93.9 percent, the contractor will be advised that he is not attaining the required relative compaction and that this materials or his procedures, or both, need adjustment. Asphalt concrete spreading operations shall not continue until the Contractor has notified the Engineer of the adjustment that will be made in order to meet the required compaction.
4. If the test results for any lot of asphalt concrete indicate that the relative compaction is less than 94.0 percent, the asphalt concrete represented by that lot shall be removed, except as otherwise allowed by the Construction Manager and Alameda County. Asphalt concrete spreading operations shall not continue until the Contractor makes significant adjustments to his materials or procedures, or both, in order to meet the required compaction. The adjustments shall be agreed to by the Construction Manager.

3.04 PROTECTION OF PAVEMENT

- A. After final rolling, the Contractor shall not permit vehicular traffic on the pavement until pavement has cooled and hardened and in no case less than six (6) hours.
- B. Additional requirements are as shown in the Contract Documents.

*****END OF SECTION*****

SECTION 02701

PRECAST CONCRETE STRUCTURES

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish and install all prefabricated manholes, and other structures, complete with grade rings, frames, covers, pipe connections, preformed joint sealant, and cast-in-place bases, and any other necessary appurtenances, in accordance with the requirements of CVSan.

1.02 REFERENCE

- A. Castro Valley Sanitary District (CVSan)
 - 1. District Code and Standard Drawings
- B. American Society for Testing and Materials (ASTM)
 - 1. ASTM C150 - Standard Specification for Portland Cement
 - 2. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections
 - 3. ASTM C923 – Standard Specification for Resilient Connectors between Precast Reinforced Concrete Manhole Structures, Pipes and Laterals

1.03 SUBMITTAL

- A. Furnish the complete Shop Drawings and Product Data, for all precast manhole sections, grade rings, sewer inlets, and appurtenances for review by CVSan.

1.04 QUALITY ASSURANCE

- A. After installation, the Contractor shall demonstrate that all manholes, drainage inlets, and other precast concrete structures have been properly installed, level, with tight joints, at the correct elevations and orientations, and that the backfilling has been carried out in accordance with Section 02200 EARTHWORK. All manholes shall be tested in accordance with Section 02735 SANITARY SEWER SYSTEM TESTING.

PART 2 - PRODUCTS

2.01 CONCRETE

- A. Concrete for cast-in-place concrete manhole base shall be as specified in Section 03300 CAST IN PLACE CONCRETE.

2.02 REINFORCING

- A. Reinforcing for cast-in-place concrete manhole base shall be as specified in Section 03200 CONCRETE REINFORCEMENT.

2.03 MANHOLE FRAMES AND COVERS

- A. Manhole frames and covers shall be as specified in Section 05541 MANHOLE FRAMES AND COVERS.

2.04 FLEXIBLE COUPLING

- A. Flexible pipe coupling shall conform to ASTM C923.

2.05 MATERIALS

- A. Precast Concrete Sections: Manholes, grade rings and other precast concrete structures, shall be constructed of precast concrete sections and shall conform to ASTM C478 and the District's General Provisions and Specifications for the Construction of Sanitary Sewers.
- B. Precast concrete sections and grade rings shall be manufactured by a process that will produce a dense, homogeneous concrete of first quality. The sections shall be steel reinforced and have a minimum wall thickness of four (4) inches. Cement used in manufacturing the sections shall be Type V, Portland cement, as specified in ASTM C150. Precast concrete sections, cones, and grade rings shall be joined using preformed joint sealant only. Use of mortar will not be allowed. All manholes shall have cast-in-place concrete bases and formed channels with inverts to match the adjoining pipes.
 - 1. Manhole Manufacturers, or Approved Equal: Central Pre-Cast., Pleasanton, California
 - 2. Joint-Seal Material, or Approved Equal: Ram-Nek, K.T. Snyder Company
- C. Steps for manholes shall be made of copolymer polypropylene that encapsulates a 1/2-inch Grade 60 steel reinforcing rod. This step shall conform with ASTM C478 and shall be 14 inches wide. The above steps shall be PS2-PFS manhole steps as manufactured by M. A. Industries Inc., Kelley and Dividend Drive, Peachtree City, Georgia, or equal.

- D. Castings: Castings for manhole frames and covers and drainage inlet frames and grates shall conform to Section 05541.
- E. Concrete Sealant: Concrete sealant and waterproofing compound shall be applied to the interior and exterior of the manhole barrel prior to backfill. Sealant material shall be Tegaproof, Xypex, Bituminous material, or equal.

2.06 DESIGN LOADS

- A. Vertical Loads: Design all precast manhole rings and accessories to support an AASHTO H-20 truck loading, in addition to soil weight above sloping ring sections and the dead load of all material supported above.
- B. Lateral Loads: Lateral loads shall be as dictated by the following formula.
 - 1. Operating: $95 \times H$ (psf) triangular equivalent fluid pressure for dead load plus a live load surcharge from an H-20 truck, including impact.
 - 2. Where H = depth below finished grade.

PART 3 - EXECUTION

3.01 WORKMANSHIP

- A. Manholes shall be sound watertight structures, constructed as shown on the Drawings. The type of manhole and its location is to be as shown on the Drawings. The manhole shall be constructed to the rim elevations shown on the Drawings. In paved areas, the Contractor shall set the manhole rim after backfill and site settlement to match the proposed finish pavement elevation based on pavement restoration and pavement overlay requirements, if applicable.
- B. Manhole Protection
 - 1. Particular care must be taken to protect new and existing manholes from damage and to keep rock, dirt, or debris from entering the sewer.
 - 2. On new manholes, or manholes that have had frame and cover removed, a steel cover of adequate strength, close fitted and well secured, shall be installed over the manhole opening until the frame and cover are permanently installed.
 - 3. Ground or surface water shall not be allowed to drain into or be discharged to existing sewers. Temporary watertight plugs shall be installed by the Contractor to effect this protection.
 - 4. Protective measures to prevent construction debris from entering the sewer system, such as “false bottoms” placed in the manhole, shall be installed

when construction work is being performed at manholes that are in service.

C. Sewer Pipeline through Manholes

1. The sewer shall be laid continuously through manholes on all straight runs except where manhole is used as a closure for field joint, at connections to existing pipe, and at angle points. When excavation is made below the pipe for manhole construction, care must be taken that the pipe spanning this area is firmly supported on brick.
2. Manholes shall be modified as shown in the Plans.

D. Cast-In-Place Manhole Base

1. The base shall be poured using concrete as specified in Section 03300 CAST IN PLACE CONCRETE and in accordance with the design shown on the Drawings. The concrete shall be placed with a continuous pour deposited in such a manner that segregation of material does not occur. Once deposited, it shall be consolidated by vibration so as to secure a dense watertight mass.
2. For manholes, an approved metal form ring shall be on the job site so that a level keyed slot may be formed in the fresh concrete to receive the precast section.
3. When the sewer pipe has been laid through the manhole and after the concrete has set, the top half of the sewer pipe shall be removed to within 1 inch longitudinally of the inside wall of the precast section and the cut finished with mortar as specified by the Construction Manager. Where pipe is plastic lined, the cut edge shall be protected with plastic liner.
4. The width of opening at the top of base shall be the inside diameter of the pipes in the manhole.
5. In angle point manholes, connection manholes and junction manholes, the pipes shall be joined by smooth curves, shaped to conform with the lower half of the pipe. In all cases, the upper portion of the manhole channel from the midpoint of the pipes in the manhole to the top of the base shall be constructed vertically.
6. When the manhole channel is not completed in the original pour, it shall be finished smooth by use of concrete as specified in Section 03300 CAST IN PLACE CONCRETE. Before application of the concrete, the existing concrete surface shall be thoroughly cleaned and roughened to secure a firm bond. All channels shall be troweled smooth so that a smooth uninterrupted surface is achieved. The top of the base shall be troweled to slope towards the channel at an approximate slope of 1 inch in 10 inches.

7. The manhole base shelf and channel shall be coated with a 100 percent solids epoxy mortar coating to protect the concrete from corrosion caused by hydrogen sulfide. The coating shall be Hydro-pox 212 and Hydro-pox 251 (primer) as manufactured by Con-Tech of California, (209) 941-8324, of SewerGard No. 210S or 210T, as manufactured by Sauereisen of Pennsylvania, (412) 963-0303. Surface preparation and application shall be recommended by the coating manufacturer.

E. Precast Manhole Shaft

1. The manhole shaft shall be composed of precast concrete sections. These sections shall be installed, plumbed, and aligned so that the steps are in a straight vertical line. Unless otherwise required by the Construction Manager, the steps shall be aligned horizontally 90 degrees away from the direction of the flow of the sewer main on the downstream side. The steps shall not be located directly over any main sewer or building sewer that enters the manhole.
2. Precast concrete sections for manholes shall be in accordance with the Drawings and shall conform to the requirements of ASTM C478 except that Type V Portland cement shall be used. The cone section shall be eccentric unless concentric is specified elsewhere or directed by the Construction Manager and placed as shown on the Drawings.
3. Joints between precast concrete sections shall have a "Ram-Nek" flexible plastic gasket installed between the tongue and groove joint to make a watertight joint. "Ram-Nek" sections shall be overlapped a minimum of 3 inches. After the shaft is in place, the joint shall be trimmed smooth with a sharp tool on the inside of the manhole.
4. Manhole sections shall be ordered without steps when the distance between the top rim and top of base is less than 6 feet.
5. The grade rings installed height shall not exceed 12 inches, and a minimum number of grade rings shall be used. Grade rings shall be coated with a 100 percent solids epoxy mortar coating to protect the concrete from corrosion caused by hydrogen sulfide. The coating shall be Hydro-pox 212 and Hydro-pox 251 (primer) as manufactured by Con-Tech of California, (209) 941-8324. Surface preparation and application shall be performed as recommended by the coating manufacturer.

F. Drop Connections

1. When a drop connection is shown on the Drawings, it shall be included as part of the manhole construction. The drop shall be made with approved fittings outside the manhole shaft as shown on the Drawings. The lowest

pipe shall be constructed into the base by aforementioned channeling procedures. The base shall be enlarged to encase these lower fittings.

2. After the manhole shaft is in place, the upper pipe run shall be constructed through the precast wall, flush with the inner wall. A water stop shall be placed on the incoming pipe. The hole between the pipe and the precast section shall be mortared to a watertight condition. This pipe and drop shall then be encased in concrete to the point where the upstream sewer trench is of normal width and depth. Wall penetrations shall be complete prior to manhole testing.

G. Manhole Collar

1. Unless otherwise specified by the Construction Manager, a concrete collar shall be poured around the frame and shaft so as to securely anchor the frame to the shaft. The collar shall extend to the bottom of the lowest grade ring.
2. Concrete shall be poured around the manhole frame and shaft to a height of 2 inches below the manhole rim.

H. An approved waterstop such as a Calder coupling, or equal, shall be installed for all pipe at all manhole connections. O-ring style waterstops are not permitted. For new manhole construction, the water-stop shall be placed in the manhole base and centered under the manhole wall. The waterstop shall be firmly fitted around the pipe exterior. Said waterstop may also consist of a manhole coupling with rubber-sealing rings cast into the structure base.

I. Precast concrete sections shall be set so as to be vertical, with sections in true alignment. The joint of the previously set section shall be covered with sealing compound primer and joint sealant before the next section is placed.

J. Connections to manufactured, precast items shall be made by casting sections of pipe into the items, using nonshrink grout, and/or using an approved resilient connector.

K. All precast concrete structures shall be installed in strict conformance with the manufacturer's written instructions, on a well-compacted foundation, as specified in Section 02200. After installation of concrete manholes and concrete manhole risers on junction structures, the Contractor shall apply concrete waterproofing sealant to the interior and exterior of manhole barrels and manhole risers. The Contractor shall allow sufficient time for sealant to cure, prior to backfill, in accordance with the manufacturer's written instructions.

L. Concrete manhole collars shall be installed as indicated on the Drawings. Paving around the manhole shall be in accordance with Section 02500 ASPHALT CONCRETE PAVING. Openings in manholes shall be protected from construction loads, debris, and unauthorized entry.

- M. Core drill openings to existing manholes where new pipes are to connect. The new pipe shall be inserted into the core-drilled opening with a waterstop conforming to this Section, fitted around the pipe exterior. The annular space between the pipe outside diameter and the cored opening shall be packed with nonshrink grout. After connection the Contractor shall rechannel the inside of the existing manhole base to provide a smooth flow channel transition to the newly installed pipe. The Contractor shall plug any holes remaining from abandoned lines with concrete or nonshrink grout.

- N. TESTING: All precast concrete structures shall be tested in accordance with Section 02735, **SANITARY SEWER SYSTEM TESTING**.

*****END OF SECTION*****

SECTION 02735

SANITARY SEWER SYSTEM TESTING

PART 1 - GENERAL

1.01 SUMMARY

- A. Contractor shall perform all pipeline flushing and testing, complete, for sanitary sewerage system in accordance with the Contract Documents.
- B. Contractor shall be responsible for obtaining, conveying, and disposing of water used in the testing operations.
- C. Related Sections
 - 1. Section 01300, **SUBMITTALS**
 - 2. Section 02736, **CCTV INSPECTION OF SANITARY SEWER SYSTEM**
 - 3. Section 15050, **GENERAL PIPING**
 - 4. Section 15065, **VITRIFIED CLAY PIPE**

1.02 REFERENCES

- A. Castro Valley Sanitary District
 - 1. District Code and Standard Drawings
- B. American Society for Testing and Materials (ASTM)
 - 1. ASTM C828-03 – Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines
 - 2. ASTM C1244-05 – Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill

1.03 CONTRACTOR SUBMITTALS

- A. In accordance with Section 01300 SUBMITTALS, a testing schedule shall be submitted in writing to the Construction Manager for approval a minimum of seventy-two (72) hours before testing is to start.
- B. Calibration certifications for test gauges used on this project shall be submitted.

PART 2 - PRODUCTS

2.01 MATERIALS REQUIREMENTS

- A. Furnish compressors, piping, hosing, valves, test gages, test plugs, joint test apparatus, power, stop watch, and personnel required for conducting the test.
- B. Furnish a valved connection for the District to attach a gage. The Construction Manager will witness the test.
- C. Provide temporary valves, bulkheads, plugs, and other pressure-testing equipment materials subject to the Construction Manager's review.
- D. No materials shall be used which would be injurious to the public, personnel, adjacent improvements, nor the pipeline structure and future function. Air test gauges shall be laboratory-calibrated test gauges and shall have been recalibrated by a certified laboratory, within three (3) months, prior to the leakage test for this project. Any necessary recalibration for gauges that do not have calibration certificates within three (3) months of leakage testing shall be done at the Contractor's expense.

PART 3 - EXECUTION

3.01 GENERAL

- A. All pipelines shall be cleaned by balling, flushing, and/or other approved methods prior to testing. Debris shall be removed from the downstream manhole until all pipelines are clean.
- B. All testing operations shall be performed in the presence of the Construction Manager.

3.02 TESTING OF PIPING

- A. The sewer pipe line installed by pipe bursting shall be tested in accordance with Section 02750 **SANITARY SEWER REHABILITATION BY PIPE BURSTING**
- B.

3.03 TESTING OF MANHOLES

- A. Vacuum Testing: All new manholes shall be vacuum tested in accordance with District Standard Specification 4094. Vacuum test procedures and requirements shall be as follows:
 - 1. After completion of the manhole barrels but prior to backfilling and grade ring installation, all openings in the manholes shall be sealed with plugs

and a rubber ring "donut" type plug inserted inside the opening of the cone.

2. A small vacuum pump shall be attached to a hose connected to the plug and 10 inches Hg of vacuum applied.
3. The vacuum is permitted to stabilize for 1 minute; then the test shall begin.
4. The time shall be measured for the vacuum to drop to 9 inches Hg. The manhole must maintain vacuum such that no greater than 1 inch Hg of vacuum is lost during the specified test period.
5. The specified test period is as follows:

Manhole Depth (feet)	Test Period Based On Manhole Size (seconds)		
	48 inch Diameter	60 inch Diameter	72 inch diameter
Up to 8	20	26	33
10	25	33	41
12	30	39	49
14	35	46	57
16	40	52	67
18	45	59	73
20	50	65	81
22	55	72	89

6. The manhole is acceptable if the time for the vacuum reading to drop from 10 inches Hg to 9 inches Hg meets or exceeds the values listed in the table above. Manholes that fail the test shall be patched as required and retested.
7. A vacuum regulator shall be provided on the vacuum pump such that no greater than 10.5 inches Hg vacuum can be applied to the manhole during the test.
8. All manholes that do not meet the leakage test, or are unsatisfactory from visual inspection, shall be repaired to the satisfaction of the Construction Manager.

3.04 NOT USED

3.05 CLEANING

- A. After the sewers have satisfactorily passed the tests required in this Section, and before CCTV inspection required in Section 02736 CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION OF SANITARY SEWER SYSTEM, the Contractor, in the presence of the Construction Manager, shall clean each section of the sewer in the following manner after placing a screen in the downstream manhole to catch debris.
- B. Hydraulic Cleaning
 - 1. All hydraulic cleaning equipment shall be truck mounted. Water jet cleaning equipment shall include a water tank, auxiliary engine, pumps, and hydraulically driven hose reel.
 - 2. Cleaning shall remove all grit, sludge, rocks, debris, roots, grease accumulations, and obstructions from the sewer. Sewer cleaning method shall be water jetting.
- C. Debris Removal
 - 1. During cleaning operations, the Contractor shall provide a means of catching and removing the dislodged debris conveyed downstream with the sewer flow. The method chosen shall not allow the transport of debris to downstream sewer reaches.
 - 2. All debris removed from the sewer may be stored until the day's end, whereupon the Contractor shall be responsible for its proper disposal off site.
- D. Recleaning
 - 1. If television inspection indicates that the sewer is not adequately cleaned, the Contractor shall remove all equipment or materials from the sewer and reclean the sewer at no additional expense to the District.
- E. Cleaning by the District
 - 1. At the Contractor's request, the District may clean the sewer at the Contractor's expense, subject to availability of District staff to perform the work. The District's actual cost of cleaning will be deducted from the Contractor's progress payment.

3.06 DISCHARGE OF CLEANING WATER

- A. Water used for cleaning the lines may be discharged to the existing sewer system after screening and removal of solids, and as approved by the Construction Manager.

*****END OF SECTION*****

SECTION 02736

CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION OF SANITARY SEWER SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

- A. All sewers installed as shown in the contract documents shall be visually inspected by means of closed-circuit television (CCTV) and a video recorded after testing and cleaning activities.
- B. The inspections shall be completed one sewer section at a time. A section may be from one manhole to another.
- C. Flows shall be controlled as specified herein while the inspection work is in progress.
- D. Related Sections
 - 1. Section 01300, **SUBMITTALS**
 - 2. Section 02735, **SANITARY SEWER SYSTEM TESTING**
 - 3. Section 15050, **GENERAAL PIPING**
 - 4. Section 15065, **VITRIFIED CLAY PIPE**
 - 5. Section 02750 **SEWER REHABILITATION BY PIPE BURSTING**

1.02 REFERENCES

- A. Castro Valley Sanitary District (CVSan)
 - 1. District Code and Standard Drawings

1.03 SUBMITTALS

- A. Furnish one color video recording on DVD, with audio, for each section of main sewer or building sewer inspected, and prints of all photographs taken during the inspection.
- B. The recording shall show the date the work was performed and the location and District designation of the entry manhole.
- C. The recording shall indicate cumulative footage from the entry manhole, as verified by the camera-mounted transmitter and receiver.

- D. Furnish a report and photos indicating the location of all laterals and connections encountered, the location of any breaks, obstructions, offsets, high points, sags or other major defects, and the condition of manholes. All entries in the report shall be in NASSCO PACP format.
- E. All reports shall be neatly typed.

1.04 SAFETY

- A. Have a documented safety program in place which meets all applicable occupational safety and health standard, rules, regulations and orders established by the State of California.

1.05 EXPERIENCE

- A. The person conducting the CCTV inspection shall have a minimum of five years experience in the television inspection of sanitary sewers.
- B. The recordings shall be reviewed by a person having a minimum of five years experience in evaluating and repairing problems in sanitary sewers.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 WHEN TESTED

- A. Complete the CCTV inspection as follows:
 - 1. Perform a Preconstruction inspection with allowable depths of flow. See flow control specifications below.
 - 2. Perform a post construction inspection after pipebursting operations and before final air or leakage test to confirm there are no sags present.
 - 3. After final air or leakage testing, cleaning, and after the "subbase" or "base" material portion of the paving is satisfactorily compacted but before pavement is installed.

3.02 FLOW CONTROL

- A. General
 - 1. When sewer line depth of flow at the upstream manhole of the section being inspected is above the maximum allowable depth shown under "Allowable Depth of Flow," the flow shall be reduced by operation of pump stations, temporarily plugging or blocking of the flow, or by pumping and bypassing of the flow.

2. Allowable Depth of Flow – No flow shall be allowed from the upstream manhole into the sewer being televised.
3. Plugging or Blocking
 - a. A sewer plug shall be inserted into the line upstream of the section being inspected.
 - b. The plug shall be so designed that all or any portion of the sewage can be released.
 - c. During CCTV inspection, flow shall be reduced to the limits specified herein.
 - d. After the work has been completed, flow shall be restored to normal.
4. Flow Control Precautions
 - a. When flow in a sewer is plugged, blocked, or bypassed, precautions shall be taken to protect all sewers from damage that might result from sewer surcharging.
 - b. Precautions shall also be taken to ensure that flow control operations do not cause flooding or damage to public or private property being served by the sewers involved.

3.03 TELEVISION CAMERA

- A. The television camera used for inspection work shall be color format, specifically designed and constructed for use in sewers.
- B. Lighting and camera quality shall allow a clear, infocus picture of the entire periphery of the pipe for a minimum distance of six feet.
- C. The camera shall have a 350 line per inch, or greater resolution.
- D. The camera shall be operative under 100 percent humidity conditions.
- E. Cameras for use in sewers 8-inches in diameter and larger shall be of the “articulating head” type to allow laterals and defects to be viewed directly.
- F. To ensure acceptable picture quality under all possible conditions that may be encountered during the inspection, a variable intensity control for lighting, and a remote adjustment for camera focus, shall be provided for the operator.

- G. The camera, television monitor, and other components of the video system shall be capable of producing a color picture of quality adequate to identify major defects and locate laterals accurately.

3.04 INSPECTION PROCEDURES

- A. Contractor shall use a CVSan approved “target” suspended in front of CCTV inspection camera to determine depths of all sags.
- B. All flow will be required to be bypassed during final inspection and CCTV.
- C. The camera shall be moved through the line in either direction at a moderate rate, stopping when necessary to permit proper documentation of the condition of the sewer.
- D. In no event will the television camera be pulled at a speed greater than 30 feet per minute.
- E. Manual winches, power winches, TV cable, and power rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions shall be used to move the camera through the sewer line.
- F. When manually operated winches are used to pull the television camera through the line, telephones or other suitable means of communication shall be set up between the two manholes of the section being inspected to insure good communications between members of the crew.
- G. The importance of accurate distance measurements is emphasized.
- H. Measurement for location of defects shall be made by means of a camera-mounted transmitter and aboveground receiver.
- I. Marking on the cable, which requires interpolation for depth of the manhole, will not be permitted.
- J. To establish criteria for video picture quality to be maintained throughout the project, the Contractor shall furnish a recording of a previous sewer inspection that meets these specifications for quality. This recording shall become the property of the District. It will be used as a standard to judge the acceptability of recordings produced on this project.
- K. The audio portion of the inspection report, recorded at the time of inspection, shall be intelligible in its entirety. The information contained on the audio recording shall include (1) the location of the sewer, (2) the District’s designation for the manholes involved, (3) the direction of travel, (4) a description of conditions in the sewer as they are encountered, and (5) the location and entrance condition of service laterals.

- L. The video shall include legible on-screen continuous indications of the following items during the entire inspection (1) date and time of inspection, (2) upstream and downstream manhole designations and direction of travel related to flow, (3) current location footage, and (4) sewer diameter.

*****END OF SECTION*****

SECTION 02739

BUILDING SEWER (LATERAL) CONSTRUCTION AND REINSTATEMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall be responsible for locating and reconnecting building sewers (laterals) to pipeline to be restored by pipe bursting.
- B. This work will include replacing portions of the existing building sewer and connecting to the new main sewer.
- C. The Contractor shall provide written notification of work activities to all local users, provide all coordination of lateral inspections and locating with local users, and provide interim sewer service, as specified by the District, if necessary.
- D. Service connections shall be reestablished to each user as quickly as possible, and shall not exceed eight (8) hours from the initial disconnection of the building sewer from the sewer main or from the initial service interruption to the user. Contractor shall refer to violations and penalties in Section 4008 of District's General Provisions and Specifications for the Construction of Sanitary Sewers.
- E. Related Sections
 - 1. Section 15050, **GENERAL PIPING**
 - 2. Section 15065, **VITRIFIED CLAY PIPE**
 - 3. Section 05200, **SEWER REHABILITATION BY PIPE BURSTING**

1.02 REFERENCES

- A. Castro Valley Sanitary District (CVSan)
 - 1. District Code and Standard Drawings

1.03 SUBMITTALS

- A. VCP pipe products
- B. Sewer service saddle
- C. VCP to plastic pipe coupling

PART 2 - PRODUCTS

2.01 PIPELINE MATERIALS

- A. See requirements for pipe material and joints in Section 15050 GENERAL PIPING and 15065 VITRIFIED CLAY PIPE.

2.02 SADDLE

- A. High Density Polyethylene Sewer Saddle Connected by Electrofusion.

PART 3 - EXECUTION

3.01 WORKMANSHIP

- A. All private sewer laterals shall be reconnected to the main upon completion of pipe bursting.
- B. All efforts have been made to show existing building sewers connections to the existing main sewers on the drawings, however, the District cannot ensure that there may be others not shown or shown in other locations. Sewer line video logs are on file with the District to aid the Contractor in locating all building sewers; however, the District does not guarantee the completeness nor accuracy of the video logs.
- C. All building sewer locations on the drawings are shown as approximate only and do not necessarily represent existing locations.
- D. The existing building sewer connections to the main sewer may be encased in mortar, concrete or reinforced concrete. There will be no additional compensation for demolition of this material.

3.02 CONNECTION

- A. All lateral shall be exposed per Section 02750 Sewer Rehabilitation by Pipe Bursting
- B. All laterals shall be disconnected prior to pipe bursting.
- C. Reconnection of existing services shall be made after the new main sewer has been constructed, successfully tested, and at least four hours after the bursting operation is complete. It is the Contractor's responsibility to make sure that all service connections are reconnected.
- D. The Contractor shall wait 24 hours to allow for pipe relaxation prior to reconnection to manhole.

- E. The existing lateral line shall be tied in with minimum number of bands or fittings and be connected to a section of structurally sound pipe. The Contractor shall use VCP fittings and pipe where possible. The use of plastic pipe shall be minimized. The connection between VCP and plastic pipe shall be with an approved adapter.
- F. A high density polyethylene sewer saddle shall be connected to the new sewer main by Electrofusion. The process should be completed in accordance with the manufacturer's written instructions. The lateral connection shall be watertight and shall have the same structural integrity as the new sewer pipe.

3.03 TESTING

- A. Dye testing shall be performed to ensure that all the buildings have been reconnected to the District's sewer.

3.04 BACKFILL AND RESTORATION

- A. When approved by the District, the Contractor shall backfill the excavation in accordance with Section 02300 Earthwork.
- B. The pavement surface shall be restored in accordance with Section 02500 Asphalt Concrete Paving.

*****END OF SECTION*****

SECTION 2750

SANITARY SEWER REHABILITATION BY PIPE BURSTING

PART 1 - GENERAL

1.01 DESCRIPTION

A. The work shall consist of furnishing all labor, materials, equipment, and supervision to perform all work necessary to replace certain sanitary sewer lines identified on the Plans. The required method of replacement is pipe-bursting utilizing hydraulically pulled bursting devices. The pipe bursting work shall consist of, but not necessarily be limited to, performing the following tasks:

1. Sewage flow by passing during the pipe bursting operations.
2. Disconnection and reconnection of all existing laterals.
3. Existing pipe bursting and new pipe pulling.
4. Sag repair.
5. Testing.

B. Related Sections

1. Section 00700, **GENERAL CONDITIONS**
2. Section 01025 **MEASUREMENT AND PAYMENT**
3. Section 01300, **SUBMITTALS**
4. Section 02245 **SEWAGE FLOW CONTROL**
5. Section 02300 **EARTHWORK**
6. Section 02350 **SHORING FOR SURFACE STRUCTURES, OPEN TRENCHES, AND OPEN CUT EXCAVATION**
7. Section 02500 **ASPHALT CONCRETE PAVING**
8. Section 02736 **CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION OF SANITARY SEWER SYSTEM**
9. Section 02800 **TRAFFIC CONTROL**

1.02 QUALIFICATIONS

May/2023

02750-1

District Project No. 97 (2022-01)
Sanitary Sewer Rehabilitation by
Pipe Bursting

- A. The Contractor shall be certified by the particular pipe bursting system manufacturer that he/ she is a fully trained user of the pipe bursting system.
- B. Polyethylene pipe joining shall be performed by personnel trained in the use of butt-fusion equipment and recommended methods for new pipe connections. Personnel directly involved with installing the new pipe shall receive training in the proper methods for handling and installing the polyethylene pipe. Training shall be performed by qualified representative.
- C. The Contractor shall submit documentation that it has successfully completed pipe bursting on at least ten (10) similar projects within the last five (5) years. Furthermore, the foreman assigned to the project should have similar experience. The foreman shall not be removed or replaced from the project without written permission.

1.03 REFERENCES

- A. Castro Valley Sanitary District (CVSD)
 - 1. General Provisions and Specifications for the Construction of Sanitary Sewers
- B. U.S. Army Corps of Engineers - Engineering Research and Development Center
 - 1. Guidelines for Pipe Bursting

1.04 SUBMITTALS

- A. The Contractor shall submit the following:
 - 1. Certifications of training by the pipe bursting systems manufacturer stating that the operators have been fully trained in the use of the pipe bursting equipment by an authorized representative of the equipment manufacturer.
 - 2. Certification from the pipe manufacturer of training in the proper method of handling and installing the new pipe.
 - 3. Certification of training by the pipe fusion equipment manufacturer that the operators have been fully trained in the use of the fusion equipment.
 - 4. Detained construction procedures and layout plans illustrating the sequence of the work.
 - 5. Locations, sizes, and construction methods for the service reconnection pits.
 - 6. Methods of construction, reconnection, and restoration of the laterals.

7. Description of the methods to modify existing manholes.
8. Details of the sewage bypass system.
9. Certification and experience of work crew assigned to the project.
10. Television reports of pipe after installation.
11. Manhole gaskets.

1.05 DELIVERY STORAGE AND HANDLING OF PIPE AND MATERIALS

- A. The Contractor shall transport, handle, and store pipe and fittings as recommended by the manufacture.
- B. New Pipe and fittings damaged before or during installation shall be repaired or replaced as recommend by the manufacturer. The cost of such repair shall be the responsibility of the Contractor.
- C. Materials shall not be stored within the public rights of way.

PART 2 – PRODUCTS AND EQUIPMENT

2.01 MATERIALS

A. HIGH DENSITY POLYETHYLENE (HDPE) PIPE

- a. HDPE shall be as specified in Section 15146 High-Density Polyethylene (HDPE) Pipe

2.02 EQUIPMENT

A. PIPE BURSTING UNIT

1. The bursting unit shall be designed to force its way through the existing pipe by fragmenting the material and compressing the debris into the surrounding soil as it progresses. The bursting unit shall be pneumatic and shall generate sufficient force to burst and compact the existing pipe line.
2. The bursting tool shall be pulled through the existing pipeline with a winch. The new sewer pipe shall be connected to the bursting unit. The method of connection shall prevent damage to the pipe or exceed its tensile capacity.
3. Provisions shall be made in the equipment to remotely start and stop the bursting unit.

B. WINCHES OR PULLING UNIT

1. The winch or pulling unit shall be operated to provide constant pull to the bursting unit in order that it may operate in an efficient manner with a minimum of recoil. It shall ensure directional stability in keeping the bursting unit in line.
2. The winch shall be of the constant load type but shall be fitted with a direct reading load gauge to measure the winching load. It shall also be fitted with a device to automatically disengage when loading exceeds a preset maximum load.
3. Contractor shall supply sufficient cable in one continuous length so that the pull may be continuous between winching points.
4. The winch cable and cable drum shall be provided with safety cage and supports.
5. The Contractor shall also provide a system of guide pulleys and bracing at each manhole to minimize contact of cable with the existing sewer between manholes.
6. A nose cone shall be fixed to the first pipe or the head of the bursting unit and shall be fitted with a swivel attachment to reduce the twist transmission between the winch cable and nose cone.
7. Supports to the trench sheet in the insertion trench shall remain completely separate for the pipe support system and shall be so designed that neither the pipe nor the winch cable shall be in contact with them at any time
8. Proper clearance shall be provided below the existing pipe to allow for the proper use of winch.

PART 3 - EXECUTION

3.01 INVESTIGATION

A. VIDEO INSPECTION REPORTS

1. The Contractor shall review the video inspection reports to determine the appropriate pipe bursting method, evaluate existing sags, and determine the precise location of laterals.

B. EXISTING UTILITIES IN WORK AREA

1. The Contractor shall field mark the proposed locations of excavations and contact Underground Service Alert.

2. The Contractor shall pothole to determine the precise location of all underground utilities that could be affected by the pipe bursting operation.
3. The Contractor shall determine if the presence of existing utilities could create a conflict with the proposed pipe bursting operation.

3.02 EXCAVATION

A. SEWAGE BYPASS

1. The Contractor shall be responsible for maintaining all flows within the system. He or she shall bypass the flows around those sections of pipe to be replaced, burst, or modified. Certain individual services and laterals within the project areas may also require bypassing during the pipe bursting operations. All bypass operations shall be as detailed in Section 02245.

B. INSERTION AND RECEPTION PITS

1. The size, location and method of excavation of all pits on site shall be determined prior to start of construction. The excavations shall be completed as required in Section 02300 Earthwork and shall be supported as detailed in Section 02350 Shoring.
2. In considering locations for access pits, the Contractor shall consider the size of the sewer, locations of obstructions and services, pulling distances, traffic conditions, and locations of utilities and sewer laterals. When possible, intermediate access excavations can coincide with building service connection excavations or critical obstructions in the sewer. The locations of the excavation points should be such as to minimize disruption.
3. Insertion pits shall provide a minimum bending radius of 27 times the outside diameter of the HDPE pipe or greater and a maximum 4:1 back slope (one way insertion only) and a pit floor length of 12 times the pipe diameter. Pit width shall be 2 feet wider than the outside diameter of the pipe. A roller or rub shoe shall be installed at pipe entry to prevent pipe chatter as the pipe enters the existing line.

C. LATERALS

1. The Contractor shall locate, excavate, and expose all sewer laterals prior to commencing pipe bursting. After property owner notification and sewage bypass is established as required in Section 02739 Building Sewer Construction Reinstatement, the lateral shall be disconnected from the main prior to commencing the bursting operation.

3.03 PIPE BURSTING

A. PIPE PREPARATION

1. The pipe shall be butt welded in accordance with ASTM D 2657-67. The connection shall be leak proof thermal butt joints. All fusing shall be done using tools recommended by the pipe supplier and approved by the Engineer. The fusing machine shall have hydraulic pressure control for fusing two pipe ends together. The ends of pipe shall be electrically heated and thermostatically controlled and shall contain a temperature gauge for monitoring temperature. The heating plate shall be subject to periodic inspection using a temperature stick to assure even heating.
2. The tensile strength of yield of the butt fusion joints shall not be less than the pipe. The Contractor shall test a specimen of pipe cut across the butt fusion joints in accordance with ASTM D638.
3. Any material may be rejected for failure to meet any of the requirements of these Specifications. The acceptance of any deviation from these Specifications shall be subject to the approval of the Engineer.
4. Joints between pipe sections shall be smooth on the inside and internal projection beads shall not be greater than 3/16 of an inch (5 mm).
5. The internal bead shall be removed with a tool specifically designed for that purpose during the fusing process.
6. A copy of the required butt fusion parameters listed below shall be kept at the job site:
 - a. The temperature at the surface of the heating plate (the fusion temperature);
 - b. The pressure used to push the pipe against the heating plate;
 - c. The time when the pipe ends are in contact with the heating plate but no pressure is being applied (soak time);
 - d. The pressure used to push the pipe ends together after heating (the fusion pressure);
 - e. The time of application of this butt fusion pressure (fusion cooling time);
 - f. Allowable bead height and width range;

B. PIPE BURSTING OPERATION

1. During excavation of insertion and reception pits, the Contractor shall observe the soil conditions to determine the appropriate equipment to burst the pipeline. The Contractor shall immediately notify the District if soil conditions prohibit pipe bursting. The Contractor shall select the appropriate equipment for the conditions found.
2. The existing manhole bases shall be prepared to receive the bursting unit prior to commencing operations.
3. All sharp edges shall be removed from the manhole or pipe where the bursting operation commences.
4. The Contractor shall prevent debris from entering the existing sewer pipeline downstream of the bursting operation.
5. The maximum pull length shall be limited to one reach (from manhole to manhole) at a time.
6. The pipe bursting operation shall be one continuous process. The pneumatic tool operation shall be simultaneously complimented by operation of the winch. As the bursting tool moves through the existing sewer main, the winch shall provide constant tension to the tool, keeping it in line with the pipe being replaced.
7. The new sewer pipe shall be installed in a straight horizontal and vertical line with the crown of the new sewer pipe matching the crown of the existing sewer at the exit of the upstream manhole and the entrance into the downstream manhole regardless of the size and alignment of the existing pipe. If a minor adjustment of the crown is generated due to the pipe bursting method the Contractor shall repair the manhole at the newly adjusted crown elevation per plans to the satisfaction of the Construction Manager.
8. Lubrication shall be used if in the opinion of the Contractor it is necessary to ensure successful completion of the operation. The Contractor shall use a lubricant which is approved by the District.

C. PIPE INSERTION

1. The installation forces on the pipe shall be kept to a minimum. Maximum force applied shall not exceed the stress limits of the pipe
2. Where a device is employed to exert force on the rear of the inserted pipe lengths, the force applied to the inserted pipe shall be evenly distributed around the wall of the pipe.
3. The Contractor shall allow the new HDPE pipe to return to its original length and shape in the unstressed state and then trim the excess pipe in the

manholes. The pipe manufacturer's recommendations shall be followed regarding the relief and normalization of stress and strain due to temporary stretching or elongation after pulling operations are completed. Time allowed for stress and strain relief shall not be less than 24 hours.

3.04 PIPE PLACEMENT AT MANHOLES

A. AT INTERMEDIATE MANHOLES

1. The existing manhole base shall be modified to accommodate the new pipe. Water tight gaskets shall be grouted into the existing concrete base. The gaskets shall be sized to accommodate the new pipeline. The pipe shall be cut in an approved manner to properly seal at the gasket.
2. A flow line shall be hand formed in the base to provide a smooth transition between the incoming and outgoing pipes as shown in the Plans.

B. AT UPSTREAM AND DOWNSTREAM MANHOLES

1. The existing or new manhole base shall be prepared to accommodate the new pipe. Water tight gaskets shall be installed into the concrete base. The gaskets shall be sized to accommodate the new pipeline. The pipe shall be cut in an approved manner to properly seal at the gasket.
2. A flow line shall be hand formed in the base to provide a smooth transition between the incoming and outgoing pipes as shown in the Plans.

3.05 TESTING

A. TELEVISION INSPECTION

1. A television inspection of the sewer main shall be completed according to Section 02736 CCTV Inspection of Sanitary Sewer System.
 - a. Contractor shall use a CVSan approved "target" suspended in front of CCTV inspection camera to determine depths of all sags.
 - b. All flow will be required to be bypassed during final inspection and CCTV
2. Any section of the pipe with a gash, blister, or abrasion, nick, scar, or other deleterious fault greater in depth than ten (10%) percent of the wall thickness shall be removed and replaced at no cost to the District.
3. Sags in the pipe will not be permitted. Any segment of pipe with sag shall be repaired. Sags are defined in Section 3.06.

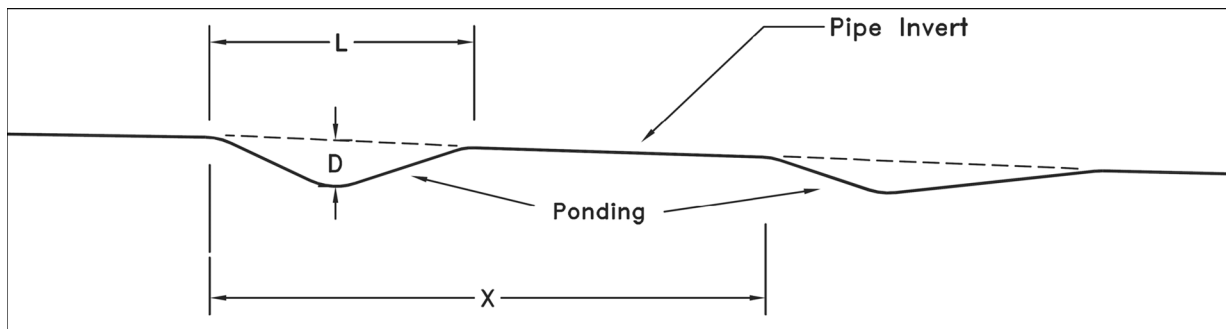
3.06 PIPELINE SAGS

A. SAG DEFINITION

1. Sags are defined as localized segments of pipe where one eighth (1/8) of the diameter or more of the new or existing pipe is under water. For an eight inch diameter pipe, the level of inundation will be one inch.
2. Sags (low spots, bellies, etc.) in pipes that hold water after all flow has been stopped in the pipe are typically the result of settlement or consolidation of the bedding material and/or the native material below it in response to loading on the pipe from backfill operations and/or surface loading. The table below lists the allowable limits of sags in sanitary sewer pipes. Newly constructed pipes that exceed these limits must be excavated and relayed, including replacing the pipe if damaged.

SAG LIMITS

Nominal Pipe Size	Allowable Depth of Sag (D)	Allowable Length of Sag (L)	Allowable Distance between Sags (X)
4-inch	None	None	None
6-inch	None	None	None
8-inch	≤ 0.25 inch	≤ 4 feet	≥ 40 feet
10-inch	≤ 0.50 inch	≤ 6 feet	≥ 60 feet
12-inch	≤ 0.66 inch	≤ 8 feet	≥ 80 feet
>12-inch	≤ 0.75 inch	≤ 10 feet	≥ 100 feet



B. SAG REPAIR

1. The Contractor shall repair existing sags or those created during the pipe bursting operation at no cost to the District.
2. The Contractor shall determine if existing sags shall be repaired before or after the pipe bursting operation.
3. The Contractor shall excavate the sag portions of the main and lift up the sewer main to the proper grade and alignment. The Contractor shall reinforce the section by encasing it with Controlled Low Strength Material in accordance with Section 02300 Earthwork.

3.07 LATERAL RECONNECTION

- A. Laterals shall be reconnected as described in Section 02739 Building Sewer (Lateral) Construction and Reinstatement.

3.08 BACKFILL AND SURFACE RESTORATION

- B. When approved by the District, the Contractor shall backfill the excavation in accordance with Section 02300 Earthwork.
- C. The pavement surface shall be restored in accordance with Section 02500 Asphalt Concrete Paving.
- D. Existing striping or pavement marks shall be restored.

3.09 CLEANUP

- A. Upon completion of all work, Contractor shall remove all surplus materials and rubbish, shall repair all damages caused by his workers and shall leave the premises in a clean and orderly condition.

*****END OF SECTION*****

SECTION 02800
TRAFFIC CONTROL

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes requirements for traffic control
- B. Related Sections
 - 1. Section 01010, **SUMMARY OF WORK**
 - 2. Section 01300, **SUBMITTALS**
 - 3. Section 01060, **REGULATORY REQUIREMENTS AND PERMITS**
 - 4. Section 01560, **TEMPORARY CONTROLS**
 - 5. Section 02200, **EARTHWORK**
 - 6. Section 15050, **GENERAL PIPING**
 - 7. Section 15065, **VITRIFIED CLAY PIPE**

1.02 REFERENCES

- A. Castro Valley Sanitary District (CVSD)
 - 1. District Code and Standard Drawings

1.03 DEFINITIONS

- A. Traffic Control Devices: Signs, signals, markings and other devices placed on or adjacent to a road to regulate, warn or guide traffic.
- B. Traffic Control Measures: Elements of the Traffic Control Plan including traffic control devices, personnel, materials, and equipment used to control traffic through the work Zone.
- C. Traffic Control Plan: A written and drawn plan for handling traffic on a specific roadway through the Work Zone.
- D. Work Zone: A traveled area within the construction used by vehicles, bicyclists and pedestrians.

1.04 TRAFFIC CONTROL REQUIREMENTS

- A. Conduct work within County-owned right-of-ways in compliance with the County's traffic control ordinances and permit requirements.
- B. Provide and maintain temporary traffic control measures to provide for the safe passage of vehicular, bicycle and pedestrian traffic through and within the Project site.
- C. Under some circumstances, construction may temporarily prevent access into private driveways. The Traffic Control Plan shall specifically identify these occurrences and provide a plan for minimizing the temporary condition.

1.05 TRAFFIC CONTROL PLAN

- A. Prepare and submit a detailed Traffic Control Plan for approval by the County that shows proposed traffic control measures, signage and other traffic control devices, barricade locations, lane width reductions and lane shutdowns that will be implemented by the Contractor to maintain a safe work site.
- B. Selection of protective devices and directional measures that will be used, including the timing for their use and specific locations, is the responsibility of the Contractor.
- C. The Contractor shall not start work within a Work Zone until the Traffic Control Plan has been accepted by the County.
- D. The Traffic Control Plan shall include an approved detour plan where the traffic signal lane configuration is changed during the daytime operation and the intersection is placed in the flashing mode. By State law, only uniformed officers can direct traffic through a working traffic signal.
- E. Truck routes designated by Alameda County shall be identified in the traffic control plan. Truck routes that minimize truck traffic on local roadways and residential streets shall be utilized to the maximum extent possible.

1.06 PUBLIC NOTICE

- A. Notify the following agencies at least five (5) working days before implementing the approved Traffic Control Plan. In addition, the Contractor shall notify these agencies at least 3 days in advance of the implementation of any road closures or other restrictions that could cause delay to emergency vehicles.
 - 1. Alameda County Public Works Agency
 - 2. Alameda County Sheriff Department
 - 3. Alameda County Fire Department

4. AC Transit
- B. Notify local residents at least seventy-two (72) hours in advance of obstructions and inconvenience due to construction activities, including:
 1. Obstruction of private driveways.
 2. Elimination of on-street parking in front of private residences.
 3. Any other similar inconvenience that may impact local residents.

1.07 TEMPORARY SIGNS

- A. Erect informational signs advising pending work and lane closures two weeks in advance of actual work, as required by the County. Information on the signs shall be readable to both directions of travel.
- B. Erect signs advising of rough road conditions when temporary pavement has been placed, or when plates are in use.
- C. When needed to advise traffic of approaching conditions, Contractor shall use electronic signs with sequential arrow or changeable message.
 1. Electronic sign shall be installed beyond the outside shoulder of the roadway or behind an existing barrier or guardrail.
 2. The sign shall display the entire message within 7.5 seconds.
- D. Temporary signs shall be one sided, and shall be wooden or metal with tripod supports. The Contractor shall add sandbags to support legs for ballast.
- E. Signs that will remain in place after dark must have reflective florescent orange sheeting.

1.08 TEMPORARY BARRICADES

- A. Temporary barricades in good condition are required to protect vehicles from areas with drop-offs.
- B. Use pin-and-loop type concrete K-rail barriers conforming to Caltrans Standards.
- C. Wooden Barricades shall follow industry standard with reflective devices and an 8-inch diameter amber flashing light using one, 50-watt, 12-volt, battery operated incandescent lamp. The flash shall be visible for 1,200 feet. Failed bulbs shall be promptly replaced.

1.09 FLAGGERS

- A. The Contractor's flaggers must wear orange, yellow, or yellow-green reflective vests and orange, yellow, yellow-green or white hardhats at all times.
- B. Utilize highly visible STOP/SLOW sign paddles with reflective sheeting.
- C. Utilize portable, self-contained two-way radios when more than one flagger is required for traffic control.
- D. Employ properly trained persons that have completed an approved traffic control and flagging course.

PART 2 - EXECUTION

2.01 GENERAL

- A. Install, operate and maintain temporary traffic control devices in accordance with the Traffic Control Plan.
- B. Traffic control devices shall be promptly moved as construction progresses, and removed when no longer required.
- C. Turn, cover, or remove existing permanent traffic control devices when these devices conflict with approved temporary devices.

2.02 LANE CLOSURES

- A. Do not close any lane until the area is signed in accordance with the approved Traffic Control Plan.
- B. Two -way traffic shall be maintained whenever possible. When one lane must be closed, one-way traffic must be controlled by a flagger in each direction of traffic at all times.
- C. At the end of each workday, restore conditions to allow two-way traffic. Install temporary paving or cover open excavations with heavy steel trench plates, as appropriate for the conditions, to provide a minimum 11-foot wide traveled roadway in both directions. Provide signs indicating rough road conditions when using temporary pavement.
- D. Do not stop or hold vehicles for more that ten (10) minutes.
- E. Allow emergency vehicles immediate passage at all times.

2.03 TEMPORARY BARRICADES

- A. Concrete Barriers shall be installed as follows.

1. Flare the leading end at a flare rate of 14:1.
2. When placing concrete barriers, maintain a minimum of 24-inches from face of barrier to edge of traffic lane.

2.04 FLAGGERS

- A. Provide flaggers to safely control movement of vehicles and pedestrians around areas disrupted by the Work.
- B. Flaggers shall be located in positions that provide sufficient time for motorists to respond to the flagger's instructions, and these positions shall be designated on the traffic control plan.

***** END OF SECTION *****

SECTION 02930

SITE RESTORATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. The restoration of features and includes restoration of surface features damaged during the course of execution of this contract to be restored as part of this work.
- B. The work may include such repairs as manhole appurtenances, pavement, sidewalk, curb and gutters, driveways, access roads, fencing, landscape, vegetation, grass, trees, shrubs, and plants.
- C. Unless otherwise specified, all public and private property impacted by construction shall be restored to original condition or better.
- D. Restrict operations to cause the least amount of damage to surrounding property and do not damage off-site features or adjacent vegetation.
- E. The Contractor shall be held responsible for any damage to existing structures, features, materials, or equipment due to the work in this contract, and the Contractor shall repair or replace any damaged structures, features, materials or equipment to the satisfaction of the property owner.
- F. Notify Construction Manager immediately if accidental damage occurs.
- G. Ensure that adjacent roads are maintained and clear of soil and/or other debris at all times during the construction period. Any changes or modifications to this plan shall receive prior approval from the Construction Manager.
- H. Contractor shall remove or obliterate all USA markings at project completion.

1.02 REFERENCED SECTIONS

- A. The following Sections are referenced in this Section
 - 1. Section 01010 – **SUMMARY OF WORK**
 - 2. Section 01300 – **SUBMITTALS**
 - 3. Section 02250 – **SHORING**

1.03 SUBMITTALS

- A. Provide the following submittals conforming to Section 01300:
 - 1. Sod
 - 2. Seed mix
 - 3. Shrubs or plants
 - 4. Irrigation system product data

5. Fencing product data
6. Plan for replacement of irrigation system components including location, type and number of components and restoration plan
7. Concrete mix components and installation requirements

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.01 TRENCHING EXCAVATION AND BACKFILL

- A. Trench safety requirements are specified in Sections 01010 and 02250. Excavation and backfill requirements are shown on the Plans and as specified in the Castro Valley Sanitary District Standard Details.

3.02 PAVEMENT RESTORATION

- A. Placement of aggregate base and asphalt concrete and replacement of all striping and pavement markings shall be in accordance with County of Alameda Standard Details.

3.03 POST-CONSTRUCTION PAVEMENT INSPECTION

- A. Restoration of pavement, curb, gutter, and sidewalks shall be to the satisfaction of the County's inspector.

3.04 FENCES

- A. All existing fences affected by the work shall be maintained by the Contractor until completion of the work.
- B. Relocate or dismantle fences which interfere with construction operations for the period of the construction at that particular property and then replace after demobilization of equipment.

3.05 TREES AND PLANTS

- A. Protect all trees and plants not removed against injury from the construction operations.
- B. Prune, thin out and shape trees and shrubs in accordance with standard horticultural practice. Do no pruning prior to approval by the Construction Manager.

3.06 CURB, GUTTER AND SIDEWALK

- A. Restoration per County of Alameda Standard Details as indicated on Drawings.

3.07 OTHER SITE FEATURES

- A. All other site features either damaged or destroyed during the execution of this contract shall be repaired or replaced to the satisfaction of the Construction Manager to the installation specifications of the manufacturer of the approved replacement item.

3.08 RESTORATION OF SPECIFIC LOCATIONS

- A. Restoration of landscaping and hardscapes are to be of the satisfaction and agreement/consent of the property owner. A letter of agreement between the contractor and the property owner, stating the landscaping and hardscape have been restored to the satisfaction of the property owner and that a one year warranty period is in effect. Each agreement shall be submitted as part of the project closeout stage or two to four weeks after the restoration work is complete. Restoration of easement work shall be no more than three weeks after sewer repair is completed.
- B. Concrete
 - 1. Restoration of fence footings and landscape shall be replaced in kind.
- C. Grassy areas damaged due to construction shall be rehabilitated as follows:
 - 1. Remove all damaged areas of grass in a rectangular pattern.
 - 2. Loosen 1” of underlying soil
 - 3. Install new commercial quality sod. Sod shall be weed free and approximately 80% Fescue and 20% Kentucky Bluegrass.
- D. Wood fences and gates shall be replaced in kind
 - 1. Posts:
 - a. Fence posts removed for construction shall be replaced with new fence posts
 - b. New fence posts shall be the same size, species, and finish as post that was removed.
 - c. Fence posts shall be same finished height as existing fence posts.
 - d. Fence posts shall be set at least 18-inches deep in minimum 2 sacks of Quick Crete, or equal.
 - 2. Stringers:
 - a. Stringers removed for construction, shall be replaced with new stringers.
 - b. New stringers shall be the same size, species, and finish as stringer that was removed.
 - c. Stringers shall be set in the same orientation as existing stringers.
 - 3. Fence Boards:
 - a. Fence boards removed for construction, shall be replaced with new fence boards.
 - b. New fence boards shall be the same size, width, design, species, and fence boards that were removed.
- E. Irrigation Systems:
 - 1. Replace all irrigation damaged during construction with materials of the same manufacturer and quality.

2. Where piping must be replaced, install solvent weld schedule 40 PVC.
3. Boxes damaged during construction shall be replaced.

3.09 WARRANTY

- A. Contractor shall warrant for a period of one (1) year from the date of substantial completion of the project that the turf and plant materials used in the public right-of-way, private properties, or easements that are not disturbed by subsequent construction activities are in good, healthy, and flourishing condition.
- B. During the one year warranty period, replace any turf or plant materials, that are defective, have died, or failed to thrive.

*****END OF SECTION*****

SECTION 02953

PAVEMENT RESTORATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. The restoration of asphalt and concrete pavements and surfaces, including roadways, driveways, road shoulders, medians, traffic signal loops, pavement markings, curbs, gutters, sidewalks, and any other surfaces that may be damaged as a result of the work.

1.02 REFERENCED SECTIONS

- A. The following Sections are referenced in this Section:
 - 1. Section 01010 – **SUMMARY OF WORK**
 - 2. Section 01300 – **SUBMITTALS**
 - 3. Section 02300 – **EARTHWORK**
 - 4. Section 02500 – **ASPHALT CONCRETE PAVEMENT**

1.03 REFERENCES

- A. References in this Section to the State Standard Specifications means the latest edition of the Standard Specifications published by the State of California, Department of Transportation.
- B. References in this Section to the “County” means the Standard Plans published by Alameda County.

1.04 SUBMITTALS

- A. Provide submittals in accordance with Section 01300.
- B. Submit information for materials to be used in restoring surfaces including mix designs, aggregates, asphalt, pavement fabrics, liquid priming asphalt, surface sealers, roadway striping products, and all other materials to be used for surface restoration.
- C. Provide a Certificate of compliance, signed by the manufacturer prior to the use of any asphalt materials.
- D. Qualifications of materials testing lab for Contractor furnished testing.

1.05 DEFINITIONS

- A. Surface Restoration: The repair or replacement of surface materials back to pre-construction condition or better or as indicated due to the work or damaged as a result of the work.

1.06 QUALITY CONTROL

- A. All compliance testing shall be paid for by the Contractor.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Provide all materials in accordance with:
 - 1. State Standard Specifications, modified by this Section.
 - 2. County Standards, as modified by this Section.
- B. Aggregate base and sub-base materials:
 - 1. State Standard Specifications, Section 26.
 - 2. Class 2, 3/4 –inch maximum, unless otherwise indicated.
- C. Asphalt concrete pavement materials:
 - 1. See Section 02500.
- D. Tack coat:
 - 1. See Section 02500.
- E. Traffic Stripes and Pavement Markers:
 - 1. State Standard Specifications, Section 84.
 - 2. Thermoplastic alkyd-type for extrusion application producing an adherent reflectorized stripe capable of resisting deformation by traffic.
- F. Concrete:
 - 1. State Standard Specifications, Section 90
 - 2. State Standard Specification Class B
- G. Traffic Loops:
 - 1. Detector Wire: #14 AWG wire with Type XHHW insulation.

PART 3 - EXECUTION

3.01 GENERAL

- A. Reconstruct surfaces to pre-construction condition or better unless otherwise indicated, including curbs, gutters, sidewalks, driveways, road shoulders, medians, pavement, ditches, drainage ways, and related items that have been temporarily removed, damaged, or displaced as part of the work.
- B. Reconstruct pavements in conformance with the State Standard Specifications as modified herein.
- C. Coordinate the trench surface pavement restoration with the requirements in Section 01010 and as indicated on the Drawings.

- D. Perform trench pavement restoration following the approved test results of the section being tested unless otherwise indicated.
- E. Trench pavement restoration in areas where the pipe is installed with double-welded lap or double gasketed joints may be completed after the joints have been air tested and the trench backfilled prior to pipe hydrostatic test.

3.02 SAWCUTTING

- A. Sawcut existing pavement surfaces prior to surface restoration.
- B. Sawcut in straight lines parallel or perpendicular to existing roadway centerlines a minimum of 12 inches outside the edge of trench unless otherwise indicated.
- C. Where sections of existing pavement remain that are less than 3-feet wide between the proposed sawcut and an existing edge of asphalt concrete, curb, or gutter, remove the existing remaining pavement and replace it as part of the pavement restoration.
- D. Where pavement is damaged outside of sawcut lines, re-cut lines and remove damaged pavement.
- E. Where voids develop under existing pavement to remain, re-cut lines, remove pavement and fill voids.

3.03 ASPHALT CONCRETE PAVEMENT SURFACE RESTORATION

- A. Place asphalt concrete in accordance with the following as modified herein:
 - 1. State Standard Specification, Section 39.
 - 2. See Section 02500.
- B. Prepare the road subgrade as specified in Section 02300.
- C. Replace trench pavement to match the removed pavement thickness and aggregate base thickness unless otherwise indicated. Replace trench pavement to the extent indicated on the Drawings.
- D. Test asphalt concrete per:
 - 1. State Standard Specification, Section 39
 - 2. See Section 02500.
- E. Gravel, stone, or aggregate surfaces: Match existing thickness, or at least 6 inches, whichever is greater.

3.04 RESTORATION OF CONCRETE SURFACES

- A. Reconstruct concrete surfaces including curbs, gutter, sidewalks, medians, valley gutters and any other concrete surface or structure temporarily removed, damaged, or displaced as part of the work in accordance with:
 - 1. Standard State Specification, Section 73.

2. Concrete sidewalks, curbs and gutters shall be replaced to nearest score mark or cold joint or 8 lineal feet, whichever is shortest.

3.05 SEAL COAT

- A. Where required, provide a seal coat over new pavement in accordance with:
 1. State Standard Specification, Section 37.
 2. See Section 02500.

3.06 TRAFFIC STRIPES AND PAVEMENT MARKINGS

- A. Replace traffic stripes and pavement markings in conformance with the following as modified below:
 1. State Standard Specification, Sections 84.
- B. Restore traffic stripes and pavement markings in accordance with the following schedule.
 1. Place cat tracking for the remaining striping the day following installation of the surface course.
 2. Place traffic striping and markings not more than one day following approval of the cat tracking by the roadway jurisdiction.
 3. Place pavement markings not more than 2 weeks following installation of the pavement.
- C. Application:
 1. Apply thermoplastic material by extrusion method in a single, uniform layer.
 2. Use stencils in new condition without bends or damage when applying pavement markings.
 3. Completely coat the pavement surface and fill all surface voids with the marking material.
 4. Apply glass beads promptly to the molten thermoplastic material.
 5. Rates of application
 - a. Stripes: 0.075 inch thick, \pm 0.005 inch.
 - b. Pavement markings: 0.125 inch thick, \pm 0.005 inch
 - c. Glass beads: 8 pounds per 100 square feet.

3.07 PAVEMENT MARKERS

- A. Restore pavement markers in accordance with:
 1. State Standard Specification, Section 85

3.08 TRAFFIC SIGNAL LOOPS

- A. Reinstall damaged traffic loops that meet the County of Alameda standard plans and specifications and the Standard Specifications.
- B. Slots shall be filled with elastomeric sealant, asphaltic emulsion sealant, or hot-melt rubberized asphalt sealant. Loops shall be placed one foot (1') behind the crosswalk or stop bar if no crosswalk exists. Loops shall be centered in the travel lane unless the curb lane is greater than 12 feet, in which the loop shall be placed 3 feet from the inside lane line. The start (S) and finish (F) conductors of each loop shall be permanently labeled with a (S) on the start conductor and (F) on the finish conductor and then grouped together as a pair. Only 2 detector loop cables (pair of conductors) shall be installed per saw cut. Detector loop conductors shall be spliced to the detector lead-in cable at the nearest existing traffic pull box.

3.09 RAISING MANHOLE, VALVE, AND OTHER UTILITY COVERS

- A. Place temporary steel covers over manholes prior to placing permanent pavement.
- B. Following pavement installation, remove the temporary covers and install grade rings as necessary to adjust the surface of the frames and covers to conform to the surface of the surrounding pavement surface.
- C. Following adjustment of the frames and covers, neatly chip with a flat tool or sawcut the pavement around each frame to provide a smooth, even, vertical surface.
- D. Install asphalt concrete in accordance with this Section, to provide a smooth surface around each frame, so that the frame, cover and pavement surfaces match.

END OF SECTION

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SECTION 03200
CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies reinforcing steel for use in reinforced concrete.
- B. Related Sections
 - 1. Section 01300, **SUBMITTALS**
 - 2. Section 01400, **QUALITY CONTROL**
 - 3. Section 03300, **CAST IN PLACE CONCRETE**

1.02 REFERENCES

- A. Castro Valley Sanitary District (CVSD)
 - 1. District Code and Standard Drawings
- B. American Society for Testing and Materials (ASTM)
 - 1. ASTM A82 – Standard Specification for Steel Wire, Plain, for Concrete Reinforcement
 - 2. ASTM A185 –Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
 - 3. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
 - 4. ASTM A706 - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
 - 5. ASTM A775 - Standard Specification for Epoxy-Coated Steel Reinforcing Bars
 - 6. ASTM A996 - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement
 - 7. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing

1.03 QUALITY ASSURANCE

A. Quality Control by District

1. To verify conformance with the specified requirements for concrete reinforcement, the District may engage the services of an independent testing laboratory which complies with the requirements of ASTM E329.
2. The testing laboratory shall provide inspection services as specified herein. Costs of testing laboratory services shall be in accordance with Section 01400.

1.04 PLACING DRAWINGS

- #### A. Prepare reinforcement placing drawings conforming to the requirements of ACI 315. Placing drawings shall include bar lists, schedules, bending details, placing details, and placing plans and elevations as required to fully delineate this portion of the work.

PART 2 - PRODUCTS

2.01 BAR REINFORCEMENT

- #### A. Reinforcing bars shall be deformed billet steel in conformance with ASTM A615, including supplementary requirements. Bars shall be Grade 60. Bars to be welded shall be deformed billet steel conforming to ASTM A706. ASTM A996 steel shall not be used. Bars provided as dowels for future construction and bars where specified shall be epoxy-coated in conformance with ASTM A775.

2.02 WIRE FABRIC

- #### A. Wire fabric shall be welded steel mesh conforming to ASTM A185.

2.03 WIRE AND PLAIN BARS

- #### A. Wire used as reinforcement and bars used as spiral reinforcement in structures shall be cold drawn steel conforming to ASTM A82.

2.04 TIE WIRE

- #### A. The wire shall be minimum 16 gage annealed steel conforming to FEDSPEC QQ-W-461H.

2.05 BAR SUPPORTS

- #### A. Bar supports coming into contact with forms shall be CRSI Class 1 plastic protected or Class 2 stainless steel protected and shall be located in accordance with CRSI MSP-1 and placed in accordance with CRSI PRB. Concrete block supports shall be

provided for footing and slabs on grade. Stainless steel or plastic protected plain steel supports shall be provided for other work.

2.06 THREADED MECHANICAL COUPLERS

- A. Threaded mechanical couplers shall be "Lenton" as manufactured by Erico Products, Inc., or "Grip-Twist" as manufactured by Dayton Barsplice Inc. designed to develop one hundred twenty-five percent (125%) of the yield strength of the reinforcing steel.

2.07 PRODUCT DATA

- A. Contractor shall submit the following in accordance with Section 01300 SUBMITTALS.
 - 1. Certified mill test reports.
 - 2. Welder qualification certificate in accordance with AWS D1.4.

PART 3 - EXECUTION

3.01 FABRICATION

- A. Reinforcing steel shall not be bent or straightened in a manner which will injure the material. Bars with kinks or with bends not shown shall not be used. Heating or welding bars shall be performed in accordance with AWS D1.4 and shall only be permitted where specified or approved by the Construction Manager. Bars shall not be welded at the bend.

3.02 PLACEMENT

- A. Place reinforcing steel in accordance with CRSI PRB and CRSI MSP-1.
- B. Position reinforcing steel accurately and secure against displacement by using annealed iron wire at intersections and shall be supported by concrete or metal chairs, spacers or metal hangers. Tack welding of cross bars is not acceptable. Bars shown on the drawings shall not be repositioned (buried) to act as support bars. Additional bars shall be provided as required for supports. Steel rods and pegs may be used to support reinforcing steel on rock foundations. Reinforcing steel shall be placed in such a manner as to not damage waterproofing membrane or plastic lining which has been previously applied or constructed. Reinforcing steel shall be shop-bent or slightly relocated where necessary to clear waterstop. Reinforcing steel shall not be placed on fresh concrete or forced into fresh concrete.
- C. Supports for embedded items shall not be welded to the reinforcement. Additional reinforcement may be provided for this purpose.

3.03 SPLICING

- A. Splice reinforcing steel as indicated. Additional splices may be provided where approved by the Construction Manager. Splices shall conform to ACI standards.
- B. In slabs, beams, girders and walls, reinforcing steel shall not be spliced in areas of maximum stress. Splices of adjacent bars shall be staggered at least one splice length, unless otherwise specified. Splices in welded wire fabric shall be at least 1-1/2 meshes wide.

3.04 CLEANING

- A. Clean reinforcing steel of mill rust scale, dried concrete, or other coatings that may reduce bond. Reinforcement reduced in section is not acceptable. When concrete placement is delayed, reinforcement shall be cleaned by sandblasting if directed by the Construction Manager.

3.05 REPAIR OF EPOXY COATING

- A. Epoxy coating damage need not be repaired in cases where the damaged area is 0.1 square inch or smaller. All damaged areas larger than 0.1 square inch shall be repaired in conformance with ASTM A775.

****END OF SECTION****

SECTION 03300
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies cast-in-place concrete for manhole bases, pavements, sidewalks, curbs, encasements, and miscellaneous structures. Precast manhole bases are not allowed.
- B. Related Sections
 - 1. Section 01300, **SUBMITTALS**
 - 2. Section 01400, **QUALITY CONTROL**
 - 3. Section 02200, **EARTHWORK**
 - 4. Section 02701, **PRE-CAST CONCRETE STRUCTURES**
 - 5. Section 03200, **CONCRETE REINFORCEMENT**
 - 6. Section 03600, **GROUT**

1.02 REFERENCES

- A. Castro Valley Sanitary District (CVSD)
 - 1. District Code and Standard Drawings
- B. American Concrete Institute (ACI)
 - 1. ACI 301 - Specifications for Structural Concrete
 - 2. ACI 347 - Guide to Formwork for Concrete
- C. American Society for Testing and Materials (ASTM)
 - 1. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field
 - 2. ASTM C33 - Standard Specification for Concrete Aggregates
 - 3. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

4. ASTM C42 - Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
5. ASTM C67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile
6. ASTM C94 - Standard Specification for Ready-Mixed Concrete
7. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
8. ASTM C150 - Standard Specification for Portland Cement
9. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete
10. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete
11. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
12. ASTM C143 - Standard Test Method for Slump of Hydraulic-Cement Concrete
13. ASTM C467 - Standard Classification of Mullite Refractories
14. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete
15. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
16. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing

D. State of California, Department of Transportation (Caltrans)

1. Standard Specifications

1.03 QUALITY ASSURANCE

A. Quality Control by Owner

1. To verify conformance with the specified requirements for cast-in-place concrete, the District may engage the services of an independent testing laboratory which complies with the requirements of ASTM E329.
2. Costs of testing laboratory services shall be in accordance with specification Section 01400.

B. Basis for Quality

1. Cast-in-place concrete shall conform to the requirements of ACI 301, except as modified.
2. Unless specified otherwise, all formwork shall conform to ACI 347.

1.04 SUBMITTALS

- A. Submit concrete, mix designs (less than one year old), recent test data for the submitted mixes, and test data for mix components confirming that the mixes meet the requirements of this Section.
- B. Submit data on concrete accessories specified herein that the Contractor intends to install in the work.
- C. Submit the following in accordance with Section 01300 SUBMITTALS.
 1. MANUFACTURER'S DATA: Copies of manufacturer's data shall be provided for the following:
 - a. Waterstops
 - b. Retardants
 - c. Curing compounds
 - d. Bonding compounds
 - e. Admixtures
 2. TEST REPORTS: Three copies of reports from the concrete supplier shall be provided certifying that all concrete materials comply with the specifications and all test requirements.
 3. READY-MIXED CONCRETE TRUCK DELIVERY TICKETS: Each load of ready-mixed concrete delivered to the job site shall be accompanied by a delivery ticket showing the information listed in ASTM C94, Section 16.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cement: Portland cement shall be ASTM C150, Type II for all uses except manholes and Type V for manholes, low alkali, containing less than 0.60 percent alkalis.
- B. Aggregates

1. GENERAL: Fine and coarse aggregates shall conform to ASTM C33. Fine and coarse aggregates shall be tested in accordance with ASTM C136. Aggregates shall be nonreactive and shall be washed before use.

When sources of aggregates are changed, test reports shall be provided for the new material. The tests specified shall be performed prior to commencing concrete work.

2. FINE AGGREGATE: Fine aggregate shall be hard, dense, durable particles of either sand or crushed stone regularly graded from coarse to fine. Gradation shall conform to ASTM C33.
3. COARSE AGGREGATE: Coarse aggregate shall be hard, dense and durable gravel or crushed rock free from injurious amounts of soft and friable particles, alkali, organic matter and other deleterious substances. Gradation of each coarse aggregate size specified in this Section, and shall conform to ASTM C33-Table 2.

C. Admixtures

1. GENERAL: Admixtures shall be compatible with the concrete. Calcium chloride or admixtures containing calcium chloride are not acceptable. Admixtures shall be used in accordance with the manufacturer's recommendations and shall be added separately to the concrete mix.
2. WATER REDUCING RETARDER: Water reducing retarder shall be ASTM C494, Type D, and shall be Master Builders, Pozzolith 300-R; Sika Chemical Corp., Plastiment; or equal.
3. AIR ENTRAINING AGENT: Air entraining agent shall be Master Builders, MB-AE10; W. R. Grace and Co., DaraVair; or equal. The air entraining agent added shall produce, in accordance with ASTM C260, an entrained air content specified in this Section for each class of concrete.

- D. Water: Water for washing aggregate, for mixing and for curing shall be free from oil and deleterious amounts of acids, alkalies, and organic materials.

2.02 CONCRETE CHARACTERISTICS

A. Mix Proportioning

1. Concrete shall be normal weight concrete composed of specified cement, admixtures, aggregates and water proportioned and mixed to produce a workable, strong, dense, and impermeable concrete.
2. Concrete shall be provided in accordance with the following:

- a. Class 1 concrete shall contain not less than 675 pounds of cementitious material per cubic yard.
 - b. Class 2 concrete shall contain not less than 590 pounds of cementitious material per cubic yard.
 - c. Class 3 concrete shall contain not less than 505 pounds of cementitious material per cubic yard.
 - d. Class 4 concrete shall contain not less than 420 pounds of cementitious material per cubic yard.
 - e. Minor concrete shall contain not less than 550 pounds of cementitious material per cubic yard unless otherwise specified in these specifications or the State Standard Specifications.
3. Control low strength material (CLSM) shall be as defined in Section 02200 **EARTHWORK**.

B. Concrete shall be provided by class for the corresponding use listed as follows:

Type of Use	Class of Concrete
Manhole Bases	2
Concrete Curbs and sidewalks	4 or Minor Concrete
Pipe encasement	Minor concrete
Pipe bedding and concrete fill	CLSM

C. **CONTROL:** Before beginning concrete work, the Contractor shall determine the proper proportions of materials for class of concrete. Copies of the reports shall be submitted in accordance with the Standard Specifications.

2.03 WATERSTOPS

A. Waterstops in construction joints shall be The Burke Company's Vinylock Type RB316-6; Water Seals, Inc., 6-inch Flex-Bulb; or equal. Waterstops in expansion joints shall be The Burke Company's Vinylock Type RB38-9; Water Seals, Inc., 9-inch heavy-duty Flex-Bulb; or equal.

2.04 SEALANTS AND JOINT FILLERS (NOT USED)

2.05 BONDING COMPOUNDS

A. Epoxy resin bonding compounds shall be used for wet areas and shall Master Builders Technologies, Concsreive series as applicable; Sika Chemical

Corporation, Sikadur 35, Hi-Mod LV, Sikadur 32, Hi-Mod, or Sikadur 31, Hi-Mod Gel as applicable; Burke Company 881 LPL Epoxy; or equal.

- B. Nonepoxy bonding compounds shall be used for dry areas and shall be Burke Company, Acrylic Bondcrete; Imperial Chemical Industrial, Inc., Thoro System Products, Acryl 60; Thorobond; or equal. Bonding compounds shall be applied in accordance with the manufacturer's instructions.

2.06 RETARDANT

- A. Retardant for exposing aggregates for nonformed surfaces in construction joints shall be Sika Rugasol-S, Horn Aggretex-H, Burke Company True Etch Surface Retarder, or equal. Retardant shall be applied in accordance with manufacturer's instructions sufficient to assure a minimum penetration of 1/8 inch.

2.07 CURING AND SEALING COMPOUNDS

- A. Curing and sealing compound shall be Master Builders, Masterseal; A. C. Horn Inc., Horn Clearseal EM180; Burke Company Spartan-Cote WB Cure Seal Hardener; or equal; conforming to ASTM C309. Curing compounds shall be clear and shall be applied in accordance with the manufacturer's instructions, except as otherwise specified.

PART 3 - EXECUTION

3.01 GENERAL

- A. Construction of cast-in-place concrete shall be in accordance with the pertinent recommendations contained in ACI Manual of Concrete Practice of 300 Group.

3.02 CONCRETE

- A. Concrete shall be truck-mixed, ready-mixed concrete conforming to the applicable portions of ASTM C94. Materials shall be proportioned by weighing. The Contractor shall be responsible for producing concrete of the specified characteristics.
- B. Concrete shall be delivered to the site of work, and discharge shall be completed within 1-1/2 hours after introduction of the water to the mixture.

3.03 CONVEYING AND PLACING CONCRETE

- A. Conveying Concrete: Concrete shall be conveyed from the mixer to the forms in accordance with ACI 301, Chapter 8. Concrete which has segregated in conveying shall be removed from the site of the work.
- B. Placing Concrete

1. GENERAL: Concrete shall be placed in accordance with ACI 301, Chapter 8, and ACI 304, Chapter 6. Pumped concrete shall be the class and consistency specified in Section 03300-2.02.
2. PLACING CONCRETE IN HOT WEATHER: In hot weather (above 85 degrees F), concrete shall be placed in accordance with ACI 305R.
3. PLACING CONCRETE IN COLD WEATHER: In cold weather (below 45 degrees F), concrete shall be placed in accordance with ACI 306R.

3.04 CONCRETE FORMWORK

- A. Formwork shall be installed in accordance with ACI 347.

3.05 CURING AND SEALING

A. General

1. Concrete curing shall be completed by water curing or by using a clear membrane curing compound or by a combination of both methods. Repairs or treatment of concrete surfaces shall be coordinated so that interruption of the curing will not be necessary.
2. Concrete surface temperature shall be maintained between 50 degrees F and 80 degrees F for at least 5 days. Curing concrete in hot weather (above 85 degrees F) shall be in accordance with ACI 305 R. Curing concrete in cold weather (below 45 degrees F) shall be in accordance with ACI 306 F.

- B. Water Curing: When water curing is used, concrete shall be kept wet continuously for a minimum of ten (10) days after placement. Absorptive mats or fabric may be used to retain moisture during the curing period.

C. Curing Compound

1. When curing compound is used, it shall be applied as soon as the concrete has set sufficiently so as not to be marred by the application or immediately following form removal for vertical and other formed surfaces. Preparation of surfaces, quantities used, application procedures, and installation precautions shall be followed in strict compliance with the manufacturer's instructions.
2. Curing compound shall not be used on concrete surfaces to be coated, waterproofed, or moisture-proofed.

3.06 PROTECTION

- A. Concrete shall be protected from injurious action by sun, rain, flowing water, frost and mechanical injury.

3.07 CONSTRUCTION JOINTS

- A. Construction joints shall be located and formed as specified. A rough surface of exposed concrete aggregates shall be produced using a surface retardant at construction joints. The limit of the treated surfaces shall be 1 inch away from the joint edges. Within 24 hours after placing, retarded surface mortar shall be removed either by high pressure water jetting or stiff brushing or combination of both so as to expose coarse aggregates. A rough surface of exposed aggregate may also be produced by sandblasting followed by high pressure water jetting. Sandblasting, if used, shall remove 1/8 inch of laitance film and shall expose coarse aggregate to insure adequate bond.
- B. Reinforcing steel and welded wire fabric shall be continued across construction joints. Waterstops shall be provided in construction joints at locations as specified.

3.08 INSERTS AND EMBEDMENTS

- A. Inserts
 1. Where pipes, castings or conduits are to pass through structures, the Contractor shall place such pipes or castings in the forms before placing the concrete, or he may provide openings in the concrete for subsequent insertion of such pipes, castings or conduits. Such openings shall be provided with waterstops and V-shaped construction joint as shown and shall have a slight flare to facilitate grouting and permit the escape of entrained air during grouting.
 2. Additional reinforcement shall be provided around large openings as shown on the Drawings. The grout shall be non-shrink grout as specified in Section 03600.
- B. Embedments: Gate frames, gate thimbles, special castings, channels or other miscellaneous metal parts that are to be embedded in the concrete shall be set and secured in the forms prior to concrete placement. Unless otherwise specified, anchor bolts and inserts shall be embedded in concrete as shown. The Contractor shall provide inserts, anchors or other bolts necessary for the attachment of piping, valves, metal parts and equipment. Operators or sleeves for gate or valve stems shall be positioned to clear reinforcing steel, conduit and other embedments, and to align accurately with equipment.

3.09 EXPANSION JOINTS

- A. Expansion joints shall be as specified. Reinforcement or other embedded metal items bonded to the concrete shall not extend through expansion joints. Waterstops shall be provided in expansion joints as specified in this Section.

3.10 WATERSTOPS

- A. Waterstops shall be provided at the specified locations. Waterstops shall be securely held in position during placing of concrete. If, after placing concrete, waterstops are materially out of position or shape, the surrounding concrete shall be removed, the waterstop reset, and concrete replaced in accordance with this Section.

3.11 MODIFICATION OF EXISTING CONCRETE

- A. Existing concrete shall be removed and the remaining surfaces resurfaced as specified. The remaining concrete shall be protected from damage. Clean lines shall be made by sawing through the existing concrete. The concrete may be broken out after initial saw cuts in the event thickness prevents cutting through. Where it is not possible to use a saw, the initial cuts shall be made with chipping hammers. These cuts shall be sufficient to prevent damage to the remaining concrete. In general, an opening in existing concrete shall be oversized 1 inch on all sides and built back to the correct dimension with an epoxy grout. Where oversized openings cannot be made, the concrete shall be cut to the correct dimension, with the exposed reinforcing cut back an additional 1 inch and the resulting hole filled with epoxy grout. Cut or broken concrete surfaces shall be resurfaced with an epoxy grout. Concrete surfaces to be coated shall be dry. Where new concrete adjoins existing concrete surfaces or surfaces which have been cut, such surfaces shall be cleaned by sandblasting to remove laitance, loose coatings and foreign materials, and coated with the bonding compound just prior to the placement of the new concrete. Bonding compounds shall be as specified in this Section. Unless otherwise specified, continuity of reinforcing steel shall be obtained across the joint either by exposing existing bars to provide sufficient laps with new bars or by welding existing bars with new bars. Dowels shall be drilled and set with epoxy grout into existing concrete.

3.12 FORMED SURFACE FINISHES

- A. Repair of Surface Defects: Surface defects, including tie holes, minor honeycombing or otherwise defective concrete shall be repaired in accordance with ACI 301, Chapter 9. Areas to be patched shall be cleaned. Patches on exposed surfaces shall be finished to match the adjoining surfaces after they have set. Patches shall be cured as specified for the concrete.
- B. Finishing
 - 1. FINISH A: Finish A shall be a grout clean finish in accordance with ACI 301, Section 10.3.2. Surfaces shall be lightly sandblasted prior to sacking. For interior areas not exposed to moisture or weather, water used in the mortar shall be mixed with a PVA bonding compound as recommended by the manufacturer. Unless otherwise specified, Finish A shall be provided for all surfaces exposed to view, both painted and unpainted.

2. FINISH B: Finish B shall be the same as Finish A, except that the final burlap rubbing may be omitted, providing the steel trowel scraping removes the loose buildup from the surface. Finish B shall be provided for waterproof and moisture-proof coated surfaces.
3. FINISH C: Finish C shall be a finish which has surface imperfections less than 3/8 inch in any dimension. Surface imperfections greater than 3/8 inch shall be repaired or removed and the affected areas neatly patched. Finish C or smoother shall be provided for interior surfaces of tanks and channels from 1 foot below minimum water surfaces and down and otherwise unfinished interior surfaces.
4. FINISH D: Unless otherwise specified, Finish D shall be the finish for surfaces not exposed to view in the finish work or by other construction, which may be left as they come from the forms, except that tie holes shall be plugged and defects greater than 1/2 inch in any dimension shall be repaired.

3.13 SLAB FINISHES

- A. General: Where finish is not specified, floor slabs shall receive steel troweling. Dry cement shall not be used on new concrete surfaces to absorb excess moisture. Edges shall be rounded to a radius of 1/2 inch. Joints shall be grooved to a radius and depth of 1/4 inch each.
- B. Float Finish: Float finish shall conform to ACI 301, Section 11.7.2. Floating shall be performed with a hand or power-driven float. Floating of any one area shall be the minimum necessary to produce the finish specified. Floating shall compact and smooth the surface and close any cracks and checking of surfaces. Float finish shall be applied to surfaces of channel and tank bottom slabs and to footings.
- C. Steel Trowel Finish: Steel trowel finish shall conform to ACI 301, Section 11.7.3. Immediately after final troweling, the surface shall be cured and protected as specified in this Section. Steel trowel finish shall be provided on floors unless specified otherwise.
- D. Broomed Finish: Broomed finish shall conform to ACI 301, Section 11.7.4. Broomed finish shall be provided for walks, tops of walls, slabs on grade exposed to atmosphere, and where otherwise specified.

3.14 CONCRETE CURBS AND SIDEWALKS

- A. This section shall pertain only to concrete curb and sidewalk reconstruction along Kerr Street, San Miguel Avenue and Redwood Road outside of the Streetscape project limit of work.
- B. Portland cement concrete curbs, curbs and gutters, island curbs, sidewalks, driveways, island paving, pedestrian ramps and other related types of flatwork of

the forms and dimensions shown on the plans shall conform to Section 73, “Concrete Curbs and Sidewalks,” of the Standard Specifications and the following provisions.

- C. Extruded curbs will not be allowed unless called for on the plans.
- D. Section 73-1.03, “Existing Curbs and Sidewalks,” of the Standard Specifications is superseded by the following:
 - 1. Where the plans provide for the reconstruction of a portion of an existing curb, curb and gutter, sidewalk, pedestrian ramp or driveway, the existing section shall be cut to a minimum depth of one and one-half (1-1/2) inches with an abrasive type saw at the location shown on plans or designated by the Engineer. The entire section to be reconstructed shall be removed. The new concrete improvements shall join the existing concrete at this line.
- E. The third paragraph of Section 73-1.05, “Curb Construction,” of the Standard Specifications is modified by the following:
 - 1. Weakened plane joints shall be constructed at intervals of approximately one-third of expansion joint spacing, but not to exceed twenty (20) feet. The joint shall be constructed to a depth of one-fourth (1/4) of the concrete thickness, but not less than one inch (1”). Weakened plane joints shall also be constructed in sidewalks and island paving at intervals of approximately one-sixth (1/6) of expansion joint spacing, but not to exceed ten (10) feet.
- F. The fourth paragraph of Section 73-1.05, “Curb Construction,” of the Standard Specifications is modified by the following:
 - 1. Expansion joints shall also be constructed at each side of driveways and at intervals not to exceed sixty (60) feet.
- G. The second sentence of the fifth paragraph of Section 73-1.06, “Sidewalk, Gutter Depression, Island Paving, Curb Ramp (Wheelchair Ramp), and Driveway Construction,” of the Standard Specifications is modified by the following:
 - 1. Where curb is not adjacent, expansion joints shall be constructed opposite expansion joints in the separated curb. Where no curb exists, expansion joints shall be constructed at intervals not to exceed sixty (60) feet and at each side of driveways.
- H. The ninth paragraph of Section 73-1.06, “Sidewalk, Gutter Depression, Island Paving, Curb Ramp (Wheelchair Ramp), and Driveway Construction,” of the Standard Specifications is superseded by the following:
 - 1. The surface of sidewalks shall be marked into rectangles of not less than 12 square feet nor more than 25 square feet with a scoring tool which will leave the edges rounded. The length to width ratio of the rectangle shall not exceed 1.33.

- I. Pedestrian ramp detectable warning surface shall consist of raised truncated domes constructed or installed on pedestrian ramps in conformance with the details shown on the plans and these special provisions. The detectable warning surface shall be prefabricated tiles set directly 2in newly poured concrete. Surface applied tiles or stamped into surface detectable warning surfaces shall not be allowed. The color of the detectable warning surface shall be yellow conforming to Federal Standard 595B, Color No. 33538.
- J. Prefabricated detectable warning surface shall be in conformance with the requirements established by the Department of General Services, Division of State Architect and be attached in conformance with the manufacturer's recommendations.
- K. Cast-in-place detectable warning surfaces shall be painted in conformance with the provisions in Section 59-6, "Painting Concrete," of the Standard Specifications.
 - 1. The finished surfaces of the detectable warning surface shall be free from blemishes.
 - 2. Prior to constructing the cast-in-place detectable warning surface, the Contractor shall demonstrate the ability to produce a detectable warning surface conforming to the details shown on the plans and these special provisions by constructing a 24" x 24" test panel.
- L. The manufacturer shall provide a written 5-year warranty for prefabricated detectable warning surfaces, guaranteeing replacement when there is defect in the dome shape, color fastness, sound-on-cane acoustic quality, resilience, or attachment. The warranty period shall begin upon acceptance of the contract.
- M. The cost of providing concrete block-outs, for the installation of signs, in sidewalk, island plying and other related types of flatwork areas at locations shown on the plans or designated by the Engineer, shall be considered as included in the prices bid for the items of work involved and no additional compensation will be allowed therefor. No reduction will be made in payment for square feet of sidewalk because of concrete block-outs.
- N. When ordered by the Engineer, the Contractor shall thoroughly mix lampblack into the concrete in an amount of approximately one-half (1/2) pound per cubic yard of concrete so as to produce a uniform gray color. The exact amount will be determined by the Engineer.
- O. Cushion material for sidewalks, driveways and other flatwork shall be rock of such quality that, immediately prior to placing, the percentage composition by weight shall conform to the following gradation when determined by California Test Method No. 202:
 - 1. Passing a 2" Sieve: 100%
 - 2. Passing a No. 200 Sieve: 25% Maximum

- P. The material when tested in accordance with California Test Method No. 217 shall have a minimum Sand Equivalent of 25, and when tested in accordance with California Test Method No. 301, shall have a maximum equivalent expansion of one-inch (1") cover at 300 p.s.i. exudation pressure. This material shall be compacted to a relative compaction of 90 percent.
- Q. The quantity of curb and gutter, sidewalk, cushion material, and detectable warning surfaces will not be measured. Payment for removal and reconstruction of concrete curb, gutter, sidewalk, and pedestrian ramp shall be included in the lump sum price for Mobilization.

3.15 TEXTURED CONCRETE SURFACES

- A. This section shall pertain only to restoration of textured concrete surfaces along Kerr Street, San Miguel Avenue and Redwood Road outside of the Streetscape project limit of work.
- B. The work to be done shall consist in general, of installing a surface application to concrete pavement to create textured surface. The application will imprint existing concrete pavement and apply a surface coating. The work will include the furnishing of all labor, materials, tools, equipment, mechanical workmanship, transportation, and services that may be necessary to perform a complete job in all respects as indicated in the specifications and by reference made in part thereof, as specified, and as directed by the Engineer.
- C. The textured concrete surface will be installed in accordance with the guidelines and as specified herein. The work to be performed consists in general of installing textured surfaces and cleaning site to provide a complete job.
- D. The concrete texture pattern shall be match existing textured surfaces or as approved by Alameda County.
- E. The color shall match the existing textured surfaces or as approved by Alameda County.

3.16 FIELD SAMPLING AND TESTING OF CONCRETE

- A. General: Field sampling and testing shall be performed by the independent testing laboratory specified in this Section. Samples of concrete shall be taken at random locations and at such times to represent the quality of the materials and work throughout the project. The laboratory shall provide the necessary labor, materials and facilities for sampling, casting, handling and storing the concrete samples at the site of work. The minimum number of samples and tests are specified in this Section.
- B. Sampling: Concrete shall be sampled as follows and tested in accordance with this Section. Samples of plastic concrete shall be obtained in accordance with ASTM

C172. Samples for pumped concrete shall be taken at the hose discharge point. Samples for other concrete shall be taken at the hopper of transit mix truck.

C. Testing: Services of a certified concrete testing laboratory shall be provided at the District's expense to confirm compliance of cast-in-place concrete and CLSM with these Specifications. Failure of the concrete to meet the specified requirements shall be grounds for removal and replacement of the failing concrete, and re-testing at the Contractor's expense.

1. STRENGTH TESTS: The strengths specified for the design mix shall be verified by the testing laboratory during placement of the concrete. Verification shall be accomplished by testing standard cylinders of concrete samples taken at the job site.

Standard cylinders shall represent the concrete placed in the forms. One set of three standard cylinders shall be cast for each 50 cubic yards, or fraction thereof, for concrete placed in structures, building slabs and footings, but at least three cylinders shall be taken from any one batch. Casting, handling and curing of cylinders shall be in accordance with ASTM C31. Additional cylinders shall be provided when an error in batching is suspected. For the first 24 hours after casting, the cylinders shall be kept moist in a storage box constructed and located so that its interior air temperature will be between 60 and 80 degrees F. At the end of 24 hours, the cylinders shall be transported to the testing laboratory.

Testing of specimens for compressive strength shall be in accordance with ASTM C39. Tests shall be made at 7 and 28 days from time of casting. One test cylinder from each group of three shall be tested at the end of 7 days, and two shall be tested at the end of 28 days. Each strength test result shall be the average of the strengths of two test cylinders at 28 days, except that if one cylinder in a set of two shows evidence of low strength due to improper sampling, casting, handling or curing, the result of the remaining one cylinder shall be used.

The average of any three consecutive 28-day strength test results of the cylinders representing each class of concrete shall be equal to or greater than the specified strength and not more than 10 percent of the strength test results shall have values less than the specified 28-day strength for the total job concrete. No individual strength test results shall be less than the specified strength by more than 500 pounds per square inch.

Certified reports of the test results shall be provided directly to the Construction Manager. Test reports shall include sufficient information to identify the mix used, the stationing or location of the concrete placement, and the quantity placed. Slump and ambient temperature shall be noted.

If the 28-day test results fall below the specified compressive strength for the class of concrete required for any portion of the work, adjustment in the proportions, water content, or both, shall be made as necessary at the Contractor's expense. Changes and adjustments shall be reported in writing to the Construction Manager.

If compressive test results indicate concrete in place may not meet structural requirements, tests shall be made to determine if the structure or portion thereof is structurally sound. Tests may include, but not be limited to, cores in accordance with ASTM C42 and any other analyses or load tests acceptable to the Construction Manager. Costs of such tests shall be borne by the Contractor.

2. TESTS FOR CONSISTENCY OF CONCRETE: The slump shall be as specified when measured in accordance with ASTM C143. Samples for slump determination shall be taken from the concrete during placing. Slump tests shall be performed whenever standard cylinders are cast.

- D. Final Laboratory Report: A final report, prepared by the testing laboratory, shall be provided at the completion of all concreting. This report shall summarize the findings concerning concrete used in the project and provide totals of concrete used by class and structure.

3.17 CLEANUP

- A. Upon completion of the work and prior to final inspection, clean all concrete surfaces, except outside sidewalks or paved areas and those having curing and sealing compound.

****END OF SECTION****

SECTION 03600

GROUT

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This Section specifies grout for structural and miscellaneous uses.
- B. Related Sections
 - 1. Section 03300, **CAST-IN-PLACE CONCRETE**

2.01 QUALITY ASSURANCE

- A. **QUALITY CONTROL BY OWNER:**
 - 1. To verify conformance with the specified requirements for grout, the Owner may engage the services of an independent testing laboratory which complies with the requirements of ASTM E329. The testing laboratory shall sample and test grout materials as required in this Section.

3.01 REFERENCES

- A. Castro Valley Sanitary District (CVSD)
 - 1. District Code and Standard Drawings
- B. American Society of Testing and Materials (ASTM)
 - 1. ASTM C33 - Concrete Aggregates
 - 2. ASTM C88 - Organic Impurities in Fine Aggregates for Concrete
 - 3. ASTM C117 - Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate Material Finer Than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing
 - 4. ASTM C136 REV A - Sieve Analysis of Fine and Coarse Aggregates
 - 5. ASTM C150 – Portland Cement
 - 6. ASTM C289 - Potential Reactivity of Aggregates (Chemical Method)
 - 7. ASTM C494 - Chemical Admixtures for Concrete

8. ASTM D2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
9. ASTM E329 REV C - Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction

1.03. SUBMITTALS

Contractor shall submit grout, mix designs, recent test data for the submitted mixes, and test data for mix components confirming that the mixes meet the requirements of this Section.

For permeation grouting, the following submittals shall be made:

1. The Contractor shall develop and submit a site-specific permeation grout injection plan.
2. The Contractor shall submit design grout mixes and the results of compressive strength testing on the design grout mix (one set of grout cubes tested at 7- and 28-day) for fast-setting permeation grout and low-viscosity permeation grout to the Construction Manager for review prior to the commencement of grouting operations.
3. The Contractor shall submit conformance testing for the 7- and 28-day compressive strength tests of the low-viscosity permeation grout (one set of grout cubes for each day of injection).
4. The Contractor shall submit the daily field record of grouting operation to the Construction Manager as specified in Section 3.04 B.

PART 2 – PRODUCTS

2.01 MATERIALS

A. CEMENT:

1. Portland cement shall be ASTM C150, Type II or Type V, low alkali, containing less than 0.60 percent alkalies.

B. AGGREGATE:

1. **GENERAL:** Aggregate shall be nonreactive and shall be washed before use. When sources of aggregate are changed, test reports shall be provided for the new material. The tests specified shall be performed prior to commencing grout work.

2. FINE AGGREGATE: Fine aggregate shall be hard, dense, durable particles of either sand or crushed stone regularly graded from coarse to fine and shall conform to ASTM C33 as modified herein. When tested in accordance with ASTM C136, gradation shall be such that 100 percent by weight will pass a standard No. 8 mesh sieve and no less than 45 percent by weight will pass a standard No. 40 mesh sieve.
3. Variation from the specified gradations in individual tests will be acceptable if the average of three consecutive tests is within the specified limits and the variation is within the permissible variation listed below:

<u>U.S. standard sieve size</u>	<u>Permissible variation in individual tests, percent</u>
30 or coarser	2
50 or finer	0.5

4. Other tests shall be in accordance with the following specifications:

Test	Test method	Requirements
Organic Impurities	ASTM C40	Color lighter than standard
Amount of Material Passing No. 200 Sieve	ASTM C117	3% maximum by weight
Soundness	ASTM C88	10% maximum loss with sodium sulfate
Reactivity	ASTM C289	Innocuous aggregate
Sand Equivalent	ASTM D2419	Minimum 80

C. ADMIXTURES:

1. Admixtures shall be compatible with the grout. Calcium chloride or admixtures containing calcium chloride are not acceptable. Admixtures shall be used in accordance with the manufacturer's recommendations and shall be added separately to the grout mix.

D. WATER:

1. Water for washing aggregate, for mixing and for curing shall be free from oil and deleterious amounts of acids, alkalis, and organic materials; shall not contain more than 1000 mg/l of chlorides as Cl, nor more than 1300 mg/l of

sulfates as SO₄; and shall not contain an amount of impurities that may cause a change of more than 25 percent in the setting time of the cement nor a reduction of more than 5 percent in the compressive strength of the grout at 14 days when compared with the result obtained with distilled water. Additionally, water used for curing shall not contain an amount of impurities sufficient to discolor the grout.

E. GROUT

1. NONSHRINK GROUT: Nonshrink grout is available with both metallic and nonmetallic aggregate. Metallic aggregate grout shall be Master Builders Embeco 636, Burke Company Metallic Spec Grout, Sonnoborn Ferrolith G Redimix, or equal. Nonmetallic aggregate grout shall be Five Star Products, Inc. Five Star Grout, Master Builders Masterflow 713, Burke Company Non-Ferrous, Non-Shrink Grout, or equal.

2. EPOXY GROUT FOR CRACK REPAIR: Epoxy grout shall be a high modulus, two-component, moisture insensitive, 100 percent solids, thermo-setting modified polyamid epoxy compound. The consistency shall be a paste form capable of not sagging in horizontal or overhead anchoring configurations. Material shall conform to ASTM C881, Type 1, Grade 3, such as Master Builders Technologies Coneresive series, Sika Corporation Sikadur Hi-Mod Series, Adhesive Technology Corporation Solidbond 200, or equal, and shall have a heat deflection temperature in excess of 130 degrees F.

Epoxy for pressure grouting/crack injection shall be a two-component, moisture insensitive, high modulus, injection grade, 100 percent solids, blend of epoxy-resin compounds. The consistency shall be as required to achieve complete penetration in hairline cracks and larger. Material shall conform to ASTM C881, Type 1, Grade 1, such as Sika Corporation Sikadur 52, Adhesive Technology Corporation SLV 300 series, or equal.

3. PERMEATION GROUT: Permeation grout shall consist of fast setting grout for forming bulkheads at the perimeter of the grouted area.

Permeation grout shall consist of Portland cement complying with ASTM C150, additives (including grout lubricants, expansion agents, etc.), and potable water

Fast setting grout shall consist of the following two-component system:

COMPONENT A

- Type I-II Portland cement mix 4-6 sacks at 94 lbs. per sack
- Bentonite suspending agent
- Expansion agent
- Water (as required for dilution and strength)

COMPONENT B

- Sodium silicate
- Water (as required for dilution and strength)

Fast setting grout shall not settle more than 3% and shall have a 28-day unconfined compressive strength no less than 100 psi and no more than 150 psi.

2.02 EQUIPMENT

- A. Grouting equipment for fast setting injected grout shall consist of a grouting plant with the capability of separately mixing and pumping in a controlled (flow and pressure) manner the two-component grout. The two components shall be mixed together at the point header just prior to introducing the grout into the grouted medium. The plant shall have the capability of determining the actual flow of each component in the final grout product. A colloidal pump shall be used for mixing the cementitious component of the grout and separate progressive cavity pumps shall be used to pump each component.

PART 3 – EXECUTION

3.01 NONSHRINK GROUT

- A. Nonshrink, nonmetallic aggregate grout shall be used for the bearing surfaces of machinery and equipment bases, column base plates and bearing plates.

3.02 EPOXY GROUT

- A. Epoxy grout shall be used for repairing cracks by pressure grouting or gravity flow, and repairing structural concrete. Concrete shall be primed in accordance with the grout manufacturer's instructions.

3.03 GROUT INJECTION OPERATION

- A. The Contractor shall lay out the grout injection points in the field to the pattern and spacing shown on the submitted grout plans.
- B. The Contractor shall use fast-setting permeation grout to construct bulkheads where crossing utilities enter into the trench area.
- C. Depth of the injection points shall be equal to or less than 1 foot from the bottom of the zone to be grouted.
- D. Grouting, once commenced, shall be completed without stoppage. In case of breakdown of equipment, the Contractor shall wash out the grouting system sufficiently to ensure all grout is removed (i.e., that only fresh grout will be pumped on restarting the grouting operation), and that adequate bond and penetration will occur on restarting the grouting operation.

- E. Grout shall be pumped evenly (i.e., the elevation of the top of the permeation grout shall not deviate by more than 2 feet) within the defined area of trench backfill to prevent unbalanced loading of existing subsurface structures.
- F. Grout injection pressures shall be kept at the minimum required to distribute the permeation grout and shall not cause displacement or damage to existing subsurface structures.
- G. Staging of grout injection shall be in an ascending direction at 12- to 24-inch intervals. Grout volume pumped at each stage must be calculated in advance by the Contractor to reflect the staging interval and porosity of the grouted area.
- H. The Contractor shall install a system and/or implement a program to monitor movement of the ground surface surrounding the injection points during grouting operations.
- I. The Contractor shall install a system to recover groundwater displaced by grouting operations. All recovered groundwater shall be discharged into the sanitary sewer at a location as directed by the Construction Manager.
- J. The Contractor shall notify the Construction Manager and cease the grouting operation if excess ground movement is observed of <0.20 of an inch.

3.04 MONITORING AND RECORDS

- A. **Monitoring:** It shall be the responsibility of the Contractor to design and implement a program to monitor movement of the ground surface surrounding the injection points during grouting operations. This monitoring system shall be capable of accurately monitoring movement to one-tenth (0.10) of an inch, or one-eighth (1/8) of an inch, and shall be subject to review by the Construction Manager.
- B. **Records:** Daily field records of grouting operations shall be made by the Contractor. Daily field records shall include the name of the grouting technician, date, grout mix, grout point reference number, toe elevation of injection pipe, start/finish grout time for each grout injection point, quantity of grout injected at each stage, rate of pumping, beginning and final pressure obtained at each stage at each injection point. The Contractor shall submit field records at the end of each day of grouting operation and a final report within 7 calendar days after the successful completion of grouting to the Construction Manager.

3.05 CLEANUP

- A. The Contractor shall keep the work area neat and grout spills shall be promptly contained and cleaned up. The removal of all grout spilled and splattered is the responsibility of the Contractor, as are stains, dust, etc., that are a direct result of the Contractor's operations.

- B. Clean-up of the grouting equipment and the area around the material stockpiles should not allow silt or clay-laden water to flow into storm or other drain systems that discharge in the surrounding waterways. The Contractor shall take all necessary precautions to prevent silt or clay-laden, wash-down or clean-up water from draining into the waterways, and the Contractor must implement a system that will filter out the silt and clay particles in any clean-up or wash-down water before it drains into the sanitary sewer.

- C. On completion of grouting operations, each injection casing shall be completely removed. Holes made in any pavement not to be removed as part of this project shall be patched in a satisfactory manner with a commercially available non-shrink grout. Grout return, if any, that fills in injection holes shall be cleaned out so as to accommodate a minimum 4-inch deep patch.

*****END OF SECTION*****

SECTION 05541

MANHOLE FRAMES AND COVERS

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies manhole frames and covers
- B. Related Sections
 - 1. Section 01300, **SUBMITTALS**
 - 2. Section 02701, **PRECAST CONCRETE STRUCTURES**

1.02 REFERENCES

- A. Castro Valley Sanitary District (CVSD)
 - 1. District Code and Standard Drawings
- B. American Society for Testing and Materials (ASTM)
 - 1. ASTM A48 - Standard Specification for Gray Iron Castings

1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01300.
 - 1. Manufacturer's catalog data showing specific items to be supplied for this specifications including:
 - a. Manhole frames
 - b. Manhole covers

PART 2 - PRODUCTS

2.01 ACCEPTABLE PRODUCTS

- A. Manhole frames and covers shall be by South Bay Foundry, 42 North Cluff Ave, Lodi, CA 95240, SBF 1985 (24 inch opening) and SBF 1325 (3 pieces, 36 inch opening) or equal modified to provide the specified features listed below.

2.02 MATERIALS

- A. The materials for manhole frames and covers shall be cast iron in accordance with ASTM A48, Class 30.

2.03 FABRICATION

- A. Manhole frames and covers shall be the heavy-duty type designed for H-20 highway loading. Cover pattern, vent holes, and pick holes shall be as identified in District Standard Drawing No. 11, Standard Manhole Frame and Cover. Bearing and wedging surfaces shall be machined to ensure a tight fit and to prevent rocking.
- B. Manufacturer's name, initials, or logo type is to be cast in frame and cover along with the initials "CVSD" as shown on the District Standard Drawing No. 11. The bearing surfaces of the frame and cover shall be machined, and the cover shall seat firmly without rocking. Before leaving the foundry, all castings shall be protected with an asphalt coating as follows:
 - 1. The surface to be protected shall be clean, uncoated cast iron free of oil, grease, scale, or rust.
 - 2. The castings shall be cleaned and dipped twice in a preparation of asphalt or coal tar and oil applied at a temperature of not less than 290 degrees or more than 310 degrees Fahrenheit to form a firm and tenacious coating..

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Existing and new manhole frames and covers shall not be set to final grade until the pavement has been completed, unless otherwise approved by the Construction Manager. The manhole frame and cover shall be permanently set when so authorized by the Construction Manager. The frame shall be centered on the manhole shaft and laid on mortar to final grade. The mortar shall be neatly struck.
- B. Set manhole frames and covers in paved or improved areas flush with the surrounding surfaces unless otherwise specified. Manhole frames and covers in unimproved areas/fields shall be set no less than 6 inches and no more than 12 inches above grade.

*****END OF SECTION*****

SECTION 15050
GENERAL PIPING

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish, install, test, and complete the piping in accordance with the Contract Documents.
- B. Related Sections
 - 1. Section 01060, **REGULATORY REQUIREMENTS AND PERMITS**
 - 2. Section 01300, **SUBMITTALS**
 - 3. Section 02245, **SEWAGE FLOW CONTROL**
 - 4. Section 02300, **EARTHWORK**
 - 5. Section 02350, **SHORING FOR SURFACE STRUCTURES, TRENCHES, AND OPEN CUT EXCAVATIONS**
 - 6. Section 02735, **SANITARY SEWER SYSTEM TESTING**
 - 7. Section 02736, **CLOSED CIRCUIT TELEVISION INSPECTION (CCTV) OF SANITARY SEWER SYSTEM**
 - 8. Section 02739, **BUILDING SEWER (LATERAL) CONSTRUCTION AND REINSTATEMENT**
 - 9. Section 02800, **TRAFFIC CONTROL**
 - 10. Section 15065, **VITRIFIED CLAY PIPE**

1.02 QUALITY ASSURANCE

- A. Like items of materials provided hereunder shall be the end products of one manufacturer in order to achieve standardization for appearance and manufacturer's service.
- B. To assure uniformity and compatibility of piping components in grooved-end piping systems, fittings and couplings shall be furnished by the same manufacturer.

1.03 REFERENCES

- A. Castro Valley Sanitary District (CVSD)

1. District Code and Standard Drawings
- B. American Society of Testing and Materials (ASTM)
 1. ASTM C 12 - Practice for Installing Vitrified Clay Pipe Lines
 2. ASTM C 301 - Standard Test Methods for Vitrified Clay Pipe
 3. ASTM C 425 - Specification for Compression Joints for Vitrified Clay Pipe and Fittings
 4. ASTM C 700 - Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated
 5. ASTM C 828 - Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines
 6. ASTM C923 – Standard Specification for Resilient Connectors between Precast Reinforced Concrete Manhole Structures, Pipes, and Laterals

1.04 GENERAL

- A. All sewer construction materials proposed to be used shall be new materials.
- B. Where material specification numbers are used herein, they shall refer to the latest revision thereof.

1.05 SUBMITTALS

- A. Submit, in accordance with Section 01300, installation instructions and details of all pipe, joints, fittings, metallic pipeline marking tape, and appurtenances to be used in the work including the following.
 - a. Catalog cuts showing all piping, manholes, and fittings
 - b. Dimensioned layout drawings, including piping, building sewers, and manholes
 - c. Installation procedures and sequencing
 - d. Staging and lay-down areas
 - e. Security plans and fencing
 - f. Sewer Bypassing Plan in accordance with Section 02245 SEWAGE FLOW CONTROL.
 - g. Traffic Control Plan in accordance with Section 02800 TRAFFIC CONTROL.

- h. Connection details for all building sewers and existing systems
- B. The review of procedures and equipment by the Construction Manager shall not relieve the Contractor of his responsibility nor modify any of the provisions of the contract.
 - 1. Furnish shop drawings for pipe in accordance with the requirements of Section 01300 SUBMITTALS as follows.
 - a. Details of the pipe to be used. Submit shop drawings indicating the details of all thickness, joints, materials, and procedures, as applicable. Indicate the required fabrication tolerances for the pipe.
 - b. Information indicating that pipe manufacturer meets the experience requirements indicated below.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Provide all required piping and fittings in accordance with the individual piping sections.

2.03 FLEXIBLE COUPLING

- A. Flexible pipe coupling shall conform to ASTM C923.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Trenching and trench dewatering requirements shall comply with the requirements of Section 02300 EARTHWORK.
- B. Sewer bypassing and dewatering requirements shall comply with the requirements of Section 02245 SEWAGE FLOW CONTROL.
- C. Layout of Controls
 - 1. Establish line and grade control and staking in accordance with the Contract Documents.
 - 2. The grades and alignment of the sewer so staked must be approved by the Construction Manager prior to start of sewer construction.
- D. Verification of Existing Sewer Connection
 - 1. It shall be the Contractors responsibility to determine which laterals are live and to reconnect the existing laterals as specified in Section 02739

BUILDING SEWER (LATERAL) CONSTRUCTION AND REINSTATEMENT and shall be paid for as part of as other work and no compensation will be allowed therefor.

2. Where construction requires removal of any existing sewer or structure from service, the work shall be conducted in accordance with Section 01060 REGULATORY REQUIREMENTS AND PERMITS and Section 02245 SEWAGE FLOW CONTROL.
- E. Sewer Pipe Plugs: Sewer pipe stubs, or other open ends, which are not to be connected for service under this contract, shall be plugged or capped with standard watertight plugs or caps, as submitted by the Contractor and approved by the Construction Manager for use in the particular installation.
- F. Handling of Pipe
1. All pipe and accessories shall be carefully lowered into the trench in such a manner as to prevent damage to pipe and fittings. Under no circumstances shall pipe or accessories be dropped or dumped into the excavation.
 2. Pipe shall be protected against impact shocks during handling. Prior to making pipe joints, all surfaces of the portion of the pipe to be joined shall be cleaned, dried and otherwise repaired in accordance with the manufacturer's installation instructions. The interior of all pipe shall be kept free from all dirt and foreign matter as the work progresses.
 3. At the close of each day's work, and at such other times when pipe is not being installed or utilized for service, the ends of all open pipes shall be closed with a watertight plug or cap.
- G. Field Cutting Pipe
1. Use whole lengths of pipe wherever possible. Short lengths or cut pieces shall be allowed only to complete connections to manholes and structures, wye branches, and other required fittings.
 2. Unless otherwise permitted by the Construction Manager, pipes that must be cut in the field shall be cut as recommended by the pipe manufacturer.

3.02 EXCAVATION AND TRENCHING

- A. Perform all excavations for pipelines and appurtenances, of whatever substances encountered, to the depths indicated in the Contract Documents and in accordance with Section 02300 and Section 02350.

3.03 INSTALLATION

A. General

1. Each pipe and fitting shall be carefully inspected before the pipe or fitting is installed. Clean ends of pipe thoroughly. Remove foreign matter and dirt from inside of pipe and keep clean during and after laying.
2. Clean out fittings and pipe sections before installing. Clean joint contact surfaces immediately prior to joining. Use joint lubricants and joining methods as recommended by the pipe manufacturer.
3. Furnish and assemble pipe and fittings to provide accurate alignment for joints.
4. Make all joints watertight.

B. Every precaution shall be taken to prevent foreign material from entering the pipe during installation. No debris, tools, clothing, or other materials shall be placed in the pipe. Whenever pipe laying is stopped, the open end of the pipe shall be closed with an end board closely fitting the end of the pipe to keep sand and earth out of the pipe. The end board shall have several small holes near the bottom to permit water to enter the pipe and prevent flotation in the event of flooding of the trench.

C. Use proper implements, tools, and facilities for the safe and proper protection of the pipe. Carefully handle pipe in such a manner as to avoid any physical damage to the pipe. Do not drop or dump pipe into trenches under any circumstances.

D. Buried Pipe

1. Commencement of New Sewer Pipeline

- a. Unless otherwise specified or authorized by the Construction Manager, the laying of the pipe by open-cut methods in finished trenches shall be commenced at the lowest point of the project and continued in an upstream manner until completion. Spigot ends shall point in the direction of the flow except as noted or otherwise specified. The joints shall be carefully centered so that when laid to proper grade and alignment as designated on the Drawings, they will form a sewer with a uniform invert.

2. Pipe Installation

- a. To assure flexibility at manholes and structures, adjacent pipe joints shall be located near where the pipe connects with the outside faces of manhole walls. A pipe stub shall be extended from the manhole face at 12 inch to 18 inch length and shall be bedded in the same manner as the pipe. Connection between the main

sewer and the pipe stub at the manhole shall be made with a flexible coupling.

- b. The sewer trench shall be dewatered to enable pipe installation under dry conditions per Section 02300 EARTHWORK.
- c. Backfill material shall not be dropped directly on the pipe, and chutes or deflectors shall be utilized to protect the pipe.
- d. Adequate backfill shall be deposited on pipe to prevent floating of pipe. Any pipe which has floated shall be removed from the trench, cleaned, and reinstalled in an acceptable manner. No pipe shall be installed when, in the opinion of the Construction Manager, the trench conditions or weather are unsuitable for such work.

3. Control of Line and Grade

- a. Total horizontal deviation of the sewer from the line shown on the Drawings shall be not more than 1 inch. The sewer grade shall not deviate from the profile shown on the Plans by more than 1/4 inch, measured at the pipe invert, and the grade shall be maintained during and after backfilling operations. Sewer grades exceeding this amount shall be removed and replaced at Contractor's expense.
- b. If deviations less than 1/4 inch from the design grade occurs, pipe joints shall be deflected to bring the invert back to grade. Grade corrections shall be made gradually to prevent ponding in the pipe invert at low spots. Pipe shall be installed to be free draining (no sags) between any two points. No reverse (adverse) grade will be allowed.

4. Joint Deflections: The deflection in the joint between any two successive pipe sections shall not exceed 50 percent of the maximum deflection as recommended by the pipe manufacturer. The minimum allowable radius shall be 300 feet unless otherwise shown. Minimum 2-foot pipe lengths may be supplied or pipe may be cut, if approved joint material is available, to install short radius curves and conform with the joint deflection limitations. When short lengths are to be used, it shall be as shown on the Plans.

5. General

- a. When the pipe laying is not in progress, including break hours, the open ends of pipe shall be closed by approved means, and no trench water, animals, or foreign material shall be permitted to enter the pipe.

- b. All buried pipe shall be prepared as herein before specified and shall be laid on the prepared pipe embedment material in accordance with Section 02300 EARTHWORK to ensure uniform bearing. No pipe shall be laid in water or when, in the opinion of the Construction Manager, trench conditions are unsuitable.
- c. All sewer mains and building sewers installed by open cut methods shall be installed with green metallic marking tape indicating the presence of the buried sewer. The tape shall be located at the lower of the two following depths:
 - i. 3 feet above the sewer pipe.
 - ii. 6 inches below the finished subgrade.

3.04 FITTINGS

- A. Fittings shall be sized to receive the type of pipe specified. Installation of fittings will be in accordance with manufacturer's recommendations. Fittings and wyes shall be of the same material as that of the pipe it is connecting to.

3.05 DELIVERY, STORAGE, AND HANDLING

- A. Materials delivered to site shall be inspected for damage and accepted by the Contractor.
- B. Pipe materials shall be stored in strict accordance with the manufacturer's requirements. Typical requirements for pipe storage include:
 - 1. Pipe shall be stored, if possible, at the job site. Caution shall be exercised to avoid compression, damage, or deformation to the pipe joints and barrel. Pipe supports and straps installed by the manufacturer shall be maintained in place during storage.
 - 2. When pipelines are stacked, insure that weight or upper units do not cause damage to pipe in lower units.
 - 3. Pipes shall be supported by struts, racks or dunnage to prevent damage to the bottom during storage.
 - 4. When long-term storage with exposure to direct sunlight is unavoidable, pipe shall be covered with an opaque material while permitting adequate air circulation above and around the pipe as required to prevent excessive heat accumulation.
 - 5. Pipe shall not be stored close to heat sources or hot objects such as heaters, boilers, steam lines, engine exhaust, etc.

6. Pipe shall not be stored directly on the ground, and shall be kept free of dirt and debris.
7. Protect gaskets from excessive exposure to heat and sunlight.

3.06 PIPE COUPLINGS

- A. Approved pipe couplings shall be used to join pipes of unlike materials and to join pipes of like materials when a splice is made. Couplings shall be installed as recommended by the coupling manufacturer. Couplings shall have type 316 stainless steel bands and hardware.

3.07 TESTING

- A. Testing shall be completed in accordance with Section 02735 SANITARY SEWER SYSTEM TESTING.

3.08 CLEANING

- A. Care shall be exercised during fabrication to prevent the accumulation of pipe cuttings, and filings, gravel, cleaning rags, etc., within piping sections. All piping shall be examined to assure removal of these and other foreign objects prior to assembly. Shop cleaning may employ any conventional commercial cleaning method if it does not damage, deform, swell, or otherwise alter the physical properties of the material being cleaned.

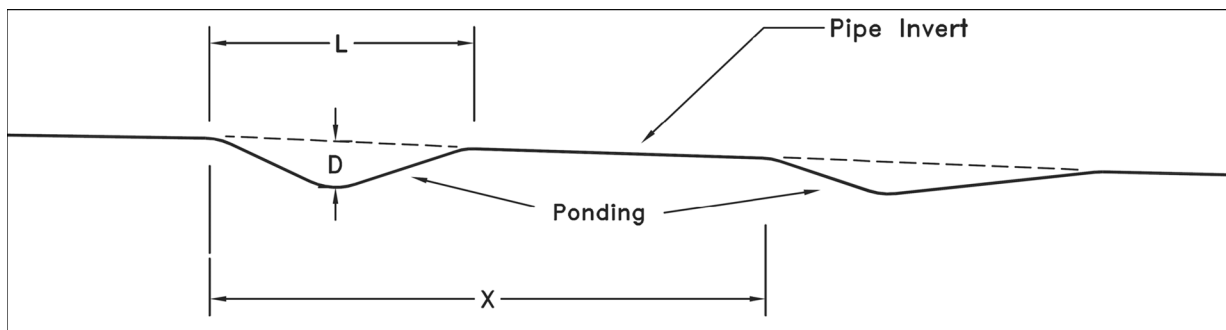
3.09 FIELD QUALITY CONTROL

- A. Field tests and inspections including air pressure tests and cleaning shall be in accordance with Section 02735 SANITARY SEWER SYSTEM TESTING, and the District's General Provisions and Specifications for the Construction of Sanitary Sewers, and the following specifications herein.
- B. TV inspection shall be performed after hydraulic cleaning has been completed and shall conform to the provisions in Section 02736, CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION OF SANITARY SEWER SYSTEM.
- C. The following construction deficiencies shall be considered as in need of correction prior to acceptance of the work:
 1. Damaged pipes including cracks, gouges and chipped ends of pipe sections.
 2. Slope less than the specified.
 3. Changes in slope greater than $\pm 0.05\%$ of the design slope.
 4. Low spots, sags or bellies that hold water (see limits below).

5. Dropped, offset or separated joints.
 6. Excessive gap between pipe ends within a coupling or fitting (greater than 0.5 inch unless approved by the Construction Manager).
 7. Infiltration/leaking joints.
 8. Other noted deficiencies.
- D. Sags (low spots, bellies, etc.) in pipes that hold water after all flow has been stopped in the pipe are typically the result of settlement or consolidation of the bedding material and/or the native material below it in response to loading on the pipe from backfill operations and/or surface loading. The table below lists the allowable limits of sags in sanitary sewer pipes. Newly constructed pipes that exceed these limits must be excavated and relayed, including replacing the pipe if damaged.

SAG LIMITS

Nominal Pipe Size with Open Cut Excavation	Allowable Depth of Sag (D)	Allowable Length of Sag (L)	Allowable Distance between Sags (X)
4-inch	None	None	None
6-inch	None	None	None
8-inch	≤ 0.25 inch	≤ 4 feet	≥ 40 feet
10-inch	≤ 0.50 inch	≤ 6 feet	≥ 60 feet
12-inch	≤ 0.66 inch	≤ 8 feet	≥ 80 feet
>12-inch	≤ 0.75 inch	≤ 10 feet	≥ 100 feet



*****END OF SECTION*****

SECTION 15065

VITRIFIED CLAY PIPE

PART 1 – GENERAL

1.01 SUMMARY

- A. This section includes requirements for vitrified clay pipe (VCP) for gravity service.
- B. RELATED SECTIONS
 - 1. Section 01060, **REGULATORY REQUIREMENTS AND PERMITS**
 - 2. Section 01300, **SUBMITTALS**
 - 3. Section 02145, **SEWAGE FLOW CONTROL**
 - 4. Section 02200, **EARTHWORK**
 - 5. Section 02350, **SHORING FOR SURFACE STRUCTURES, TRENCHES, AND OPEN CUT EXCAVATIONS**
 - 6. Section 02735, **SANITARY SEWER SYSTEM TESTING**
 - 7. Section 02736, **CLOSED CIRCUIT TELEVISION INSPECTION (CCTV) OF SANITARY SEWER SYSTEM**
 - 8. Section 02739, **BUILDING SEWER (LATERAL) CONSTRUCTION AND REINSTATEMENT**
 - 9. Section 02800, **TRAFFIC CONTROL**
 - 10. Section 15050, **GENERAL PIPING**

1.02 QUALITY ASSURANCE – NOT USED

1.03 REFERENCES

- A. Castro Valley Sanitary District (CVSD)
 - 1. District Code and Standard Drawings
- B. American Society of Testing and Materials (ASTM)
 - 1. ASTM C 12 - Practice for Installing Vitrified Clay Pipe Lines
 - 2. ASTM C 301 - Standard Test Methods for Vitrified Clay Pipe

3. ASTM C 425 - Specification for Compression Joints for Vitrified Clay Pipe and Fittings
4. ASTM C 700 - Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated
5. ASTM C 828 - Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines

1.04 SUBMITTALS

- A. Contractor submittals shall be in accordance with Section 01300 SUBMITTALS. Submit information on the following:
 1. Product technical data acknowledging that products meet requirements of standards referenced.
 2. Copies of manufacturer's written directions regarding material handling, delivery, storage, and installation.

1.05 DELIVERY AND STORAGE

- A. All materials delivered and stored shall be handled and stored in such a manner that pipe, fittings and accessories, and pipe coatings are not damaged.

PART 2 – PRODUCTS

2.01 VITRIFIED CLAY PIPE (VCP) AND FITTINGS

- A. Vitrified clay pipe and fittings shall be extra strength and conform to and meet all of the requirements of ASTM C700, and shall conform to all materials data contained in the current Clay Pipe Engineering Manual published by the National Clay Pipe Institute. Compression joints shall conform to ASTM C425. A certification of compliance with these requirements must be furnished by the pipe manufacturer.

PART 3 – EXECUTION

3.01 PIPE INSTALLATION

- A. Prepare pipe trench as indicated on the drawings and as specified in Section 02200 EARTHWORK.
- B. Assemble joints per manufacturer's instructions.
- C. General piping information is provided in Section 15050 GENERAL PIPING.

3.02 PIPE LAYING

- A. Sewer pipe shall be laid in strict conformance with the line and grade indicated on the Plans. The maximum deviation from grade shall not be greater than one (1) inch per 400 feet of pipe between consecutive manholes.
- B. Pipe laying shall proceed from "downstream" to "upstream", with the bell ends of the bell and spigot pipe placed upstream in such a manner as to form a watertight, concentric joint with the adjoining pipe.
- C. Pipe shall not be laid when the condition of the trench or the weather is unsuitable in the opinion of the Construction Manager.
- D. The Contractor shall be responsible for dewatering the trench where ground water is present.
- E. Water shall be disposed of in such a manner that no property damage, public nuisance, or hazard to public health occurs.
- F. All pipe, fittings, and accessories shall be carefully lowered into the trench by suitable equipment in such a manner prevent damage to the materials. Under no circumstances shall these materials be dropped or dumped into the trench. The pipe, fittings, and accessories shall be inspected for visible defects prior to lowering into the trench. Any visible defect or unsound material shall be replaced and removed from the project site.
- G. The interior of the pipe shall be cleared of all dirt and debris and excess joint sealing material as the work progresses.
- H. All joint surfaces shall be cleaned before the pipes are connected.
- I. All open ends of sewer pipe and fittings shall be adequately and securely closed whenever the work is discontinued at the end of each day.
- J. The Contractor shall expose the end of the existing pipe to be extended for verification of alignment and elevation by the Construction Manager, prior to trenching for any pipe which may be affected.
- K. Trench excavation, bedding and backfill shall conform to Section 02200 of these specifications.
- L. If pipe joint deflection is necessary, the Contractor shall submit a table of the combination of pipe and fittings necessary to complete the installation of the sewer facilities based upon the deflection requirements in Section 15050.

3.03 TESTS FOR GRAVITY SEWERS

- A. All main sewers and building sewers shall be tested and inspected in accordance with Section 02735 and 02736.

****END OF SECTION****

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SECTION 15146

HIGH-DENSITY POLYETHYLENE (HDPE) PIPE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Contractor furnished, installed, and tested, complete and in place, high-density polyethylene (HDPE) pipe and fittings, in accordance with the Contract Documents. The HDPE pipe and fittings specified herein shall be used only in association with trenchless construction methods, unless otherwise approved by the Engineer.

1.02 REFERENCED SECTIONS

- A. The following Sections are referenced in this Section:
 - 1. Section 01300 – Submittals
 - 2. Section 02300 – Earthwork
 - 3. Section 2730 – Sanitary Sewer System Testing

1.03 REFERENCES

- A. ASTM International Standards:
 - 1. ASTM D1248 – Specification for Polyethylene Plastics Molding and Extrusion Materials
 - 2. ASTM D3350 – Specification for Polyethylene Plastic Pipes and Fittings Materials
 - 3. ASTM F585 – Practice for Insertion of Flexible Polyethylene Pipe into Existing Sewers
 - 4. ASTM F714 – Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter

1.04 CONTRACTOR SUBMITTALS

- A. Submit, in accordance with Section 01300, installation instructions and details of all pipe, joints, fittings, metallic pipeline marking tape, and appurtenances to be used in the work including the following.
- B. Submit documents to the Engineer certifying that the pipe furnished hereunder is in compliance with the requirements of the Project Documents.
- C. Submit a 1-foot segment of each pipe diameter from the pipe supply delivered to the project. The pipe segment shall include a weld joint performed by the operator using the fusing equipment on the project. The sample shall be submitted and reviewed by Engineer prior to installation of any HDPE pipe.

- D. Submit a list of pipe and fittings to be used, which includes the following information where applicable:
 - 1. Pipe and fittings to be used
 - 2. Manufacturer
 - 3. Model number, if applicable
 - 4. Size and Sizing System
 - 5. Materials
 - 6. Pressure rating
 - 7. Catalog data
 - 8. Pipe joining methods and equipment, including specific procedures for fusion welding (pipe end cleaning, facing, joining, control of heating plate operation, documentation of jointing, debanding, etc.).
- E. Submit quality control records to the Engineer.
- F. Quality assurance procedures shall be performed by the pipe manufacturer fully in accordance with the requirements of this specification. The certification shall include certified laboratory data confirming that said tests have been performed on a sample of the pipe to be provided under this contract, or pipe from that production run, and that satisfactory results were obtained.

PART 2 - PRODUCTS

2.01 MATERIAL REQUIREMENTS

- A. Referenced pipe sizes on drawings are nominal inside pipe diameters.
- B. All materials delivered to the job site shall be new, free from defects, and marked to identify manufacturer, material, class, and other appropriate information.
- C. The Contractor shall provide polyethylene pipe as specified. The pipe shall be made to diameter and tolerances in accordance with ASTM D3035. All pipe shall be made from virgin grade material. The pipe shall be of the diameter and class shown or specified and shall be furnished complete with all fabricated fittings, flanged joints and other appurtenances as necessary for a complete and functional system.
- D. Acceptance of materials will be subject to strength and quality testing, in addition to inspection of the completed product. Acceptance of installed piping system will be based on inspection and leakage tests.

2.02 PIPING MATERIALS

- A. Pipe and fittings: High density, high molecular weight polyethylene, as defined in ASTM D3350.
 - 1. SDR-17 Extra High Molecular Weight, High Density Polyethylene PE 3408, Type III, Class B, Category 5, Grade P34 material as described in ASTM

D1248, Cell Class PE345434c*, D, or E (inner wall shall be white or light in color) per ASTM D3350. DriscoPlex by Performance Pipe or approved equal.

- a. Pipe shall have a manning “n” factor of 0.009.
- b. Pipe shall be less than 2 years old.
- B. Fittings shall be of the same material and class as the pipe. Identification of pipe and fittings shall be in accordance with ASTM D3350. Pipe and fittings shall be made from virgin material. No rework compound, except that obtained from the manufacturer’s own production of the same formulation, shall be used. Pipe and fittings shall be homogeneous throughout and shall be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.
- C. Dimensions of pipe and fittings shall be in accordance with ASTM F714. The pipe and fittings shall be DR 17 or as approved by the Engineer, with a minimum pressure rating of 125 psi at 73.4°F, and shall be Iron Pipe Size (IPS)
- D. The inside diameter of the new pipe shall meet the following minimum requirements:

Nominal Size Shown on Drawings, inches	Actual Minimum Inside Diameter, inches
10	9.410
12	11.160

- E. The pipe and fittings shall have a **light gray coloring on the interior**.
- F. The high-density polyethylene pipe and fittings shall be provided by the following manufacturer, or approved equal:
 - 1. DriscoPlex, Division of Chevron Phillips Chemical Co., Piano, TX, 4600 Series pipe for Industrial and Municipal Sewer Trenchless application.
- G. Provide rubber waterstop gaskets at the entry of all HDPE pipe into manhole bases and modified manhole wall connections. Cast-in-place in new manhole bases and grout in place in manholes openings modified to facilitate pipe bursting.

2.03 JOINTS

- A. Joints in HDPE pipe shall be made using thermal butt-fusion welding equipment designed for the specific purpose of permanently connecting HDPE pipes. This equipment shall be capable of squarely facing the pipe ends to be joined, properly heating each pipe end to the temperature range specified by the pipe manufacturer, and applying and sustaining the appropriate pressure, as recommended by the pipe manufacturer.
- B. The butt-fusion welding machine shall be outfitted with a measuring and recording unit that documents the conditions existing during the fusion of each individual weld. A printout that includes the date and time each joint was made, the joint number, the initials of the machine operator, the platen temperature at the time of

mating, the pressure during the heating cycle, the time period for the heating cycle, the pressure during the soak cycle, and the time period of the soak cycle shall be machine-generated and delivered to the Engineer at the end of each work shift. The recording unit shall be a DataLogger, as manufactured by McElroy Manufacturing, Inc., or approved equal.

- C. Fusion equipment shall be operated by technicians who have been certified by a major gas public utility such as Pacific Gas and Electric, Southern California-Edison or pipe manufacturer or supplier for operation of such equipment. Furthermore, all technicians performing butt-fusion welding on this project shall have a minimum of two (2) years experience operating the same equipment used hereon.
- D. Butt-fusion welding equipment shall be as follows, or approved equal:
 - 1. McElroy No. 412 Hydraulic Fusion Machine, McElroy Manufacturing, Tulsa, Oklahoma
 - 2. Proweld Field 12 (315)-R, Asahi/America, Malden, Massachusetts

2.04 FITTINGS

- A. Provide fabricated fittings where required.
- B. Fabricated fittings shall be of the same material as, and shall have a minimum pressure rating equal to, the pipeline material.
- C. If the fitting is in-line with the pipeline (i.e., a flange adapter), then the I.D. of the fitting shall be the same as the pipe.
- D. If the fitting is off-line (i.e., a tee), then the fitting shall have an I.D. in accordance with the Project Documents.
- E. Unless otherwise required, all fittings shall be butt-fusion welded.

PART 3 - EXECUTION

3.01 HANDLING AND STORAGE

- A. All pipe, fittings, etc., shall be carefully handled and protected against damage, impact shock, free fall, and scoring. All pipe handling equipment shall be acceptable to the Engineer. Pipe shall be stored in a manner that protects the pipe against injury or damage. Stacking of polyethylene pipe will not be allowed.
- B. The Contractor shall inspect each pipe and fitting prior to butt-fusion welding and again prior to installation. Any damaged pipe or fittings shall be repaired or replaced by the Contractor, at no additional expense to CVSan and to the satisfaction of the Engineer. Damage shall include, but not be limited to, gouges, cuts, or scratches of a depth greater than five percent (5%) of the pipe wall.
- C. Prior to butt-fusion welding or installation, each pipe or fitting shall be thoroughly cleaned of any foreign substance that may have collected thereon and shall be kept clean at all times thereafter. The material used to clean the pipe and fittings shall be as recommended by the pipe manufacturer.

3.02 BUTT-FUSION WELDING

- A. Only technicians who have been certified in accordance with the requirements of paragraph 2.03.C shall be allowed to operate the butt-fusion welding equipment.
- B. Butt-fusion welds shall be performed in accordance with manufacturer's instructions. The butt-fusion welding procedures are summarized below:
 - 1. Clean each pipe end with a clean cotton cloth to remove dirt, oil, grease, and other foreign materials.
 - 2. Square (face) the mating surfaces of each of the pipes to be fused.
 - 3. Bring the two (2) pipe ends together and adjust the pipe locations to ensure proper alignment.
 - 4. Verify that the surface temperature of the heater plate is within manufacturer's recommended temperature range and then clean the heater surface with a clean cotton cloth.
 - 5. Insert the heater plate between the pipe ends, bring the ends into firm contact with the heater plate without applying pressure, and achieve a proper melt pattern.
 - 6. After achieving the proper melt bead, remove the heater plate and quickly examine the pipe ends for complete melt.
 - 7. Once complete melt has been accomplished, rapidly bring the pipe ends together and apply pressure as recommended by the pipe manufacturer.
 - 8. Hold the pressure constant and at the proper level throughout the cooling period, for the minimum time period recommended by the pipe manufacturer or as necessary to achieve proper cooling.
- C. The Contractor shall mark each joint with the individual joint number, corresponding to the joint identification number appearing on the printout of the data logger attached to the butt-fusion welding machine. The printout shall be attached to the pipe near the joint for collection by the Engineer.
- D. The Contractor shall remove both the internal and external melt bead from the welded joint. Bead removal shall be accomplished in a manner that does not score or gouge the pipe.

3.03 INSTALLATION

- A. HDPE pipe shall be used for pipe bursting applications only, unless indicated otherwise in the Project Documents or approved by the Engineer. The Contractor shall insert the pipe through properly prepared insertion and receiving pits, in accordance with the requirements of ASTM F 585.
- B. The maximum pulling force that may be applied to any pipe shall be calculated as follows:

$$F = SA$$

where:

F = maximum pulling force on pipe (lb.)
S = maximum allowable stress (1,000 psi)
A = cross-sectional area of pipe wall (square inches)

The cross-sectional area of the pipe wall shall be calculated as follows:

$$A = (D-t)t$$

where:

D = outside diameter (in)
t = minimum wall thickness (in)

- C. The Contractor shall take care not to drag the pipe over rocks or rough surfaces that may damage the pipe. An appropriate pulling head shall be attached to the end of the pipe and shall be used for pulling the pipe at all times. Pulling the pipe by the flanged end will not be allowed.
- D. Manhole connections shall be made by attaching a collar to the end of the pipe and encasing the collar in the manhole wall using grout, in accordance with the Project Documents. The collar shall not be used for pulling the pipe into the horizontal boring.
- E. Following installation, the insertion and receiving pits, and any other excavations used, shall be backfilled in accordance with the requirements of Section 02300.

3.04 FIELD COUPLINGS

- A. Fittings/Joints that are to be assembled after pipebursting has been completed shall be butt fused where accessible.
- B. An electrofusion couplings shall be used on inaccessible locations.
- C. Manufacturer:
 - 1. Frialen Electrofusion couplings, as manufactured by Friatec, Inc.,
 - 2. or approved equal.

3.05 TESTING

- A. Field testing of sanitary sewer system: Conform to the requirements of Section 2735.

END OF SECTION

APPENDICES

APPENDIX A – Castro Valley Sanitary District Confined Space
Entry Program

APPENDIX B – Castro Valley Sanitary District Standard Drawings
(2022)

APPENDIX A

Castro Valley Sanitary District
Confined Space Entry Program

CASTRO VALLEY SANITARY DISTRICT

Confined Space Entry Program

<u>Contents</u>	<u>Page</u>
Introduction.....	1
Permit-Required Confined Spaces	1
Permit-Required Confined Spaces: Alternative Entry Procedures	2
Duties of Entry Team.....	3
Entry Permit System	4
Rescue Procedures	6
Non-Permit Confined Spaces.....	6
Training.....	7

CONFINED SPACE ENTRY PROGRAM

INTRODUCTION

The purpose of the Castro Valley Sanitary District confined space entry program is to protect employees who work in manholes, pump stations, trenches, or any other confined space that could expose employees to hazardous conditions or substances. The program establishes an entry permit system and procedures to ensure that potential hazards of each confined space are identified and evaluated and that appropriate safety precautions are taken before an employee enters the space.

The policies and procedures in this program are consistent with the requirements of CAL/OSHA General Industry Safety Orders, Title 8. Sections 5156 and 5157 and supersede previous confined space policies and procedures. The program applies to all employees who work in, or in connection with the CVSan's confined spaces.

Confined spaces at Castro Valley Sanitary District have been identified based on the definitions in Section 5157 as follows:

Confined Space is a space that:

1. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
2. Has limited or restricted means for entry or exit; and
3. Is not designed for continuous employee occupancy.

Permit-Required Confined Space is a space that has one or more of the following characteristics:

1. Contains or has a potential to contain a hazardous atmosphere;
2. Contains a material that has the potential for engulfing an entrant;
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section; or
4. Contains any other recognized serious safety or health hazard.

Non-Permit Confined Space is a space that does not contain (or with respect to atmospheric hazards, has no potential to contain) any hazard capable or causing death or serious physical harm.

Employees who work in or in connection with confined spaces are required to follow the procedures described in this program and to take all the appropriate precautions to ensure that the work is performed safely. At no time should an employee enter a confined space or perform work in the space unless it can be done safely.

PERMIT-REQUIRED CONFINED SPACES

There are three areas of CVSan work in which conditions requiring a confined space permit may exist: pump stations, manholes, and excavations. Potential hazards that may be associated with these spaces include engulfment, toxic gases, explosive or flammable gases, oxygen deficiency, electrical and mechanical hazards, and may under certain circumstances include heat stress.

The list of identified permit-required confined spaces below is not all-inclusive. Other spaces may be determined to be permit-required after evaluating the conditions or circumstances of the entry. The type of work to be performed in the space could introduce hazards to an otherwise safe space. Working with flammable or toxic substances, welding or other hot work, or drifting vapors from outside sources would make a space hazardous or potentially hazardous and therefore require a permit to enter. An entry into a confined space is made whenever any part of the body breaks the plane of the opening to the space.

Pump Stations

The dry wells at Grovenor Way, Lift Station 3 and Camino Alta Mira, Lift Station 4 have been evaluated and are identified as permit-required confined spaces. Alternate entry procedures are to be used. All other wet wells and dry pits are permit required confined spaces.

Warning signs are posted at each of these locations to inform employees and contractors that the space requires a permit to enter. To prevent unauthorized entry, each of these spaces are secured.

Manholes

All CVSan manholes over four feet are permit-required confined spaces. All manholes, regardless of depth, must have a standby if an entry is made and must be tested for hazardous atmospheric conditions before the entry.

Trench Excavations

As a routine precautionary measure, trench excavations greater than four feet are to be tested for hazardous atmospheric conditions. Ventilation before entry is required if hazardous gases or vapors, or low oxygen content is found. If hazardous atmospheric conditions exist, (or can potentially develop) in trenches that are four feet deep or more, or if other hazards are present that may endanger workers (such as wastewater accumulation), an entry permit and emergency rescue preparations are required. Other safety precautions which are specified in Section 1541 of the CAL/OSHA Construction Safety Orders must also be considered in preparation for entry into excavations.

PERMIT-REQUIRED CONFINED SPACES: ALTERNATIVE ENTRY PROCEDURES

Alternate entry procedures are allowed in permit spaces where it can be demonstrated and documented that the only hazard or potential hazard is an atmospheric one, and that continuous forced air ventilation alone will maintain the space safe for entry such as stations 3 and 4. A trained, qualified employee may enter these confined spaces without an attendant or rescue preparations provided the following conditions are met.

1. All unsafe conditions are eliminated before the confined space cover is removed.
2. The entrance to the space is guarded with a railing or other type of barrier to prevent an accidental fall through the opening and to protect employee in the space.
3. The atmosphere is tested before entry in the following order: O₂, LEL/LFL, H₂ S, CO.
4. No entry is made until hazardous atmosphere is eliminated.
5. There is no hazardous atmosphere when employees are in the space.
6. Continuous forced ventilation is used.
7. The air supply is clean and will not create hazards.
8. The air supply is directed to area where employees are working.

9. The atmosphere is periodically tested to ensure a hazardous atmosphere is not developing.
10. Records of pre-entry and entry monitoring data and inspection data are maintained.
11. The entrant certifies, in writing, that the required pre-entry measures have been taken.
12. Monitoring and inspection data, and the certification information are made available to each employee entering the space.

If a hazardous atmosphere develops in the space, or other hazards arise, alternate procedures can no longer be used and the space must be reclassified as a fully permitted space. In some circumstances, employees may be protected from certain physical hazards, such as falling, because of the presence of structures such as railings and ladders. When working in certain areas where proper protective structures are provided, alternate procedures may be used as long as the only hazard or potential hazard is an atmospheric one.

DUTIES OF ENTRY TEAM

All hazards or potential hazards within a confined space will be evaluated by a qualified CVSan employee before an entry is permitted. Only the person designated as the entry supervisor has the authority to authorize an entry permit. A permit-required confined space entry team includes an entry supervisor, entrant(s), and at least one attendant. An entry team must be comprised of at least three persons. Before any employee enters a permit-required confined space, written authorization (permit) must be obtained from an entry supervisor.

Duties of Entry Supervisor

1. Verifies that acceptable entry conditions exist.
2. Ensures acceptable entry conditions are maintained.
3. Verifies that the information and procedures on the entry permit are accurate and complete.
4. Verifies that the equipment specified on the permit is in place and in good condition.
5. Reviews permit conditions and procedures with entrants and attendants.
6. Ensures unauthorized persons do not enter the space.
7. Signs the permit to authorize entry.
8. Cancels and files permit.

Duties of Entrant

1. Properly uses the safety equipment and tools supplied.
2. Promptly notifies the attendant if any prohibited condition exists or any warning signs or symptoms appear.
3. Quickly evacuates space if an order is given by the attendant or entry supervisor, if any prohibited condition is detected, or if an alarm is activated.
4. Maintains communication with the attendant to enable attendant to monitor status of space conditions and the entrants.
5. Adheres to the procedures and precautions indicated on the permit and provided in training.

Duties of Attendant

1. Remains outside the permit space until relieved by another attendant.
2. Maintains communication with entrants.
3. Maintains accurate count and identification of entrants.
4. Monitors activities inside and outside the space.
5. Orders entrants to evacuate if a prohibited condition exists, or behavioral effects of hazardous exposure are detected, or activities outside space could endanger entrants, or attendant cannot effectively perform all required duties.
6. Ensures unauthorized persons stay away from the space.
7. Performs non-entry rescue procedures or initiates on-site rescue operations.
8. Summons additional rescue services, when needed.

ENTRY PERMIT SYSTEM

Confined space entry permits are to be issued for a specific purpose, a specific work crew, and for a specified period of time. The entry permit is a written authorization of the location and type of work to be done. It also authorizes the personnel assigned to the job, verifies that potential hazards have been evaluated and controlled or eliminated, that proper safety precautions have been taken, and it is safe for workers to enter. The permit must be kept at the work site (outside the space) for the duration of the work.

Pre-Entry Procedures

1. Obtain required signature to authorize the work (from the General Manager or Collection System Lead, or the designated entry supervisor).
2. Determine (by entry supervisor or other qualified person) what hazards or potential hazards are within the confined space.
3. Check that all safety equipment is available and in good working condition.
4. Check that atmosphere-monitoring equipment has been calibrated as recommended by manufacturer.
5. Without entering space:
 - a. Test atmosphere and record readings on permit:
Acceptable atmospheric conditions: Oxygen not less than 19.5% or more than 23.5%, LEL/LFL not more than 10%, H₂S not more than 10 ppm, CO not more than 35 ppm.
 - b. Check that ventilation system is operating properly.
6. Set up barrier around entrance to prevent accidental falls and to protect employees from vehicles, or falling objects.
7. Check for physical hazards such as poor footing, structures and equipment that hinder movement, and extreme temperatures or humidity that could affect worker safety.
8. Secure and lock out all energy sources (electrical, mechanical, hydraulic, pneumatic, and chemical) that are potentially hazardous to confined space workers. Follow lockout/tagout procedures.
9. Disconnect, blind, or block lines to prevent development of hazardous conditions.

10. Use continuous forced air ventilation if hazardous conditions exist or could potentially develop. Ensure that there is no recirculation of exhausted air from blowers or the introduction of contaminants from the outside, such as traffic exhaust, or vapors or toxic substances from other areas. Place blowers at least 10 feet away from opening of space.
11. Entry supervisor review's and authorizes entry permit if the space is safe to enter, and all preparatory steps required for safe entry have been taken.

Entry Procedures

1. Only employees who have been trained on the CVSan's confined space entry and work procedures are allowed to work in or around confined spaces.
2. Only the work activity specified on the authorized permit is to be performed in the confined space.
3. At least one attendant is required for confined space work.
4. If at any time during the performance of confined space work, dangerous atmospheric conditions develop, work must stop and the space evacuated immediately.
5. An attendant must be stationed outside the space at all times during the confined space operations and remain in constant communication with workers in the space.
6. The attendant must order evacuation of the space whenever:
 - a. A condition not allowed on the permit is observed.
 1. Unusual behavior is observed.
 - c. An outside situation endangers the confined space workers.
 - d. The attendant must leave the workstation.
8. The permit must be cancelled if the air becomes hazardous after entry

Respiratory equipment must be worn whenever a safe atmosphere cannot be assured after implementing pre-entry procedures.

Post-Entry Procedures

The entry supervisor:

1. Cancels the permit by entering date and time of cancellation and signature.
2. On the reverse side of the permit, makes note of any problems encountered during entry operations.
3. Places the cancelled permit in the safety files.
4. Notifies the Collection System Lead if any equipment, safety gear or tools need to be repaired or replaced.

RESCUE PROCEDURES

It is the CVSan's policy that all employees who work in or in connection with confined spaces **must** be trained in basic rescue procedures. Members of a permit space entry team must be knowledgeable of the hazards or potential hazards, be able to recognize the signs and symptoms of exposure, be trained in the selection and use of personal protective equipment, and be certified in first-aid and CPR. Prior to each entry, the team will plan and prepare for non-entry and entry rescues and ensure that at least one standby is immediately available to provide rescue services.

Self-Rescue

If possible, entrants should immediately leave the confined space:

1. When an alarm sounds.
2. At the first sign of any exposure symptoms.
3. When ordered to evacuate by attendant or entry supervisor.

Non-Entry Rescue

If entrants cannot immediately evacuate the space at the first sign of trouble, the attendant should attempt a non-entry rescue by retrieving the entrant using a harness and hoisting equipment. ***The attendant must not enter the space unless relieved by another attendant.*** Retrieval systems must be used in vertical permit spaces more than 5 feet deep.

Entry Rescue

Rescuers are to assume that a hazardous atmosphere exists if an entrant has slurred speech, appears dizzy, disoriented, confused, unconscious, or displays any unusual behavior, or if communication with the entrant is lost. A self-contained breathing apparatus must be worn for entry rescues if a hazardous atmosphere is suspected or if there is any chance that it can develop. ***Call 911 for assistance or if specialized equipment is needed to remove a worker.***

Authorized Rescuers

Only those employees who have been authorized by the CVSan are permitted to perform the duties of a rescuer on a confined space entry team. Rescuers must meet all the training requirements and have the necessary knowledge and skills to be authorized by CVSan to perform the duties of a rescuer. The training will include, but not necessarily limited to, the CVSan's confined space entry policies and procedures, CPR/First aid, identification of confined space hazards, signs and symptoms of hazard exposure, gas detection, and the proper use and care of a self-contained breathing apparatus and retrieval equipment.

Outside Rescue Services

Although outside rescue services may be summoned to give assistance and support in an emergency, members of the entry team must be prepared to give immediate assistance to any of the entrants who may need it.

NON-PERMIT CONFINED SPACES

All confined spaces are considered permit-required until pre-entry procedures demonstrate otherwise. A confined space may be designated a non-permit space, or a permit-required confined space may be re-classified a non-permit space, if all hazards have been eliminated. Because atmospheric hazards are controlled with ventilation and not eliminated in spaces where alternate procedures are used, these spaces cannot be classified as non-permit spaces.

TRAINING

All employees who work in or around confined spaces must be trained before performing any confined space work. At a minimum, the training will include:

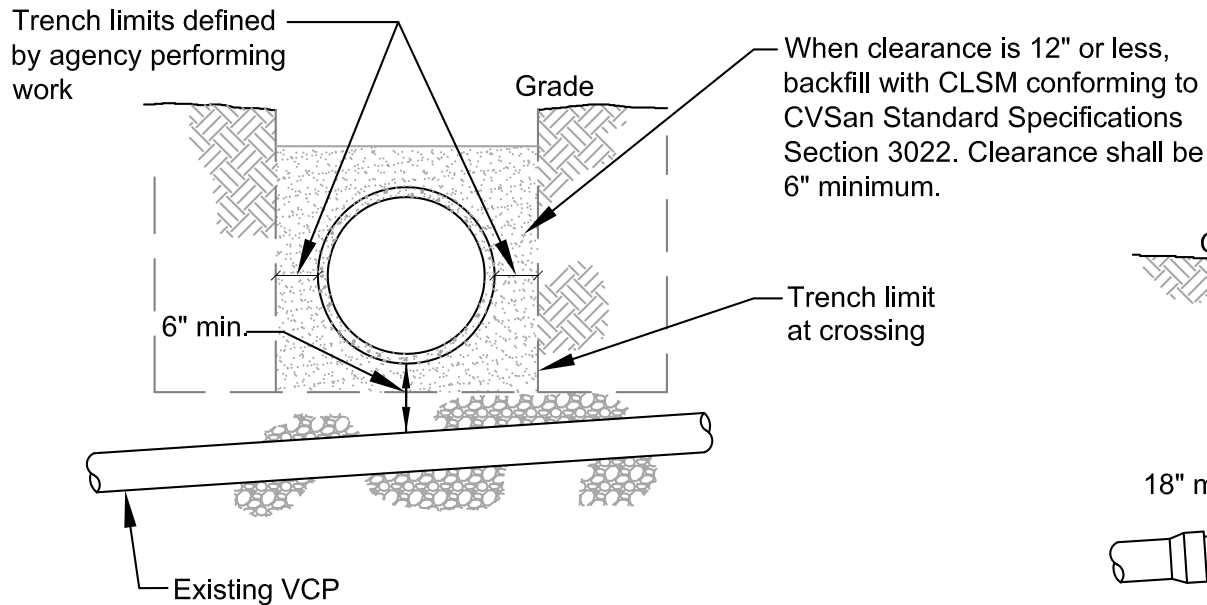
4. Hazards of confined spaces.
5. Signs and symptoms of hazard exposure.
6. Duties of entrant, attendant, and entry supervisor.
7. Pre-entry and entry procedures.
8. Castro Valley Sanitary District confined space permit system.
9. Selection and use of personal protective equipment.
10. Atmosphere test equipment.
11. Rescue procedures and equipment.
12. CPR/First Aid.

In addition, employees involved in confined space work will participate in simulated rescue operations at least once per year. Review training will be provided whenever the need is indicated, such as changes in procedures, introduction of new equipment, the hiring of new employees or whenever deficiencies in implementing the program are observed.

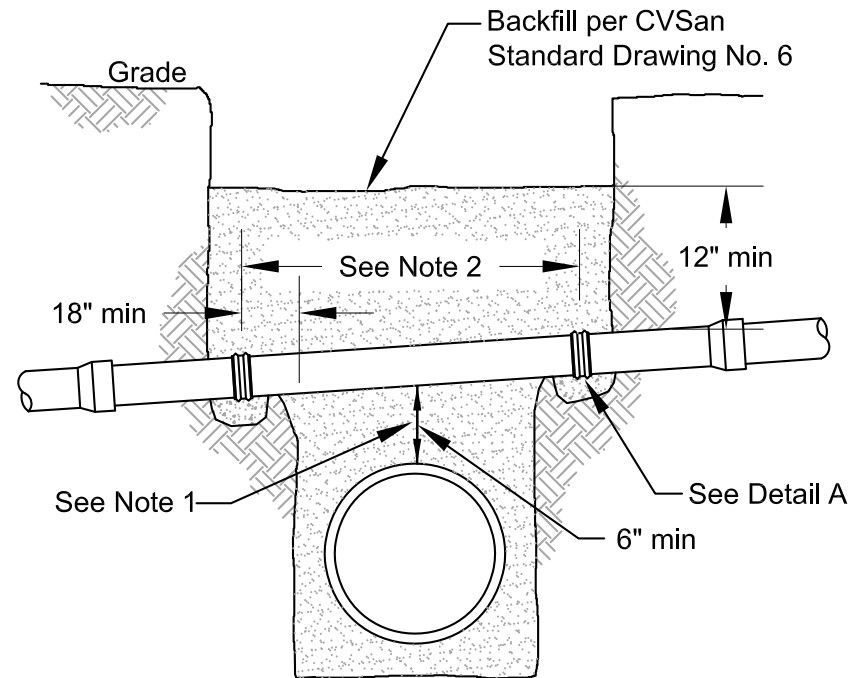
Training records will be maintained which will include names and signatures of trainees and trainers, dates and content of training. These records will be made available for inspection to employees or their representatives.

APPENDIX B

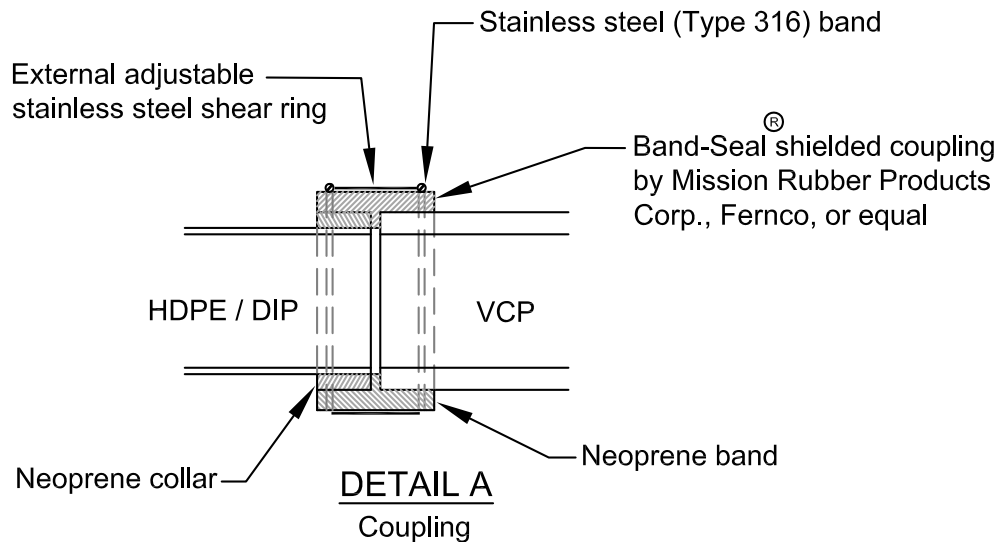
Castro Valley Sanitary District
Standard Drawings
(2022)



NEW UTILITY CROSSING OVER SANITARY SEWER



NEW UTILITY CROSSING UNDER SANITARY SEWER



NOTES:

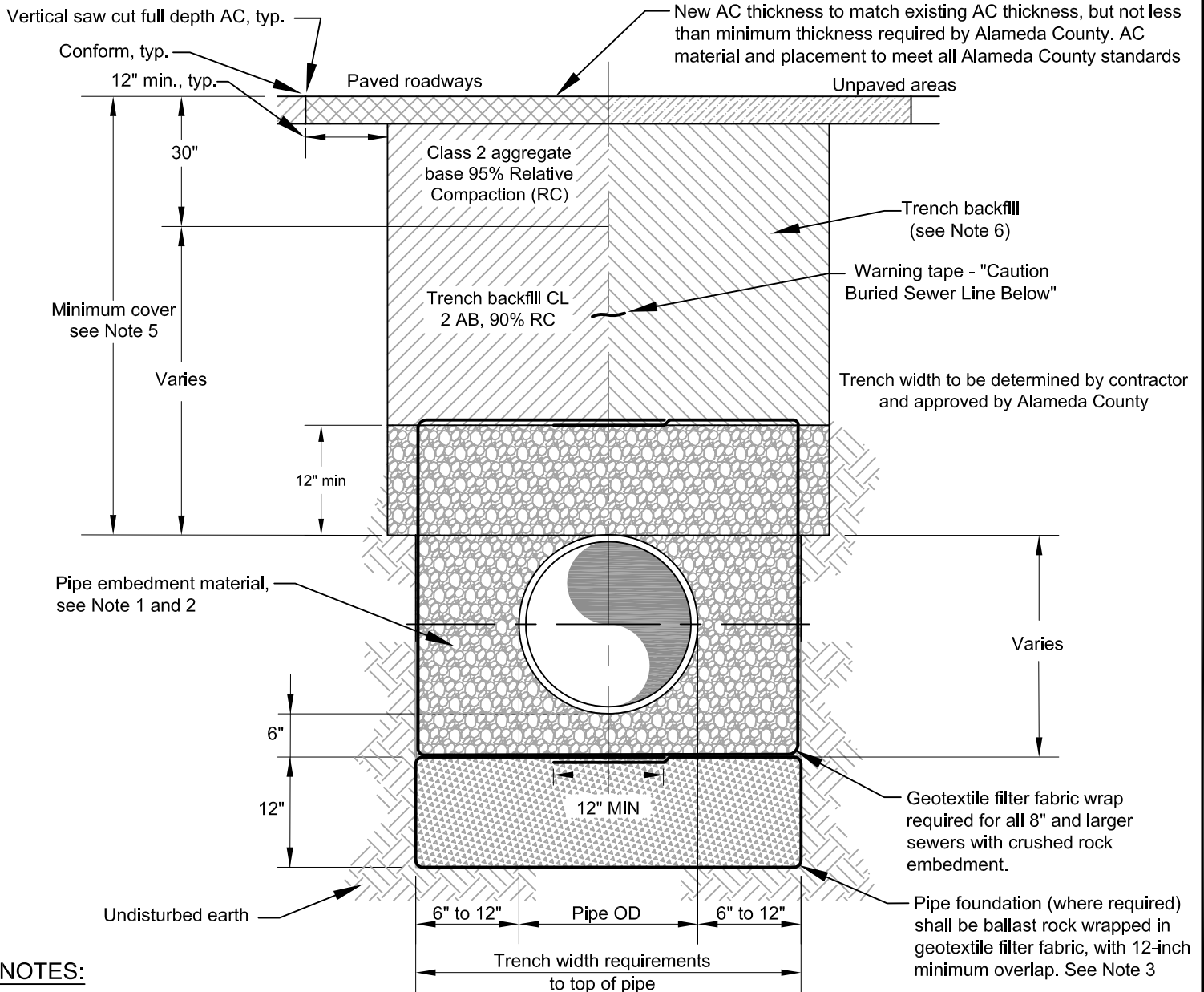
1. When clearance is 12" or less, replace existing VCP sewer with one length of Protecto 401 ceramic epoxy coated ductile iron pipe or HDPE SDR-17 to span trench as shown.
2. For potable water crossings, the sewer main shall not have joints 10' (ten feet) from the outside of the water pipe on each side.

Castro Valley Sanitary District
21040 Marshall Street
Castro Valley, CA 94546

TYPICAL METHOD OF CROSSING

Drawn By: MRK
Date: 09/28/2017
Checked By: LML
Approved By: RPW
Scale: NTS

Drawing No. 5



NOTES:

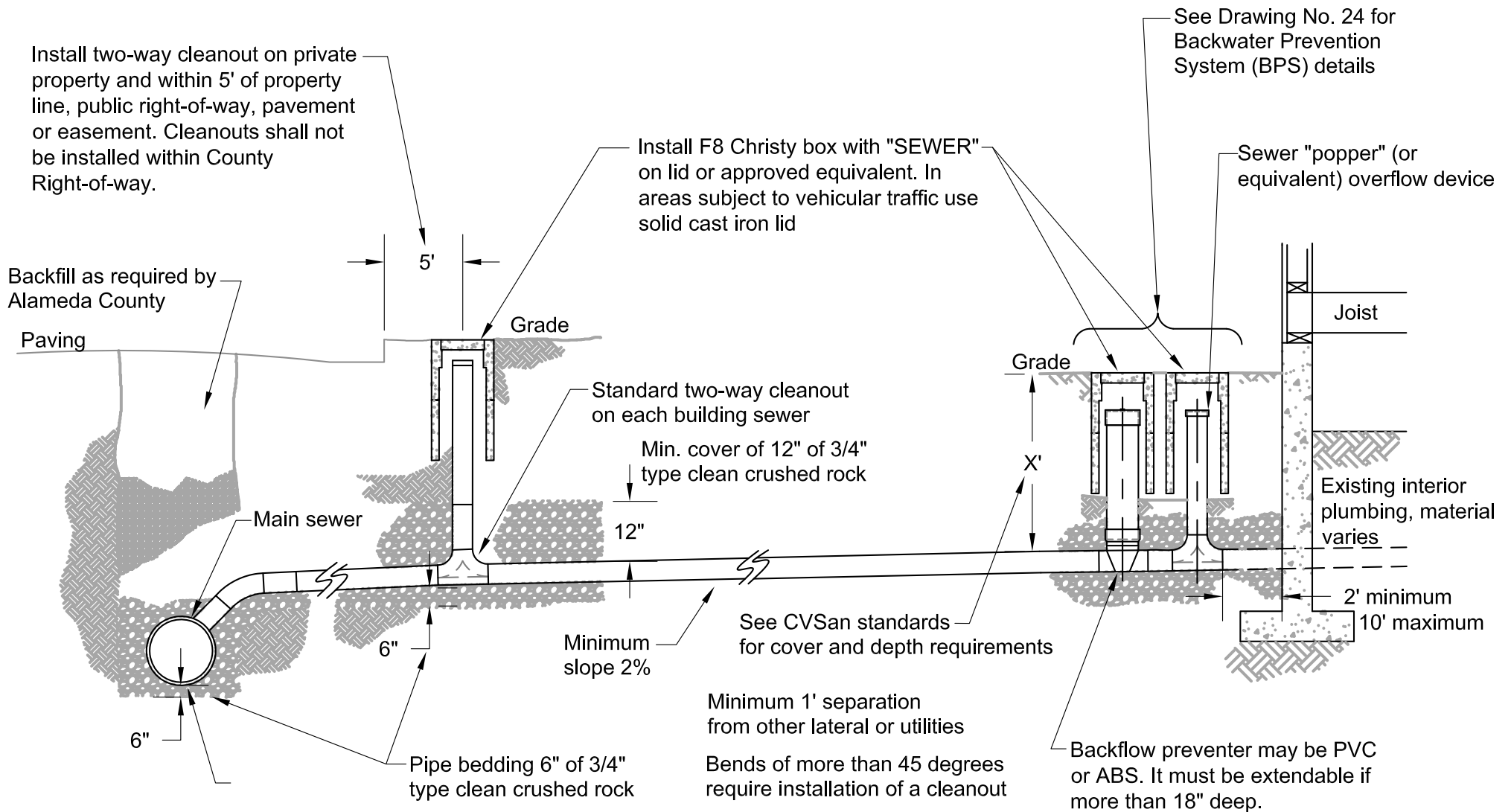
- ① Pipe embedment material shall be specified by design engineer and based on required load factor for sewer installation. For Class B and crushed stone encasement bedding requirements, the pipe embedment material is crushed rock. For Class C bedding requirements, the pipe embedment material is Class 2 aggregate base. Crushed stone pipe embedment shall be used in all cases where embedment material is not specified by design engineer.
- ② Crushed rock shall be compacted with a minimum of four passes with a Vibraplate 220Y Wacker (or equivalent) with a 12 inch square shoe, or equal, on the material below the pipe and after material has been placed to a point 12 inches above the pipe. Class 2 AB shall have 90% relative compaction and shall be compacted in 6 inch lifts.
- ③ Foundation material shall be required where trench bottom is determined by CVSan to be unstable.
- ④ Where sewer is constructed under existing utilities, backfill around existing utilities shall meet controlling agency's requirements or requirements on CVSan Standard Drawing No. 5.
- ⑤ Minimum cover requirements are based on pipe material and surface loading.
 - a) VCP and HDPE SDR-17 pipe material - four (4) feet minimum in traveled ways subject to vehicular traffic
 - b) DIP (Protecto 401 Ceramic Epoxy Coated) and CIP pipe material - two (2) foot minimum in all areas
- ⑥ Trench backfill with selected material from excavated materials may be used in non-roadway areas with approval of CVSan.
- ⑦ Install detectable underground warning tape two feet above top of pipe, "Caution Buried Sewer Line Below".

Castro Valley Sanitary District
21040 Marshall Street
Castro Valley, CA 94546

**SANITARY SEWER MAIN
BACKFILL DETAIL**

Drawn By: MRK
Date: 09/27/2017
Checked By: LML
Approved By: RPW
Scale: NTS

Drawing No. 6



APPROVED PIPE TYPES FOR LATERALS

- Vitrified Clay Pipe
- Ductile Iron Pipe
- Cast Iron Pipe
- High Density Polyethylene (HDPE SDR-17)

TESTING REQUIREMENTS

1. Prior to backfilling
2. Air or water test performed to CVSan Standards

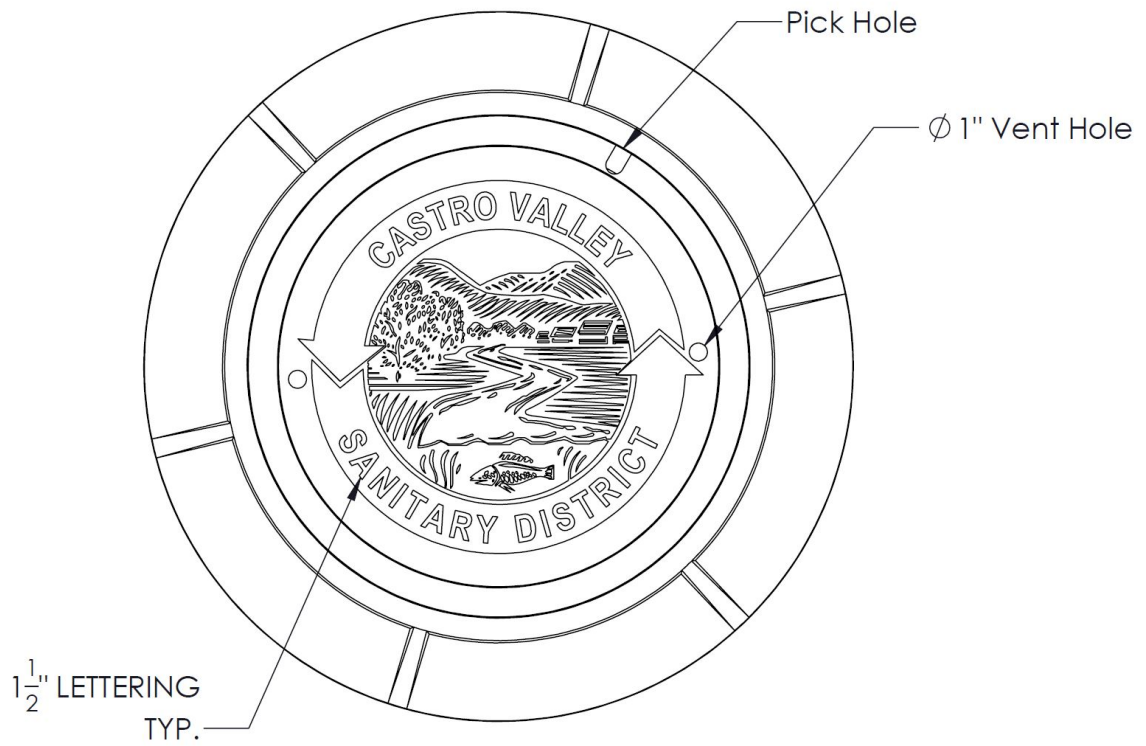
All sanitary sewer construction must comply with the Castro Valley Sanitary District Code, General Provisions and Specifications for Construction of Sanitary Sewers, and CA Uniform Plumbing Code.

Castro Valley Sanitary District
21040 Marshall Street
Castro Valley, CA 94546

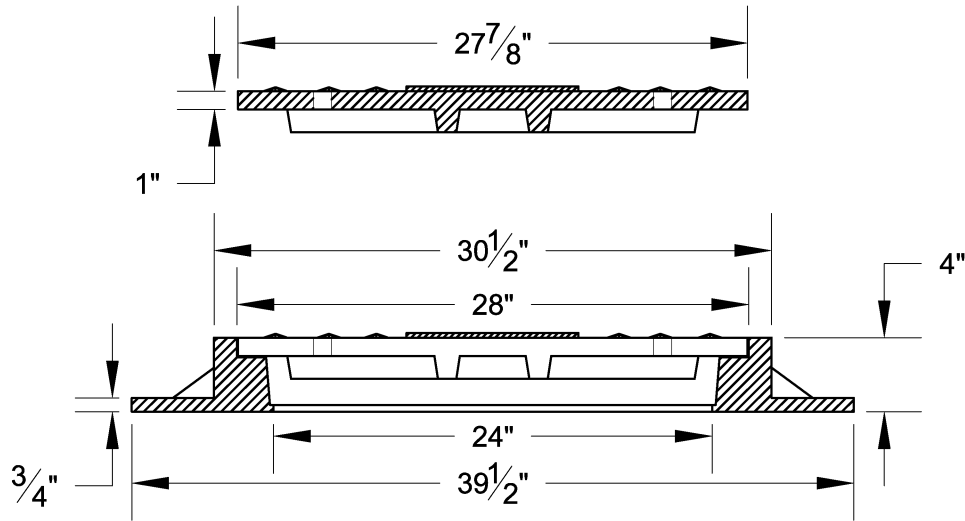
**TYPICAL BUILDING SEWER (LATERAL)
PROFILE VIEW**

Drawn By: MRK
Date: 03-29-2019
Checked By: LML
Approved By: RPW
Scale: NTS

Drawing No. 9



TOP VIEW



SECTION

NOTES:

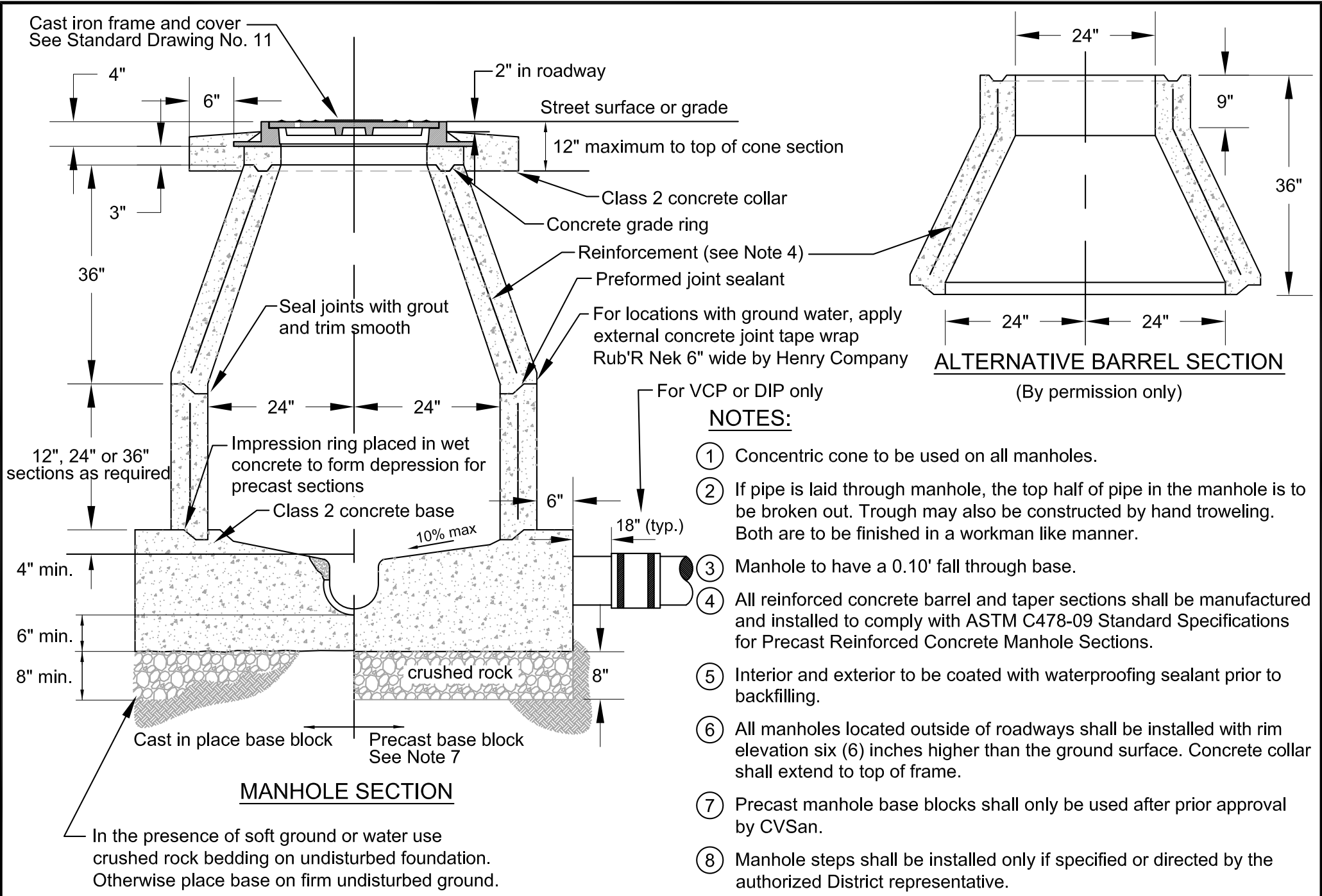
- ① Frame and cover to exceed H-20 wheel loading
- ② Casting shall be dipped in bituminous paint prior to being installed
- ③ Frames and covers shall be by South Bay Foundry, A1985 R-1, or equal

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21040 Marshall Street
Castro Valley, CA 94546

**STANDARD MANHOLE
FRAME AND COVER**

Drawn By: MKL
Date: 04/12/2022
Checked By: LML
Approved By: RPW
Scale: NTS

Drawing No. 11

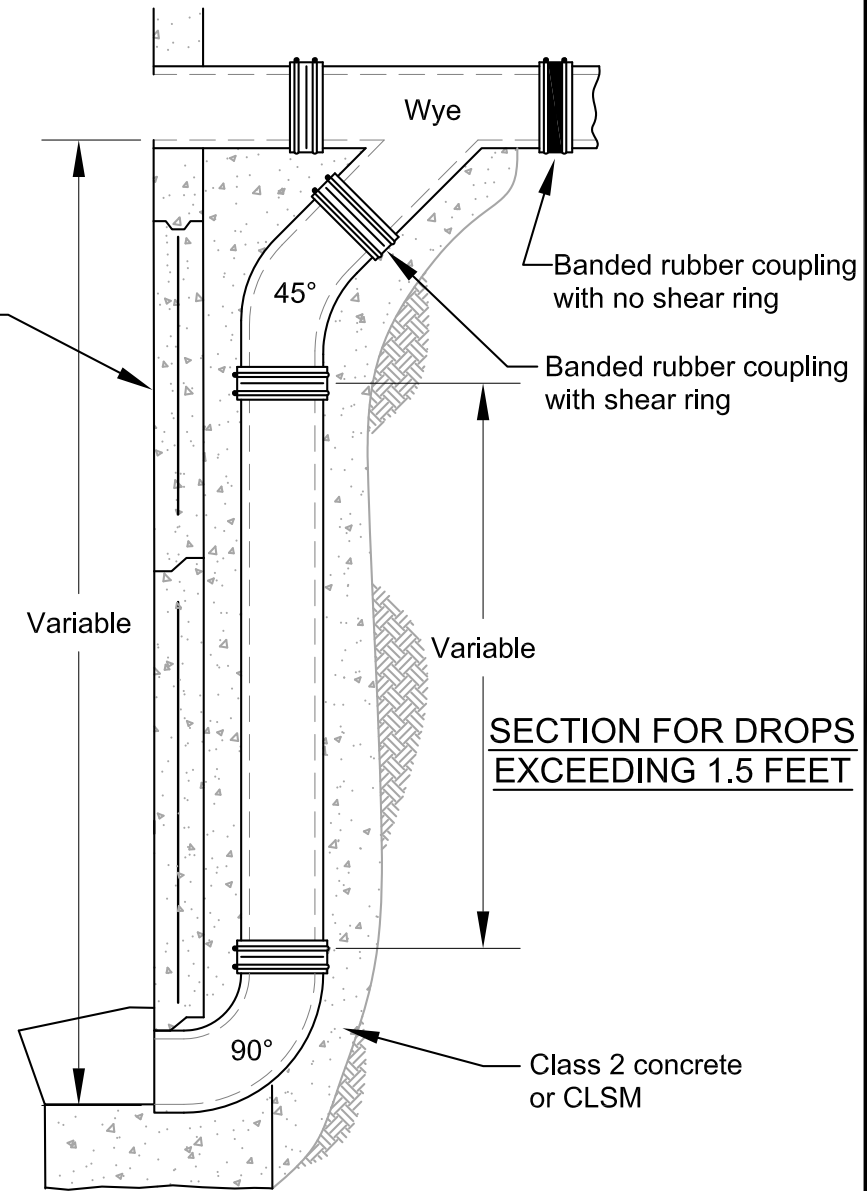
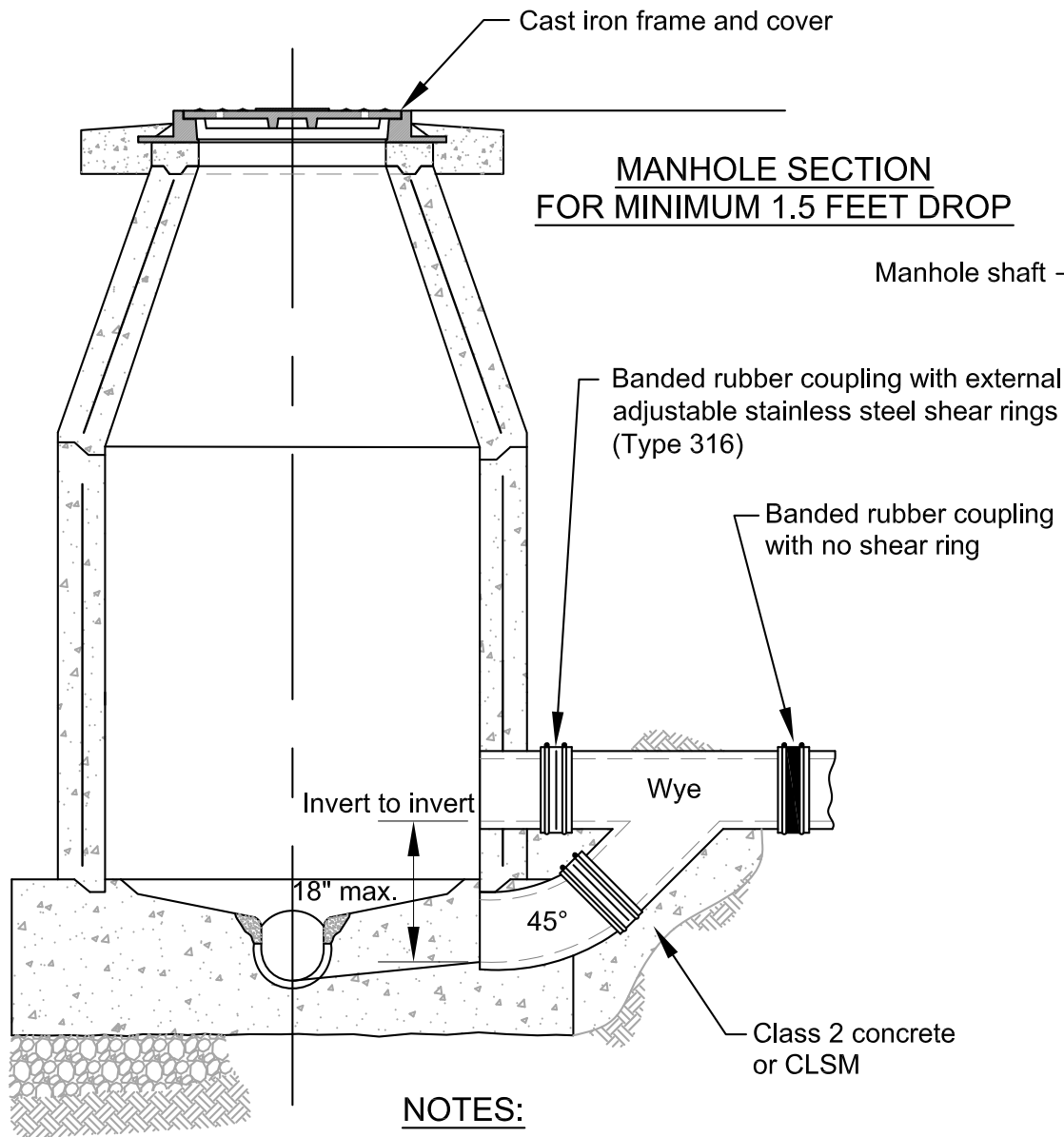


Castro Valley Sanitary District
21040 Marshall Street
Castro Valley, CA 94546

**STANDARD PRECAST MANHOLE WITH
CONCENTRIC CONE**

Drawn By: MRK
Date: 09/27/2017
Checked By: LML
Approved By: RPW
Scale: NTS

Drawing No. 13



NOTES:

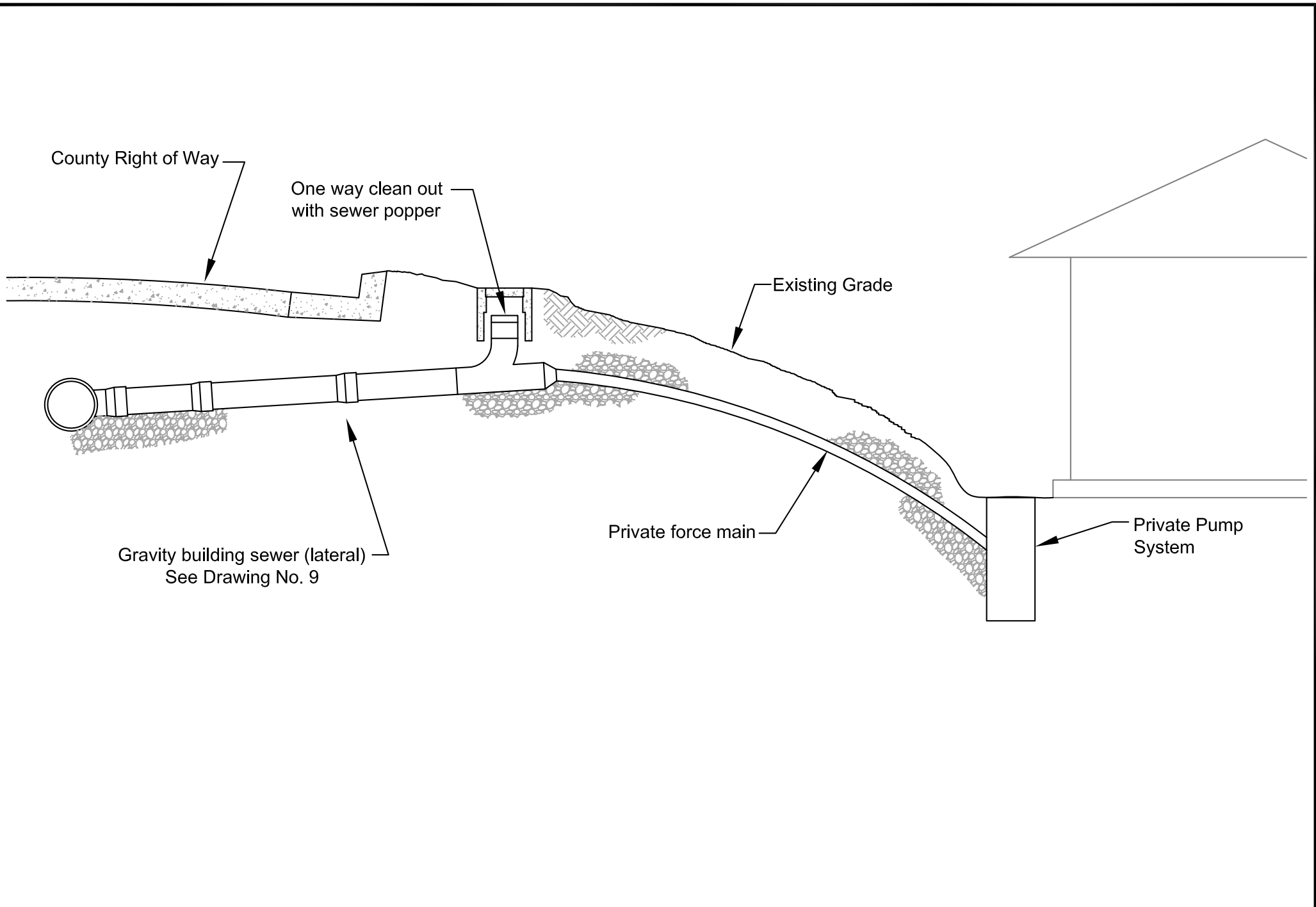
- ① Drop manholes shall not be used in design unless authorized by CVSan. Drop manhole replacement or repair is allowed only with prior CVSan approval.
- ② All dimensions and standards for manholes are specified on Drawing No. 13.

Castro Valley Sanitary District
21040 Marshall Street
Castro Valley, CA 94546

DROP MANHOLE

Drawn By: MRK
Date: 09/28/2017
Checked By: LML
Approved By: RPW
Scale: NTS

Drawing No. 15



County Right of Way

One way clean out with sewer popper

Existing Grade

Private Pump System

Private force main

Gravity building sewer (lateral)
See Drawing No. 9

Castro Valley Sanitary District
21040 Marshall Street
Castro Valley, CA 94546

TYPICAL PRIVATE FORCE MAIN CONNECTION

Drawn By: MRK
Date: 09/28/2017
Checked By: LML
Approved By: RPW
Scale: NTS

Drawing No. 17

Sanitary sewers and appurtenances thereto shall be constructed in accordance with the provisions of the Castro Valley Sanitary District (CVSan) Code at the time of acceptance and the general provisions and specifications therein set forth which are incorporated herein by reference.

Sanitary facilities as shown on these plans were approved by the Sanitary Board of the Castro Valley Sanitary District on the ____ day of _____, 20 ____, by Resolution No. _____.

Castro Valley Sanitary District

By _____
Authorized Officer of CVSan

Cover Sheet Block

Approved by Castro Valley
Sanitary District (CVSan)
Resolution

No : _____

See Sheet _____
for approval signature and
construction requirements.

Interior Sheet Block

Notes :

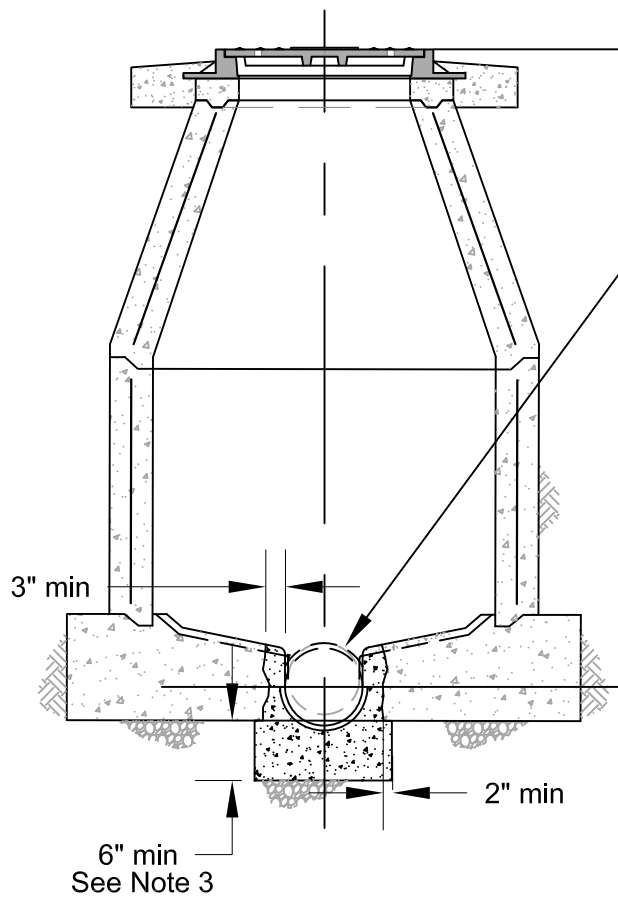
1. Cover sheet block shall be approximately 3.5" x 8" in size on 24" x 36" sheet.
2. Interior sheet block shall be approximately 1" x 3" in size on 24" x 36" sheet.
3. Blocks shall be located in lower right corner of sheet when possible.

Castro Valley Sanitary District
21040 Marshall Street
Castro Valley, CA 94546

**CVSan STANDARD
SIGNATURE BLOCK**

Drawn By: MRK
Date: 09/28/2017
Checked By: LML
Approved By: RPW
Scale: NTS

Drawing No. 19

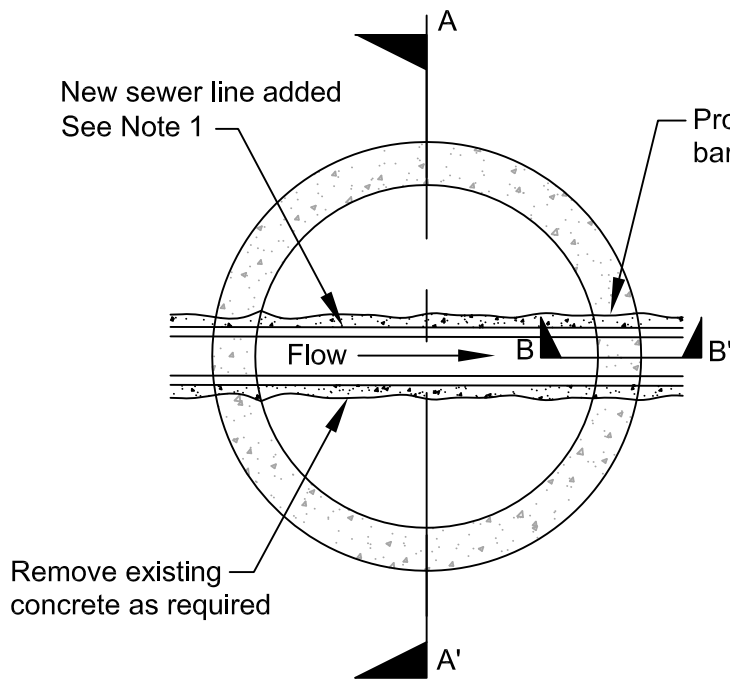


SECTION A-A'

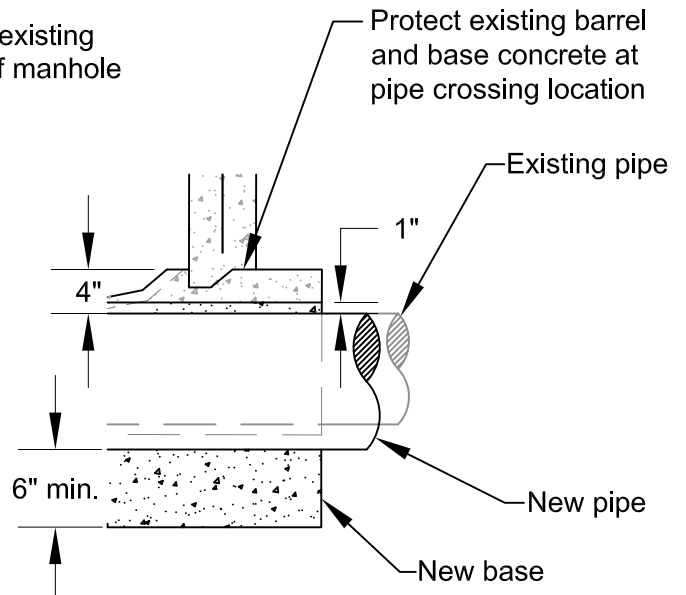
New pipe (see Note 2) or smooth channel surface with 1/2" cement mortar

NOTES:

- ① Contractor shall install the new sewer by cutting a trench through the existing concrete base of the manhole. The width of the trench shall be wide enough to permit placement of three (3) inches of Class 2 concrete on both sides of the pipe.
- ② Where possible, the pipe will be laid through the manhole and the top broken out to springline after the concrete in the base has set. Work is to be finished in a workman like manner.
- ③ Where removal of concrete extends to bottom of manhole base, the material below the pipe cutout shall be over excavated to provide a minimum concrete thickness of six (6) inches below the bottom of the new sewer installation.



PLAN



PARTIAL SECTION B-B'

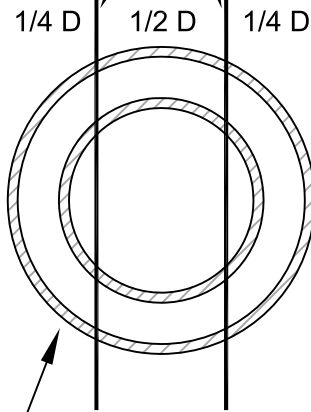
Castro Valley Sanitary District
21040 Marshall Street
Castro Valley, CA 94546

**MANHOLE BASE
RESHAPING**

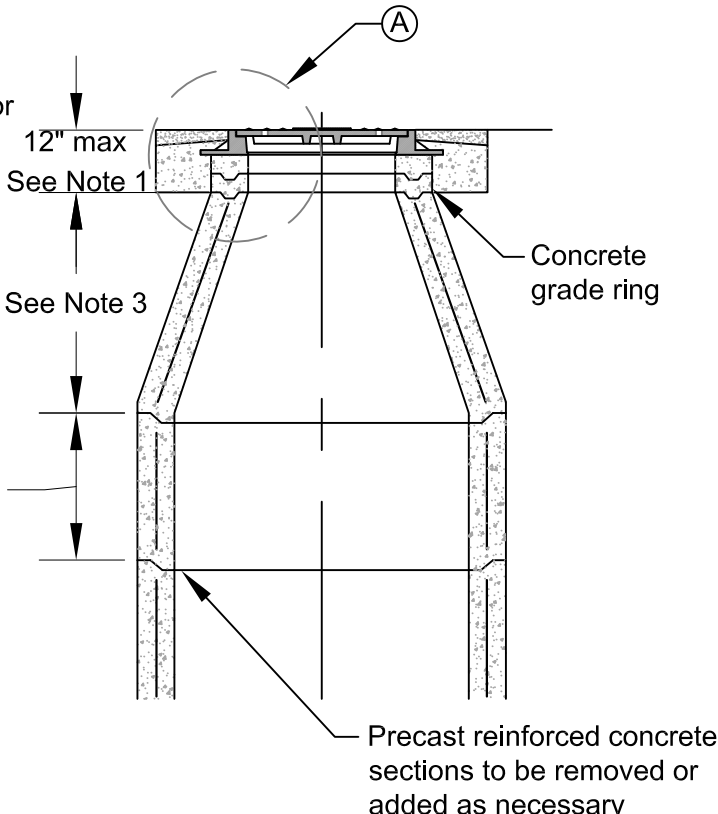
Drawn By: MRK
Date: 09/28/2017
Checked By: LML
Approved By: RPW
Scale: NTS

Drawing No. 20

Straight edges to be placed parallel to direction of travel or as directed by the CVSan inspector

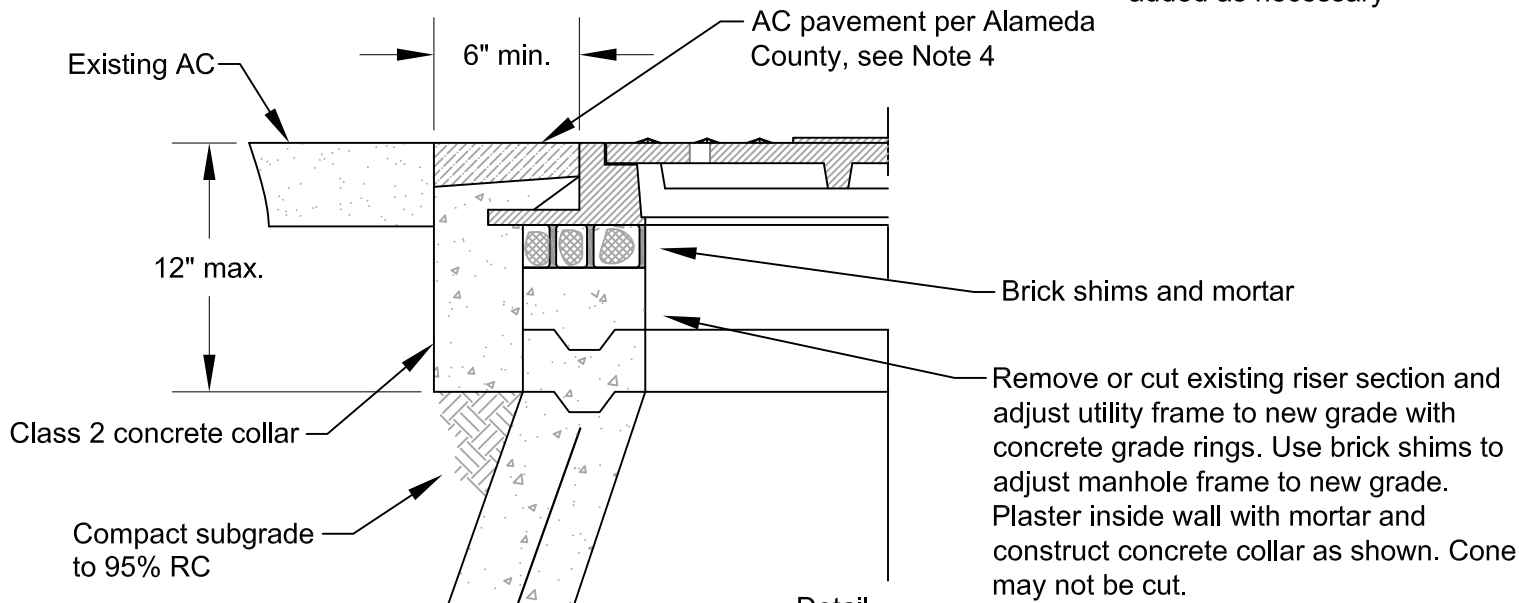


Frame, cover and AC lip to be within 1/8 inch of the elevation of surrounding pavement to be determined with straight edge as shown



See Notes 1, 2 and 3

Precast reinforced concrete sections to be removed or added as necessary



(A) Detail NTS

NOTES:

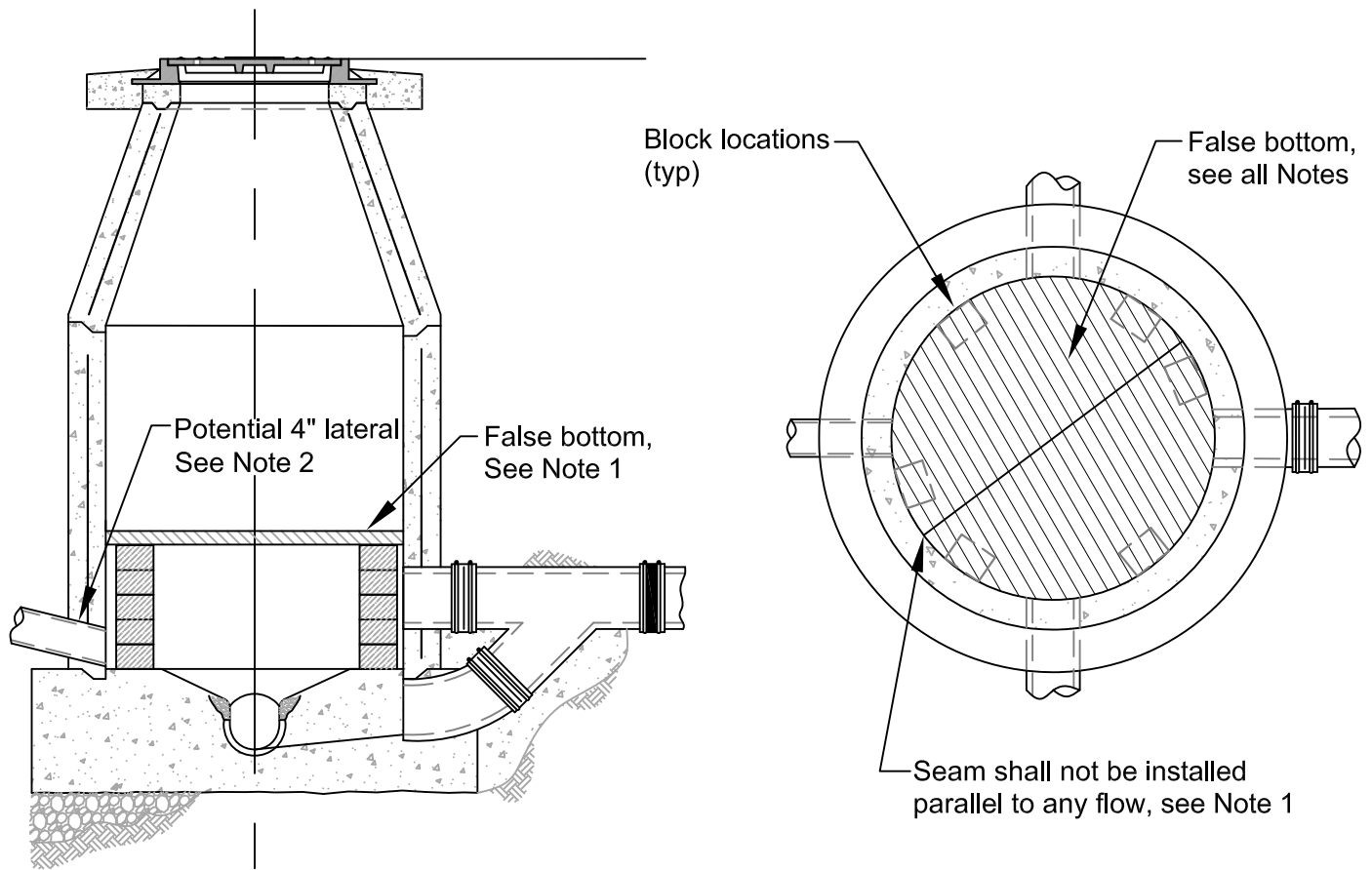
- ① If new grade is to be higher than existing grade, manhole throat depth shall not exceed twelve (12) inches. Add same diameter barrel sections as necessary.
- ② If new grade is to be lower than existing grade, remove grade rings or sections of the barrel and install combination of barrel section and grade rings as necessary.
- ③ If an existing eccentric cone is to be removed, it must be replaced with the concentric type.
- ④ AC paving is to conform to the standards of Alameda County. Place temporary AC (cutback) around utility frame until permanent paving is placed.

Castro Valley Sanitary District
21040 Marshall Street
Castro Valley, CA 94546

MANHOLE FRAME MODIFICATIONS

Drawn By: MRK
Date: 09/28/2017
Checked By: LML
Approved By: RPW
Scale: NTS

Drawing No. 21



NOTES:

- ① False bottom is to be constructed of 1" marine grade plywood. The plywood is to be cut to a 4' diameter circle and then cut in half. The false bottom must be placed in the manhole with the seam perpendicular to direction of flow, or in such a manner as to protect the pipe inlet from any debris.
- ② False bottom is to be placed on blocks with a minimum clearance of 4" above all wastewater inlets of the manhole. False bottom shall be connected to the blocks by nail or screw to prevent the blocks from falling into the flow. Blocks shall not obstruct the flow of wastewater.
- ③ Debris shall be removed from the manhole each time work in manhole is performed.
- ④ Installation of false bottom must be approved by CVSan and a notification given 24 hours prior to commencement of work.
- ⑤ Any overflows, blockages and/or damages to sewer pipe associated with the failure of false bottoms shall be the full responsibility of the agency/contractor that installed the false bottom.
- ⑥ Agency/contractor installing false bottoms is to confirm with CVSan all drop manholes prior to commencing the work.

Castro Valley Sanitary District
 21040 Marshall Street
 Castro Valley, CA 94546

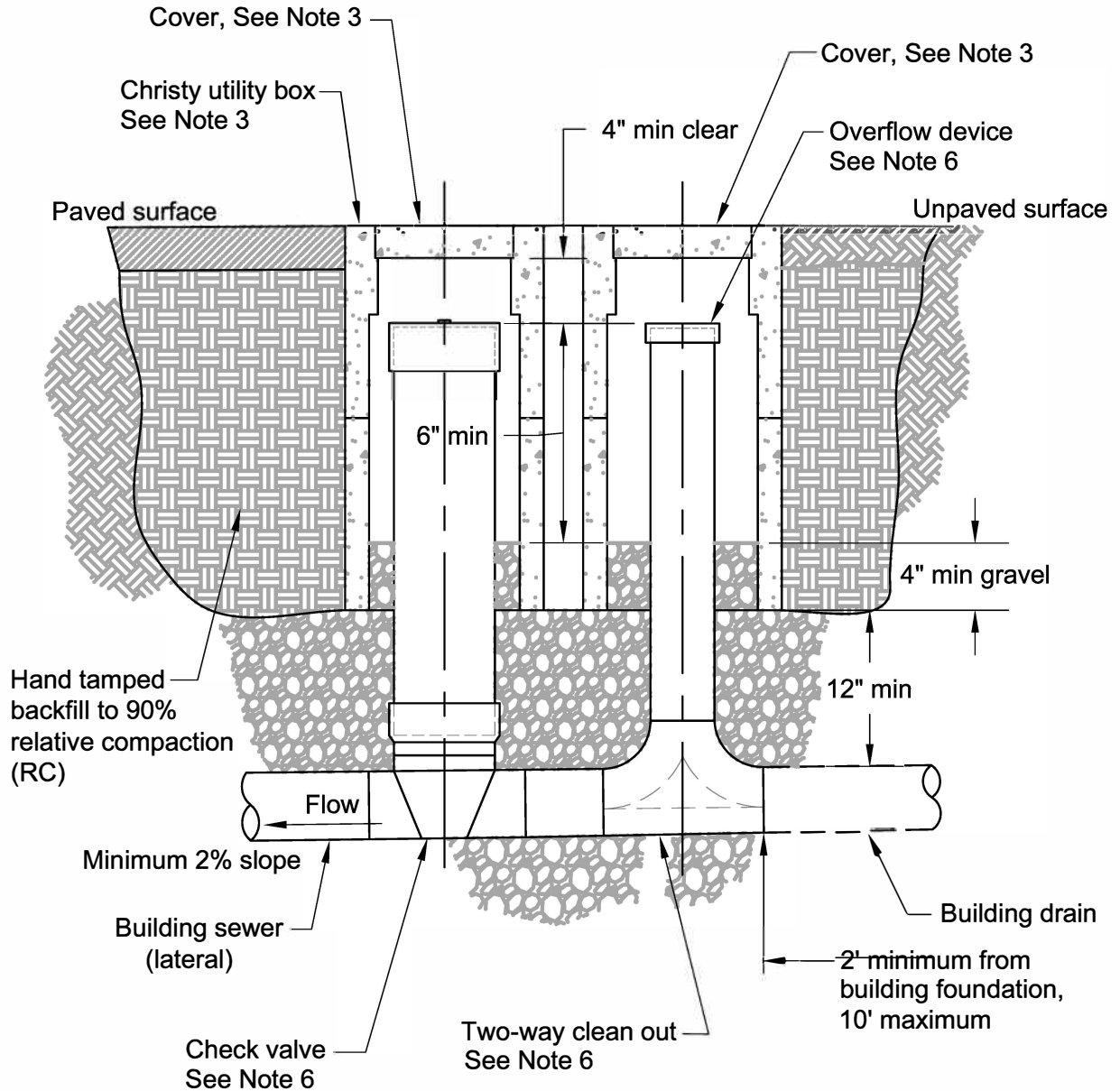
**MANHOLE FALSE
 BOTTOM**

Drawn By: MRK
 Date: 09/28/2017
 Checked By: LML
 Approved By: RPW
 Scale: NTS

Drawing No. 22

NOTES:

- ① Backwater prevention system (BPS) shall include a check valve, a two-way cleanout (CO), and an overflow device installed on the CO. Other types of backwater prevention devices may be approved by CVSan.
- ② A backwater prevention system is required as follows:
 - A. On all new building sewers
 - B. On all existing building sewers requiring repair or replacement of more than 50 percent of the building sewer.
 - C. Other conditions identified in CVSan Code Section 3807.
- ③ Approved boxes are: Christy concrete products F08 concrete box with F08 R lid or N36 concrete box with B36 lid. N36 box is allowed upon approval of CVSan inspector.
- ④ All box lids shall be marked with the word "SEWER".
- ⑤ In areas subject to vehicular traffic, use solid cast iron lid.
- ⑥ Refer to CVSan Code Section 3807 for approved backwater valves, and Section 3810 for approved cleanout devices.
- ⑦ Backflow preventer may be ABS or PVC. It must be extendable if more than 18" deep.



Castro Valley Sanitary District
 21040 Marshall Street
 Castro Valley, CA 94546

**BUILDING SEWER BACKWATER
 PREVENTION SYSTEM**

Drawn By: MRK
 Date: 03-29-2019
 Checked By: LML
 Approved By: RPW
 Scale: NTS

Drawing No. 24

