

Request for Bid
New York Avenue Main Replacement – Phase II
Project No. C26TDNYASW2



FAIR OAKS
WATER DISTRICT

Fair Oaks Water District
10326 Fair Oaks Boulevard
Fair Oaks, CA 95628

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Invitation to Bid

New York Avenue Main Replacement – Phase II

Sealed bids for furnishing all labor, equipment, materials, and performing all work to install the replacement water main will be received and opened at the office of the **Fair Oaks Water District, 10326 Fair Oaks Boulevard, Fair Oaks, CA, 95628** (hereinafter called FOWD, District), on **Thursday, May 28, 2026, at 2:00 pm, local time**. There will be a public bid opening immediately following the bid due date and time.

Bidder's representatives may use the following login information for teleconferencing:

Phone: (916) 844-3159

Conference ID: 208640

All bid inquiries are due one week before the bid date on Thursday, May 21, 2026, at 2:00 pm, local time.

The project scope of work includes the following:

Construction of approximately 1,525 linear feet of new 12-inch ductile iron water main along New York Avenue between Monal Court and north of Lemon Street. The 12-inch ductile iron pipe has been pre-purchased by the District and will be provided to the awarded contractor. The project includes installation of five (5) fire hydrants, two (2) air release valves, and one (1) 4-inch blowoff per FOWD standard specifications. There are eight (8) point of connection tie-ins to the existing distribution system as detailed on the improvement plans. Paving and surface restoration is to be performed per Sacramento County specifications and requirements. New service lines for eleven (11) existing water services ranging from one to two-inches will be installed and reconnected to the existing water meters. The existing 10 and 12-inch steel water main and all appurtenances are to be abandoned per FOWD plans and standard specifications and Sacramento County specifications and requirements.

A mandatory pre-bid meeting and site walk will be held on Wednesday, May 13, 2026, at 2:00 pm, local time. Interested parties shall first meet at the District's Office at 10326 Fair Oaks Boulevard, Fair Oaks before proceeding to the project site.

A copy of the Bid Package may be viewed on the District's website at <https://www.fowd.com/projects-and-bids> or purchased at planroom@srbx.org. Under Public Jobs search "New York Avenue Main Replacement – Phase II". For additional information, contact the Planroom at Century Graphics of (CSDS) California Surveying and Drafting Supply (916) 344-0232. Only

complete sets of the Bid Package may be purchased. The Bidder's attention is directed to the Bid Proposal for complete instructions regarding submission of bids.

FOWD's Board of Directors approval to award the bid is scheduled for June 15, 2026. Anticipating one month for completion of contractual documents, insurance, and other contractor submittals, the commencement of construction would likely be on or around July 15, 2026. The work must be completed within **90 calendar days** after the commencement date stated in the Notice to Proceed.

The Contractor shall have completed at least three (3) projects within the last five (5) years similar in scope and complexity to the subject project and shall provide references to the District. This information will be included with the Project Pre-Qualification Application that is included in the Bid Package.

FOWD reserves its right to waive any informality or deficiency in any bid, to accept any bid, to negotiate modifications to any bid with any Bidder and accept any modified bid, to reject any bid, to reject all bids, and to rebid the project, all at the District's sole discretion.

Notes:

1. Cost of preparation of bids will be borne by the Bidder.
2. This request does not constitute an offer of employment or an offer to contract for services.
3. All bids submitted shall become FOWD property.
4. All bids shall remain firm for a minimum of sixty (60) days following the closing date of receipt of bids.

Bid Proposal

Owner: Fair Oaks Water District

Project Name: New York Avenue Main Replacement – Phase II

Project No: C26TDNYASW2

1. Bids shall be completed on the attached Bid Schedule. All numbered bid items must be completed. Numbers shall be stated in figures and the form shall be signed. Any corrections to entries made on bid forms shall be initialed by the person(s) signing the bid. Before submitting a bid, bidders shall carefully examine the project documents and inspect the site of the work, fully inform themselves as to all existing governmental agency conditions and limitations, and shall include a total cost figure on the bid proposal form.
2. The undersigned, having familiarized themselves with the local conditions affecting the cost of the work, and with the contract documents, for the above named project, do hereby propose to perform everything required to be performed, and to provide and furnish all labor, materials, tools, expendable equipment, and all utility and transportation services necessary to complete work in the above named project, all in accordance with the prepared improvement plans, bidding documents, and specifications.
3. The undersigned agrees, if awarded the contract, to start work within 30 calendar days after issuance of Notice to Proceed, and to complete the same, ready for substantial and unobstructed use by District within 90 calendar days of issuance of Notice to Proceed.
4. The undersigned understands that the works advertised will be awarded to the lowest qualified bidder based on the total base bid. **Prospective bidders must submit a completed Project Pre-Qualification Application by Thursday, May 21, 2026, at 2:00 pm, local time.** Only contractors that have been pre-qualified by FOWD will be eligible to bid on the above-named project.
5. In submitting this bid, it is understood that the right is reserved by FOWD to reject any and all bids or any portion thereof. It is agreed that this bid may not be withdrawn for a period of sixty (60) days from the opening thereof.
6. The undersigned firm/individual holds California State Construction License Number _____ and Worker's Compensation Policy Number _____ issued by _____.
7. The undersigned acknowledges receipt of the Bid Package and Contract Documents for the New York Avenue Main Replacement – Phase II Project consisting of the Invitation to Bid, Bid Proposal, Description of Bid Items, Designation of Subcontractors, Project Pre-Qualification Application, FOWD Standard Specifications, Cal-Trans Specifications for

Trenchless Technology Projects, Improvement Plans, and Example Project Construction Services Contract. The undersigned acknowledges that addenda numbers _____ through _____ have been received and examined as part of the Bid Package and Contract Documents.

8. The undersigned understands that if awarded the bid, invoices and payments shall be for actual quantities of materials installed at unit cost for each bid item.
9. Bids must be accompanied by a bid security made payable to FOWD in an amount not less than ten percent (10%) of Bidder's maximum bid price. Bid bond will be in the form of a certified check, bank money order, or a Bid Bond (EJCDC No. C-430, 2013 Edition) issued by an approved surety.

Firm Name: _____

Address: _____

City and State: _____

Telephone Number: _____

Email Address: _____

By: _____ Title: _____
Type or Print Name of Person Signing Bid Proposal

By: _____ Date: _____
Signature

Bids are to be returned no later than Thursday May 28, 2026, at 2:00 pm, local time at the Fair Oaks Water District Office. Mark the project name on the sealed bidding envelope and submit bids with attention to Blake Chetcuti.

Return To: Fair Oaks Water District, 10326 Fair Oaks Boulevard, Fair Oaks, CA 95628, Attn: Blake Chetcuti

Bid Proposal Continued

Owner: Fair Oaks Water District

Project Name: New York Avenue Main Replacement – Phase II

Project No: C26TDNYASW2

Bid Items

Item	Description	Unit	Quantity	Total Price, \$
1	Mobilization and Demobilization	LS	1	
2	Overhead, Bonding, Insurance, and Permitting	LS	1	
3	Traffic Control	LS	1	
4	Erosion and Sediment Control Plan	LS	1	
5	Installation Only 12” DIP (Class 350) *1	LF	1,525	
6	Furnish and Install 12” Restrained Gaskets (Field Lok 350 or Approved Equal)	EA	85	
7	Furnish and Install 12” Gate Valves	EA	23	
8	Furnish and Install 12” 45° Elbows	EA	6	
9	Furnish and Install 6” Fire Hydrants	EA	5	
10	Furnish and Install 1” Air and Vacuum Release Valves	EA	2	
11	Furnish and Install 4” Blow Off Assembly and Piping	EA	1	
12	Furnish and Install 1” Water Services. Reconnect to Existing Meter	EA	7	

13	Furnish and Install 1.5" Water Services. Reconnect to Existing Meter	EA	3	
14	Furnish and Install 2" Water Services. Reconnect to Existing Meter	EA	1	
15	Furnish Materials and Install Point of Connection at Sta. 1+25	LS	1	
16	Furnish Materials and Install Point of Connection at Sta. 1+40	LS	1	
17	Furnish Materials and Install Point of Connection at Sta. 4+33	LS	1	
18	Furnish Materials and Install Point of Connection at Sta. 8+11	LS	1	
19	Furnish Materials and Install Point of Connection at Sta. 8+29	LS	1	
20	Furnish Materials and Install Point of Connection at Sta. 14+43	LS	1	
21	Furnish Materials and Install Point of Connection at Sta. 14+51	LS	1	
22	Furnish Materials and Install Point of Connection at Sta. 16+50	LS	1	
23	Disinfection, Flushing, and Pressure Testing	LS	1	
24	Abandon Existing Water Main and Appurtenances	LS	1	
25	Trench Restoration Paving	SF	9,000	
26	Pavement Restoration (Type II Slurry)	SF	29,450	
27	Street Marking Restoration	LS	1	
28	Curb, Gutter, and Sidewalk Restoration	SF	250	
29	Speed Table Restoration	LS	1	

30	Restoration of Existing Potholes Outside of Trench Alignment	EA	10	
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***1 FOWD has pre-purchased 12” DIP (Class 350) and will provide it to the contractor upon bid acceptance.**

Total Base Bid Proposal (Items 1 -30) _____

Alternate Bid Items

Item	Description	Unit	Quantity	Total Price, \$
A1	Permitting and Written Plan Approval to Bore 12” DIP Across Fair Oaks Blvd. per Cal Trans Standards	LS	1	
A2	Bore and Install 12” DIP Across Fair Oaks Blvd. per Cal Trans Standards	LF	200	
A3	Pavement Restoration (2” Grind and Overlay)	SF	29,450	
A4	Furnish and Install Invert for Utility Crossing	EA	1	

Alternate Total (Items A1 -A4) _____

Description of Bid Items

Bid Item No. 1 – Mobilization and Demobilization (Lump Sum). The work under this bid item includes all contract administration, project mobilization, site development activities, and demobilization as required to conduct and complete the work as identified in the Contract Documents. The total amount shall not exceed five percent (5%) of the Total Base Bid Price as provided in the Bid Schedule.

Bid Item No. 2 – Overhead, Bonding, Insurance, and Permitting (Lump Sum). The work under this bid item includes all overhead, bonding, insurance, and permitting as required to conduct and complete the work as identified in the Contract Documents. The contractor will be responsible for obtaining all permits to comply with local, state, and federal agencies' requirements. This includes, but is not limited to, procuring an Encroachment Permit from the Sacramento County Department of Transportation for any work performed in the public right-of-way.

Bid Item No. 3 – Traffic Control (Lump Sum). The work under this bid item includes the development and implementation of a traffic control plan(s) as required to conduct and complete the work as identified in the Contract Documents. This includes but is not limited to signage, messaging, equipment, materials, supplies, and personnel. The contractor will be responsible for meeting all Sacramento County and Cal Trans specifications and requirements.

Bid Item No. 4 – Erosion and Sediment Control Plan (Lump Sum). The work under this bid item includes the development and implementation of an erosion and sediment control plan(s) as required to conduct and complete the work as identified in the Contract Documents. The contractor will be responsible for meeting all local, state, and federal agencies' requirements. This includes, but is not limited to, erosion and sediment control, water pollution control and protection, and performance of best management practices. The total amount shall not exceed one percent (1%) of the Total Base Bid Price as provided in the Bid Schedule.

Bid Item No. 5 – Installation Only of 12" DIP (Class 350) (Linear Foot). The work under this bid item includes all labor, materials, equipment, and supplies as required to install 12-inch ductile iron pipe (class 350) as shown and specified in the Contract Documents. FOWD has pre-purchased the 12-inch ductile iron pipe and will provide it to the contractor upon bid acceptance. This bid item encompasses installation of the pipe, potholing, excavation, trenching, bedding, backfill, and compaction. The contractor will be responsible for compaction testing in accordance with Sacramento County specifications and requirements.

Bid Item No. 6 – Furnish and Install 12" Restrained Gaskets (Field Lok 350 or Approved Equal) (Each). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install 12-inch restrained gaskets (Field Lok 350 or approved equal) as shown and specified in the Contract Documents. Restrained gaskets will be required for all pipe joints.

Bid Item No. 7 – Furnish and Install 12” Gate Valves (Each). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install 12-inch gate valves as shown and specified in the Contract Documents.

Bid Item No. 8 – Furnish and Install 12” 45° Elbows (Each). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install 12-inch 45° elbows as shown and specified in the Contract Documents.

Bid Item No. 9 – Furnish and Install 6” Fire Hydrants (Each). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install 6-inch fire hydrants and the required hydrant lateral piping and appurtenances as shown and specified in the Contract Documents.

Bid Item No. 10 – Furnish and Install 1” Air and Vacuum Release Valves (Each). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install 1-inch air and vacuum release valves and the required appurtenances as shown and specified in the Contract Documents.

Bid Item No. 11 – Furnish and Install 4” Blow Off Assembly and Piping (Each). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install a 4-inch blow off assembly and the required appurtenances and piping as shown and specified in the Contract Documents.

Bid Item No. 12 – Furnish and Install 1” Water Services. Reconnect to Existing Meter (Each). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install one-inch water services as shown and specified in the Contract Documents. The contractor will be responsible for reconnecting new services to the existing meter setter and replacing the meter box and meter box lid to meet FOWD Standard Specifications.

Bid Item No. 13 – Furnish and Install 1.5” Water Services. Reconnect to Existing Meter (Each). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install one-and-a-half-inch water services as shown and specified in the Contract Documents. The contractor will be responsible for reconnecting new services to the existing meter setter and replacing the meter box and meter box lid to meet FOWD Standard Specifications.

Bid Item No. 14 – Furnish and Install 2” Water Services. Reconnect to Existing Meter (Each). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install two-inch water services as shown and specified in the Contract Documents. The contractor will be responsible for reconnecting new services to the existing meter setter and replacing the meter box and meter box lid to meet FOWD Standard Specifications.

Bid Item No. 15 – Furnish Materials and Install Point of Connection at Sta. 1+25 (Lump Sum). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install the point of connection at station 1+25 as shown and specified in the Contract

Documents. Ductile iron pipe shall be Class 350 with restrained gaskets (Field Lok 350 or approved equal) at all joints. The contractor will be responsible for performing all tie-ins per FOWD Standard Specifications.

Bid Item No. 16 – Furnish Materials and Install Point of Connection at Sta. 1+40 (Lump Sum). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install the point of connection at station 1+40 as shown and specified in the Contract Documents. Ductile iron pipe shall be Class 350 with restrained gaskets (Field Lok 350 or approved equal) at all joints. The contractor will be responsible for performing all tie-ins per FOWD Standard Specifications.

Bid Item No. 17 – Furnish Materials and Install Point of Connection at Sta. 4+33 (Lump Sum). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install the point of connection at station 4+33 as shown and specified in the Contract Documents. Ductile iron pipe shall be Class 350 with restrained gaskets (Field Lok 350 or approved equal) at all joints. The contractor will be responsible for performing all tie-ins per FOWD Standard Specifications.

Bid Item No. 18 – Furnish Materials and Install Point of Connection at Sta. 8+11 (Lump Sum). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install the point of connection at station 8+11 as shown and specified in the Contract Documents. Ductile iron pipe shall be Class 350 with restrained gaskets (Field Lok 350 or approved equal) at all joints. The contractor will be responsible for performing all tie-ins per FOWD Standard Specifications.

Bid Item No. 19 – Furnish Materials and Install Point of Connection at Sta. 8+29 (Lump Sum). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install the point of connection at station 8+29 as shown and specified in the Contract Documents. Ductile iron pipe shall be Class 350 with restrained gaskets (Field Lok 350 or approved equal) at all joints. The contractor will be responsible for performing all tie-ins per FOWD Standard Specifications.

Bid Item No. 20 – Furnish Materials and Install Point of Connection at Sta. 14+43 (Lump Sum). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install the point of connection at station 14+43 as shown and specified in the Contract Documents. Ductile iron pipe shall be Class 350 with restrained gaskets (Field Lok 350 or approved equal) at all joints. The contractor will be responsible for performing all tie-ins per FOWD Standard Specifications.

Bid Item No. 21 – Furnish Materials and Install Point of Connection at Sta. 14+51 (Lump Sum). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install the point of connection at station 14+51 as shown and specified in the Contract Documents. Ductile iron pipe shall be Class 350 with restrained gaskets (Field Lok 350 or

approved equal) at all joints. The contractor will be responsible for performing all tie-ins per FOWD Standard Specifications.

Bid Item No. 22 – Furnish Materials and Install Point of Connection at Sta. 16+50 (Lump Sum). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install the point of connection at station 16+50 as shown and specified in the Contract Documents. Ductile iron pipe shall be Class 350 with restrained gaskets (Field Lok 350 or approved equal) at all joints. The contractor will be responsible for performing all tie-ins per FOWD Standard Specifications.

Bid Item No. 23 – Disinfection, Flushing, and Pressure Testing (Lump Sum). The work under this bid item includes all labor, materials, equipment, and supplies required for disinfection, flushing, pressure testing, and inspection for all pipe, pipe connections, valves, and appurtenances as shown and specified in the Contract Documents. The contractor will be responsible for adhering to FOWD Standard Specifications and AWWA Standards.

Bid Item No. 24 – Abandon Existing Water Main and Appurtenances (Lump Sum). The work under this bid item includes all labor, materials, equipment, and supplies required to abandon and/or remove the existing water mains, water services, valves, air release valves, hydrants, and other appurtenances as shown and specified in the Contract Documents. The contractor will be responsible for adhering to FOWD Standard Specifications and Sacramento County specifications and requirements.

Bid Item No. 25 – Trench Restoration Paving (Square Foot). The work under this bid item includes all labor, materials, equipment, and supplies required to restore asphalt pavement for trenched excavations as shown and specified in the Contract Documents. This includes, but is not limited to, backfill, compaction, compaction testing, paving, utility valve adjustments, and restoration of existing facilities (e.g. survey monuments, traffic loops) as required. The contractor will be responsible for adhering to FOWD Standard Specifications and Sacramento County specifications and requirements.

Bid Item No. 26 – Pavement Restoration (Type II Slurry) (Square Foot). The work under this bid item includes all labor, materials, equipment, and supplies required to apply Type II Slurry seal within the defined paving limits as shown and specified in the Contract Documents. This includes, but is not limited to, backfill, compaction, compaction testing, paving, utility valve adjustments, and restoration of existing facilities (e.g. survey monuments, traffic loops) as required. The contractor will be responsible for adhering to Sacramento County specifications and requirements.

Bid Item No. 27 – Street Marking Restoration (Lump Sum). The work under this bid item includes all labor, materials, equipment, and supplies required to restore street markings as shown and specified in the Contract Documents. The contractor will be responsible for adhering to Sacramento County and Cal Trans specifications and requirements.

Bid Item No. 28 – Curb, Gutter, and Sidewalk Restoration (Square Foot). The work under this bid item includes all labor, materials, equipment, and supplies required to restore the existing curb, gutter, and sidewalk as shown and specified in the Contract Documents. This includes, but is not limited to, the removal, subgrade penetration, compaction, compaction testing, utility adjustments, and/or upgrade of existing facilities as required. The contractor will be responsible for adhering to FOWD Standard Specifications and Sacramento County specifications and requirements.

Bid Item No. 29 – Speed Table Restoration (Lump Sum). The work under this bid item includes all labor, materials, equipment, and supplies required to restore the existing speed table as shown and specified in the Contract Documents. The contractor will be responsible for adhering to FOWD Standard Specifications and Sacramento County specifications and requirements.

Bid Item No. 30 – Restoration of Existing Potholes Outside of Trench Alignment (Each). The work under this bid item includes all labor, materials, equipment, and supplies required to restore existing potholes as shown and specified in the Contract Documents. This includes, but is not limited to, excavation, backfill, compaction, compaction testing, and/or paving as required. The contractor will be responsible for adhering to FOWD Standard Specifications and Sacramento County specifications and requirements.

Alternate Bid Items

Alternate Bid Item No. A1 – Permitting and Written Plan Approval to Bore 12” DIP Across Fair Oaks Blvd. per Cal Trans Standards (Lump Sum). The work under this bid item includes all permitting, data collection, investigation, documentation, and plan approvals as required to conduct and complete a bored-in installation of approximately 200 linear feet of 12-inch ductile iron pipe across the Fair Oaks Boulevard intersection. This bid item serves as an alternative construction method to the open-trench installation shown and specified in the Contract Documents. If approved, Bid Items No. A1 and A2 would replace a portion of Bid Item No. 5 and any other applicable items based on unit pricing. The contractor will be responsible for adhering to Sacramento County and Cal Trans specifications and requirements. A copy of the Cal Trans Guidelines and Specifications for Trenchless Technology Projects is included as Appendix B.

Alternate Bid Item No. A2 – Bore and Install 12” DIP Across Fair Oaks Blvd. per Cal Trans Standards (Linear Foot). The work under this bid item includes all labor, materials, equipment, and supplies as required to conduct and complete a bored-in installation of approximately 200 linear feet of 12-inch ductile iron pipe across the Fair Oaks Boulevard intersection. This bid item serves as an alternative construction method to the open-trench installation shown and specified in the Contract Documents. If approved, Bid Items No. A1 and A2 would replace a portion of Bid Item No. 5 and any other applicable items based on unit pricing. The contractor will be responsible for adhering to Sacramento County and Cal Trans specifications and requirements. A copy of the Cal Trans Guidelines and Specifications for Trenchless Technology Projects is included as Appendix B.

Alternate Bid Item No. A3 – Pavement Restoration (2” Grind and Overlay) (Square Foot). The work under this bid item includes all labor, materials, equipment, and supplies required to perform a 2-inch grind and overlay of the existing paving within the defined paving limits as shown and specified in the Contract Documents. This bid item serves as an alternative paving method to the Type II Slurry Seal shown and identified in the Contract Documents. If approved, Bid Item No. A3 would replace Bid Item No. 26 and any other applicable items based on unit pricing. This bid item includes, but is not limited to, backfill, compaction, compaction testing, paving, utility valve adjustments, and restoration of existing facilities (e.g. survey monuments, traffic loops) as required. The contractor will be responsible for adhering to Sacramento County specifications and requirements.

Alternate Bid Item No. A4 – Furnish and Install Invert for Utility Crossing (Each). The work under this bid item includes all labor, materials, equipment, and supplies required to furnish and install a 12-inch full invert with 45° elbows as shown and specified in the Contract Documents per FOWD Standard Drawing #11. This bid item may be required for crossings with unknown utilities. If approved, Bid Item No. A4 will replace any other applicable items based on unit pricing. The contractor will be responsible for adhering to FOWD Standard Specifications and Sacramento County specifications and requirements.

Designation of Subcontractors

The following are the names and locations of places of business of all subcontractors who will perform work or labor or render service to the bidder in or about the work, or improvement according to the specifications, in an amount in excess of one-half of one percent (0.5%) of the total bid. Attach an additional sheet, if necessary.

Portion of Work	Subcontractor	Place of Business

Fair Oaks Water District
PROJECT PRE-QUALIFICATION APPLICATION



1. Contractor Information

Legal Business Name:

DBA (if applicable):

Business Address:

Primary Contact Name: _____

Title: _____

Phone Number: _____

Email Address: _____

Emergency Contact (if different):

Name: _____ **Phone:** _____

2. Contractor License Information

California Contractor's License Number: _____

License Classification(s): _____

License Expiration Date: _____

Copy of active license attached

3. Insurance Information

Applicants must meet all Fair Oaks Water District insurance requirements.

Insurance Carrier(s): _____

Policy Types (check all that apply):

General Liability

Workers' Compensation

Fair Oaks Water District
PROJECT PRE-QUALIFICATION APPLICATION



-
- Automobile Liability
 - Other: _____
 - Certificate(s) of Insurance attached
 - Coverage meets FOWD requirements (see attached insurance standards)
-

4. Project Experience (Required)

Provide information for a minimum of three (3) similar projects performed for public agencies within the past five (5) years.

Project 1

Agency Name: _____
Project Description: _____

Project Value: \$ _____
Year Completed: _____
Reference Name: _____
Reference Phone / Email: _____

Project 2

Agency Name: _____
Project Description: _____

Project Value: \$ _____
Year Completed: _____
Reference Name: _____
Reference Phone / Email: _____

Project 3

Agency Name: _____
Project Description: _____

Fair Oaks Water District
PROJECT PRE-QUALIFICATION APPLICATION



Project Value: \$ _____
Year Completed: _____
Reference Name: _____
Reference Phone / Email: _____

(Attach additional pages if necessary)

5. Past Performance With FOWD (If Applicable)

- We have performed work for the Fair Oaks Water District
 We have not performed work for the Fair Oaks Water District

If yes, briefly describe the type of work performed:

6. Safety and Compliance

Has your firm been cited for serious or willful safety violations (OSHA or equivalent) within the past five (5) years?

- Yes No

If yes, please explain and attach supporting documentation:

7. Certification and Acknowledgment

By signing below, the undersigned certifies that:

- All information provided in this application is true, complete, and accurate.
- The applicant agrees to comply with all FOWD standards, policies, and contract requirements.
- The applicant understands that approval is discretionary.

Authorized Representative Name (Printed): _____

Fair Oaks Water District
PROJECT PRE-QUALIFICATION APPLICATION



Title: _____

Signature: _____

Date: _____

8. Submission Instructions

Submit completed application, required attachments, and supporting documentation to:

Fair Oaks Water District
Attn: Contract Administrator
[Mailing Address]
[Email Address]

9. FOR FOWD USE ONLY

Date Received: _____

Reviewed By: _____

Title: _____

Verification Completed:

- License
- Insurance
- References
- Past Performance Review

Recommendation:

- Approve Deny Hold / Request Additional Information

Management Decision:

- Approved Denied

Decision Date: _____



STANDARD SPECIFICATIONS MANUAL

November
2007

Prepared by the staff of Fair Oaks Water District
Approved by Fair Oaks Water District Board of Directors
December 10, 2007

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Foreword

These Specifications provide acceptable standards for the design, construction, repair, and modification of water supply facilities within the boundary of Fair Oaks Water District. This includes all water supply facilities that are within jurisdiction of the Fair Oaks Water District with exception of cross-connection control devices.

Items relevant to a project or development not covered within this document shall be submitted to the District in writing with the proposed plans for the District's review and approval.

1.0 General Specifications and Requirements

1.1. Approved Plans

No work shall commence on any water installation which is intended to become attached to the District's distribution system, unless complete plans and specifications covering all phases of the proposed construction have been submitted to and approved by the District.

1.2. Contractors License and Insurance Requirements

All contractors performing work for the District, or performing work on improvements that are to be accepted by the District must be duly licensed under the laws of the State of California and be pre-approved by the Fair Oaks Water District.

All contractors performing work for the District must be in full compliance with the latest edition of the District General Conditions.

1.3. Permits, Licenses, and Fees

Contractor shall, unless otherwise directed by the District, obtain all necessary permits and licenses for construction of the project, give all necessary notices, and pay all required fees. The Contractor shall promptly furnish the District copies of all approved permits secured by the Contractor in the performance of its contract.

1.4. Easements

Contractor shall verify prior to commencing construction of water facilities that all easements required for the project are in place, and approved by the Fair Oaks Water District. Prior to the final acceptance of the water system installed by Contractor, the Developer/ Owner shall provide recorded easement documents to the District.

1.5. Compliance with Statutes

Contractor shall conduct the work in compliance with State and Federal safety code laws and County and District ordinances and regulations limiting or controlling the work.

1.6. Construction Safety

Construction of improvements intended to be connected with the District's system must be constructed in strict compliance with the statutory safety requirements of the State of California as set forth in California Administrative Code, Title 8 and all amendments thereto.

The Contractor must comply with all provisions of the California Occupational Safety and Health Act (Labor Code Sections 6300 et seq.) and all applicable Title 8 Safety Orders issued by the State of California Occupational Safety and health Administration (Cal/OSHA).

1.7. Existing Facilities and Utilities

The Contractor shall verify the location of all existing District facilities and other utilities prior to start of construction; the field verification shall be part of the original scope of work for the project. Damage to any of the existing facilities shall be the sole responsibility of the Contractor and shall be repaired or replaced by the Contractor at their expense. Repairs to the District facilities will be inspected by the District staff prior to the final acceptance.

1.8. Materials Submittal and Approval

A minimum of three (3) days prior to the pre-construction meeting, the Contractor shall submit to the District, for approval, a list of materials proposed to be used in constructing the water system, including item name, description, manufacturer, and model number.

1.9. Pre-Construction Meeting

An onsite pre-construction meeting with the designated District Representative, Consulting Engineer, Contractor, and the County Inspector will be held a minimum of two (2) working days in advance of construction. During this meeting, District representative must inspect materials, provide schedule of inspections, review the Approved Plans, and schedule tie-in connections. Pre-construction meetings will not be scheduled until the District fees have been paid in full and the material list have been submitted.

1.10. Notices

The Contractor shall provide the District designated representative a minimum of two (2) working days prior to commencement of construction, a construction schedule, clearly indicating the major milestones of the project, such as:

- Start Date,
- Dates of planned shut-downs and tie-ins,
- Dates of proposed hydrostatic test

The Contractor shall keep the District designated representative informed as to progress of construction. Any changes to the original construction schedule shall be coordinated and approved by the District at minimum two(2) days in advance.

1.11. Inspections

All water system improvements, constructed in accordance with the District approved plans and specifications shall be inspected during construction by an authorized representative of the District. Improvements constructed without the inspection by the District representative, will not be accepted and will not be connected to the District's existing distribution system. All un-inspected installations may require removal at the contractor expense.

1.12. Water System Location and Information

Fair Oaks Water District is a member of the Underground Service Alert (USA) Program. Prior to any underground excavation, contact USA at (800) 227 2600 and follow the requirements of the Government Code 4216 and USA's suggested marking guidelines. Contractor is responsible for removal of all project related USA markings.

1.13. Water System Shutdowns

Only authorized District personnel shall perform water system shutdowns. Valves in the District's system will not be operated by anyone other than an authorized representative of the District. Call the District Inspector a minimum of 48 hours in advance to schedule work that requires a system shut down. Unauthorized operation of the District facilities may result in complete stoppage of the project at the sole expense of contractor.

1.14. Traffic Control

When working in streets, the Contractor shall take precautions to protect the public. Barricades, warning lights, signs shall be maintained in accordance with the latest version of the Caltrans Manual of Traffic Controls and/or County of Sacramento Improvement Standards. The County Encroachment Permit may require preparation of a traffic control plan (TCP). The TCP shall show traffic control measures to be used for vehicles, bicycles and pedestrians affected by the construction.

The Contractor is fully responsible for preparation, approval and compliance with the conditions of the County approved TCP.

1.15. As-Built Drawings

The Contractor shall maintain at least one set of construction drawings as a record of all changes occurring during construction. The Contractor shall note all changes on these drawings. The construction record drawings shall be kept in neat order and shall be available to the District for review during construction and delivered to the District at the completion of the work, prior to the District's acceptance.

Authorized District personnel will conduct a pipeline trace prior to acceptance of a new pipeline to:

- ensure the locator wire has been properly installed and has continuity with existing District facilities
- verify water main locations conform to plan dimensions.

As-built drawings shall be furnished to the District upon completion of the new water system and prior to acceptance by the District. Contractor shall provide one hard copy of an as built drawing and a digital copy in Auto Cad format.

WATER SYSTEM WILL NOT BE ACCEPTED AND SERVICES WILL NOT BE ACTIVATED UNTIL AN ACCEPTABLE SET OF AS-BUILT DRAWINGS IS PROVIDED TO THE DISTRICT.

1.16. Disposal of Trench Spoils

Surplus material excavated from pipeline trenches will become the property of the Contractor and shall be disposed in conformance with applicable County ordinance(s). The Contractor shall furnish the District copies of all grading permits and written permissions from landowners secured by the Contractor to dispose of trench soil. The Contractor shall be responsible for proper disposal of Asbestos Cement (AC) pipe and cuttings and provide District with evidence of proper disposal.

1.17. Guarantee Letter and Maintenance Bond

Prior to the District's approval of the as-built plans and as a condition of pre-acceptance of the work performed, the Applicant/ Contractor shall execute and deliver a signed Guarantee Letter and Maintenance Bond. The Guarantee Letter and Maintenance Bond shall cover all materials, workmanship, and equipment constructed or installed by the Applicant. This Guarantee Letter /Maintenance Bond shall remain in effect for a period of one (1) year from the date of the District's formal, pre-acceptance of the system improvements. The Guarantee/Bond, which shall be executed by a duly licensed surety company authorized to do business in the State of California, shall protect the District against the results of any failure or damage of the work occurring within the Guarantee period under the provisions of the Guarantee.

Should any failure of the work occur within the Guarantee period attributable to faulty materials, poor workmanship, or defective equipment, the Applicant shall promptly make the needed repairs at Applicant's expense. In addition, where the District deems applicable, should damage from any cause occur during subsequent construction work within the same Project, the Applicant shall promptly make the needed repairs at Applicant's expense.

The Applicant /Contractor shall repair any trench settlement and comply with Sacramento County encroachment permit requirements during the Guarantee period.

The Guarantee/Bond shall be in the sum of not less than one hundred percent (100%) of the contract amount for installation or one hundred percent (100%) of engineering estimate for installation of the new water system. A final inspection will occur a minimum of one month prior to the end of the guarantee period.

GUARANTEE LETTER

(To be submitted by the Applicant)

DATE: _____

FROM: Applicant's Name: _____

Address: _____

TO: Fair Oaks Water District
10317 Fair Oaks Boulevard
Fair Oaks, Ca. 95628-7187

REGARDING: (Project/Subdivision) _____
(Location/Streets) _____

Officials of Fair Oaks Water District:

We hereby guarantee that the construction performed under the Approved Plans dated _____, 20____, for the above-named project has been done in accordance with approved drawings and Fair Oaks Water District specifications and that work as installed will fulfill requirements of the Guarantee. We agree to repair or replace any or all of our work, together with any other adjacent work that may be displaced in the process, should any failure or damage of the work occur, attributable to any cause, including, but not limited to, faulty materials, poor workmanship, defective equipment, and damage occurring during building construction, for a period of one (1) year from date of pre- acceptance of above-named project by the District.

In the event of our failure to comply with the above-mentioned conditions, within ten (10) days (or less in an emergency) after being notified in writing by the District, we, collectively or separately, authorize the District to have the defects or damage repaired and made good at our expense, and we will promptly honor and pay the costs and charges for repairs. In the event of failure on our part, we further promise to pay attorney's fees as a court with jurisdiction in the matter shall decide, should the enforcement or interpretation of this Guarantee Letter or any part thereof require legal action.

Applicant's Signature

Notary Seal _____

2.0 Design Standards

2.1. Design Criteria

The water system improvements shall be designed according to District standards and requirements to supply and maintain an adequate positive pressure in all parts of the system under normal operating conditions. In addition, the design of systems must consider and provide emergency flow as well as normal flow, as described in sections 2.4 and 2.5.

2.2. Water Quality

Applicable quality standards and requirements are as follows:

- California Health and Safety Code, Division 5, Part 1, Chapter 7;
- California Administrative Code, Title 17, Chapter 5, Subchapter 1, Group 4;
- California Administrative Code, Title 22, Chapters 15 and 16;
- Standard of Minimum Requirements for Safe Practice in the Production and Delivery of Water for Domestic Use (California Section of the AWWA);
- General Order No. 103 of the California Public Utilities Commission;
- Fair Oaks Water District Resolution No. 97-09 (Protection of Drinking Water from Cross Connection and Backflow)
- Domestic Water Supply Permit # 01-001-90 and subsequent Water Supply Amendment # 01-09-07PER010 as issued by the California Department of Public Health.

2.3. Pressure Requirements

The District pressure zones are designed to maintain normal operating pressures of no less than 40 psi and no greater than 125 psi at the service connections.

Exceptions

- During peak hour demand, pressure may drop to no less than 30 psi.
- During fire flow condition, pressure may drop to no less than 20 psi.

Variations in pressure under normal operations shall not exceed fifty percent of the average operating pressure as computed by averaging at least twenty four consecutive hourly pressure readings.

2.4. Water Supply Requirements

The system or facilities shall be designed to deliver water at a rate adequate to supply the total requirements of all consumers at maximum rates of use under both normal conditions and emergency conditions. The established maximum normal use rate for typical single-family residential subdivisions may be determined by Chart 1 of General Order No. 103 of the California Public Utilities Commission. Special considerations shall be given to subdivisions of multiple-family dwellings, commercial development and industrial developments. Computations used in the design of such systems shall be submitted with the plans and specifications. Water mains shall be designed so that under average-day and peak-hour conditions, velocity will be less

than 3 feet per second and 7 feet per second respectively. Under fire flow conditions, water velocity in the pipeline shall not exceed 10 feet per second.

Should the District's evaluation reveal that capacities of existing water supply and distribution system are inadequate to serve the new subdivision or development, the Applicant shall develop a water master plan to outline necessary water system improvements to maintain consumption and fire flow within parameters specified in this specification manual.

Detailed plans and specifications must be submitted to the District for review and approval.

2.5. Fire Flow Rates

The design of the system shall provide for the delivery of the fire flow at the rates and duration specified by the Sacramento Metropolitan Fire District. The Fair Oaks Water District may require a water flow analysis for a new development prior to approval of water distribution plans. The analysis shall be provided and paid for by the Applicant.

2.6. Distribution System

2.6.1. Location of Water Mains

Water mains and pipelines shall be constructed and installed typically within the public right-of-way. Where water facilities must be installed on private property, a water easement shall be prepared, authorized and recorded with the County of Sacramento, prior to commencing installation. The easement shall be thirty (30) feet or greater in width unless otherwise specified and approved by the District. Water lines shall be designed to be a minimum ten (10) feet from the property line or easement edge for the entire water main length. No permanent structures of any nature shall be located in the water easement.

Water mains shall be located three (3) feet from the lip of the gutter. If this location is occupied by other utilities, the District may locate water main six (6) feet from the lip of the gutter or other location acceptable for the District.

2.6.2. Layout of Mains

The minimum pipe size that may be installed in the District is eight (8) inches inside diameter, unless otherwise approved by the District.

Dual mains (one pipeline on each side of the street) shall be installed in streets that carry heavy concentrations of traffic, or where the right-of-ways are eighty (80) feet or more in width. State highways and major county thoroughfares generally are in this category.

The distribution system shall be networked in grid pattern with eight (8) inch or larger cross-connecting mains at intervals of approximately thirteen hundred (1,300) feet with intermediate eight (8) inch mains as required. In addition, the District shall be networked in grid pattern with twelve (12) inch or larger mains at one-half (0.5) mile intervals. Where necessary, Applicants will be required to retrofit the existing system to facilitate this standard.

The water distribution system shall be looped to ensure adequate fire protection and water quality, and to maintain the ability to isolate mains by section with minimum service interruption.

The standard pipeline sizes that may be installed in the District are eight (8), twelve (12), sixteen(16) eighteen (18), twenty-four (24), thirty (30), thirty-six (36), forty-two (42) inches.

The water distribution system shall be designed to deliver at the rates specified in Section 2.4 to points of connection at pressures not less than specified in Section 2.3.

All dead-end mains shall be equipped with a fire hydrant (refer to Std-9). Air-vacuum valves (refer to Std-2) shall be required at significant high points and additional blow-off assemblies will be required at significant low points.

All District water mains, services, and other facilities shall be installed in their own trenches. No joint trenches with other utilities will be permitted.

2.6.3. Full frontage extension

Water main installation is required along the entire length of the frontage improvements of the parcels under development.

The Applicant is responsible for the full cost of such main extension.

The minimum pipe size required in the frontage shall be in accordance with Section 2.6.2, or as required by the District.

2.6.4. Valves

Water systems shall be designed to include sufficient number of valves to minimize shut-downs. Valves shall be generally located as follows:

- At intervals to isolate no more than two (2) fire hydrants at any time.
- At minimum intervals of 500 feet in commercial and residential areas.
- A maximum of five (5) valves will be required to isolate any location.
- Typically, the number of valves shall be equal to the number of fitting branches (tee – 3 valves, cross - 4 valves) or per District discretion
- Valves shall not be located in street gutters, valley gutters, or in driveways.
- The District may require additional valves depending upon system configuration.

2.6.5. Fire Hydrants

Hydrants shall be located at street intersections whenever possible, and shall be located to minimize the hazard of damage by traffic. Hydrant spacing and location are determined by the Sacramento Metropolitan Fire District.

The minimum-size water main serving fire hydrants shall be eight (8) inches in diameter.

The minimum size mains for multiple-family dwellings and all commercial developments shall be specified by the District based on the fire flow requirements set forth by the Fire District. The service line connecting the hydrant and the main shall be six (6) inches, with a SIX (6) inch resilient wedge gate valve installed at the main. The valve shall be flanged to the tee or other base fitting to prevent separation. Refer to Standard drawing Std-9 for details of installation.

2.6.6. Private Fire Protection Service (PFPS)

The size of the PFPS tap shall be determined by the Developer consultant. The PFPS tap and an approved Backflow device (RPPDCA or DC) shall be shown on the improvements plans prior to the District approval in accordance with Std-12. The Applicant is responsible for installation, maintenance, and repair of PFPS and backflow device.

The backflow device shall be tested prior to activation and annually thereafter by the certified tester. Non-compliance with this requirement will result in PFPS disconnection and immediately notification of the Fire Department.

2.6.7. Service Lines

Service line and all necessary fittings are to be installed in accordance with SD-7 and SD-8.

Water services shall not be looped, and water lines from one parcel must not encroach (without easement) on or serve any part of another parcel. No extended service is allowed.

All services and meters shall be located within the public right of way, PUE or in easement, designated for Fair Oaks Water District.

Separate water service taps are required for each of the following:

- Single-family or condo parcels;
- Landscape irrigation facilities for commercial and multi-family development
- For each unit of duplex or forplex , even when located on the same parcel

The Applicant shall use “Application For Service” to provide size, type (domestic, irrigation, fire) and number of services to be installed. The District will review the Application for service and will determine if requested size is appropriate for intended use.

If in the opinion of the District, requested size of the service and meter are not sufficient, the District will make appropriate changes. The Developer/Owner will be furnished with the fee schedule reflecting changes determined the District.

The Applicant must submit improvements plans for District approval prior to service installation or upgrade. The Applicant is responsible for upgrade of existing service.

2.6.8. Prohibited Components

In accordance with the District Policy 6040, installation of booster pumps on a service lines are not authorized without the written consent from the Fair Oaks Water District Board of Directors.

2.7. Improvements Plan Submittal

The Applicant and/or the Consulting Engineer preparing plans for a project are encouraged to discuss water system configuration and service connections with the District staff. During the plan submittal process, the Applicant shall follow the procedure outlined below:

2.7.1. Application For Service

The Applicant shall fill out an Application For Service with all pertinent information and provide request from Sacramento Fire Protection Agency, stating Agency requirements for fire flow, sprinkler system and additional fire hydrants. Application For Service shall be accompanied with the engineering plans as described in Section 2.7.2.A

2.7.2. Preliminary Plans

2.7.2.A General Requirements

All plans submitted to the Fair Oaks Water District for review will meet the following minimum requirements identified herein. Additional requirements may be established by the District.

- a. A legal map or legal property description
- b. A completed application for service
- c. Two sets of water plans indicating all water details up to, and for the property to be served. The acceptable size of submitted drawings shall be 24" by 36" or 11" by 17" with horizontal scale between 1"=20' to 1"= 40". Applicant shall provide a plan and profile view where crossing or installation of other utilities are required,

Water Plan Drawing Submittal Requirements

The following are the requirements for drawing submitted to the District:

- a. Project name
- b. Engineer's name
- c. Engineer's P.E. stamp with signature(on the final drawings)
- d. District standard notes, vicinity map
- e. Legend, north arrow, scale (horizontal and vertical)
- f. Rights-of-ways, easement and property lines, driveway locations, street names and dimensions
- g. Show existing mains, laterals, services, valves and fire hydrants
- h. Show proposed water facilities using different layer
- i. Identify all other utilities (existing and proposed) in the area of the project that can affect alignment of water lines
- j. Lot (APN) and street numbers

2.7.3. Initial Plan Check

Within thirty (30) days following the Applicant's application and plan submittal, the District will respond providing the Applicant with information relevant to the project, including applicable fee schedules and a marked-up copy of the proposed water plan. The District's reply may also contain a request for additional items, including:

- Water flow analysis for the proposed new water system;
- Payment of all applicable fees (refer to section 2.7.4);
- Signed, notarized, unrecorded easements provided to cover all existing and proposed facilities not covered by easements shown on the proposed final map;
- A blueprint of the water plan complete with all required changes and additions resubmitted to the District and
- All of the above items completed by the Applicant and returned to the District for further review prior to water plan approval in accordance with section 3.8.6 guidelines.
- A letter from the Sacramento Metropolitan Fire District, stating the required fire flow.

2.7.4. Fees

The Applicants for development planned within the District are responsible for payment of development fees as approved by the District's Board of Directors for new service connections. The District has established a fee schedule that includes charges for the following:

- Services provided for project supervision, inspections, plan checking.
- New connections to the District's distribution system, including connection fees and Peak Hour Pressure and Flow Mitigation fees).
- Water for construction use.
- Tapping fees.
- Fire Flow Test fees

Prior to District approval of the submitted plans, the Applicant or their representative must pay all applicable development fees.

2.7.5. Approved Plans and Construction Drawings

The Applicant shall not start construction of water system without District approved construction plans, payment of all applicable fees and approved and recorded easements. Applicant shall provide two (2) sets of approved construction plans to the District prior to start of construction.

Construction must commence within one (1) year of approval date shown on the plans. The District reserves the right to disconnect any portion of water improvements connected to the public system that are not diligently pursued to completion.

Applicant must resubmit plans after a year for review and re-approval.

3.0 Pipelines and Appurtenances

3.1. Scope

This section identifies the materials, methods of installation, tests, and other requirements for District water mains, services, and other appurtenances of the water distribution system.

3.2. Materials and Brand Names

All materials and equipment furnished under these Specifications shall be new and of a quality equal to that specified. Materials or equipment specified herein by brand or trade name or catalog designation is specified because they are known to be suitable for the operating service required of them. It is, however, not the purpose of these Specifications to eliminate other material or equipment of equally demonstrated design and functional quality and efficiency. All material proposed to be used shall meet AWWA standards and shall be subject to the District's approval as specified herein.

3.3. Materials Testing

All testing requirements of the Specifications shall be conducted by the pipe manufacturer or its representative within the State of California and the resulting tests shall be certified by an established reputable firm operating in the testing materials field.

3.4. General

Pipe materials used in the construction of water distribution systems shall generally be Polyvinyl Chloride (PVC) C900, Class 150 or better. Ductile Iron Pipe of Class 50 or better shall be used in applications where pipe larger than twelve (12) inches in diameter is required, for installations where less than thirty (30) inches of cover over the main is available, or as otherwise approved or required by the District. Pipe lettering shall face up for identification. Damaged or discolored pipe shall not be used. Pipe that is identified as damaged shall be marked damaged and discarded.

All materials shall be new and sufficient to make the installations complete and operative as designed. Pipe and fittings shall not be altered or marked, except as specified herein or approved by the District.

A plastic non-detect blue tape with the words "CAUTION : BURIED WATER LINE BELOW" shall be laid on top of the top bedding material the full length of the trench.

3.5. Polyvinyl Chloride (PVC) Pressure Pipe

Pipe eight (8) inches and larger shall meet the requirements of AWWA C900, Class 150 or better, PVC Pressure Pipe.

Installation of four (4) inch pipe is only acceptable for blow-off assembly as per FOWD SD-3.)

All pipes shall be suitable for use as pressure conduit. Provisions must be made for expansion and contraction with an elastomeric gasket ring at each joint. The joints shall have seal-ring grooves to securely hold the rubber ring in place against water pressure. Joints between PVC pipe segments shall be either coupling sleeve or bell and spigot type joints. Pipe shall be manufactured with cast iron pipe equivalent ODs and furnished in standard twenty (20) foot lengths.

Ten (10) gauge coated copper locating wire shall be installed with all PVC (refer to SD-5).

All connections of PVC pipe to cast or ductile iron fittings shall be made with approved mechanical joints.

3.5.1. Sleeve Joints

The coupling sleeve type joints shall use a Class 150 PVC sleeve with two rubber gaskets that conform to those recommended by the pipe manufacturer. The sleeve shall have internal stops to prevent pipe ends from touching.

3.5.2. Bell and Spigot Joints

The bell shall consist of an integral wall section with an approved locked-in, triple-edge elastomeric gasket ring that meets the requirements of ASTM F477, as listed in AWWA C900. The bell section shall be at least as hydrostatically strong as the pipe wall and meet requirements of AWWA C900.

3.5.3. Small Diameter PVC Pipe

Pipe that is four (4) in diameter or smaller will not be permitted as a water main piping. Where threaded connections to customer pipe are required, these connections shall consist of Schedule 80 PVC and shall conform to ASTM D2464. PVC solvent weld cement for socket connections shall meet requirements of ASTM D2564.

3.6. Ductile Iron Pipe

Ductile Iron Pipe (DIP) shall be used where required or specifically requested by the District. Pipe shall be Class 50, or Class 53, cement-lined with seal coating (interior), bituminous coated (exterior), and shall conform to and meet the current requirements of AWWA C151/A21.51. Where directed by the District, the Contractor shall use Class 53 pipe in conjunction with fittings and flanges. Joints shall be flanged, push-on or mechanical, unless otherwise specified or shown on the plans. DIP and fittings shall be polyethylene encased in accordance with the standard for "Polyethylene Encasement for Ductile Iron Pipe for Water and Other Liquids" (ANSI/AWWA C 105/A21.5). The polyethylene film shall have a minimum thickness of eight (8) mils.

3.6.1. Flange Joints

Flange type joints shall conform to AWWA Standard C111 and ASA Standard B16.1, Class 125.

3.6.2. Mechanical Joints

Mechanical joints shall conform to AWWA Standard C111.

3.6.3. Field Flanges

Field flanges joints designed for ductile iron pipe shall be used only with approved ductile iron pipe. Joints shall be Uni-Flange, US-Pipe, Romac, or approved equal, and shall comply with AWWA Standards C111 and C153.

3.7. Steel Pipe

Steel pipe shall be used only in specific instances, and will require the approval of the District. Welded steel pipe shall be in accordance with AWWA C200. The minimum design pressure shall be 150 pounds per square inch. Pipe shall be furnished with flanged ends, AWWA C207, Class D and ends for field welding or flexible couplings as shown on the Approved Plans. Pipe wall thickness shall be a minimum of 0.1875 inch for eight (8) inch to twelve (12) inch diameter pipe. Fittings shall conform to the requirements of the adjoining pipe and shall have approved dimensions per AWWA Standard C208.

Pipe, fittings, and flanges shall be lined and coated, twelve (12) to fifteen (15) mil thicknesses, with a fusion bonded epoxy coating conforming to AWWA Standard C213. The lining and coating material shall be one hundred percent (100%) solid, thermosetting, fusion bonded, dry powder epoxy resin such as Scotchkote No. 302 (3M Corporation) or approved equal. Surface preparation shall be in accordance with SSPC-SP 10 Near White Blast Cleaning. The application method shall be by the fluidized bed method and shall attain twelve (12) mil minimum dry film thickness. Field welds, connections, and otherwise damaged areas shall be coated and patched according to the manufacturer's instruction with 3M Scotch Kote No. 306, or equal.

Steel pipe subject to earth contact shall be wrapped with minimum eight (8) mil polyethylene sheeting or other material specifically approved by the District. Where the installation conditions or the District requires, the Applicant shall consult a qualified corrosion engineer to design a suitable cathodic protection system. The Applicant shall install the system as approved by the District.

3.8. Asbestos Cement Pipe

Use of asbestos cement pipe and fittings are not permitted.

3.9. Prohibited Materials

Use of leaded joint fittings, pipe or any other materials containing lead are not be permitted. Only approved water works brass or bronze components are authorized. Use of asbestos cement pipe and fittings and steel pipe and fittings shall be limited to the applications specifically addressed within these Specifications.

3.10. Water Pipe Fittings

3.10.1. Fittings for PVC and Ductile Iron Pipe

Fittings for PVC C900 and Ductile Iron Pipe shall be made of Class 350 ductile iron, and shall conform to the current requirements of AWWA Standards C111/A21.11 and C151/A21.51, and shall be cement mortar-lined with seal coating and the exterior bituminous coated in accordance with AWWA Standard C104/A21.4. Joints shall be flanged, push-on, or mechanical, unless otherwise specified or shown on the Approved Plans.

3.10.2. Fabricated Steel

Fabricated fittings shall be made of steel pipe conforming to ASTM Designation A53, 35,000 pounds per square inch minimum yield strength, of 0.25-inch wall thickness except as follows: 0.375 inch for twenty (20) inch to twenty-four (24) inch diameter pipe; and 0.5 inch for pipe larger than twenty-four (24) inches in diameter. Weld-on fitting shall be seamless steel conforming to ASTM Designation A234. Flanges shall be Class D; slip-on weld-on flanges welding front and back and faced, all in accordance with AWWA Standard C207.

Fittings and flanges shall be lined and coated, twelve (12) to fifteen (15) mil thickness, with a fusion-bonded epoxy coating conforming to AWWA Standard C213. The lining and coating material shall be one hundred percent (100%) solid, thermosetting, fusion-bonded, dry powder epoxy resin such as Scotchkote No. 302 (3M Corporation) or approved equal. Surface preparation shall be in accordance with SSPC-SP 10 Near White Blast Cleaning. The application method shall be by the fluidized bed method and shall attain twelve (12) mil minimum dry film thickness. Field welds, connections and otherwise damaged areas shall be coated and patched according to the manufacturer's instruction with 3M Scotchkote No. 306, or equal.

Steel fittings subject to earth contact shall be wrapped with a minimum of eight (8) mil polyethylene sheeting or other material specifically approved by the District. Where the District requires, the Applicant shall consult a qualified corrosion engineer to design a suitable cathodic protection system. The Applicant shall install the system as approved by the District.

3.10.3. Flexible and Transition Couplings

Flexible couplings for most installations shall be of ductile iron, Rockwell Omni 441 series or approved equal. Where the installed piping will be subject to separation forces due to pressures within the line, the flexible couplings shall be provided with an approved means to prevent separation. Where couplings are buried, they shall consist of ductile iron and shall be furnished with bolts and nuts cathodic to the coupling and pipe. Steel couplings, where used, shall meet AWWA Standard C111. Steel couplings shall be lined and coated, 12 to 15 mil thickness, with a fusion-bonded epoxy coating conforming to AWWA Standard C-213. The entire coupling shall be wrapped with a an eight (8) mil or greater polyethylene sheeting.

3.10.4. Gaskets, Bolts, and Nuts

In general, gaskets, bolts and nuts shall be specified by the manufacturer, depending on the type of fitting and application, subject to District approval.

Gaskets for flanges shall be of synthetic rubber, either ring or full face, and one-eighth (1/8) inch thick. All gaskets shall be full width of the flanges to which applied.

As outlined in Appendix A of AWWA Standard C153, flange bolts and nuts shall conform to ANSI B18.2.2. Bolts with less than 3/4 inches in diameter shall be a minimum of a Grade B (heavy hex). Bolts 3/4 inches and larger in diameter shall be a minimum Grade A (standard hex). Bolts shall be provided with hexagonal chamfered heads and nuts. The underside of all bolts shall be true surfaces at right angles to the axis of the bolts. The lengths of the bolts shall be such that after joints are made up, the bolts shall protrude through the nuts, but in no case shall they protrude more than one-half (0.5) inch. Where flanged joints are buried in the specific application to meter installation, the bolts and nuts shall be of a preferred stainless steel 316 series with acceptable substitution of stainless series 18-8 (304). An anti-seize shall be applied to the fasteners prior to assembly (Loctite Heavy Duty (56615) first choice or substitution of C5-A (85069/106727)). Where flanged joints are buried, the bolts and nuts shall be cathodic to the pipe materials and shall be wrapped with a minimum of six (8) mil polyethylene sheeting.

3.10.5. Tapping Sleeves for main to main connection

The use of tapping sleeves must be approved by the District prior to installation. Upon approval tapping sleeves shall be Romac SST or JCM all stainless tapping sleeve with stainless steel nuts and bolts, or approved equal.

3.11. Valves and Valve Boxes

3.11.1. Gate Valves

Valves, four (4) inches and larger shall be non-rising stem, resilient wedge gate valves conforming to the current requirements of AWWA C509. Valves shall allow two-way operation and have a two (2) inch square-operating nut. Operating valve wrench nuts shall open to the left. Valves shall have approved mechanical joint or flanged ends as required by the nature of the installation. The valves shall be flanged on the side that attaches to the tee. Valves connected to PVC pipe shall have mechanical joints.

Valves shall be Mueller A-2360 RS Gate Valve, American-Darling - CRS-80, American AVK- Series 25, U.S. Pipe - Metroseal 250, or approved equal.

3.11.2. Butterfly Valves

Butterfly valves shall conform to AWWA Standard C504 latest revision. All valves shall be non-rising stem, open left with a two (2) inch square-operating nut. The operating nut shall be installed on the side of the water main toward the centerline of the street. Butterfly valves shall be used on diameters ranging from fourteen (14) inches to seventy-two (72) inches, or as approved by the District. (Pratt Ground Hog and Mueller Lineseal III valves recommended).

3.11.3. Air /Vacuum Valve Assemblies

An air/vacuum combination valves are typically placed at the highest point of the piping system to release entrapped air and prevent vacuum and shall be installed at points designated on the approved plans or as otherwise required by the District. The air/vacuum combination valve(s) shall installed above ground surface in the protective enclosure. The acceptable air/vacuum valve is Crispin, U series or equal and shall be installed per Std-2.

3.11.4. Blow-Off Valve Assemblies

The blow-off valves are used to release and/or flush water from the piping system during construction activities or for the purpose of maintain an acceptable water quality. Blow-off valve typically placed at the low points of the water system as shown on the approved construction plans or at the points requested by the District Inspector. Unless specified otherwise, fire hydrant is a preferable installation in lieu of in-ground blow-off valve.

The in-ground blow-off valve, if specified , shall be installed per Std. 3. Blow-off boxes shall be Christy 13" X 24" H-20 or equal, of concrete with a cast iron lid or approved equal. The valve shall be installed within the concrete box; the street lid marked "WATER" and lay flush with the finished grade.

3.11.5. Mainline Valve Boxes

All mainline valve boxes shall be Christy G-5 or equivalent with a cast iron face and a round cast iron traffic lid marked "WATER". Where valve boxes may not be placed in street pavement, formed two (2) feet square by four (4) inch thick pads of Class B concrete shall be constructed around these boxes.

An approved, solid, rigid eight (8) inch riser C-900 material shall be used between the main valve and the box. Contractor shall install, plumb, and set to grade all valve boxes before the District will accept any improvements.

A valve operating extension shall be required whenever the installed valve is more than forty (40) inches below finished grade.

3.11.6. Meter Boxes

All meter box lids shall have the word "METER" stamped or engraved, and regardless of type or location, shall be fitted with Neptune PROREAD AUTO DETECT RECEPTACLES R900V2 MIU ASSY 6ft/25 Version Number 12512-0/. The type of valve box used shall depend on the type of ground surface material that exists at the site of installation, as follows:

3.11.6.A. Pavement Areas

Service valve / meter boxes used in driveways and paved areas shall be concrete, and as follows: for one (1) inch service, Christy B16 valve box with C30 Cast Iron lid; for one and one-half (1.5) inch, Christy B30 valve box with 61G45 self closing reading lid; for two (2) inch service, Christy B36 valve box with 61G70 self-closing reading lid or approved equal.

3.11.6.B. Non-Pavement Areas

In lawn/landscaped areas service valve boxes shall be Carson fiberglass meter boxes, as follows: one (1) inch service - Carson 13-20; one and one half (1.5) inch service - Carson 13-24; two (2) inch service - Carson 17-30 or an approved equal. Meter boxes shall be visible and at grade after landscape or restoration is completed by the Contractor.

3.11.7. Fire Hydrants

Fire hydrants shall be installed where shown on the approved construction plans. The assemblies shall be traffic type, equipped with approved hollow core bolts and a buried length to suit the application. Fire hydrants shall be manufactured in accordance with AWWA Standard C503. Hydrants shall be wet barrel steamer type with left-opening valves for each pumper connection, and shall have a minimum of two and one-half (2.5) inch hose nozzles and one four and one-half (4.5) inch pumper nozzle, all with National Standard threads. The type and style of fire hydrant shall be Clow 960, or approved equal, as determined by the Sacramento Metro Fire District..

The base tee or other fitting at the base of hydrant run-out shall have an six (6) inch flanged outlet on the side facing the hydrant. Every fire hydrant installation shall have an AWWA approved resilient wedge gate valve installed on the lateral from the main to allow repair of the hydrant without a water main outage. Fire hydrant valves shall be placed at the base tee with a flanged attachment to the tee. Hydrant service lines shall consist of six (6) inch CL150 C900 pipe. Hydrant bolts shall be breakaway type installed nut side up and filled with 25 year silicone caulk.

The Applicant shall provide road reflectors as specified by the Sacramento Metro Fire District. After installation, fire hydrants must be coated with white paint (refer to Std-9).

If in District opinion installation of barricade is required due to the traffic concerns, Applicant shall install complete installation in accordance with Std-9-1.

3.12. Service Lines and Fittings

3.12.1. Saddles

Service saddles for PVC C900 pipe shall be Ford S90 or approved equal. The saddle shall be made of brass and specifically designed for PVC pipe. Bolts connecting the two halves shall be bronze.

Service saddles for AC Pipe shall be Ford 202B or approved equal. The saddle body shall be brass and double straps shall be bronze with brass nuts and bolts.

For ductile iron and steel pipe, service saddles shall be Ford 202 or approved equal. Saddle bodies shall be ductile iron and double straps shall consist of zinc-plated steel. Iron saddles shall be wrapped with a minimum of six (6) mil polyethylene sheeting.

All saddles shall have female iron pipe thread outlet connections.

3.12.2. Corporation and Curb Stops

Corporation and curb stops shall be ball-type and of brass construction. One (1) inch to two (2) inch corporation stops shall be Mueller B-25028-MIPTXCTS-110 (compression one (1) inch to 2 inch) or approved equal. Valves shall allow for two-way operation. Corporation stops are required on all service taps and on taps for all air valves and blow-off assemblies.

All corporation stops shall have male iron pipe threads on the inlet side and female iron pipe connections on the outlet side. Pack-joint fittings are not permitted.

3.12.3. Compression Couplings and Adapters

Compression couplings shall be brass, Mueller H-15403 or approved equal, and compression by male iron pipe adapters shall be Mueller H-15428 or approved equal. Pack-joint fittings are not permitted.

No more than two compression adapters may be installed between the service saddle and the meter setter unless otherwise approved by the District.

3.12.4. Copper Lines

Copper tubing used for service lines shall be seamless, annealed copper tube and shall conform to ASTM B88 "Standard Specification for Seamless Copper Water Tube" and shall be Type K. Copper shall be grade UNS-C12200. For diameters ranging from one (1) inch to two (2) inch, use Type K Roll Soft Copper. Approved tubing includes Cambridge-Lee, Mueller Streamline or approved equal. Four (4) inches and larger service lines, if required, shall be PVC Class 150 C900 pipe.

3.12.5. Meter Setters and Fittings

A meter setter shall be a copper setter or yoke as shown on Std 7 and Std 8 and shall be used for all one (1), one and one-half (1.5), and two (2) inch services. One (1) inch meter setters shall be Ford VBHH-74-12W-11-44 or approved equal. One and one-half (1.5) inch meter setters shall be Ford VBHH-76-12-11-66 or approved equal, and two (2) inch meter setters shall be Ford VBHH-77-12-11-77 or approved equal. All material shall be of brass or rigid Type K copper and must meet AWWA Standards. Inlet and outlet connection fittings shall be female iron pipe size dual-purpose connections. The curb stop shall be lock-wing, ball type easy turning angle meter stop. The angle check valve shall be a dual type. Valves shall allow two-way operation.

3.13. Meters

Meters are required on all new services and on all services to be replaced or upgraded, or as otherwise specified by the District. Meters shall be purchased and installed by the Contractor at the Applicant's expense (refer to Std 7 and Std 8).

3.13.1. Service Meters (1, 1-1/2 and 2 Inch)

One (1) inch water service meter shall be a Neptune 1T-10 BRZ 302 PROREAD AUTO DETECT C/F 6WHL W/O, one and a half (1½) inch water service meter shall be Neptune 1 ½T-10 BRZ OVAL PROREAD AUTO DETECT C/F 6WHL W/O, two (2) inch water service meter shall be a Neptune 2 T-10 BRZ OVAL PROREAD AUTO DETECT C/F 6WHL W/O with corresponding Neptune "PROREAD AUTO DETECT Receptacles" for one (1) inch DUAL R900 RF MIU ASSY COMPLETE 6 ft VERSION Number 12512-000, one and a half (1-½) inch DUAL R900 RF MIU ASSY COMPLETE 6 ft VERSION Number 12512-000, two (2) inch DUAL R900 RF MIU ASSY COMPLETE 6 ft VERSION Number 12512-000.

The register must be a straight reading, radio read absolute encoder type with a large test/sweep hand and shall read in units of one hundred (100) cubic feet. All reduction gearing shall be contained in permanently sealed, tamper proof enclosure of corrosion resistant material. The register shall secure to the upper main case by means of a locking device so it cannot be removed externally.

Removal shall require use of a special tool available only from the manufacturer. The register must comply with AWWA Standard C707 and shall be guaranteed against defects in materials and workmanship for ten (10) years from the date of shipment.

The measuring chamber shall be of Water Works Bronze or suitable synthetic polymer and shall not be cast as part of the main case. The motion of the piston or disc will be transmitted to the sealed register through a magnetic drive. All registers of a particular registration and meter size shall be identical and interchangeable.

3.13.2. Three (3) Inches and Larger Service Meters

If a three (3) inch or greater meter is required, the following are Fair Oaks Water District acceptable models:

- Neptune Tru/Flo Compound BRONZE OVAL PROREAD AUTO DETECT C/F 6WHL W/O meter
- Neptune HP TURBINE PROREAD AUTO DETECT C/F 6WHL W/O meter with corresponding Neptune "PROREAD AUTO DETECT Receptacles" for DUAL R900 RF MIU ASSY COMPLETE with 6 ft VERSION Number 12512-000 or DUAL R900 RF MIU ASSY COMPLETE 25 ft VERSION Number 12512-100.

The meter must meet the latest update of AWWA Standard C702, and must be compatible with the District's current computerized meter reading equipment and software.

In certain applications, subject to District approval, where larger, domestic, or irrigation meters must also serve fire systems, an appropriate sized Neptune High Performance Protectus III Fire service meter PROREAD AUTO DETECT C/F 6WHL W/O with corresponding Neptune "PROREAD AUTO DETECT Receptacles" (X) DUAL R900 RF MIU ASSY COMPLETE 6/25 ft VERSION Number 12512-0/100 shall be used.

The register must be a straight reading, radio read absolute encoder type with a large test/sweep hand and shall read in units of one hundred (100) cubic feet. All reduction gearing shall be contained in permanently sealed, tamper proof enclosure of corrosion resistant material. The register shall secure to the upper main case by means of a locking device so it cannot be removed externally. Removal shall require use of a special tool available only from the manufacturer. The register must comply with AWWA Standard C707 and shall be guaranteed against defects in materials and workmanship for ten (10) years from the date of shipment.

The measuring chamber shall be of Water Works Bronze or suitable synthetic polymer and shall not be cast as part of the main case. The motion of the piston or disc will be transmitted to the sealed register through a magnetic drive. All registers of a particular registration and meter size shall be identical and interchangeable.

4.0 Installation and Construction

4.1. Water Pipe Installation

4.1.1. Trench Excavation

Trench excavation shall include the removal of all materials and obstructions of any nature, the installation and removal of all sheeting and bracing, and the control of water necessary to complete the work. Methods of supporting excavations and provisions for access to trenches shall conform to applicable Federal and State Industrial Safety requirements.

Unless otherwise specified, excavations shall be open cut.

4.1.2. Trench Depth and Width

Trenches shall be dug to an even laying grade to a depth below finished grade so as to provide thirty-six (36) inches minimum and forty-two (42) inches maximum cover in public street rights-of-way. Where this standard cover cannot be maintained, protective measures, improved bedding protection or other District approved measures will be required. Any deviations from the standard pipe cover and appropriate measures must be approved by the District Inspector prior to installation.

The minimum trench width shall be the pipe OD plus a minimum of twelve (12) inches or more, and the pipe shall be centered in the trench.

4.1.3. Cutting Pavement

When digging the trench into an existing paved areas, the pavement shall be sawed or scored on neat lines parallel with and equidistant from the trench centerline. Pavement between lines shall be broken and removed immediately ahead of the trenching operations. The width of the pavement removed shall be such that the trenching operation does not damage the edges of the pavement left in place. When existing pavement is concrete, the pavement shall be sawed along a neat line six (6) inches wider on each side than the actual trench width. If Sacramento County Improvement Standards differ from this specification, the County Standards shall prevail.

4.1.4. Bracing and Shoring

All water systems to be connected with the District's system must be constructed in strict compliance with the statutory safety requirements of the State of California as set forth in California Administrative Code, Title 8 and all amendments that follow, and the Rules, Orders, and Regulations. Failure to comply with these requirements shall prompt the District to immediately suspend the work. No compensation for losses incurred by the Contractor for such suspension shall be allowed.

If possible, sheeting shall not extend below the bottom of the pipe barrel. All sheeting, timbering, lagging, and bracing shall be removed during backfilling, unless otherwise required by the District. These materials shall be removed to prevent any movement of the ground or damage to the piping or other structures. When the District requires that sheet piling, lagging, and bracing be left in place, such materials shall be cut off where designated and the upper part withdrawn, with compacting of backfill to proceed as the materials are removed.

4.1.5. Maximum Length of Open Trench

In public traffic areas, including street rights-of-way, no more than one hundred (100) feet of open trench is authorized at one time for each operation. The remainder of the trench shall be backfilled, compacted, and opened to traffic as soon as possible.

4.1.6. Control of Water

When groundwater or surface run-off water is encountered, the Contractor shall furnish, install, maintain, and operate all necessary machinery, appliances, and equipment to keep the excavation reasonably free of water. Contractor shall maintain this water-free working environment until placing of bedding material, laying of pipe and fittings, pouring of concrete, and placing of initial backfill have been completed. Contractor shall also maintain this water-free working environment until all inspections and approval has been completed. Groundwater pumped from the trench shall be disposed of in a manner that will not cause injury to public or private property or constitute a nuisance or menace to the public. The method of disposal shall be subject to the approval of the appropriate regulatory agency(s).

4.1.7. Special Foundation Treatment

Whenever the trench bottom is soft, yielding, or in the opinion of the District, otherwise unsuitable as a foundation for the pipe, the unsuitable material shall be removed by over-excavating to a depth approved by the District. These materials shall be replaced with sand or aggregate base so that a stable and satisfactory foundation is provided. When such over-excavation is required, the Contractor shall use the bedding material specified herein to bring the trench bottom to the elevation required, compacted to a density of at least ninety percent (95%).

4.1.8. Trench Bottom Preparation

The Contractor shall provide imported sand, free from clay or organic material and suitable for the purpose intended. Sand shall be sized so that ninety percent (90%) or more of the grains pass through a Number 4 sieve and not more than five (5%) of the grains pass through a Number 200 sieve. This bedding material shall extend from a minimum of six (6) inches below the pipe to twelve (12) inches above the pipe. A plastic non-detect blue tape twelve (12) inches wide as a minimum with the words "CAUTION: BURIED WATER LINE BELOW" shall be laid on top of the top bedding material the full length of the trench.

If the trench bottom is rocky or cobbled, or in opinion of FOWD inspector is not suitable for installation of water mains, Contractor must replace unsuitable material in accordance with the Section 4.1.7.

Pipe shall bear uniformly throughout its length. This bearing may be achieved by shaping the bedding or by lightly bouncing the pipe to set it into the bedding. The Contractor may elect to place bedding materials to the spring line of the pipe, compacting the pipe by light tamping to provide side support. Contractor shall fill all spaces under the sides while not disturbing the pipe. Pipe shall not bear on bells, couplings, or joints.

4.1.9. Hauling, Loading and Distributing Pipe

During loading, transporting, and unloading every precaution shall be taken to prevent damage to the pipe or pipe lining. No pipe shall be dropped when unloaded from a vehicle or allowed to roll down slides without proper retaining devices. Each pipe shall rest on suitable pads, strips, skids, or blocks during transportation and installation and shall be securely wedged or tied in place. Padding shall be

used on car or truck stakes, skids, etc., to prevent damage to the pipe during transportation and handling. Any damaged pipe shall be identified as damaged, properly disposed of and be replaced.

Each section of pipe shall be delivered in the field as near as practicable to the place where installation will occur. Pipes shall be distributed near the installing crew, along side of the trench opposite the spoil bank. Contractor shall at all times secure the pipe to ensure it cannot roll along the ground or fall into the ditch. If the pipe must be moved longitudinally along the trench, this task shall be done in a manner that will not damage the pipe. Pipe shall not be rolled or dragged on the ground when moved or handled.

When placed on stockpiles, pipe shall be neatly piled and blocked with strips between tiers.

4.1.10. Pipe and Fitting Installation

All pipe, valves, fittings, and appurtenances shall be installed according to the manufacturer's recommendations and accepted water works practice. Piping and appurtenances shall be installed in the position, grades, and locations shown on the plans or herein specified. Water mains shall be installed to provide thirty-six (36) inches minimum and forty-two (42) inches maximum cover within public street rights-of-way.

Dirt and scale shall be removed from pipe before installation, and all joints swabbed clean before jointing. Whenever work ceases for one (1) hour or more, ends of all pipes shall be closed or plugged with watertight plugs or bulkheads. Pipe work shall not proceed when there is the potential for foreign materials to enter the pipe.

All fittings needed to ensure satisfactory alignment and arrangement of piping shall be furnished by the Contractor. The fittings shall be cleaned before installation, installed, and joined according to the manufacturer's recommendations.

On alignment of piping, deflection or pull at each joint shall not exceed seventy-five percent (75%) of the maximum amount recommended by the pipe manufacturer for the given type and size joint. In no case shall the deflection per joint exceed four (4) degrees, or one and one-half (1.5) feet of horizontal deflection per twenty (20) foot section of pipe. Pipe deflection will be allowed only at the joint. Bending of pipe is not authorized.

If necessary to achieve greater deflection, the Contractor shall provide cast elbows or other approved fittings. Subject to District approval, another means to achieve greater deflection involves cutting and beveling C900 pipe into short sections and providing approved C900 couplings at each joint.

4.1.11. Cutting Pipe

The Contractor shall perform all work of cutting pipe and special castings necessary to assemble and complete the work. Pipe shall be cut to fit accurately with smooth edges and faces, using methods recommended by the manufacturer. The Contractor shall be responsible for the correctness of cutting and shall accept responsibility for the loss of materials that are damaged or cut incorrectly.

Where field cuts are made in PVC pipe, cut ends shall be square to the pipe and all burrs (internal and external) shall be removed. Beveling of pipe ends shall be as specified by the manufacturer. The District Inspector must inspect beveled pipe cuts prior to installation. After the pipe is cut, guide marks for jointing the pipe must be made on the pipe in accordance with the manufacturer's specification.

Asbestos cement pipe shall be cut with chain-type pipe snappers only. Appropriate safeguards shall be utilized during the cutting.

4.1.12. Placing of Locating Wire

All runs of non-metallic pipe shall have Number ten (10) a.w.g. solid, PVC coated, soft-drawn copper wire placed on top of the pipe to facilitate later pipe location. Wire shall be laid loosely on top of the pipe to prevent excessive tension and shall be taped in place every five (5) feet. The locating wire shall be securely and thoroughly spliced between runs, over all fittings, and around all main line valves. Wire shall be stubbed up outside riser pipe and into all valve boxes as specified on standard drawings. The District shall inspect all wire splices before the Contractor covers the splices with 3-M tape or other approved material (refer to Std.-5).

4.1.13. Boring and Jacking

Where specified or permitted by the District, the water main shall be placed in a conductor pipe by boring and jacking under a roadway, oak tree, or other obstruction.

Any boring or jacking operation of 100 feet or greater in length and involving an opening greater than 30 inches in diameter is subject to the State of California Division of Industrial Safety's tunnel safety provisions.

The District shall approve the materials, equipment, and method of operation before the Contractor may proceed with the work.

Excavation for the boring operation shall be the minimum necessary to satisfactory complete the work. Bracing and shoring shall be adequate to protect workmen and any adjacent structure or roadbed.

4.1.13.A Installation of Conductor

Installation of a conductor pipe is required for jack and bore installations. The conductor pipe shall be jacked simultaneously with the boring operation. The bored hole shall not be more than one tenth (0.1) of a foot larger in diameter than the outside diameter of the conductor. Adjoining sections of the conductor shall be fully welded together. The conductor shall extend a minimum of five (5) feet past each side of the bore.

4.1.13.B. Placing Pipe in Conductor

Pipe sections shall be jointed outside the conductor and then slid into place. Manufactured non-metallic, or non-corrosive casing spacers, adjustable runners, or cradles shall be used to support the pipe in the casing. The annular space shall be filled with clean sand or as required by the District. The end of casing shall be blocked with end pieces, APS type or equal, as approved by the District in accordance with the Standard drawing Std.-20.

4.1.13.C. Backfilling Voids

Whenever the Applicant, Consulting Engineer, District Engineer or District inspector deems that the nature of the soil indicates the likelihood of ground loss that would result in a greater-than-allowed space between the conductors (or pipe's) outer surface and the surrounding soil, the Contractor shall take immediate preventative measures. The measure consists of installing a jacking head, extending to at least eighteen (18) inches from the leading edge of the conductor. The jacking head shall cover the upper two-thirds of the bored pipe and project not more than one-half (0.5) inch beyond the conductor's outer surface. Excavation shall not be made in advance of this jacking head.

Where voids are suspected, the District may direct the Contractor to drill the conductor, pressure-inject grout to refusal, and then repair the drilled hole. Grouting pressure shall not exceed fifty (50) pounds per square inch at the nozzle.

4.1.14. Setting Valves, Fire Hydrants, and Blow-Off Assemblies

4.1.14.A Valves

Valves shall be installed complete with valve box and riser (refer to Std-4) or as shown on the approved plans. Valves ten (10) inches and larger shall be supported as shown on the Std. 4 or as directed by the District. Care shall be exercised not to encase joints or bolts in concrete. Where mainline valves will be attached to tees, ells, or other ductile iron fittings, the valves shall be flanged on the outlet(s) that attach to these fittings.

4.1.14.B. Fire Hydrant Assemblies

Fire hydrant assemblies shall be installed per Std-9 or as shown on the approved plans. Valves in fire hydrant assemblies shall be installed complete with valve box and riser, as specified. The gate valve for each fire hydrant shall be placed at and bolted to the flanged fitting at the mainline connection.

4.1.14.C. Blow-off Assemblies and air/vacuum valves

Blow-off assemblies shall be in accordance and as shown on the Standard Drawing SD-Installation of air-vacuum valve assemblies shall be in accordance and as shown on the Standard Drawings Std-2

4.1.15. Connections to Existing Mains

The Fair Oaks Water District requires installation of in-line tee, in-line valve and side valve for all lateral connections to existing water mains.

Installation of tapping sleeves and tapping valve for “hot-tap” method of connection is allowed under the following conditions:

- prohibitive shut-downs, requiring extensive system shut-down
- installation of in-line valve is not required

All tapping sleeves and tapping valves shall be inspected and approved by the District inspector prior to beginning of work

Installation of “hot-tap” sleeve and valve is not allowed when:

- the lateral is the same size as tapping main
- on asbestos- cement water mains

4.1.16. Thrust Blocking

Thrust blocks of Class B (2,000 pounds per square foot) concrete containing a minimum of five (5) sack mix shall be cast in place at all bends, behind each tee, at each cross, and at the back of fire hydrants and flush-outs. The thrust block shall extend from the fitting to undisturbed soil, shall be kept clear of the joints, and shall cover a sufficient bearing area to assure adequate resistance to force that might be encountered. Refer to Std-1 for details.

4.1.17. Corrosion Protection

All ductile iron and other iron or steel bodied valves, flexible couplings, tapping saddles, and other fittings shall be wrapped with polyethylene sheeting consisting of minimum eight (8) mil thickness. No galvanized or other steel materials may be used on District mains and services. No direct contact between materials consisting of unlike metals shall be permitted.

When working around existing steel pipe, the Contractor shall properly insulate the steel from all copper, brass, or other unlike metals with District approved dielectric fittings or other approved means. Pipe coating removed by the Contractor must be repaired or replaced to the satisfaction of the Inspector.

In special instances, such as installing steel pipe that is subject to earth contact, the District may require the Applicant to consult a qualified corrosion engineer who will design a suitable cathodic protection system. If required, the Applicant shall install the system as approved by the District at no additional cost to the district.

4.2. Sewer Pipe and Storm Drain Crossings

Water pipe crossings with sewer mains/laterals must be done as close to perpendicular as practicable. Sewer pipe must be a minimum of twelve (12) inches below the water pipe at such crossings. If this condition cannot be met, then the sewer pipe or the water pipe shall be constructed of a minimum of one (1) full section of Class 53 coated and lined Ductile Iron Pipe or Class 200 PVC C-900 pipe twenty (20) feet. Pipe installed for this purpose shall have no joints within four (4) feet horizontally of the pipe crossing.

Where minimum joint clearance cannot be met, compression type couplings shall be used at each end and these shall be encased in a minimum of five (5) sack grout for a minimum of twelve (12) inches in all directions. The latest Sacramento County Standard shall prevail.

4.2.1. Horizontal Clearance from Sewer Main

A minimum of ten (10) feet horizontal wall-to-wall clearance shall be maintained between parallel sanitary sewer and water distribution mains. Where this separation is not practicable or possible, the water main shall be constructed of either:

- Class 53 coated and lined ductile iron pipe or
- Class 200 PVC C-900 pipe.

Standard detail Std-10 provides separation requirements as outlined in the Department of Public Health regulations.

4.2.2. Pipe Crossings Other than Sewer

Water mains must have a twelve (12) inch minimum vertical clearance where crossing other pipes. Sand shall be used as fill between water main and other pipe at such crossings. When requirements of the owner of other pipe exceed this standard, the owner's pipe requirements shall prevail.

4.3. Backfill

The Contractor shall provide imported sand, free from clay or organic material, and suitable for the purpose intended. Sand shall be sized so that ninety percent (90%) or more of the grains pass through a Number 4 sieve and not more than five percent (5%) of the grains pass through a Number 200 sieve. This bedding material shall extend from a minimum of six (6) inches below the pipe to twelve (12) inches above the pipe.

Initial backfill, which consists of the material placed on the bedding after pipe joints have been completed, inspected, and passed by the District, shall extend to a point twelve (12) inches above the top of the pipe. The material shall be carefully placed in lifts not exceeding six (6) inches in depth, brought up evenly on both sides, and compacted by a combination of mechanical tamping and shovel tamping and slicing. Initial backfilling shall be done in a manner that will not disturb or damage the pipe.

Wedging, or using fill to support the pipe and jetting of the bedding and ditch shall not be permitted.

4.3.1. Intermediate or Top Backfill

As mechanical means are used to obtain the required compaction of ninety five percent (95 %) or greater, the Contractor must exercise extreme caution to avoid damaging or disturbing the pipe. This warning is particularly important when compacting directly over the top of pipe. No equipment shall

be allowed that compacts by applying heavy impact loads. Sacramento County Specifications do not allow jetting above the bedding material within County rights-of-way.

4.3.2. Backfill in Existing Street/Pavement Areas

In existing streets and driveways, the backfill shall extend from the top of the initial backfill to the bottom of the roadway structure section. The material used shall be Class 2 aggregate base in conformance with the requirements of Sacramento County Construction Specifications and shall be compacted to a density of at least ninety five percent (95 %) or greater, as required by Sacramento County.

Backfill material shall be mechanically compacted in twelve (12) inch lifts or as required by Sacramento County Standard Specifications. The pavement sub grade (underlying twelve (12) inches) shall be aggregate base compacted in accordance with Sacramento County Standard specifications.

4.3.3. Backfill in New Street/Pavement Areas

Backfill shall be of an imported select material. Backfill shall extend from the top of the initial backfill to the bottom of the roadway structure section. The material used shall be Class 2 aggregate base and shall be compacted to a density of at least ninety five percent (95%) or greater by mechanical means.

All public water mains located within an existing or proposed new roadway, public or private shall conform to this standard (refer to Std -8).

4.3.4. Other Backfill Requirements

4.3.4.A Bracing and Shoring

Where bracing and shoring are used in the trench, the backfill shall be carried to a height sufficient to prevent the surrounding ground from cracking and caving into the trench before the bracing and shoring are removed. Backfill of the pit excavated for boring operations shall be made in the same manner as specified for trenches. Bracing or shoring permits and details may be required before pipe is laid.

4.3.4.B. Backfill of Service Lines

Where water service lines are installed by open cut methods, the service line trench shall be backfilled in the same manner as the water main trench.

4.4. Installation of Water Services

The service saddle shall be set at an angle of thirty (30) to sixty (60) degrees from the top of the main and corporation stop nut shall point to approximately 12 o'clock, unless otherwise directed by the District inspector. Where saddles serving lots on opposite sides of the street are located adjacent to each other on the main line, saddles shall be spread a minimum of eighteen (18) inches apart. Service taps shall be staggered to prevent any service tap from aligning with another. In addition, taps shall not be placed closer together than eighteen (18) inches, or placed closer to pipe joints or collars than eighteen (18) inches. Pairs of taps shall be placed a minimum of thirty-six (36) inches from other taps or pairs of taps.

Services shall normally be placed three (3) feet from the adjacent lot line. A minimum of five (5) feet clearance is required between service trenches and street light bases. These and other deviations from the standard service location shall require specific dimensioning on plans, subject to District approval. Lot lines adjacent to water services shall be marked at the time of the final inspection.

Service piping from the water main in the street or road to the property or right-of-way shall be installed at the time of construction of the main. Service lines to the individual lots shall be one (1) inch rolled Type K copper. Approved markers shall be placed to mark the location of each service line to facilitate location of service connections if the valve box is covered or removed. Before the District will accept the new system, locations of water services shall be permanently marked with a six (6) inch letter "W" embedded in the curb, directly in front of the meter.

Service connections shall not be installed on fire hydrant laterals or risers.

4.4.1. Installing Meter Setters and Meter Boxes

Service meters shall be placed at alternate lot corners in pairs, or as indicated on the Approved Plans and constructed in accordance with Std- 7 and Std-8. Meter setters for each lot shall be placed so that the meter box edge placed nearest the County right-of-way will be one (1) foot outside the right-of-way. The service shall be located on the lot or easement of intended use as shown on the Standard Drawing Std-6.

4.4.2. Threaded Joints

Threaded joints shall be made up with non-lead pipe joint compound, carefully and smoothly placed on the male threads only. All screwed joints shall be made tight with tongs and wrenches; caulking of any kind will not be permitted. Use of thread cement or caulking to make joints tight is prohibited. All cut ends shall be reamed to full bore before assembly.

4.5. Hydrostatic testing

4.5.1. Timing of the hydrostatic test

After completion of installation, the Contractor shall test all piping, including water mains, service lines, fire hydrant laterals to the pressures specified in this chapter. The Contractor shall furnish all materials, equipment, and labor for testing.

To schedule the test, the Contractor shall contact the District at a minimum of forty-eight (48) hours (a two full workdays) before the time desired. The placement of permanent pavement is not allowed prior to successful completion of the hydrostatic test. Thrust blocks will have to be in place for at least 72 hours prior to conducting test.

Each section of the system to be tested shall be slowly filled with water and all air shall be expelled from the pipe. After system is filled with water, all valves shall be closed and the line shall remain in this condition for a period of not less than 24 hours.

4.5.2. Pressure requirements and Duration

After 24 hours period, the pipe shall be re-filled, if necessary and tested at 150 Pounds per Square Inch (PSI) or the service pressure plus 50 PSI, whichever is greater. Full test pressure shall be continuously maintained for a minimum of two (2) hours and the leakage determined. Before the pressure test, the Contractor shall pre-test the system for a minimum of one (1) hour.

4.5.3. Allowable Leakage

Leakage shall not exceed the amounts identified within Table 2.

Table 2: ALLOWABLE LEAKAGE PER 1,000 FEET OF PIPELINE
Measured in gallons per hour

Pipe Diameter (inches)	Test Pressure, 150 lbs. / in ²
6	0.55
8	0.74
12	1.10
18	1.66
24	2.21
36	3.31

The Contractor shall provide the necessary pump and calibrated container to measure the water required to replace water leaked during the test. All leaks found shall be corrected immediately and the system again subjected to the same test at no cost to the District. Failure of material used in the mainline system discovered during the test will be removed and replaced with quality material, as specified. The Contractor shall take all necessary precautions to prevent joints from moving while the pipelines and appurtenances are being tested. The Contractor shall, at its expense, repair damage to the pipes, fittings, or to any other structures, resulting from or caused by these tests.

4.6. Disinfection and Flushing of Water Lines

After completion of hydrostatic test, Contractor may proceed with disinfection and bacteriological testing. All aspects of disinfection and dechlorination shall be supervised and approved by the Fair Oaks Water District personnel. Disinfection and flushing shall conform to provisions of the latest edition of AWWA Standards C651.

Disinfection and flushing, bacteriological and final "Bacti" testing, shall be completed before any section of water main is accepted and authorized to be tied in to the existing water system. The temporary lines for filling new main must have an approved and tested RP backflow assembly device. Installation of temporary blow-offs on all end points of new systems is mandatory.

All Samples will be taken by the Fair Oaks Water District designated person at any point of the new system as deemed necessary by the District operator for chlorine residual, or any other contaminant.

Disinfection generally may be accomplished using one of the following approved methods:

4.6.1. Placing Calcium Hypochlorite Tablets

During construction, a number of calcium hypochlorite tablets will be placed in each section of pipe and one tablet will be placed in each fire hydrant branch, and other appurtenance, as specified. (refer to Table 1). Contractor shall attach the tablets to the pipe's internal surface by an adhesive such as Permatex No. two (2) or approved equal. Attach the tablets to the top, inside the spigot ends of the pipe only.

Calcium hypochlorite tablets shall be five (5) gram units, containing approximately sixty-five percent (65%) available chlorine by weight. The tablets should be stored in a cool, dry, and dark environment to minimize deterioration.

Table 1: HYPOCHLORITE TABLETS REQUIRED FOR 50 mg/L *

		Per Section of Pipe Length			
		13 feet	18 feet	20 feet	
PIPE DIAMETER IN INCHES	6	2	3	3	NUMBER OF 5 GRAM CALCIUM HYPO- CHLORITE TABLETS
	8	3	4	4	
	12	6	8	8	
	16	8	12	14	
	24	24	28	28	
	30	30	42	42	
	36	54	64	72	

* **mg/L** = milligrams per liter

4.6.2. Filling with Chlorinated Water Solution

A chlorine-water mixture shall be uniformly introduced into the pipeline by means of a solution-feed chlorinating device. The chlorine solution feed shall be introduced at one end of the pipeline through a tap so that as the pipeline is filled with water, the dosage applied to the water entering the pipe is above fifty (50) milligrams per liter (mg/L) and not above one hundred (100) milligrams per liter (mg/L). The use of an approved RP backflow assembly shall be required to prevent the chlorine solution in the new line from flowing back into the line supplying the water.

4.6.3. Filling and Flushing of Piping

After twenty-four (24) hours minimum time, chlorinated water shall be flushed completely from pipes. Heavily chlorinated water should not remain in prolonged contact with pipe.

Water shall be thoroughly dechlorinated so that no measurable level of disinfectant remains by the time the discharged water reaches the storm drainage system. Dechlorinating is achieved by pumping vitamin "C" into a tank hooked up to the designated flushing hydrant. The tank provides additional detention time to allow the chlorinated water and dechlorinating agent to mix. Once mixed, the dechlorinated water discharges from the tank to the storm drain.

If a sanitary sewer is available, dechlorination may not be required. However, it will be necessary to contact the Sacramento County Sanitation District before discharging chlorinated water to the sewer. It is the contractor responsibility to obtain all necessary permits and comply with applicable environmental regulations.

Water must be in the pipeline for a minimum of forty-eight (48) hours before bacteriological testing is performed.

New mains will not be accepted and put in service until after an "absent" result from the bacteriological testing received by the District.

The Contractor is responsible for any additional cost of repeat disinfection, chlorination and sampling and de-chlorination.

4.6.4. Sanitation for Tie-ins

Sanitation of pipe and fittings used for tie-ins, or for other instances where the District determines that the standard chlorination method is not practical, shall be as follows:

Thoroughly swab all internal portions of pipe and fittings with a one percent (1%) chlorine solution (liquid chlorine bleach diluted with water is authorized).

4.6.5. Connection to Existing Facilities

Permission to connect to existing facilities must be approved by the District. The Contractor shall contact the District inspector in advance to schedule a planned tie-in connection. The District will schedule the tie-in connection a minimum forty-eight (48) hours after being notified. The Contractor shall be responsible for all materials, equipment and labor for the connection. Cut-in connections shall be permitted only after the Contractor completes and prepares them such that a shutdown will be as brief as possible. No one other than an authorized representative of Fair Oaks Water District shall operate any distribution system valve unless specifically directed by the District representative.

Connections to existing facilities shall not be allowed prior to satisfactory completion of sanitation and hydrostatic testing. Scheduled shutdowns of District mains will not be allowed on Mondays or times other than regular District work hours.

In the interest of maintaining adequate pressures within the distribution system, the District will not normally permit the shutdown of eighteen (18) inch or larger diameter transmission mains between April and October of any year. Work requiring transmission main shutdowns shall be planned and scheduled between November and March.

4.7. Cross Connection Regulations

Installation of an approved backflow prevention assemblies or other approved measures are required to protect potable water system from contamination as deemed necessary by the District to comply with State of California Health Law (Title 17), Sacramento County Environmental Health Department Codes, and Fair Oaks Water District Resolution 97 – 09 or latest resolution in effect.

4.8. Abandonment of Water Facilities

Existing water mains and services shall be abandoned in place unless directed to remove by the District or other authority having jurisdiction. The determining factors for removal shall depend on the circumstances surrounding the material type, depth and potential safety hazards involved. The open ends of abandoned pipe left in place shall be filled with concrete to prevent drainage through the pipe. Valve boxes shall be removed from systems that are abandoned. In addition, all abandoned fittings and valves shall be removed from points of connection with water mains remaining in service. To abandon a water main, a blind flange shall be attached to the connecting tee, with a bitumastic coating applied for protection and then wrapped the fitting(s) with a six (6) mil polyethylene sheeting. If the District, at its discretion, determines that the connecting tee is in poor condition, the Contractor shall remove and replace the tee with flexible couplings and an approved segment of pipe.

Where services to be abandoned are attached to a water main that will remain in service, the existing service saddle and attachments shall be removed and replaced with all-stainless steel full circle repair clamp (Ford FS Series or approved equal).

4.9. Project Restoration

The Contractor shall be responsible for protecting all existing survey monuments and other survey markers during construction. All such monuments and markers destroyed by contractor during construction shall be restored or replaced at the contractor's expense.

4.9.1. Restoring Pavements

Whenever existing pavements, road surfaces, walks, or other surfaces are removed to construct trenches and install pipe, the backfill shall be thoroughly compacted and the pavement, road surface, walks, or other surfaces shall be restored to the condition existing before the excavation occurred. All work shall match the appearance of existing facilities as nearly as practicable.

Pavement replacement that occurs outside of Sacramento County right-of -ways shall be of the same type and thickness as the original pavement. Pavement replacement within Sacramento County streets shall be in accordance with the latest approved Sacramento County Standard Construction Specifications. Refer to Std-8 for details.

4.9.2. Restoring Landscaping

Restoring landscaping includes providing plant materials, preparing soil, fertilizing, fine grading, and planting and establishing plants. Planting operations shall be performed only when weather conditions are suitable for such work (e.g., free of excessive rain or wind).

The pipeline and service lines within landscaped areas shall be installed per the Plans and Specifications except that the top six (6) inches shall be imported topsoil of sandy loam without admixture of subsoil, and shall be free from sticks, rocks, or other foreign material. Topsoil shall not be delivered or applied in a muddy condition. Planting areas outside of the trench areas that have been damaged during construction shall be thoroughly cultivated, and the soil loosened to a depth of six (6) inches, removing all rocks, loose grass, and debris.

Shaping and preliminary finish grading shall be accomplished before planting. Fertilizer (16-6-8) or equivalent with micronutrients shall be spread evenly and raked lightly and evenly into the soil at the rate of fifteen (15) pounds per one thousand (1000) square feet. The area shall then be thoroughly wetted to eliminate future settling.

Replacement and installation of lawn sod shall be in accordance with accepted industry practices. In some instances, reseeding may be an acceptable alternative if approved by the property owner and the District.

4.10. Water Used in Construction

A permit is required to use water for construction purposes. The permit, to be purchased by the Applicant, will authorize the Contractor to use a fire hydrant at the approved location. Temporary connections must be immediately removed following completion of each task. Only an approved spanner wrench shall be used to operate a hydrant. The permit holder will be responsible for any damages to fire hydrants caused by improper use, and the District may revoke the permit at any time if construction water is used in an unauthorized manner.

The District will require the Contractor to use an approved RP backflow assembly, to be placed between the District's system and the temporary water connection. The District will require metering of water used for construction purposes. All water used in construction must come only from the water system owned and operated by the District.

4.11. Cleanup

During the progress of the work, the Contractor shall maintain the entire job site in a clean and orderly condition. Spillage resulting from hauling operations along or across existing streets or roads shall be removed immediately by the Contractor. The Contractor shall monitor operations and methods at all times to minimize dust problems within the work area or along adjacent properties. Water or dust abatement shall be applied to meet requirements of the latest Sacramento County standard specifications. Contractor is responsible for removing all Underground Service Alert (USA) markings and construction signs prior to the final inspection.

4.12. Inspections

The following provisions apply to the inspection of systems that will become part of the District's System. The Developer/Owner of the project is responsible for contacting Fair Oaks Water District and arranging inspection services in accordance with this section. No water facilities, including water mains, services, fire hydrants and etc. will be accepted by the District without inspection and acceptance notice.

4.12.1. Schedule

The Contractor shall provide District with work schedule prior to start of construction. Inspections shall be scheduled during regular District working hours and working days. Any unreasonable delay and deviations from the submitted schedule will result in additional inspection fees, to be paid by Developer.

4.12.2. Obligation

The Contractor shall notify the District for inspection before and after pipe has been covered to a compacted depth of twelve (12) inches over the pipe, before all thrust and support blocks are poured, and before all fittings and valves are covered. Subject to proper notification by the Contractor, the District authorized representative will inspect the water system with the least possible delay.

4.12.3. Final Pre-Inspection

Before a Letter of Pre-acceptance is issued by the District for the new water system, the District shall perform a final inspection to determine whether water pipes, valves, boxes, fire hydrants, blow-offs, fittings and all other appurtenances have been installed per approved plans and standard specifications.

When the project is ready for final inspection and walk through, Contractor shall notify the District. Within two (2) working days after receiving the Contractor's request for final inspection, the District shall inspect the work. During the final inspection, the District Inspector, and the Contractor shall make a thorough inspection of all water valves, service meter installations, blow-off valves, air valves, and other facilities the District Inspector deems appropriate.

Following the inspection, the District will issue a list of defects or deficiencies to be remedied. The Applicant or Contractor shall correct the defects or deficiencies within fifteen (15) working days following the final inspection. After all corrective work has been completed, the District shall perform a re-inspection to determine whether the defects have been repaired, altered, and completed in accordance with the approved plans and the District's notice of deficiencies. If deficiencies remain, the Applicant will be charged for additional re-inspection(s). New services will remain locked and

may not be used until all deficiencies, including fees, as-builts, etc. have been eliminated, and the new system is accepted by the District.

4.12.4. Notifications for Changes in Approved Plans

The Applicant's Contractor or Consulting Engineer shall promptly notify the District of any field changes or changes in the plans. The District must approve plan revisions in writing. Before work may proceed, the Contractor shall at all times have in his possession a set of the latest plans and specifications approved by the District. The set of final as-built drawings shall reflect all change orders and modifications made during construction.

4.13. Pre-Acceptance and Final Acceptance

Following final inspection, acceptance of as-built drawings and elimination of all system deficiencies by the Applicant or Contractor, the District will issue a written pre-acceptance notice of the water system.

The Final acceptance of the will take place one year from the date of the pre-acceptance notice upon completion of final system inspection. The Fair Oaks Water District will issue final acceptance notice if and only no deficiencies or defects are found throughout water system being accepted.

5.0 Abbreviations

ANSI

American National Standards Institute

ASME

American Society of Mechanical Engineers

ASTM

American Society for Testing Materials

AWWA

American Water Works Association

6.0 Definitions

Applicant

Person or persons, firm, partnership, corporation, or combination thereof, financially responsible for the design, construction, repair, and alteration of water supply facilities within the Fair Oaks Water District (improvements).

Approved Plans

Approved Plans are considered a contract between the District and the Applicant seeking to perform improvements within the District. The Approved Plans specify that the applicant shall adhere to all provisions of these Specifications, in addition to those items specifically shown on the plans. In the event of conflicts between Approved Plans and these Specifications, the Approved Plans shall prevail.

Booster Pump

A mechanical or electrical advantage pump utilized to increase pressure or flow to an existing system that is utilizing the Fair Oaks Water District system as the upstream provider.

Calendar Days

Calendar day shall be defined as every day shown on the calendar.

Commercial Development

Of or relating to commerce: Having profit as a chief aim, facilities that are intended for nonresidential use and whose operations will affect commerce, including factories, warehouses, office buildings, and other buildings in which employment may occur.

Commercial Service

Any water use that provides or distributes a product or service, such as hotels, restaurants, office buildings, commercial businesses or other places of commerce. All Commercial Services within Fair Oaks Water District service area will require installation of an approved Backflow Device in accordance with District's policy.

Consulting Engineer

Consulting Engineer is the Registered Professional Engineer or consulting firm hired by the Applicant to prepare and submit plans for proposed improvements.

Contractor

Contractor shall refer to the Applicant responsible for proposed improvements represented on the Approved Plans and their representative, including the Consulting Engineer, licensed underground utilities contractor, and subcontractor.

County

County of Sacramento

Cross Connection

A cross-connection is a physical arrangement between a potable water supply system and any other environment containing foreign substances that would be provided a path to enter the District water system. Other substances may be gases, liquids or solids (i.e., chemicals, waste produce, steam water from other sources (potable or non-potable)) that may change the color or add odor to the water. By-pass arrangements, jumper connections, removable sections, swivel or changeover assemblies or any other temporary or permanent connections arrangement through which back flow may occur are considered to be cross-connections.

Dedicated Service

A water service that is specifically dedicated to a single classification service (e.g. irrigation, fire, commercial, industrial, institutional, multi-family, residential service, single family).

Design Criteria

The wells, pumps, and distribution systems shall be designed in accordance with the District standards and requirements to supply and maintain an adequate positive pressure in all parts of the system at all times, with an economical loss of head.

Developer

Developer is a term commonly used to describe the Applicant.

Development

Development shall mean the act or process of any construction on properties as well as subdivision improvement.

District

Fair Oaks Water District, the water agency authorizing the work specified on the Approved Plans.

District Inspector

A District employee or Authorized Person(s) employed by the District and authorized to inspect and enforce the work specified on the Approved Plans and implementing District Specifications.

Private Fire Protection Service

A connection to water system that is specifically designed and dedicated for the suppression of fire on the premises. Water use for any other purposes other than fire suppression is not authorized. Installation of an approved backflow prevention device is required on all dedicated fire services and water connections that provide dual service: domestic and fire system.

General Manager

The General Manager of the District or their representative.

Hydrant Permitting

Water use from an assigned hydrant with a permit issued by Fair Oaks Water District (refer to Schedule of Fees and Charges - Table 3) for construction activities or like services by an individual, organization, corporation or governmental entity or their representative.

Hydrant Unauthorized Use

Water use from a hydrant without a current active permit from Fair Oaks Water District will require immediate purchasing or billing of a permit.

Dedicated Industrial Service

Any water users that are primarily manufacturers or processors of materials as defined by the Standard Industrial Classifications (SIC) Code numbers 2000 through 3999. This typically identifies water used for

industrial purposes in such industries as steel, chemical, paper, and petroleum distribution. Installation of an approved backflow prevention device is required on all industrial services within Fair Oaks Water District.

Dedicated Institutional Service

Any water-using establishment dedicated to public service. This includes schools, courts, churches, hospitals, and government facilities. All facilities serving these functions are to be considered institutions regardless of ownership. Installation of an approved backflow prevention device is required on all institutional services within Fair Oaks Water District

Dedicated Irrigation Service

A dedicated service that supplies water only for application to landscape; is not cross connected to the potable water supply to the parcel and which is not used for either fire protection or domestic purposes in residential, commercial, industrial or institutional. Installation of an approved backflow prevention device is required on all irrigation services within Fair Oaks Water District

Multi-Family

An established facility that will accommodate five or more families.

Dedicated Residential Service

A service connection to the non-commercial and non-institutional building or any portion of a building containing up to four dwelling units.

Reduced Pressure Detector Assembly (RPDA)

Assembly that consists of an RP that has an external by pass assembly that consists of a RP and a meter to track and aid in the detection of illegal use of water. The only RPDA listed in the latest "List of an Approved Backflow Prevention Assemblies" published by the University of Southern California are accepted within Fair Oaks Water District.

Service Upgrade

Dedicated water service that is modified per customer request in accordance with the current Standard Specifications.

Standard Specifications

The latest specifications adopted or approved by the District governing the construction, repair or decommissioning of or design of improvements.

Standard Drawings (SD)

Drawings included in this document to show details of construction methods, adopted by the District.

Stolen Service

The term "stolen" identifies used for other than its intended use or District water used illegally by interference with meters. No person shall prevent water from passing through any meter connected directly or indirectly with the public water mains or prevent any meter from accurately registering the amount of water passing through such meter, or prevent or obstruct a meter from accurately registering the quantity of water supplied, or in any way interfere with the purpose or action of a meter. Also no person shall, without the consent in writing of the District divert any water from any pipes, lines or mains of the waterworks, or otherwise use or cause to be used. Any water unlawfully diverted by device, which prevents the free passage and registration of water or results in the taking of any water except through a meter shall constitute prima facie evidence of illegal use on the part of the person owning or having custody or control of the parcel.

Vacant Parcel

A parcel where no habitable dwelling or building exists.

Water Service Connection

The point at which the public water system piping of the District ends, and the water service connection of the piping of the customer begins as shown on the Standard Drawings.

Water System

Potable water supply system approved by or under the supervision of the Department of Public Health of the State of California.

Work

Actions specified, indicated, shown, or contemplated in the Contract to construct improvements so that the completed work shall comply with the true meaning and intent of the Approved Plans, Specifications, and all provisions of the Contract.

Working Days

Monday, Tuesday, Wednesday, Thursday, and Friday excluding Saturday, Sunday, and District recognized holidays, and where applicable days of inclement weather wherein construction work cannot safely proceed.

7.0 Schedule Fees and Charges

7.1. Schedule Fees and Charges

The District Board of Directors approves fee schedule and other development charges as a part of the annual Budget. Refer to the most recent District Budget for the up-to-date list of fees and charges.



CALTRANS ENCROACHMENT PERMITS

GUIDELINES AND SPECIFICATIONS FOR TRENCHLESS TECHNOLOGY PROJECTS

AUGUST 2018

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PROCEDURAL REQUIREMENTS FOR DESIGN AND CALCULATIONS OF STRUCTURAL AND SUB-STRUCTURAL PROJECTS

All submittals shall be stamped by a Registered Structural Engineer, or a Registered Civil Engineer, with a minimum of five years' experience in structural design and preparation of calculations, proof of experience is required by use of Encroachment Permits form "Certification of Structural Experience" (form TR-0133) to be included within the project package submittal.

STRUCTURAL DESIGN AND CALCULATIONS

All Structural Project submittals (structures and structural falsework) will require review by Structures Maintenance, for construction under an encroachment permit and require the following:

Designed plans and specifications, calculations and details (structural and falsework).

A geotechnical investigation and soil analysis by a licensed geotechnical engineer is required. It shall provide identification of any locations of difficulty, changes in soil formation, or mixed face conditions that could present or create ground loss, exploratory soil corings and logs are required along the alignment of the project.

Construction or Structures Construction may provide oversight.

SUB-STRUCTURAL DESIGN AND CALCULATIONS

Sub-structural projects may consist of, but are not limited to, drainage boxes & systems, tunneling projects (mechanical or manual tunnel excavations for the placement of tunnel supports), and Trenchless Technologies for the installation of utilities when the diameter is 30" or larger (jack & bore, micro-tunneling, horizontal directional drilling, or pipe-ramming).

When the distance between the tunnel and an existing structure is less than twenty times its diameter, it shall be sent to Structures Maintenance for review of the potential lateral loading effects to the pilings and foundation.

Otherwise, Sub-structural Project submittals, listed below and submitted with the "Certification of Experience" (form TR-0133) **do not** require review by Structures Maintenance or Underground Structures.

- Micro-tunneling projects.
- Bore & Jack, HDD, or Pipe Ramming (hole-diameter is 30" or larger and requiring structural/sub-structural design, investigations and calculations)
- Tunneling for the placement of tunnel support systems (rib & lagging, or steel liner plate requiring structural/sub-structural design, investigations and calculations).
- Drainage boxes and systems.

All Sub-structural Project submittals require the following:

The District Encroachment Permits Office is responsible for verification of the Registered Engineer's stamp, validation of the date of expiration against the dated plan set and calculations. The permit office engineer shall validate the RE's stamp at the web site listed below, by entering the RE's number. A copy of the results shall be printed and included within the permit file. The encroachment permit may be issued, upon completion of the normal review process (Traffic, Environmental, R/W, etc.).

- Designed plans and specifications, calculations and details (liner plates, rib & lagging, bracing, etc.).
- A geotechnical investigation and soil analysis by a licensed geotechnical engineer is required. It shall provide identification of any locations of difficulty, changes in soil formation, or mixed face conditions that could present or create ground loss, exploratory soil corings and logs are required along the alignment of the project.
- When the length of the tunnel is greater than four hundred feet (> 400'), alignment holes may be required. Alignment holes shall be drilled at a maximum spacing of two-hundred feet (200') and a casing of four to six inches (4" to 6") in diameter installed vertically, to a depth necessary for the installed casing to extend into the tunnel excavation. When alignment holes fall within the pavement area of the roadway, the pavement shall be saw-cut, a cover shall be placed over the end of the casing at grade, and the space around the casing within the roadway filled with concrete (EXCEPT in controlled access right-of-way).

PROJECT OWNER'S RESPONSIBILITIES

On projects deemed by the Department as requiring full time inspection, the project owner is responsible for providing a third-party full-time inspector.

A full-time Safety Engineer: A Registered Structural or Civil Engineer, with a minimum of five years' experience in design or inspection of Sub-structural Projects (tunnels). Proof of experience shall be submitted on Encroachment Permits form "Certification of Structural Experience" (form TR-0133) **or**

A full-time Safety Representative: State certified by Department of Industrial Relations, Cal/OSHA Mining & Tunnel Unit, proof of certification is required. California Code of Regulations 8406(f), (h)

CONTRACTOR'S RESPONSIBILITIES

Prior to issuance of the "DP" permit the following shall be submitted:

- Proof of experience, as stipulated by the District Office, in respect to diameter and length of proposed project.
- Tunnel support system construction plans and specifications, calculations and details, method of construction, to include the adequacy of the shield and liner material stamped by a Registered Structural Engineer, or a Registered Civil Engineer, with a minimum of five (5) years' experience in sub-structural design and preparation of calculations.
- "Notice of Materials to be used" (form CEM-3101).
- Method of construction plan.
- A Licensed Surveyor.
- Proof of rib expanders and/or liner supports.
- Working schedule of the project.
- Contingency plan for dealing with ground loss work.
- Shaft; soil stability at portals and ground improvement plan.
- Dewatering plans for entry and exit shafts/pits, if needed.
- Installation and monitoring of SWPPP or WPCP facilities and conditions.
- Shoring design for entry and exit shafts/pits.
- Survey control plan: lasers, laser mounting, laser checking.
- Ground surface settlement monuments and subsurface settlement monuments monitoring program plan.
 - Buried points

TUNNELING PROJECTS

All projects will vary in their own characteristics. General similarities are listed below to provide a general understanding of these types of projects.

Establishment of a survey-grid line and existing elevation points shall be over the centerline and wing points of the installation.

Designed plans and specifications, calculations and details (liner plates, rib & lagging, bracing, etc.) shall be stamped by a Registered Structural Engineer, or a Registered Civil Engineer, with a minimum of five (5) years' experience in sub-structural design of tunnels. Proof of experience shall be submitted on "Certification of Structural Experience" (form TR-0133) in conjunction with project package submittal.

A geotechnical investigation and soil analysis by a licensed geotechnical engineer/engineering geologist is required. It shall provide identification of any locations of difficulty, changes in soil formation, or mixed face conditions that could present or create ground loss, exploratory soil corings and logs are required along the tunnel alignment at intervals of twenty-five to one-hundred feet {25' to 100'}.

When the length of the tunnel is greater than four hundred feet (> 400'), alignment holes may be required. Alignment holes shall be drilled at a maximum spacing of two-hundred feet (200') and a casing of four to six inches (4" to 6") in diameter installed vertically, to a depth necessary for the installed casing to extend into the tunnel excavation. When alignment holes fall within the pavement area of the roadway, the pavement shall be saw-cut, a cover shall be placed over the end of the casing at grade, and the space around the casing within the roadway filled with concrete (EXCEPT in controlled access right-of-way).

CAL/OSHA REQUIREMENTS

The California Code of Regulations (CCR) mandates the following requirements for Tunneling Projects.

- The Owner or Local Entity proposing the construction of the tunnel shall make a full submittal to the Department of Industrial Relations, Cal/OSHA, to determine tunnel classification. CCR 8422
- Development of a check-in/check-out procedure to ensure an accurate account of personnel underground in the event of an emergency. CCR 8410
- Development of an Emergency Plan, that outlines duties and responsibilities of all personnel on the project during an emergency. The plan shall include ventilation controls, firefighting equipment, rescue procedures, evacuation plans and communications. CCR 8426
- Cal/OSHA requires a State of California certified person performing the duties of gas tester or safety representative to be certified by passing a written and an oral examination administered by the Cal/OSHA Mining & Tunneling Unit. CCR 8406(f), (h)
- A certified safety representative shall direct the required safety and health program and must be on-site while employees are engaged in operations during which the Tunnel Safety Orders (TSO) apply. CCR 8406(f)
- The certified safety representative must have knowledge in underground safety, must be able to recognize hazards, and must have the authority to correct unsafe conditions and procedures subject to the TSO. CCR 8406(f)

A State of California certified gas tester is required for the following operations:

- All classifications other than non-gassy
- Projects during which diesel equipment is used underground
- Hazardous underground gas conditions. CCR 8470

TUNNEL

Tunnel construction is accomplished by the method of Hand-mining, or by Mechanical means, and the use of a protective shield.

Continuous monitoring and observation of the ground surface above the tunnel is required. In some cases, it may be required to survey and record elevations along the survey grid line, several times a day, or daily.

Generally, when tunneling in good ground, tunnels with a diameter of less than eight-feet (< 8') and less than three-hundred feet to four-hundred feet (300' to 400') in length may be holed-through (excavated completely) before concreting the interior of the tunnel, when placement of pre-fabricated or pre-cast pipe is to be installed. When this is proposed, hole-through (unsupported length) before concreting of the interior of the tunnel, it shall be justified by the original subsurface geotechnical investigation and design.

Tunnel lining and bracing should consist of steel ribs and steel spreaders (dutchmen) with wood, concrete, or steel lagging, or with bolted steel liner plates.

Fireproof materials should be utilized in all construction of plant structures, above ground, within one hundred feet (100') of the shaft or tunnel. The use of flammable materials or wood shoring would require that adequate fire protection be provided.

Ventilation systems shall be established and provide a minimum of two hundred (200) cfm per worker.

- All equipment shall maintain a minimum clearance of twenty-five feet (25') from opening.
- An established contingency plan in the event of ground loss.
- Cranes utilized in operations shall maintain minimum required clearances.

TUNNEL SHIELD

- The face of the shield shall be provided with a hood or an approved grid system.
- The excavation face shall have a sufficient length to allow for the installation of one (1) complete ring of liner plates, or one (1) complete set of ribs and lagging before advancing.
- The contractor shall submit details and design information of the shield.

TUNNEL LINING

Tunnel lining and bracing should consist of steel ribs and steel spreaders with wood lagging and concrete, or steel lagging, or with bolted steel liner plates.

The tunnel liner and bracing shall be designed (calculations provided) of an adequate strength based upon the geotechnical investigation, soil analysis, loading, and the diameter and depth of cover to provide adequate support of the tunnel.

- A ring expander shall be used to expand the rib continuously outward and upward.
- Liner plates shall be designed based on joint strength, minimum stiffness, critical buckling of the liner plate wall, and deflection or flattening of the tunnel section.
- On tunnels with a diameter greater than ten feet (> 10'), the placement of ribs inside of liner plate may be required.
- When the geotechnical investigation has determined that silts and fine sands exist, that may flow under pressure, all liner plates shall include a neoprene gasket adhered to each flange face.

LAGGING

Generally started at spring line and continue upwards towards the crown. Lag spacing consists of three methods:

1. Wedging – done by driving a block of wood between the earth and the lag at each end, or by driving a wedge between the rib and the lag.
2. Stops – by welding small angles to the ribs outer flange to prevent sliding.
3. Clamps – which are applied to wood or steel lags.

If the spacing of lags between ribs is used in tunnel construction, packing between lags with filler may be required.

- Lags are boards or steel plates placed longitudinally against the roof and walls of the tunnel excavation.
- Steel lagging may consist of channel, liner plate or corrugated metal.
- Steel lagging thickness shall be designed on strength based upon the geotechnical investigation, soil analysis, and loading.
- Wood lagging thickness shall be designed on strength based upon the geotechnical investigation, soil analysis, loading. Generally wooden lags common size is three-inches by six-inches (3" x 6"), and the length is cut according to the spacing of the ribs.
- A minimum of one liner plate per ring with a two-inch (2") diameter coupling for grouting is required.

CONSTRUCTION OF SHAFTS / PITS

Shafts / pits should be constructed of a proper size and shape, and equipped as to allow work to be carried on safely.

- Shafts must be constructed of driven steel sheet pilings, steel bracing and tight wood, or steel lagging or steel liner plates and ribs.
- The removal of spoils should be accomplished by mechanical means (muck box).
- All shafts must be provided with guardrail and a toeboard.
- When ladders are utilized within the shaft or pit, cages and/or safety devices must be provided on depths of 15 feet to 20 feet, platforms must be provided at depths of greater than 20 feet.
- Ventilation systems must be established and provide a minimum of 200 cfm per worker.
- All equipment must maintain a minimum clearance of 25 feet from openings.
- Upon completion of project all shafts, pits and drifts that are not part of the finished product must be backfilled.

PLACEMENT OF SHAFTS / PITS

Shafts /Pits must be:

- Preferred to be located as far from the traveled way as feasible. At minimum, should be located 10 feet from the edge of pavement in rural areas, or at least 5 feet beyond the concrete curb and gutter or AC dike in urban areas, or at least 5 feet beyond the toe of slope of embankments.
- Located outside of access-controlled right-of-way.
- Adequately fenced or have a Type-K barrier placed around them at a 10:1 taper or as otherwise directed.

- Shored according to Cal-OSHA minimum requirements. Located within 15 feet of traffic lanes on a State highway must not extend more than 36 inches above the pavement grade unless otherwise authorized by the State representative. Reflectors must be affixed to the sides facing traffic, and placement around the perimeter of a 6-foot chain link fence during non-working hours.
- Are only allowed within access-controlled right-of-way for direct access-controlled right-of-way crossings that are excessively long or that have restricted space available outside the right-of-way.
- They must not affect State facilities or create a hazard to the traveling public. When placement is approved within access-controlled right-of-way, damaged State facilities must be replaced or repaired according to State Standard Specifications.
- Must have crushed-rock and sump areas to clear groundwater and water used to clean. They must be lined with filter fabric when groundwater is found and pumping is required.

EXCAVATION

In some locations Soil Stabilization may be required. It may become necessary at the direction of the Engineer to either pressure grout or freeze the soil area of the project to control water, to prevent loss of ground, to prevent settlement or displacement of an embankment. When required, a Registered Geotechnical Engineer shall prepare and stamp the plans determining the material and method for use.

In some projects masonry sections are installed, the amount of excavation of the tunnel should not exceed the amount needed for placement of a full masonry section after all lining is in place.

All excavated material shall be considered as unclassified material.

- In the event of any ground movement over or adjacent to construction, all work shall be suspended, except that which will assist in making the construction site secure and prevent any further additional movement of the ground.
- Excavation should not be advanced beyond the edge of the shield, except in rock.
- The geotechnical engineer/engineering geologist shall determine the allowable amount of tunnel length unsupported by bracing, based on the geotechnical investigation and design.
- All voids between the excavation and the liner shall be grouted after setting of ribs and lagging, if not expanded to full contact with the surrounding ground, as determined by the Safety Engineer.
- A log shall be maintained of all surrounding utilities and facilities.

DEWATERING

When ground water is anticipated, pumps of sufficient capacity to handle the flow shall be maintained at the site. Observation shall be maintained to detect any settlement, displacement or washing of fines into the pit, shaft or tunnel.

GROUTING

Grouting should be kept close to the heading (working front of tunnel). It may be required to add pea-gravel and fly ash to the grout. The pea-gravel would assist in consolidation and the filling of the voids, fly-ash works as a lubricant allowing the grout to free-flow.

- The use of grout stops may be utilized if necessary or if required by the Safety Engineer.
- Grouting shall be performed when ordered by the Safety Engineer.
- At no time shall progression of the tunnel exceed six feet (6') beyond the grouting of the exterior void.

- Pressure on the grouting gauge should not exceed the capacity of the lining, sufficient to fill all voids.
- A gauge shall be provided which will accurately indicate working pressure and shall be monitored constantly during grouting procedures.
- Grouting shall start at the lowest point and proceed upwards simultaneously on alternating sides.
- When grouting is complete at that location a threaded plug shall be installed into the coupling.

MATERIALS

“Notice of Materials to be used” (form CEM-3101) is required.

- The manufacturer shall provide a Certificate of Compliance, to ensure tensile and yield strengths.
- Steel lagging may consist of channel, liner plate or corrugated metal.
- Steel lagging thickness shall be designed on strength based upon the geotechnical investigation, soil analysis, and loading.
- Wood lagging thickness shall be designed on strength based upon the geotechnical investigation, soil analysis, loading. Generally wooden lags common size is three-inches by six-inches (3”x 6”), and the length is cut according to the spacing of the ribs.
- When the geotechnical investigation has determined that silts and fine sands exist, that may flow under pressure, all liner plates shall include a neoprene gasket adhered to each flange face.
- Ensure Manufacturer’s Specification Data Sheets (MSDS) are provided stipulating recommended:
 - Specifications of steel spreaders (spacing, tolerances).
 - Specifications of steel rib (section lengths, spacing, etc.)

PROJECT OWNER’S/PERMITTEE’S RESPONSIBILITIES

The project owner/permittee is responsible for providing:

A full-time Safety Engineer or Safety Representative, and proof of certification is required, either by submittal on “Certification of Structural Experience” (form TR-0133) or State Certification.

Cal/OSHA requires persons performing the duties of gas tester or safety representative to be certified by passing a written and an oral examination administered by the M&T Unit. CCR 8406(f), (h)

- Project drawings and specifications, calculations and details stamped by a Registered Structural Engineer, or a Registered Civil Engineer, with a minimum of five (5) years’ experience in sub-structural design of tunnels.
- A geotechnical investigation by a licensed geotechnical engineer to determine the following;
- Storm Water Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan (WPCP).
- De-Watering Plan, if needed.
- Ground water information
- Boring and soil analysis logs, location plan of borings, cross sections, subsurface strata, fill and ground water elevations;
 - Particle size distribution (particularly percent rock and cobble),
 - Cohesion index, internal angle of friction, and soil classification,
 - Plastic and liquid limits (clays), expansion index (clays), soil density, and penetration tests,
 - Rock strength, rock joint fracture and orientation, water table levels, and soil permeability,
 - Areas of suspected and known contamination should also be noted and characterized.
- The soil investigation shall also determine the presence of rock, cobbles, and/or boulders, and the following;
 - Depth and extent of rock

- Rock type
- Rock strength
- Rock joint/fracture spacing
- Hardness
- RQD
- Estimated range of sizes & frequency of occurrence of cobbles and boulders.

CONTRACTOR'S RESPONSIBILITIES

The contractor is responsible for providing:

- Tunnel project construction plans and specifications, calculations and details, method of construction, to include the adequacy of the shield and liner material stamped by a Registered Structural Engineer, or a Registered Civil Engineer, with a minimum of five (5) years' experience in sub-structural design of tunnels.
- "Notice of Materials to be used" (form CEM-3101).
- Method of construction plan.
- A Licensed Surveyor.
- Proof of rib expanders and/or liner supports.
- Working schedule of the project.
- Contingency plan for dealing with ground loss work.
- Shaft; soil stability at portals and ground improvement plan.
- Dewatering plans for entry and exit shafts/pits, if needed.
- Installation and monitoring of SWPPP or WPCP facilities and conditions.
- Shoring design for entry and exit shafts/pits.
- Survey control plan: lasers, laser mounting, laser checking.
- Ground surface settlement monuments and subsurface settlement monuments monitoring program plan.
 - Buried points

ENCASEMENT REQUIREMENTS

1. Encasement requirements are discussed in Section 603.3C of the Encroachment Permits Manual.
2. The minimum wall thickness required for steel encasements is shown in Table 6.8 of the Encroachment Permits Manual.
3. Encasement ends shall be plugged with ungrouted bricks or other suitable material approved by the Caltrans' representative.
4. The Caltrans' representative may require the permittee to pressure grout, filling any voids generated during the permitted work. Grouting shall be at the expense of the permittee. Grout holes when placed inside the of the pipe, generally on diameters of 36" or greater, shall be on 8' centers, longitudinally and offset 22 degrees from vertical, and staggered to the left and right of the top longitudinal axis of the pipe. Grout pressure shall not exceed five-(5) psig (34.5 kPa) for a duration sufficient to fill all voids.
5. There is a spacing requirement when placement of multiple encasements is requested. The distance between multiple encasements shall be the greater of either 24" or twice that of the diameter of the larger pipe being installed.
6. Wing cutters when used shall only add a maximum of 1" in diameter to the outside diameter of the encasement pipe. Voids in excess of the Standard Specifications shall be grouted.
7. A band welded to the leading edge of the encasement pipe should be placed square to the alignment and not on the bottom edge of pipe. A flared lead section on bores over 100' shall not be permitted.
8. The length of the auger strand shall be equal to that of the section of encasement pipe.

BORE & JACK

Utility installations placed by Bore & Jack shall be monitored to ensure that the integrity of the existing roadway elevations are maintained. When the encasement is also to serve as the carrier facility for hazardous materials, the use of another trenchless installation is recommended. Potential damage could occur during the jacking process, rendering the use of that facility as the carrier.

BORE AND RECEIVING PITS

Requirements:

1. Must be located as far from the traveled way as feasible. At minimum, must be located 10 feet from the edge of pavement in rural areas, or at least 5 feet beyond the concrete curb and gutter or AC dike in urban areas, or at least 5 feet beyond the toe of slope of embankments.
2. Must be located outside of access-controlled right-of-way. Any deviations for direct crossings that are excessively long, or there is restricted space available for placement, outside of the right-of-way require an approved encroachment policy exception. Those portions of the installation not placed by Bore & Jack must be encased by the open trench method.
3. Must be protected by placement of 6-foot chain link fence or Type-K barrier around them.
4. Must be shored in accordance to Cal-OSHA requirements. Shoring of pits located within 15 feet of lanes within State highway right-of-way must not extend more than 36 inches in height above the pavement grade, unless authorized by a Caltrans' representative.
5. Reflectors must be affixed to the shoring on all sides facing traffic.
6. Pits must not affect any State facilities, or create a hazard to the traveling public. Damaged State facilities must be replaced in-kind or repaired to their original state.
7. All pits should have crushed-rock and sump areas to clear groundwater and water used to clean the casings. Pits must be lined with filter fabric when groundwater is found and pumping is required.
8. Temporary Type-K railing must be placed at a 10:1 taper or as otherwise directed by the Caltrans' representative to maintain the integrity of the adjacent travel lane.

Any installation that is 30 inches in diameter or greater is defined as tunnel. See Section 518, and Table 5.29 - Permit Code TN for the requirements of such installations.

RECOMMENDED MINIMUM DEPTH OF COVER FOR HDD INSTALLATIONS

DIAMETER	DEPTH OF COVER
2 inches to 6 inches	4 feet
8 inches to 14 inches	6 feet
15 inches to 24 inches	10 feet
25 inches to 48 inches	15 feet

Upon completion of the work, the permittee shall provide an accurate as-built drawing of the installed pipe.

SOIL INVESTIGATIONS

The District Permit Engineer (DPE) should determine the extensiveness of the Soil Investigation to be performed based on the complexity of the HDD operation, or modify the guideline to fit the respective area.

A soil investigation is required, suitable for the proposed complexity of the installation to confirm ground conditions that will be encountered during the HDD operation. The HDD process is a continual and extensive soil analysis as the pilot bore is made encountering the varying soils and formations.

Projects less than 500' in length, where the product or casing is 8" or less in diameter:

A field soil sampling investigation to a depth of one foot below the proposed drilling.

- a) Subsurface strata, fill, debris and material

Projects less than 800' in length, where the product or casing is 14" or less in diameter:

A field soil sampling investigation to a depth of one foot below the proposed drilling.

- a) subsurface strata, fill, debris and material
- b) particle size distribution (particularly percent gravel and cobble)

Projects where the product or casing is 16" or greater in diameter:

A geotechnical evaluation by a qualified soil engineer to determine the following.

- a) subsurface strata, fill, debris and material,
- b) particle size distribution (particularly percent gravel and cobble),
- c) cohesion index, internal angle of friction, and soil classification,
- d) plastic and liquid limits (clays), expansion index (clays), soil density
- e) water table levels, and soil permeability,

Projects where the product or casing 24" or greater in diameter:

A geotechnical evaluation by a qualified soil engineer to determine the following.

- a) subsurface strata, fill, debris and material
- b) particle size distribution (particularly percent gravel and cobble)
- c) cohesion index, internal angle of friction, and soil classification
- d) plastic and liquid limits (clays), expansion index (clays), soil density, and penetration tests,
- e) rock strength, rock joint fracture and orientation, water table levels, and soil permeability,
- f) areas of suspected and known contamination should also be noted and characterized.

A borehole or test pit should be undertaken on both sides and in the median when conditions permit.

Additional boreholes or test pits should be considered if substantial variations in soil conditions are encountered in the soil analysis (the presence of gravel, cobble, and/or boulders).

Fluid jetting methods used as a means of cutting **should only be considered** where soils have a high cohesion such as stiff clays.

PRE-CONSTRUCTION & SITE EVALUATION

The following steps should be undertaken by the permittee/contractor to ensure safe and efficient construction with minimum interruption of normal, everyday activities at the site.

- Notify owners of subsurface utilities along and on either side of the proposed drill path of the impending work through USA alert (the one-call program). All utilities along and on either side of the proposed drill path are to be located.
- Obtain all necessary permits or authorizations to carry construction activities near or across all such buried obstructions.
- All utility crossings should be exposed using a hydro-excavation, hand excavation (potholing) or other approved method to confirm depth.
- Construction schedule should be arranged to minimize disruption (e.g. drilling under railroad beds, major highways, and/or river crossings).
- The proposed drill path should be determined and documented, including its horizontal and vertical alignments and the location of buried utilities and substructures along the path.

Walk the area prior to the commencement of the project and visually inspect potential sites. The following should be addressed:

- When on State R/W establish whether or not there is sufficient room at the site for: entrance and exit pits; HDD equipment and its safe unimpeded operation; support vehicles; fusion machines; stringing out the pipe to be pulled back in a single continuous operation.
- Establishing suitability of soil conditions for HDD operations. Subgrade soils consisting of large grain materials like gravel, cobble, and boulders make HDD difficult to use and may contribute to pipe damage.
- Check the site for evidence of substructures such as manhole covers, valve box covers, meter boxes, electrical transformers, conduits or drop lines from utility poles, and pavement patches. HDD may be a suitable method in areas where the substructure density is relatively high.

INSTALLATION REQUIREMENTS

During construction continuous monitoring and plotting of pilot drill progress shall be undertaken to ensure compliance with the proposed installation alignment and allow for appropriate course corrections to be undertaken that would minimize “dog legs” should the bore start to deviate from the intended bore path.

Monitoring shall be accomplished by manual plotting based on location and depth readings provided by the locating/tracking system or by computer generated bore logs which map the bore path based on information provided by the locating/tracking system. Readings or plot points shall be undertaken on every drill rod.

Excess drilling fluids shall be contained at entry and exit points until recycled or removed from the site. Entry and exit pits should be of sufficient size to contain the expected return of drilling fluids and soil cuttings.

The permittee shall ensure that all drilling fluids are disposed of in a manner acceptable to the appropriate

local, state, or federal regulatory agencies. When drilling in contaminated ground the drilling fluid shall be tested for contamination and disposed of appropriately. Restoration of damage to any highway or non-highway facility caused by escaping (“fracout”) drilling fluid, or the directional drilling operation, shall be the responsibility of the permittee.

To minimize heaving during pullback, the pull back rate shall be determined which maximizes the removal of soil cuttings and minimizes compaction of the ground surrounding the borehole. The pullback rate shall also minimize overcutting of the borehole during the back reaming operation to ensure excessive voids are not created resulting in post installation settlement.

The permittee shall, prior to and upon completion of the directional drill, establish a Survey Grid Line and provide monitoring as outlined in their submitted detailed monitoring plan. Subsurface monitoring points shall be utilized to provide early indications of settlement as large voids may not materialize during drilling due to pavement bridging.

Should pavement heaving or settlement occur, sawcutting and replacement of the asphalt shall be the responsibility of the permittee.

To prevent future settlement should the drilling operation be unsuccessful the permittee shall ensure the backfill of any void(s) with grout or backfilled by other means.

PERMITTEE’S/CONTRACTOR’S RESPONSIBILITIES

The plans set submittal should contain the following information in support of the permit application.

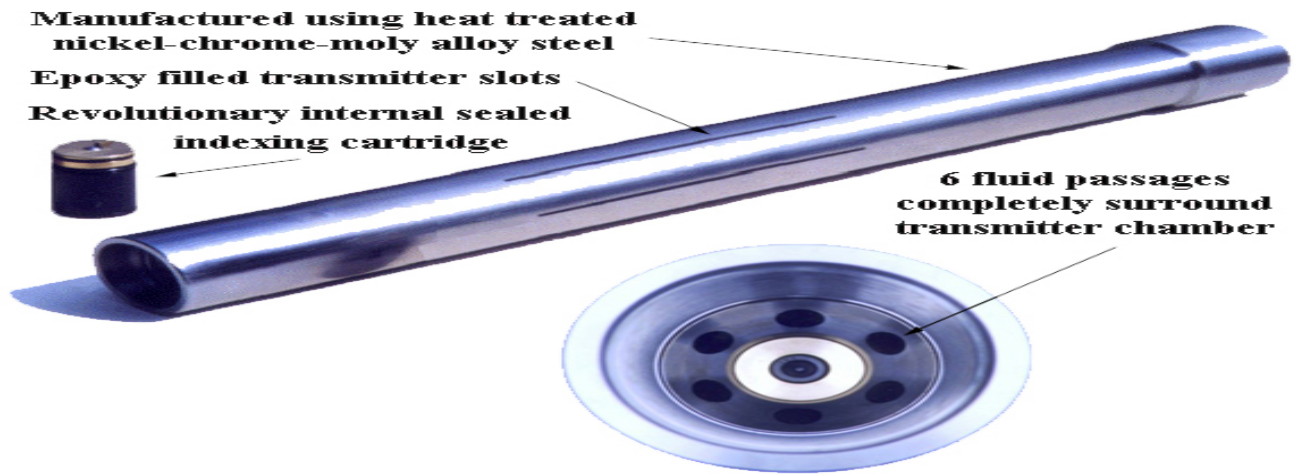
1. Location of entry and exit point.
2. Equipment and pipe layout areas.
3. Proposed drill path alignment (both plan & profile view).
4. Location, elevations and proposed clearances of all utility crossings and structures.
5. Proposed Depth of cover.
6. **Soil analysis.
7. Product material (HDPE/steel), length, diameter-wall thickness, reamer diameter.
8. Detailed pipe calculations, confirming ability of product pipe to withstand installation loads and long term operational loads including H20.
9. Proposed composition of drilling fluid (based on soil analysis) viscosity and density.
10. Drilling fluid pumping capacity, pressures and flow rates proposed.
11. State right-of-way lines, property, and other utility right-of-way or easement lines.
12. Elevations.
13. Type of tracking method/system.
14. Survey Grid establishment for monitoring ground surface movement (settlement or heave) due to the drilling operation.

Note: ** *May be waived by the District Permit Engineer on HDD jobs of less than 6" in diameter and on a transverse crossing less than 150' in length.*

ADDITIONAL PERMIT CONDITIONS SHALL BE SET FORTH IN THE SPECIAL PROVISIONS OF THE PERMIT. LOCATING AND TRACKING

EFFECTIVE JANUARY 1, 2000, LOCATING AND TRACKING OF THE REAMER DURING THE BACK-REAMING PROCESS IS REQUIRED.

The illustration below shows a universal housing that will work with any drill-string on all HDD rigs.



DRILLING FLUIDS MANAGEMENT PLAN

The following information should be provided as part of the drilling fluid management plan:

- Identify source of fresh water for mixing the drilling mud (Necessary approvals and permits are required for sources such as streams, rivers, ponds, or fire hydrants).
- Method of slurry containment.
- Method of recycling drilling fluid and spoils (if applicable).
- Method of transporting drilling fluids and spoils off site.

Drilling fluid pressures should not exceed that which can be supported by the overburden (soil) pressure.

Drilling fluids serve many functions, as follows:

- Removes cuttings from the bottom of the hole and transports them to the surface.
- Holds cuttings and weight material in suspension when circulation is interrupted.
- Releases sands and cuttings at the surface.
- Stabilizes the hole with an impermeable cake.
- Cools and lubricates the drill bit and drill string
- Controls subsurface pressures.
- Transmits hydraulic horsepower.
- Cools the locating transmitter sonde preventing burnout.

PREVIOUS EXPERIENCE

- The permittee's contractor should provide a list of projects completed by his company, location, project environment (e.g., urban work, river crossing), product diameter and length of installation.
- The permittee's contractor should provide a list of key personnel.

SAFETY

- Emergency procedures for inadvertently boring into a natural gas line, live power cable, water main, sewer lines, or a fiber-optic cable, which comply with applicable regulations.
- Emergency evacuation plan in case of an injury.

CONTINGENCY PLANS

The Contingency plan shall address the containment and removal, of an inadvertent return or spill (e.g., drilling fluids, and hydraulic fluids).

COMMUNICATION PLAN

The communication plan should address the following:

- The phone numbers for communication with owner or his representative on the site.
- Identification of all key personnel which will be responsible for ensuring that the communications plan is followed.

DRILLING OPERATIONS

The following paragraphs provide general remarks and rules of thumb related to the directional boring method, as well as specific details regarding various stages of the installation process.

- The drill path alignment should be as straight as possible to minimize the fractional resistance during pullback and maximize the length of the pipe that can be installed during a single pull.
- The radius of curvature is determined by the bending characteristics of the product line, and it is increasing with diameter.
- If a drill hole beneath a road must be abandoned, the hole should be backfilled with grout or bentonite to prevent future subsidence.

EQUIPMENT SETUP AND SITE LAYOUT

- Sufficient space is required on the rig side to safely set up and operate the equipment.
- Sufficient space should be allocated to fabricate the product pipeline into one string, thus enabling the pull back to be conducted in a single continuous operation.

DRILLING AND BACK-REAMING

- Drilling mud shall be used during drilling and back reaming operations. Using exclusively water may cause collapse of the borehole in unconsolidated soils, while in clays, the use of water may cause swelling and subsequent jamming of the product.
- Heaving may occur when attempting to back ream too large of a hole. This can be avoided by using several pre-reams to gradually enlarge the hole to the desired diameter.
- The conduit must be sealed at both ends with a cap or a plug to prevent water, drilling fluids and other foreign materials from entering the pipe as it is being pulled back.
- Pipe rollers, skates or other protective devices should be used to prevent damage to the pipe from the edges of the pit during pullback, eliminate ground drag or reduce pulling force and subsequently reduce the stress on the product.
- The drilling mud in the annular region should not be removed after installation, but permitted to solidify and provide support for the pipe and neighboring soil.

BREAK-AWAY PULLING HEAD

Some utility companies require the use of breakaway swivels to limit the amount of force used when pulling HDPE products.

PROTECTIVE COATINGS

In an HDD installation, the product pipe may be exposed to extra abrasion during pullback. When installing a steel pipe, a form of coating which provides a corrosion barrier as well as an abrasion barrier is recommended during the operation, the coating should be well bonded and have a hard smooth surface to resist soil stresses and reduce friction, respectively. A recommended type of coating for steel pipes is mill applied Fusion Bonded Epoxy.

DRILLING FLUID - COLLECTION AND DISPOSAL PRACTICES

Drilling fluids, additives and their Material Safety Data Sheets (MSDS) shall be identified within the contractor's submittal permit package.

- Excess drilling fluids shall be contained within a lined pit or containment pound, until removed from the site.
- When an area of contaminated ground is encountered, the slurry shall be tested for contamination and disposed of in a manner, which meets Local, State and/or Federal requirements.
- Precautions shall be taken to keep drilling fluids out of the streets, manholes, sanitary and storm sewers, and other drainage systems, including streams and rivers.
- The contractor shall make all diligent efforts to minimize the amount of drilling fluids and cuttings spilled during the drilling operation, and shall provide complete clean-up of all drilling mud overflows or spills.

SITE RESTORATION AND POST CONSTRUCTION EVALUATION

All surfaces affected by the work shall be restored to their pre-existing conditions.

The permittee/contractor shall provide a set of as-built drawings to include both alignment and profile.

Drawings should be constructed from actual field readings. Raw data shall be submitted as part of the "As-Built" document. The contractor shall stipulate the tracking method used to ensure the data was captured.

MICRO-TUNNELING

Micro-tunneling is a hybrid of the tunneling industry (miniaturization of tunnel boring machines) and the pipeline industry where pipe jacking has been used for more than 100 years. It is a special construction method suitable for many conditions where open cut construction methods are not cost effective, too disruptive, or not physically possible.

MICRO-TUNNELING PLAN SET SUBMITTAL

The plan set submittal shall consist of two separate submittals, by the Owner of the installation and by the owner's contractor.

The submittal by the owning agency shall contain the following plans and information:

1. Drive lengths
2. Proposed depth
3. Shaft; jacking and receiving shafts, manhole construction, shaft backfill, and shoring removal;
 - Type of shaft;
 - a) Sheet Pile
 - b) Beams and Lagging
 - c) Trench Box
 - d) Auger Drilled and Lined
 - e) Caissons
4. Intermediate jacking stations;
 - Number of Stations;
 - a) Required by Specifications
 - b) On site
5. Geotechnical; including ground water information
 - Geotechnical evaluation by a qualified soil engineer to determine the following;
 - a) Boring logs & plan locations of borings and cross sections, Subsurface strata, fill and ground water elevations
 - b) Particle size distribution (particularly percent rock and cobble),
 - c) Cohesion indexes, internal angle of friction, and soil classification,
 - d) Plastic and liquid limits (clays), expansion index (clays), soil density, and penetration tests,
 - e) Rock strength; rock joint fracture and orientation, water table levels, and soil permeability,
 - e) Areas of suspected and known contamination should also be noted and characterized.
 - Should the soil investigation determine the presence of rock, cobbles, and/or boulders, determination of the following information would be required;
 - a) Depth and extent of rock
 - b) Rock type
 - c) Rock strength
 - d) Rock joint/fracture spacing
 - e) Hardness
 - f) RQD
 - g) Estimated range of sizes & frequency of occurrence of cobbles and boulders.

Boreholes or test pits for road crossings shall be undertaken on both sides with one or more additional boreholes or test pits in the median where conditions permit. Additional boreholes or test pits should be considered if substantial variation in soil conditions are encountered. Where a proposed installation parallels an existing road, boreholes or test pits should be undertaken at approximately 250 to 410 feet intervals.

CONTRACTOR'S SUBMITTAL

Shall contain the following plans and information:

1. Shaft; soil stability at portals and ground improvement.
2. Dewatering plans for jacking and receiving shafts, if any.
3. Shoring design for jacking and receiving shafts.
4. Survey control plan: lasers, laser mounting, laser checking.
5. Ground surface settlement monuments and subsurface settlement monuments monitoring program plan.
 - Buried points
 - a) Rebar points, or
 - b) MPBX (Multi-point borehole extensometers)
6. Recycling information; slurry mix and polymer additives, slurry separation plant type, and spoils disposal;
 - a) Removal of slurry in dump trucks.
 - b) Removal of slurry in tankers.
 - c) Settlement ponds.
 - d) Muck piles on site.
7. Contingency plan information;
 - a) Ground improvement plans when required at portals and/or behind thrust block/reaction wall due to weak and unstable soil conditions.
 - b) Obstruction removal through emergency (911) shafts or other means.
 - c) Mechanical breakdowns and recovery of the MTBM through 911 shafts or other means.
 - d) Control of hydrofracture and slurry loss.
 - e) Remediation of loss of ground and excessive ground surface settlement.

PIPE RAMMING

Pipe Ramming pit requirements are identical to those for Bore & Jack.

Establishment of a survey-grid line is required.

Before any project begins, exploration bore-holes and a complete geotechnical investigation shall be conducted to determine possible difficulties to determine the drilling trajectory.

The casing shall be rammed open ended, except when the diameter is 6" or smaller. Pipes 6" or smaller may be rammed open ended or closed.

A soil shoe may be installed on the leading edge of the casing, either by fabrication on site or obtained from the manufacturer. A soil shoe shall not be utilized on those installations at depths or 18" or less from the surface.

Lubrication shall only be utilized to reduce friction and increase production. The amount of lubrication directed to the outside of the pipe shall only be of a sufficient amount required to fill the void between the outside of the pipe and soil, as created by the soil shoe.

Lubrication to the inside of the casing shall only be an amount adequate to assist in spoil removal when the ram is completed.

Welding of the casing at joints shall be as per the manufacturer's recommendations.

The use of straps at each joint on pipe diameters of 12" or larger is required as is the use of the manufacturer's specified welding wire or rod.

Spoil removal for rammed encasements of 30" in diameter or less, may utilize pressurized air or water.

Air pressure shall not exceed 150 psi and water pressure shall not exceed 300 psi.

Encasements larger than 30" in diameter shall have the spoils removed by other means than by pressurizing of the pipe, such as, manual, auguring, vacuum, washing or other means.

The Receiving Pit shall be steel plated entirely when the spoils are to be removed from within the encasement by means of air or water pressurized methods.

PIPE BURSTING

Pipe Bursting operations generally are only performed by the owning utility when they have exceeded the operating capacity of their existing facilities. In most cases pipe bursting allows the utility owners the advantage of upgrading their existing facilities by up to 50%.

On installations of diameters 12" or greater it is necessary to establish a survey-grid line and establish the existing elevation points over the existing area of installation.

A soil analysis should be required and review of the information to identify any locations of difficulty, density, water table, changes in soil formation that could present or create greater friction resistance.

Request information of the proposed project as to:

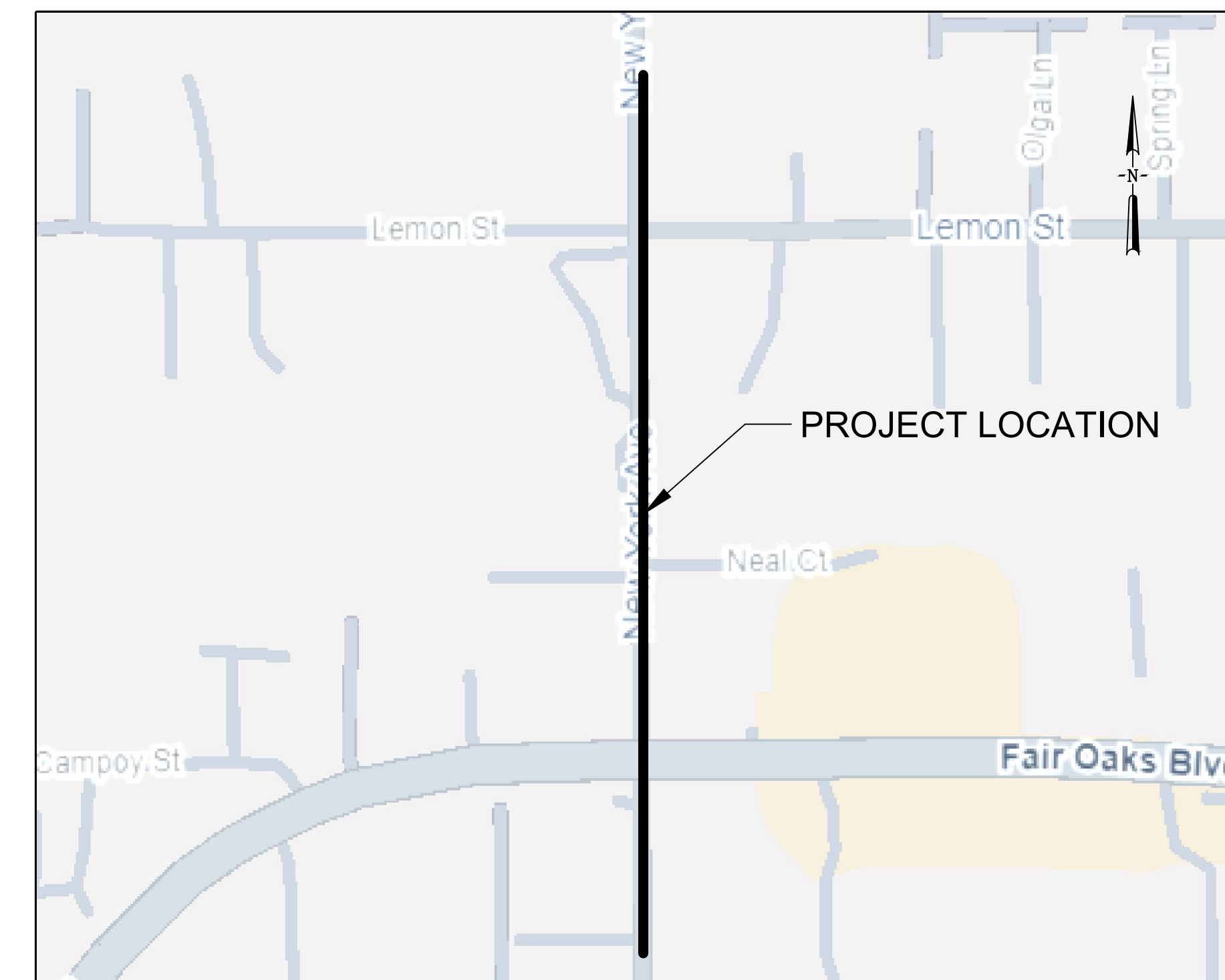
1. The ratio of the proposed upgrade to determine difficulty, generally up to 25% increase in diameter is common. An increase of 25% - 50% is considered challenging, and an increase of 50% or greater is considered experimental.
2. The existing depth of cover, "rule of thumb" depth of cover should be at least 10X the difference in the upgrade of the existing diameter to be burst.
3. Whether or not the existing line has been viewed by video, do not allow line to be burst blind.
4. Is this proposed line straight or are there bends in the line.
5. If bends are existing in the line, the location of the bend will have to be excavated and new pits re-established at those locations.
6. Require that the contractor provide a list of equipment to be on site to handle an emergency, in the event that bypass pumping is required to maintain the existing service in the event of a problem.
7. As to what method will be utilized (static, pneumatic, burst and jack, or hydraulic).

APPENDIX C

FAIR OAKS WATER DISTRICT

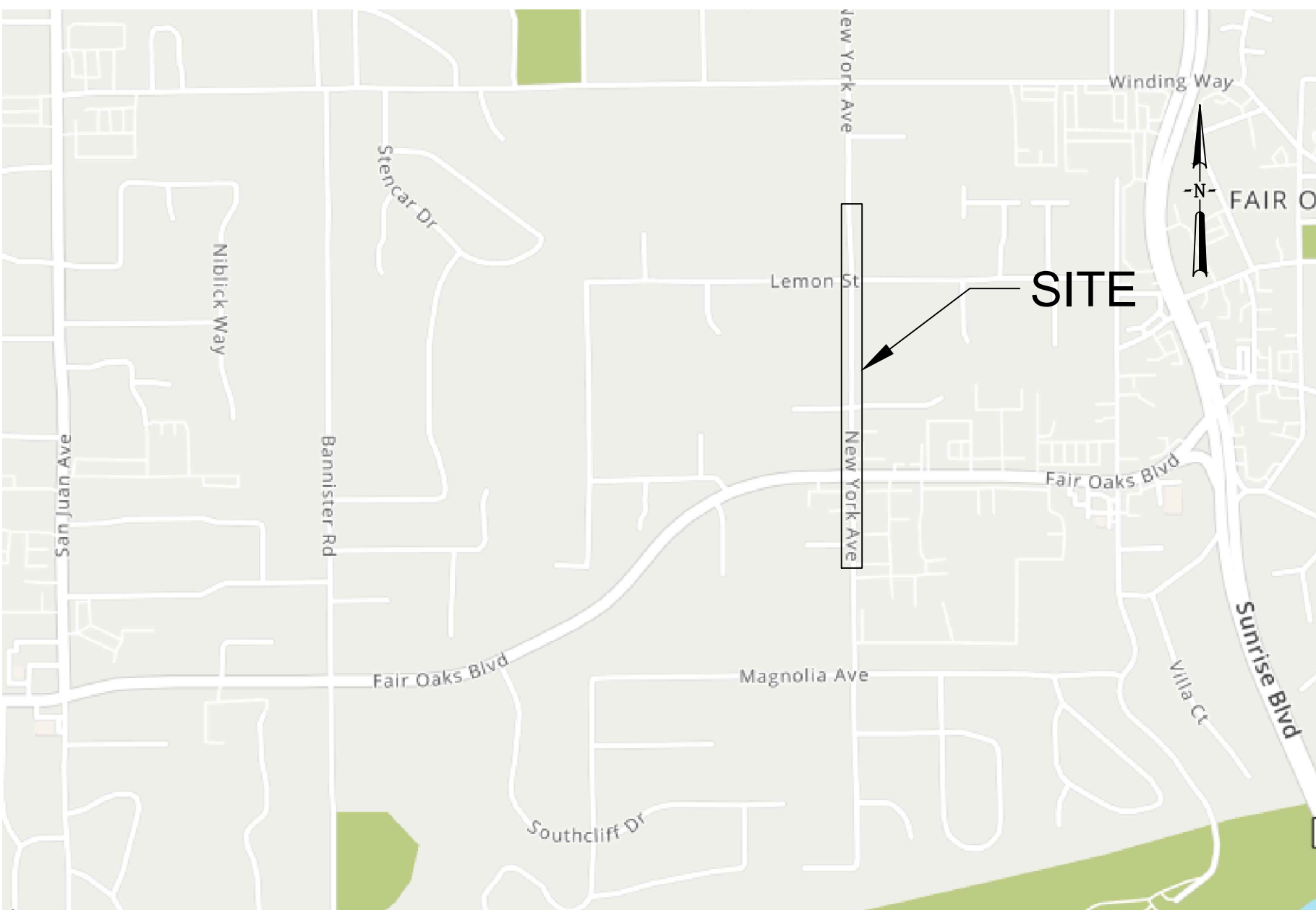
FAIR OAKS, CALIFORNIA

NEW YORK AVENUE PHASE II - 12" WATER MAIN REPLACEMENT PROJECT PROJECT NO. C26TDNYASW2



PROJECT LOCATION MAP

NOT TO SCALE



VICINITY MAP

NOT TO SCALE

BOARD OF DIRECTORS	
DIRECTOR DIVISION (X)	
RANDY MARX	PRESIDENT (4)
MARK DOLBY	VICE PRESIDENT (3)
MISHA SARKOVICH	DIRECTOR (5)
GEORGE BABCOCK	DIRECTOR (2)
CHRIS PETERSON	DIRECTOR (1)

SURVEY BENCHMARK:
THE HORIZONTAL DATUM FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 NAD83 (EPOCH 2010.0) AS DETERMINED LOCALLY BETWEEN CONTINUOUS OPERATING STATIONS (CORS) DERIVED FROM GEODETIC VALUES PUBLISHED BY THE NATIONAL GEODETIC SURVEY (NGS). TO OBTAIN GROUND COORDINATES, A SCALE FACTOR OF 1.0000602524 CAN BE APPLIED TO THE COORDINATES M1996066.433, E6767899.125.
A SCRIBED "X" (EL=181.17) ON A CONCRETE PAD WITH A FIRE HYDRANT LOCATED APPROXIMATELY 230 FEET SOUTH OF MONAL COURT ON THE WEST SIDE OF NEW YORK AVENUE, IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS DETERMINED LOCALLY BETWEEN CONTINUOUS OPERATING STATIONS (CORS) DERIVED FROM GEODETIC VALUES PUBLISHED BY THE NATIONAL GEODETIC SURVEY (NGS).

INDEX OF DRAWINGS	
TITLE SHEET, LOCATION, AND SHEET INDEX	SHEET 1 OF 7
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PLAN-PROFILE STA. 1+25.63 TO STA. 9+17.67	SHEET 3 OF 7
PLAN-PROFILE STA. 9+17.67 TO STA. 16+50.76	SHEET 4 OF 7
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UTILITY CONTACTS		
PUBLIC / UTILITY SERVICE	REPRESENTATIVE	PHONE
SACRAMENTO COUNTY (TRAFFIC SIGNAL)	CHEN VANG	916-875-5745
SACRAMENTO AREA SEWER DISTRICT	ERIC SCHOLTZ	916-876-6065
PG&E (GAS)	STEVE LIMA	916-203-2572
SMUD (ELECTRIC)	JOSEPH DICKSON	916-732-5889
COMCAST	PETER HEMINGWAY	916-617-4836
AT&T	ANNA SANTOS	916-484-2416
MCI WORLDCOM	VICTOR WOOD	800-624-9675
FAIR OAKS WATER DISTRICT	BLAKE CHETCUTI	916-844-3520

INSTALLATION CHART	
QUANTITY	DESCRIPTION
1525 ±LF	12" DIP WATER MAIN, CLASS 350
22 ±LF	10" DIP WATER MAIN, CLASS 350
77 ±LF	8" DIP WATER MAIN, CLASS 350
48 ±LF	6" DIP WATER MAIN, CLASS 350
24 ±LF	4" DIP WATER MAIN, CLASS 350
23 EA	12" GATE VALVE
3 EA	8" GATE VALVE
7 EA	6" GATE VALVE
1 EA	4" GATE VALVE
2 EA	1" ARV
1 EA	4" BLOW OFF
5 EA	6" FIRE HYDRANT
7 EA	1" WATER SERVICES
3 EA	1.5" WATER SERVICES
1 EA	2" WATER SERVICES

RETIREMENT CHART	
QUANTITY	DESCRIPTION
1529 ±LF	12" STEEL WATER MAIN
86 ±LF	10" & 8" & 6" WATER MAIN (VARIOUS TYPES)
4 EA	FIRE HYDRANT
11 EA	WATER SERVICE (VARIOUS SIZES)
12 EA	GATE VALVES (VARIOUS SIZES)
2 EA	ARV (VARIOUS SIZES)

ENCROACHMENT PERMIT:
#TBD

ISSUED FOR BID

FOWD GENERAL MANAGER - TOM R. GRAY

APPROVED BY:
Blake Chetcuti 4/29/26
FAIR OAKS WATER DISTRICT DATE
EXPIRES 1 YEAR FROM DATE OF SIGNATURE.



FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD.,
FAIR OAKS, CA 95628
(916) 967-5723

DESIGNED BY: DL			
DRAFTED BY: DL			
CHECKED BY: BC			
DATE: 04/16/2026	REV.	DATE	DESCRIPTION

NEW YORK AVENUE PHASE II - 12" WATER MAIN REPLACEMENT PROJECT

SCALE
HOR: NONE
VERT: NONE

SHEET NUMBER 1
OF 7 SHEETS
PROJECT NUMBER C26TDNYASW2

TITLE SHEET

DEPARTMENT OF WATER RESOURCES CONSTRUCTION NOTES:

PRIOR TO COMMENCEMENT OF ANY WORK IMPACTING OR LOCATED NEAR EXISTING DRAINAGE FACILITIES, THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL STORM DRAIN SYSTEMS WITHIN AND ADJACENT TO THE PROJECT LIMITS. A MINIMUM HORIZONTAL SEPARATION OF 4 FEET AND A MINIMUM VERTICAL SEPARATION OF 12 INCHES FROM THE NEAREST SIDE OF ANY STORM DRAIN FACILITY SHALL BE MAINTAINED UNLESS OTHERWISE APPROVED BY THE COUNTY OF SACRAMENTO DEPARTMENT OF WATER RESOURCES.

WHEN TUNNELING OR TRENCHING UNDER EXISTING STORM DRAIN PIPE, CONTROL DENSITY BACKFILL SHALL BE USED IN ACCORDANCE WITH SECTION 50-15 OF THE SACRAMENTO COUNTY STANDARD CONSTRUCTION SPECIFICATIONS (SEPTEMBER 2001; REVISED MARCH 2004, JANUARY 2008, JANUARY 1, 2016, AND NOVEMBER 1, 2024).

ALL DRAIN INLETS WITHIN THE PROJECT LIMITS AND ANY DOWNSTREAM INLETS POTENTIALLY IMPACTED BY CONSTRUCTION SHALL BE PROTECTED IN ACCORDANCE WITH SACRAMENTO COUNTY STANDARD CONSTRUCTION SPECIFICATIONS.

IF DAMAGE TO ANY DRAINAGE FACILITY IS DISCOVERED OR OCCURS DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE SACRAMENTO COUNTY DRAINAGE MAINTENANCE ENGINEERING OFFICE BY CALLING 311 AND INFORM THE PROJECT INSPECTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS, WHICH SHALL BE COMPLETED IN COMPLIANCE WITH CURRENT COUNTY STANDARDS.

THE CONTRACTOR SHALL INSPECT ALL ACCESS ROADS AND GUTTERS ON A DAILY BASIS. SEDIMENT AND CONSTRUCTION-RELATED DEBRIS SHALL BE REMOVED DAILY, PRIOR TO RAIN EVENTS, OR AS DIRECTED BY THE INSPECTOR BY MEANS OF VACUUMING OR SWEEPING.

A HAUL ROUTE PLAN AND IDENTIFICATION OF SOIL EXPORT DESTINATION LOCATIONS SHALL BE INCLUDED IN THE PROJECT SUBMITTAL. GRADING PERMITS MAY BE REQUIRED FOR SOIL DISPOSAL SITES.

NPDES PERMIT & STORMWATER QUALITY NOTES:

CONTRACTOR SHALL DEVELOP AND IMPLEMENT A WATER POLLUTION CONTROL PROGRAM (WPCP) IN ACCORDANCE WITH SACRAMENTO COUNTY REQUIREMENTS. UNLESS SPECIFICALLY AUTHORIZED IN WRITING, NO GROUND-DISTURBING ACTIVITY (INCLUDING POTHOLE WORK, CLEARING, GRUBBING, DIRECTIONAL BORING OR DRILLING) MAY BEGIN WITHOUT AN APPROVED WPCP.

THE WPCP SHALL BE KEPT ON-SITE AT ALL TIMES AND MADE AVAILABLE TO COUNTY STAFF UPON REQUEST. FAILURE TO IMPLEMENT OR MAINTAIN THE WPCP MAY RESULT IN ENFORCEMENT ACTION, INCLUDING STOP WORK ORDERS.

THE WPCP SHALL INCLUDE:

1. SITE MAP SHOWING STORM DRAINS, WATER LINES (WITH CONTACT INFO), SOIL STOCKPILES, WASTE CONTAINERS, FUELING AND EQUIPMENT AREAS, MATERIAL STORAGE, BMPs, SITE DRAINAGE FLOW, STABILIZED ACCESS POINTS, AND CONCRETE WASHOUT AREAS.
2. A LIST OF ALL CHEMICALS, HAZARDOUS MATERIALS, AND POTENTIAL POLLUTANTS USED (E.G., DRILLING FLUIDS, PAINT REMOVERS).
3. BMP DRAWINGS, DESCRIPTIONS, AND METHODS FOR DEWATERING, STREET CLEANING, RUNOFF MANAGEMENT, FRACK-OUT CONTROL, SPILL PREVENTION, EQUIPMENT CONTAINMENT, WASTE HANDLING, CHEMICAL STORAGE, FUEL HANDLING, CONCRETE DISPOSAL, BMP MAINTENANCE, AND SANITATION.
4. METHODS FOR FINAL SITE STABILIZATION.
5. A SCHEDULE FOR BMP IMPLEMENTATION, MAINTENANCE, AND REMOVAL.

SEWER DISTRICT CLEARANCE NOTES:

THE CONTRACTOR SHALL MAINTAIN A MINIMUM HORIZONTAL CLEARANCE OF 10 FEET FROM ALL SEWER FACILITIES. CROSSINGS ABOVE OR BELOW SEWER FACILITIES SHALL MAINTAIN A MINIMUM VERTICAL SEPARATION OF 12 INCHES. NOTE: PER STATE HEALTH & SAFETY CODE, A MINIMUM 10-FOOT HORIZONTAL CLEARANCE IS REQUIRED BETWEEN ALL WATER MAINS AND SEWER FACILITIES. FIELD VERIFICATION SHALL BE COMPLETED PRIOR TO CONSTRUCTION TO ENSURE COMPLIANCE.

SURVEY INFORMATION:

THE HORIZONTAL DATUM FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 NAD 83 (EPOCH 2010.0) AS DETERMINED LOCALLY BETWEEN CONTINUOUS OPERATING REFERENCE STATIONS (CORS) DERIVED FROM GEODETIC VALUES PUBLISHED BY THE NATIONAL GEODETIC SURVEY (NGS).

THE VERTICAL DATUM FOR THIS SURVEY IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AS DETERMINED LOCALLY BETWEEN CONTINUOUS OPERATING REFERENCE STATIONS (CORS) DERIVED FROM GEODETIC VALUES PUBLISHED BY THE NATIONAL GEODETIC SURVEY (NGS).

ALL CONTROL POINTS SHALL BE PROTECTED AND MAINTAINED THROUGHOUT CONSTRUCTION. ANY CONTROL POINT DISTURBED OR DESTROYED SHALL BE RE-ESTABLISHED BY A LICENSED SURVEYOR PRIOR TO CONTINUING WORK.

POTHOLE INSTRUCTION NOTES:

PRIOR TO BEGINNING CONSTRUCTION OF PROPOSED WATER FACILITIES, THE CONTRACTOR SHALL POTHOLE THE EXISTING UTILITIES SHOWN ON THESE PLANS AND THE UTILITIES MARKED BY USA. CONTRACTOR SHALL COORDINATE TIMING OF THE POTHOLE WORK WITH FAIR OAKS WATER DISTRICT(FOWD). FOWD SHALL BE NOTIFIED TWO (2) WORKING DAYS PRIOR TO POTHOLING.

TRAFFIC CONTROL PLAN NOTES:

A TRAFFIC CONTROL PLAN SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO SACRAMENTO COUNTY CONSTRUCTION MANAGEMENT AND INSPECTION DIVISION FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF ANY WORK. AN ENCROACHMENT PERMIT OR PLAN APPROVAL MUST FIRST BE OBTAINED PRIOR TO ANY WORK COMMENCING WITHIN THE COUNTY RIGHT-OF-WAY.

FAIR OAKS WATER DISTRICT – GENERAL NOTES

REVISED: APRIL 2023

1. THESE NOTES APPLY TO THE CONSTRUCTION OF PUBLIC WATER FACILITIES WITHIN THE FAIR OAKS WATER DISTRICT (FOWD) SERVICE AREA. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FOWD APPROVED IMPROVEMENT PLANS AND THE MOST RECENT VERSION OF THE FOWD'S STANDARD SPECIFICATIONS MANUAL.
2. IMPROVEMENT PLANS APPROVAL – FOWD'S APPROVAL IS VALID FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF SIGNATURE. PLANS SHALL BE SUBJECT TO REVIEW AND RE-APPROVAL THEREAFTER. THE CONTRACTOR SHALL NOTIFY FOWD IMMEDIATELY IN WRITING OF ANY FIELD CHANGES, OR CHANGES TO THE APPROVED PLANS, THAT MAY IMPACT INSTALLATION OF WATER FACILITIES, AND SHALL OBTAIN WRITTEN APPROVAL FROM FOWD FOR SUCH CHANGES PRIOR TO CONSTRUCTION. IMPROVEMENT PLANS SHALL BE APPROVED BY THE SACRAMENTO METRO FIRE DEPARTMENT AND ANY NECESSARY EASEMENT/S RECORDED PRIOR TO FOWD'S APPROVAL.
3. PRE-CONSTRUCTION MEETING – A PRE-CONSTRUCTION MEETING IS REQUIRED WITH FOWD AND THE CONTRACTOR (AND SACRAMENTO COUNTY INSPECTOR WHEN APPLICABLE) A MINIMUM OF FIVE (5) BUSINESS DAYS PRIOR TO COMMENCING WORK.
4. EXISTING FACILITIES AND PRE-WORK SITE CONDITIONS – THE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE MARKING AND UNDERGROUND SERVICE ALERT (USA) PRIOR TO BEGINNING ANY WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PHYSICALLY LOCATING, INCLUDING POTHOLING, ALL EXISTING UTILITIES AND WATER LINE CONNECTION POINTS TO CONFIRM SIZE, DEPTH, AND MATERIAL TYPE OF EXISTING FACILITIES BEFORE THE START OF WATER FACILITIES INSTALLATION.
5. SAFETY – CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY CURRENTLY APPLICABLE SAFETY LAW AND PRIOR APPROVALS OF ANY JURISDICTIONAL AGENCY, INCLUDING TRAFFIC CONTROL, SLOPING, BORING, AND SHORING. CONTRACTOR IS ALSO RESPONSIBLE FOR PROJECT SITE SAFETY AND FOR PUBLIC SAFETY INCLUDING TRAFFIC CONTROL, 24 HOURS/DAY FOR ALL DAYS, FROM THE NOTICE TO PROCEED THROUGH THE NOTICE OF FINAL COMPLETION.
6. PERMITTING – CONTRACTOR IS RESPONSIBLE TO VERIFY ACQUISITION AND SUBMITTAL OF, AND COMPLIANCE WITH, ANY APPLICABLE PERMITS, INCLUDING BUT NOT LIMITED TO SWPPP, NPDES, ENCROACHMENT PERMITS, AND REQUIRED CERTIFICATES/PERMIT FOR WORKING WITH ASBESTOS CEMENT MATERIALS, FOR EXCAVATION DEEPER THAN 5 FEET, AND FOR ACTIVITIES TO BE PERFORMED IN CONFINED SPACES.
7. NOTIFICATIONS – THE CONTRACTOR SHALL CONTACT FOWD AT (916) 967-5723 A MINIMUM OF TWO (2) BUSINESS DAYS PRIOR TO THE BEGINNING OF WORK OR TO SCHEDULE ANY MEETING.
8. TRAFFIC CONTROL – CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL PLAN APPROVED BY SACRAMENTO COUNTY (IF NEEDED) AND ANY TRAFFIC CONTROL NECESSARY FOR CONSTRUCTION OF WATER SYSTEM IMPROVEMENTS.
9. SUBMITTALS AND BASELINE SCHEDULE – BEFORE THE WORK PROCEEDS, THE CONTRACTOR SHALL PROVIDE FOWD WITH SUBMITTALS FOR ALL PARTS AND MATERIALS TO BE USED IN CONSTRUCTION. ALL SUBMITTALS MUST BE APPROVED BY FOWD PRIOR TO INSTALLATION. AWWA AND/OR NSF CERTIFICATIONS ARE REQUIRED FOR ALL WATER MATERIAL. CONTACT FOWD TWO BUSINESS DAYS TO ARRANGE FOR REVIEW AND INSPECTION OF MATERIALS PRIOR TO INSTALLATION. CONTRACTOR SHALL PROVIDE A BASELINE SCHEDULE INCLUDING MAJOR ACTIVITIES FROM BEGINNING OF THE PROJECT TILL THE END. SCHEDULE TO BE UPDATED PER FOWD DIRECTION.
10. FEES – IF APPLICABLE, THE CONTRACTOR MUST PAY ALL ASSOCIATED WATER FEES PRIOR TO THE IMPROVEMENT PLAN APPROVAL BY FOWD.
11. SURVEYING AND MONUMENTS PROTECTION – THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED STAKING, SHOWING THE LOCATION AND GRADES FOR INSTALLING ALL WATER FACILITIES PRIOR TO THEIR INSTALLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING AND MAINTAINING ALL SURVEY MONUMENTS AND RESTORING ANY MONUMENTS DAMAGED BY CONTRACTOR.
12. GRADING – WATER MAINS, SERVICES, METERS, AND METER BOXES SHALL NOT BE INSTALLED UNTIL THE FINISHED GRADE IS ESTABLISHED. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY WATER FACILITIES ADJUSTMENTS DUE TO ERRORS IN ESTABLISHING FINISHED GRADE.
13. WATER MAIN LOCATION AND EASEMENT – WATER MAINS SHALL BE INSTALLED WITHIN PUBLIC STREET RIGHT OF WAY (ROW) AND SHALL BE LOCATED 3 FEET FROM THE LIP OF GUTTER (UNDER STREET PAVEMENT). WATER MAINS INSTALLED ON PRIVATE PROPERTY/ROAD SHALL BE PLACED AT THE CENTERLINE OF A 20-FOOT WIDE WATER EASEMENT, OR AS APPROVED BY FOWD, BUT NEVER LESS THAN 10 FEET WIDE. EASEMENT(S) MUST BE ADOPTED AND RECORDED WITH SACRAMENTO COUNTY BEFORE WATER SERVICE IS TURNED ON. PLANTING OF TREES AND SHRUBS WITHIN WATER EASEMENTS FOR EXISTING OR PROPOSED FUTURE WATER FACILITIES SHALL BE AVOIDED. FOWD RESERVES THE RIGHTS TO REQUIRE REMOVAL (AT CONTRACTOR EXPENSE) OF TREES AND SHRUBS OR ANY OTHER OBSTACLES THAT MAY IMPACT, OR HAVE IMPACTED, WATER FACILITIES INSTALLATION, MAINTENANCE, OR OPERATIONS.
14. TRACER WIRE & CAUTION TAPE – ALL WATER MAINS, HYDRANT RUNS, AND WATER SERVICE 3-INCH AND LARGER IN SIZE SHALL HAVE #10 AWG, CONTINUOUS SINGLE STRAND COATED COPPER TRACER WIRE AND 12" WIDE NON-DETECT BLUE TAPE WITH WORDS "CAUTION: BURIED WATER LINE BELOW" 12"-18" ON ALL WATER PIPING ON BEDDING PER FOWD STD-5.
15. PROTECTION OF WATER MAINS INSTALLATION AND VALVES OPERATION – CONTRACTOR MUST SEAL PIPE ENDS WATERTIGHT AT END OF EACH WORKDAY WHEN LAYING WATER PIPE. CONTRACTOR SHALL NOT OPERATE FOWD VALVES.
16. WATER SERVICE – EACH SINGLE FAMILY OR CONDO PARCEL SHALL HAVE A SEPARATE SERVICE TAP. APARTMENT AND OTHER COMMERCIAL DEVELOPMENT ON ONE PARCEL HAVE THE OPTIONS: A) TO HAVE ONE OR TWO MASTER METERS THAT PROVIDES DOMESTIC WATER TO THE ENTIRE PARCEL. B) HAVE DEDICATED DOMESTIC WATER SERVICES TO INDIVIDUAL BUILDINGS. APARTMENT AND OTHER COMMERCIAL DEVELOPMENT SHALL HAVE A DEDICATED IRRIGATION SERVICE. APARTMENT AND OTHER COMMERCIAL DEVELOPMENT SHALL HAVE A DEDICATED FIRE SERVICE(S) AS REQUIRED BY THE SACRAMENTO METRO FIRE DEPARTMENT. WATER SERVICES ON THE SAME PARCEL OF DIFFERENT CLASSIFICATIONS (DOMESTIC, IRRIGATION, AND FIRE) SHALL NOT BE LOOPED TOGETHER. ALL WATER SERVICES SERVING COMMERCIAL, GOVERNMENTAL, PUBLIC, IRRIGATION, PRIVATE FIRE PROTECTION SYSTEMS, AND RESIDENTIAL FACILITIES WITH FIRE SUPPRESSION SYSTEMS, SHALL BE EQUIPPED WITH FOWD APPROVED BACKFLOW DEVICES. PRIVATE WATER SERVICES SHALL NOT CROSS PARCEL LINES. WATER METER SHALL BE INSTALLED PRIOR TO ACCEPTANCE AND ACTIVATION OF WATER SYSTEM.
17. WATER SERVICES LOCATIONS – ALL WATER SERVICES SHALL BE SET THREE (3) FEET FROM ADJACENT SIDE PROPERTY LINES WITHIN STREET ROW, PUE, OR DEDICATED WATER EASEMENT ON THE CORRECT LOT SITE UNLESS OTHERWISE APPROVED BY FOWD. CONTRACTOR SHALL STAKE LOT LINES PRIOR TO INSTALLATION AND AT THE TIME OF FINAL INSPECTION. SERVICES ARE TO BE INSTALLED SO PLUMBERS NEED NOT DISTURB THE METER BOX DURING CUSTOMER HOOK-UP. WATER BOXES THAT ARE TEMPORARILY REMOVED SHALL BE REPLACED BY THE CONTRACTOR AT THEIR EXPENSE. INSTALLATION OF WATER METER BOXES WITHIN SIDEWALKS OR DRIVEWAYS ARE NOT ALLOWED UNLESS APPROVED BY FOWD.
18. BACKFLOW PROTECTION – BACKFLOW PREVENTION DEVICE SHALL BE REDUCED PRESSURE PRINCIPLE (RP) DEVICES FOR DOMESTIC AND IRRIGATION SERVICES, AND REDUCED PRINCIPAL DETECTOR CHECK ASSEMBLY (RPDA) FOR DEDICATED FIRE SERVICES. RP/RPDA DEVICES SHALL BE INSTALLED BY CONTRACTOR IN ACCORDANCE WITH FOWD APPLICABLE STANDARDS AND TESTED AND CERTIFIED BY FOWD FOR THE FIRST TIME PRIOR TO OBTAINING WATER SERVICE. MAINTENANCE AND ANNUAL CERTIFICATION OF THE RP/RPDA DEVICE ARE THE PROPERTY OWNER'S RESPONSIBILITY. TYPE OF RP/RPDA DEVICES SHALL BE APPROVED BY FOWD. RP DEVICES SHALL BE INSTALLED WITHIN FIVE (5) FEET FROM THE METER BOX AND RPDA SHALL BE INSTALLED WITHIN 5 FEET FROM EDGE OF RIGHT OF WAY FOR FIRE SERVICE, WITH NO TEES OR CROSS CONNECTIONS BETWEEN THE WATER METER AND A RP/RPDA DEVICE.
19. SANITARY SEWER AND STORM DRAIN PROXIMITY – A MINIMUM OF 10 FT HORIZONTAL AND 1 FT VERTICAL SEPARATION BETWEEN WATER AND SANITARY SEWER FACILITIES, AND A MINIMUM OF 4 FT HORIZONTAL AND 1 FT VERTICAL SEPARATION BETWEEN WATER AND STORM FACILITIES ARE REQUIRED. IF REQUIRED SEPARATION CANNOT BE MAINTAINED, A HIGHER CLASS OF PIPE MATERIAL AND POSSIBLE SLEEVE FOR THE PIPE INSTALLATION WITH FOWD APPROVED INSTALLATION DETAIL IS REQUIRED. ANY WATER MAIN NEEDING TO BE ROUTED UNDER SEWER REQUIRES SWRCB-DDW APPROVAL PRIOR TO INSTALLATION.
20. DRY UTILITIES PROXIMITY – A MINIMUM OF 4 FT HORIZONTAL AND 1 FT VERTICAL SEPARATION BETWEEN WATER AND ALL DRY UTILITIES INCLUDING GAS IS REQUIRED. VARIANCES REQUIRE FOWD APPROVAL.
21. BACKFILLING AND COMPACTION – NATIVE BACKFILL WILL NOT BE ALLOWED IN TRENCHES CONTAINING PUBLIC WATER FACILITIES. TRENCH FOR ALL PUBLIC WATER MAINS/SERVICES LOCATED WITHIN AN EXISTING OR PROPOSED ROW, PUE, OR DEDICATED WATER EASEMENTS, SHALL CONFORM TO FOWD SPECIFICATIONS. FOWD'S STANDARD DRAWING #8, AND ALL SACRAMENTO COUNTY REQUIREMENTS AS THEY APPLY. A MINIMUM OF 36-INCH COVER OVER WATER MAINS AND A MINIMUM OF 24-INCH COVER OVER WATER SERVICES ARE REQUIRED UNLESS OTHERWISE APPROVED BY FOWD. UTILITY SAND BEDDING SHALL BE MINIMUM OF 6" BELOW BASE AND 12" ABOVE PIPE. BEDDING FOUNDATION SHALL PROVIDE UNIFORM SUPPORT OF PIPE, WITH BELL ENDS EXCAVATED PER MANUFACTURER'S RECOMMENDATION. EACH LIFT SHALL BE COMPACTED TO 90%.
22. PAVING RESTORATION – SHALL BE PER SACRAMENTO COUNTY APPLICABLE STANDARD DRAWINGS AND REQUIREMENTS.
23. HYDROSTATIC TESTING – THE CONTRACTOR SHALL PROVIDE A PASSING HYDROSTATIC TEST FOR ALL NEW PIPES AND WATER APPURTENANCES IN ACCORDANCE WITH FOWD STANDARD SPECIFICATIONS OR THE MOST RECENT AWWA STANDARD FOR METHOD AND MATERIALS USED. THE TESTING MUST BE WITNESSED AND APPROVED BY AN AUTHORIZED FOWD REPRESENTATIVE. NOTIFICATION FOR SCHEDULING OF TEST MUST BE PROVIDED A MINIMUM OF TWO WORKING DAYS PRIOR TO TESTING AND MUST BE CONDUCTED MON-THUR.
24. DISINFECTION AND BACTERIOLOGICAL SAMPLING – ALL NEW WATER FACILITIES SHALL BE DISINFECTED IN ACCORDANCE WITH CURRENT AWWA STANDARD AND FOWD STANDARD SPECIFICATIONS. FOWD COLLECTS SAMPLES FOR BACTERIOLOGICAL TESTING AND MUST BE CONTACTED MINIMUM OF TWO WORKING DAYS PRIOR TO NEEDED SAMPLING.
25. MAINS AND SERVICES SHUTDOWN – THE CONTRACTOR SHALL CONTACT FOWD INSPECTOR AND/OR FOWD OFFICE A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO ANY WATER MAIN/SERVICE SHUTDOWN REQUEST. NECESSARY SHUTDOWNS ARE TO BE COMPLETED BY FOWD AUTHORIZED STAFF OR REPRESENTATIVE(S) ONLY. SHUTDOWNS ARE TO BE SCHEDULED TUESDAYS – THURSDAYS.
26. INSPECTION – FOWD INSPECTOR WILL INSPECT INSTALLATION OF ALL PUBLIC WATER FACILITIES. IF AFTER ANY INSTALLATION, OR FINAL INSPECTION, FOWD DETERMINES THAT THE JOB IS NOT COMPLETE OR NOT COMPLETED IN ACCORDANCE WITH THE PROJECT DOCUMENTS OR FOWD STANDARDS, THE CONTRACTOR WILL HAVE 15 WORKING DAYS TO COMPLETE THE WORK TO FOWD'S SATISFACTION. THE CONTRACTOR MAY BE CHARGED FOR RE-INSPECTION. WATER SYSTEM WILL NOT BE ACTIVATED UNTIL ALL DEFICIENCIES HAVE BEEN CORRECTED AND THE SYSTEM IS ACCEPTED BY FOWD.
27. WARRANTY – CONTRACTOR SHALL PROVIDE MAINTENANCE BOND AND GUARANTEE ALL WORK FOR A PERIOD OF ONE (1) YEAR FROM THE DATE THE NEW WATER FACILITIES ACCEPTED BY FOWD AGAINST DAMAGES OR FAILURES FROM ANY CAUSE.
28. SALVAGE AND DISPOSAL – CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL SALVAGE PIPE, AS WELL AS ANY FITTINGS OR OTHER RELATED MATERIALS GENERATED FROM INSTALLATION AND TIE-IN TO FOWD WATERLINES AND COSTS ASSOCIATED. DISTURBANCE OF ASBESTOS CEMENT PIPES (ACP) IS REGULATED UNDER CAL/OSHA, TITLE 8, SECTION 1529 AND CONTRACTOR SHALL COMPLY WITH ALL THEREIN. CONTRACTOR MUST SUBMIT TO FOWD A CERTIFICATE OF DISPOSAL TO VERIFY ANY ACP WASTE WAS PROPERLY DISPOSED OF. ANY PORTION OF ACP TO BE ABANDONED IN PLACE MUST BE LEFT INTACT AND NON-FRIABLE.

LEGEND:

- (W) (E) WATER VALVE
- (E) WATER METER / VAULT
- (E) WATER AIR RELEASE VALVE
- (E) BACKFLOW
- (E) FIRE HYDRANT
- (E) SEWER MANHOLE
- (E) SEWER CLEANOUT
- (E) STORM DRAIN MANHOLE
- (E) DRAIN INLET
- (E) STREET LIGHT
- (E) UNKNOWN MANHOLE
- (E) UNKNOWN UTILITY
- (E) TELEPHONE BOX / VAULT
- (E) TELEPHONE METER
- (E) ELECTRIC TRANSFORMER
- (E) JOINT POLE
- (E) GUY ANCHOR
- (E) BOLLARD / POST
- (E) TREE
- (E) TRAFFIC SIGNAL BOX
- (E) STREET LIGHT BOX
- (E) SMUD BOX / VAULT
- (E) SERVICE BOX
- (E) SUREWEST BOX
- (E) CABLE BOX / PEDESTAL
- (E) TRAFFIC SIGNAL POLE
- (E) SIGN
- (E) MAILBOX
- (E) FENCE LINE
- (E) UNDERGROUND WATER LINE
- (E) UNDERGROUND SEWER LINE
- (E) UNDERGROUND STORM LINE
- (E) UNDERGROUND CABLE LINE
- (E) UNDERGROUND GAS LINE
- (E) OVERHEAD COMCAST
- (E) OVERHEAD ATT
- (E) CENTER LINE

LEGEND CONTINUED:

- (P) WATER MAIN
 - (P) WATER GATE VALVE
 - (P) AIR RELEASE VALVE
 - (P) PROPOSED WATER METER
 - (P) FIRE HYDRANT ASSEMBLY
 - (P) BLOW OFF
 - (P) REDUCER
 - (P) TEMPORARY CONSTRUCTION BLOW OFF
- DETAIL #
 SHEET #

LIST OF ABBREVIATIONS:

- ARV AIR RELEASE VALVE
- ATT AMERICAN TELEPHONE AND TELEGRAPH
- AVE AVENUE
- CBL CABLE
- CC COMCAST
- DIP DUCTILE IRON PIPE
- DWG DRAWING
- (E) EXISTING
- EL ELBOW
- EP EDGE OF PAVEMENT
- EX. EXISTING
- FE FLANGED END
- F.H. FIRE HYDRANT
- FOB FAIR OAKS BOULEVARD
- G GAS
- GV GATE VALVE
- HORIZ HORIZONTAL
- I.E. INVERT ELEVATION
- MJ MECHANICAL JOINT
- NYA NEW YORK AVENUE
- (P) PROPOSED
- POC POINT OF CONNECTION
- SD STORM DRAIN
- SPEC. SPECIFICATIONS
- SS SANITARY SEWER
- STA STATION
- STD STANDARD DRAWING
- VCP VITRIFIED CLAY PIPE
- VERT VERTICAL
- WTR WATER MAIN
- W.S. WATER SERVICE

ISSUED FOR BID



FAIR OAKS WATER DISTRICT
 10326 FAIR OAKS BLVD.,
 FAIR OAKS, CA 95628
 (916) 967-5723

DESIGNED BY: DL				
DRAFTED BY: DL				
CHECKED BY: BC				
DATE: 04/16/2026	REV.	DATE	DESCRIPTION	

NEW YORK AVENUE PHASE II - 12" WATER MAIN REPLACEMENT PROJECT

GENERAL NOTES AND ABBREVIATIONS

SCALE
 HOR: NONE
 VERT: NONE

SHEET NUMBER **2**
 OF 7 SHEETS
 PROJECT NUMBER C26TDNYASw2

NOTE: DUCTILE IRON PIPE GASKETS SHALL BE FIELD LOK 350, OR APPROVED EQUAL, PER AWWA C111

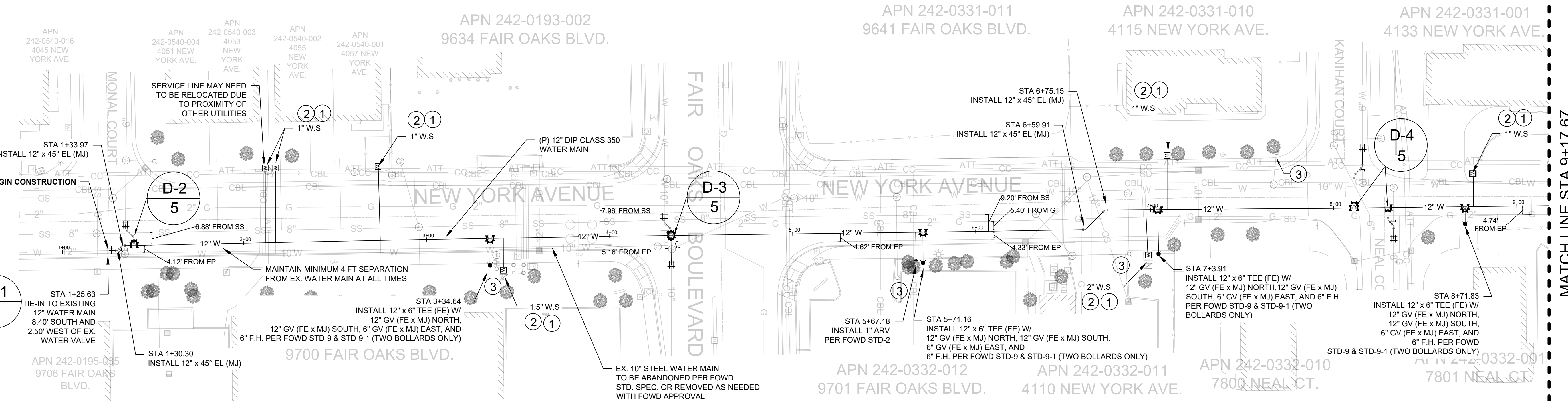
CONSTRUCTION NOTE:
THE TYPES, LOCATIONS, SIZES AND/OR DEPTHS OF EXISTING (E) UTILITIES WERE OBTAINED FROM OUTSIDE AGENCY AS-BUILTS AND MAY VARY IN RELIABILITY. THE CONTRACTOR SHALL POTHOLE AT ALL UTILITY CROSSINGS TO DETERMINE THE ACTUAL LOCATIONS AND DEPTHS OF (E) UTILITIES. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL NOTIFY FAIR OAKS WATER DISTRICT ENGINEER TO DETERMINE ANY POSSIBLE CONFLICTS WITH INSTALLATION OF WATER MAIN AND APPURTENANCES. (TYP)

STORM DRAIN NOTE:
DRAINAGE INFORMATION AS SHOWN ON THIS PLAN ARE FROM SACRAMENTO COUNTY DEPARTMENT OF WATER RESOURCES, DRAINAGE FACILITY MAP #354-206 & 356-206.

PER SACRAMENTO COUNTY WATER RESOURCES: MAINTAIN 18" (INCHES) OF VERTICAL SEPARATION BETWEEN (E) STORM DRAIN AND (P) WATER MAIN AT ALL CROSSINGS (TYP). MECHANICAL INVERTS FOR WATER MAINS SHALL BE INSTALLED PER FOWD STD-11 WITH MIN. 18" OF VERTICAL SEPARATION.

SANITARY SEWER NOTE:
MAINTAIN 12" MINIMUM VERTICAL SEPARATION AT SANITARY SEWER CROSSINGS PER FOWD STANDARD SPEC. A MINIMUM OF TEN (10') FEET OF HORIZONTAL (WALL-TO-WALL) CLEARANCE SHALL BE MAINTAINED BETWEEN PARALLEL SANITARY SEWER AND WATER DISTRIBUTION MAINS PER FOWD STANDARD SPEC. UNLESS OTHERWISE APPROVED.
WATER CROSSINGS WITH SEWER MAINS LATERALS MUST BE DONE AS CLOSE TO PERPENDICULAR AS PRACTICABLE. CROSSING WITH AN ANGLE LESS THAN 45° SHALL NOT BE CONSTRUCTED.

WATER FACILITIES INSTALLATION NOTE:
PROPOSED (P) WATER FACILITIES CROSSING WITH EXISTING UTILITIES AT MULTIPLE LOCATIONS WITHIN THE PROJECT LIMITS WHICH MAY REQUIRE (P) WATER FACILITIES TO BE INSTALLED DEEPER THAN REGULAR DEPTH OF 36" FROM FINISH GRADE. CONTRACTOR TO POTHOLE (AT CONTRACTOR EXPENSE) EVERY CROSSING PRIOR TO START OF TRENCHING.



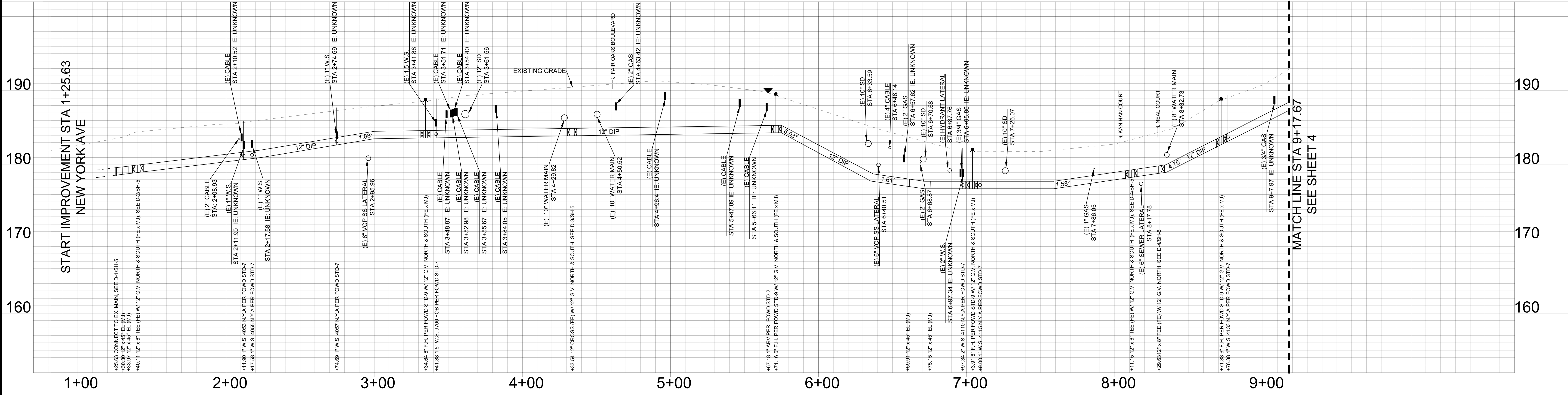
MATCH LINE STA 9+17.67
SEE SHEET 4

INSTALLATION NOTES:

- ① ABANDON EX. W.S. PER FOWD STANDARD SPECIFICATIONS.
- ② INSTALL NEW WATER SERVICE LINE FROM PROPOSED (P) WATER MAIN AND CONNECT TO EXISTING (EX.) METER SETTER PER FOWD STD-7. REPLACE EX. METER BOX WITH A CONCRETE BOX AND STEEL LID MARKED "WATER" WITH A 2" CORE HOLE FOR ANTENNA. SERVICE CONNECTION SHALL BE MADE WITH MINIMAL SERVICE DISRUPTION.
- ③ ABANDON EX. HYDRANT & BOLLARDS PER FOWD STANDARD SPECIFICATIONS AND DELIVER EXISTING HYDRANT HEAD TO THE FOWD.
- 4 CONTRACTOR TO ABANDON EX. VALVES AND APPURTENANCES PER FOWD STANDARD SPECIFICATIONS AND SACRAMENTO COUNTY STANDARDS (TYP).
- 5 ALL WATER SERVICES RUN OVER AT CROSSING WITH SS MAIN.
- 6 ALL DIMENSIONS PROVIDED ON THIS PLAN ARE IN FEET UNLESS OTHERWISE NOTED. PIPE DIAMETERS ARE IN INCHES.

ISSUED FOR BID

NEW YORK AVENUE STATION 1+25.63 TO 9+17.67



MATCH LINE STA 9+17.67
SEE SHEET 4

FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD.,
FAIR OAKS, CA 95628
(916) 967-5723

DESIGNED BY: DL	REV.	DATE	DESCRIPTION
DRAFTED BY: DL			
CHECKED BY: BC			
DATE: 04/16/2026			

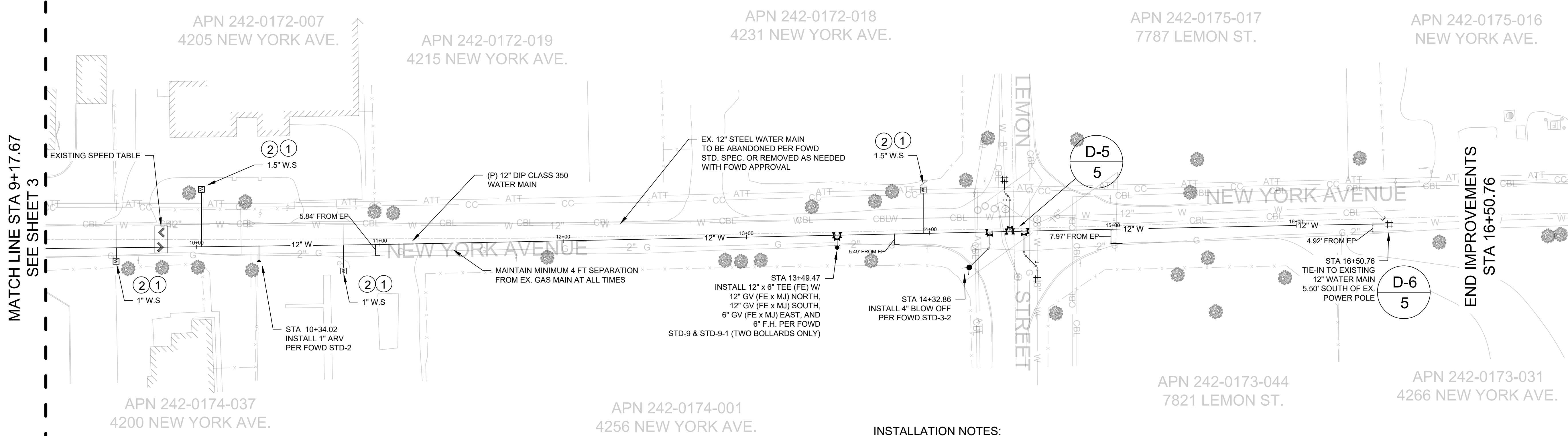
**NEW YORK AVENUE PHASE II - 12" WATER MAIN
REPLACEMENT PROJECT**

PLAN-PROFILE STA. 1+25.63 TO STA. 9+17.67

SCALE

SHEET NUMBER **3**
OF 7 SHEETS
PROJECT NUMBER C26TDNYASW2

NOTE: DUCTILE IRON PIPE GASKETS SHALL BE FIELD LOK 350, OR APPROVED EQUAL, PER AWWA C111



CONSTRUCTION NOTE:
 THE TYPES, LOCATIONS, SIZES AND/OR DEPTHS OF EXISTING (E) UTILITIES WERE OBTAINED FROM OUTSIDE AGENCY AS-BUILTS AND MAY VARY IN RELIABILITY. THE CONTRACTOR SHALL POHOLE AT ALL UTILITY CROSSINGS TO DETERMINE THE ACTUAL LOCATIONS AND DEPTHS OF (E) UTILITIES. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL NOTIFY FAIR OAKS WATER DISTRICT ENGINEER TO DETERMINE ANY POSSIBLE CONFLICTS WITH INSTALLATION OF WATER MAIN AND APPURTENANCES. (TYP)

STORM DRAIN NOTE:
 DRAINAGE INFORMATION AS SHOWN ON THIS PLAN ARE FROM SACRAMENTO COUNTY DEPARTMENT OF WATER RESOURCES, DRAINAGE FACILITY MAP #354-206 & 356-206.

PER SACRAMENTO COUNTY WATER RESOURCES: MAINTAIN 18" (INCHES) OF VERTICAL SEPARATION BETWEEN (E) STORM DRAIN AND (P) WATER MAIN AT ALL CROSSINGS (TYP). MECHANICAL INVERTS FOR WATER MAINS SHALL BE INSTALLED PER FOWD STD-11 WITH MIN. 18" OF VERTICAL SEPARATION.

SANITARY SEWER NOTE:
 MAINTAIN 12" MINIMUM VERTICAL SEPARATION AT SANITARY SEWER CROSSINGS PER FOWD STANDARD SPEC. A MINIMUM OF TEN (10') FEET OF HORIZONTAL (WALL-TO-WALL) CLEARANCE SHALL BE MAINTAINED BETWEEN PARALLEL SANITARY SEWER AND WATER DISTRIBUTION MAINS PER FOWD STANDARD SPEC. UNLESS OTHERWISE APPROVED. WATER CROSSINGS WITH SEWER MAINS LATERALS MUST BE DONE AS CLOSE TO PERPENDICULAR AS PRACTICABLE. CROSSING WITH AN ANGLE LESS THAN 45° SHALL NOT BE CONSTRUCTED.

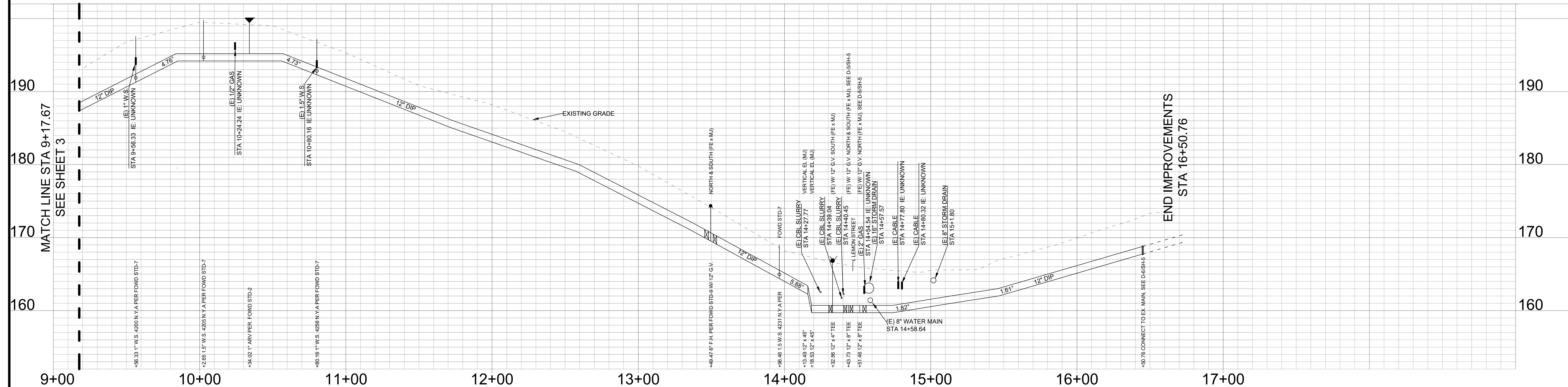
WATER FACILITIES INSTALLATION NOTE:
 PROPOSED (P) WATER FACILITIES CROSSING WITH EXISTING UTILITIES AT MULTIPLE LOCATIONS WITHIN THE PROJECT LIMITS WHICH MAY REQUIRE (P) WATER FACILITIES TO BE INSTALLED DEEPER THAN REGULAR DEPTH OF 36" FROM FINISH GRADE. CONTRACTOR TO POHOLE (AT CONTRACTOR EXPENSE) EVERY CROSSING PRIOR TO START OF TRENCHING.

INSTALLATION NOTES:

- ① ABANDON EX. W.S. PER FOWD STANDARD SPECIFICATIONS.
- ② INSTALL NEW WATER SERVICE LINE FROM PROPOSED (P) WATER MAIN AND CONNECT TO EXISTING (EX.) METER SETTER PER FOWD STD-7. REPLACE EX. METER BOX WITH A CONCRETE BOX AND STEEL LID MARKED "WATER" WITH A 2" CORE HOLE FOR ANTENNA. SERVICE CONNECTION SHALL BE MADE WITH MINIMAL SERVICE DISRUPTION.
- ③ ABANDON EX. HYDRANT & BOLLARDS PER FOWD STANDARD SPECIFICATIONS AND DELIVER EXISTING HYDRANT HEAD TO THE FOWD.
- ④ CONTRACTOR TO ABANDON EX. VALVES AND APPURTENANCES PER FOWD STANDARD SPECIFICATIONS AND SACRAMENTO COUNTY STANDARDS (TYP).
- ⑤ ALL WATER SERVICES RUN OVER AT CROSSING WITH SS MAIN.
- ⑥ ALL DIMENSIONS PROVIDED ON THIS PLAN ARE IN FEET UNLESS OTHERWISE NOTED. PIPE DIAMETERS ARE IN INCHES.

ISSUED FOR BID

NEW YORK AVENUE STATION 9+17.67 TO 16+50.76



FAIR OAKS WATER DISTRICT
 10326 FAIR OAKS BLVD.,
 FAIR OAKS, CA 95628
 (916) 967-5723

DESIGNED BY: DL			
DRAFTED BY: DL			
CHECKED BY: BC			
DATE: 04/16/2026	REV.	DATE	DESCRIPTION

NEW YORK AVENUE PHASE II - 12" WATER MAIN REPLACEMENT PROJECT

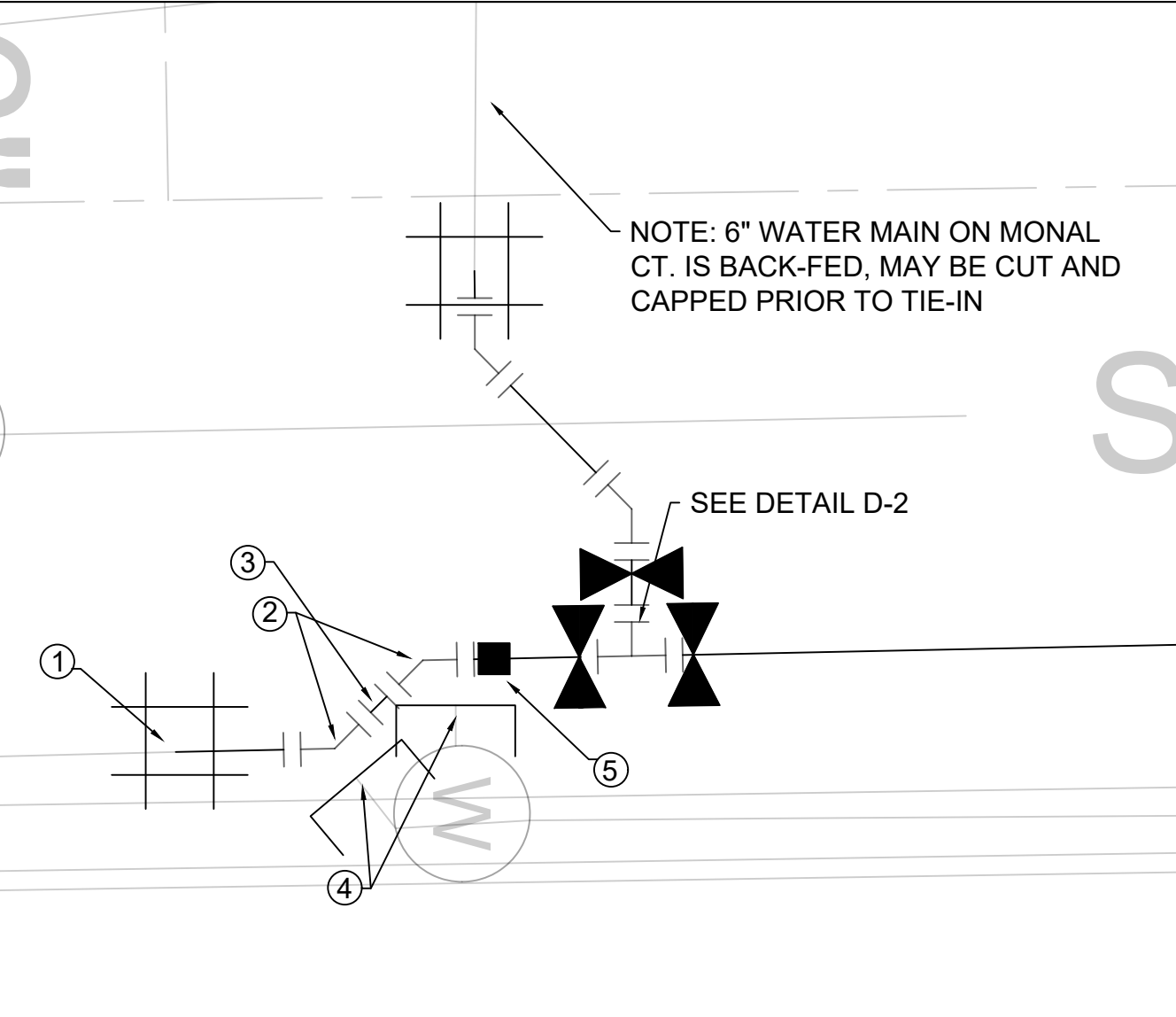
PLAN-PROFILE STA. 9+17.67 TO STA. 16+50.76

SCALE

SHEET NUMBER **4**
 OF **7** SHEETS
 PROJECT NUMBER **C26TDNYASW2**

- NOTES:**
- DUCTILE IRON PIPE GASKETS SHALL BE FIELD LOK 350, OR APPROVED EQUAL, PER AWWA C111
 - CONTRACTOR IS RESPONSIBLE FOR PRESERVING THE EXISTING WATER MAIN AND APPURTENANCES DURING POINT OF CONNECTION TIE-INS. THE CONTRACTOR WILL ASSUME FULL LIABILITY FOR ANY DAMAGE CAUSED TO FOWD'S DISTRIBUTION SYSTEM FACILITIES AS A RESULT OF CONSTRUCTION ACTIVITY.

CONNECTION DETAIL OF (P) 12" DIP ON N.Y.A TO EX. MAIN

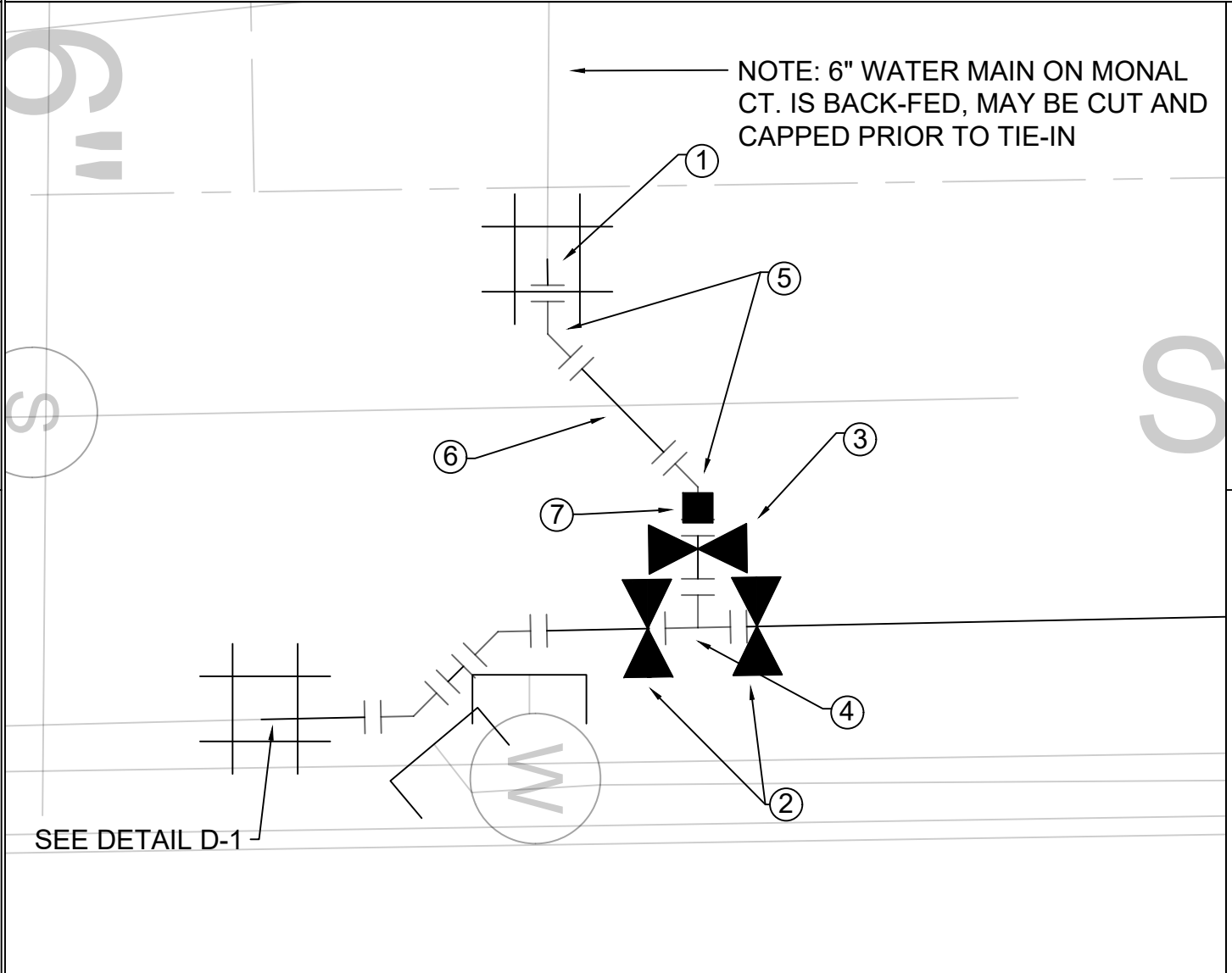


- CONNECTION NOTES STA 1+25.63:**
- 1 - 12" TRANSITION COUPLING (DIP x C900)
 - 2 - 45" EL (MJ)
 - 1 - 12" DIP SPOOL (FE)
 - 1 - 10" CAP & 6" CAP
 - 1 - 2" TEMPORARY CONSTRUCTION BOV PER FOWD STD-3-3

- POC NOTES:**
- DUE TO POSSIBLE CONFLICT WITH EXISTING (EX.) UTILITIES, (P) WATER FACILITIES MAY NEED TO BE INSTALLED DEEPER OR INVERT MAY NEED TO BE INSTALLED PER FOWD STD-11.
 - CONTRACTOR TO PROVIDE TEMPORARY CONSTRUCTION BLOW OFF VALVES (BOV) ON (P) MAIN AS SHOWN AND REMOVE IT PRIOR TO TIE-IN WITH EX. MAINS PER FOWD STD 3-3.
 - CONTRACTOR TO REMOVE AND DISPOSE (AT CONTRACTOR EXPENSE) A PORTION OF EX. WATER MAIN AS SHOWN AND REPLACE IT (IN PLACE) WITH 12" DIP.
 - CONTRACTOR TO ABANDON EX. WATER FACILITIES AS PER THE FOWD STD. SPEC.
 - ADDITIONAL FITTINGS MAY BE NEEDED FOR TIE-IN TO EX. MAINS AND AT (P) MAIN CROSSING WITH EX. UTILITIES.

STA. 1+25.63 TIE-IN DETAIL D-1
NTS 3

CONNECTION DETAIL OF (P) 12" DIP ON N.Y.A TO EX. MAIN ON MONAL COURT

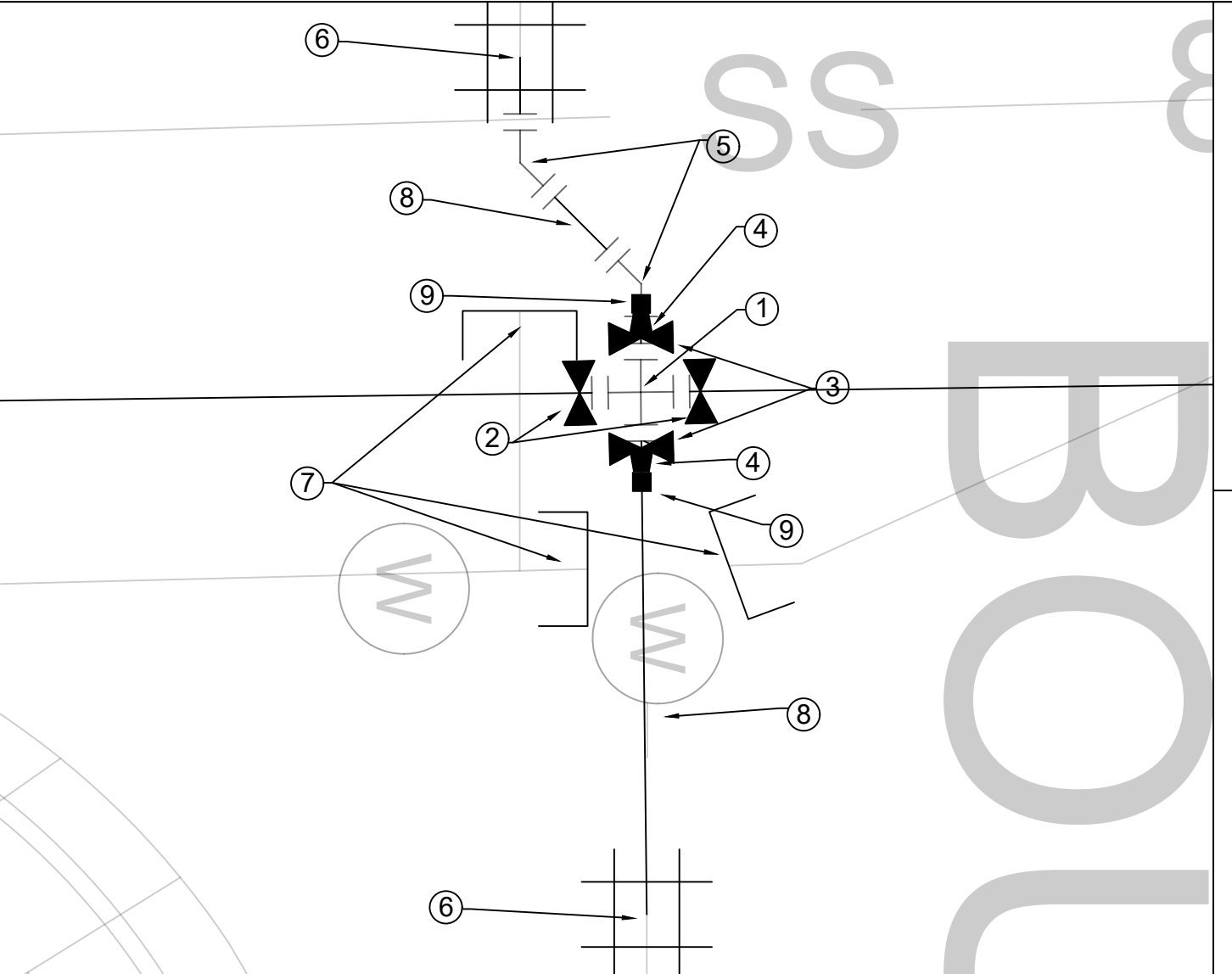


- CONNECTION NOTES STA 1+40.11:**
- 1 - 6" TRANSITION COUPLING (DIP x AC)
 - 2 - 12" GATE VALVE (FE x MJ)
 - 1 - 6" GATE VALVE (FE x MJ)
 - 1 - 12" x 6" TEE (FE)
 - 2 - 45" EL (MJ)
 - 12 ± LF - 6" DIP, CLASS 350
 - 1 - 2" TEMPORARY CONSTRUCTION BOV PER FOWD STD-3-3

- POC NOTES:**
- DUE TO POSSIBLE CONFLICT WITH EXISTING (EX.) UTILITIES, (P) WATER FACILITIES MAY NEED TO BE INSTALLED DEEPER OR INVERT MAY NEED TO BE INSTALLED PER FOWD STD-11.
 - CONTRACTOR TO PROVIDE TEMPORARY CONSTRUCTION BLOW OFF VALVES (BOV) ON (P) MAIN AS SHOWN AND REMOVE IT PRIOR TO TIE-IN WITH EX. MAINS PER FOWD STD 3-3.
 - CONTRACTOR TO REMOVE AND DISPOSE (AT CONTRACTOR EXPENSE) A PORTION OF EX. WATER MAIN AS SHOWN AND REPLACE IT (IN PLACE) WITH 12" DIP.
 - CONTRACTOR TO ABANDON EX. WATER FACILITIES AS PER THE FOWD STD. SPEC.
 - ADDITIONAL FITTINGS MAY BE NEEDED FOR TIE-IN TO EX. MAINS AND AT (P) MAIN CROSSING WITH EX. UTILITIES.

STA. 1+40.11 TIE-IN DETAIL D-2
NTS 3

CONNECTION DETAIL OF (P) 12" DIP ON N.Y.A TO EX. MAIN ON FAIR OAKS BOULEVARD



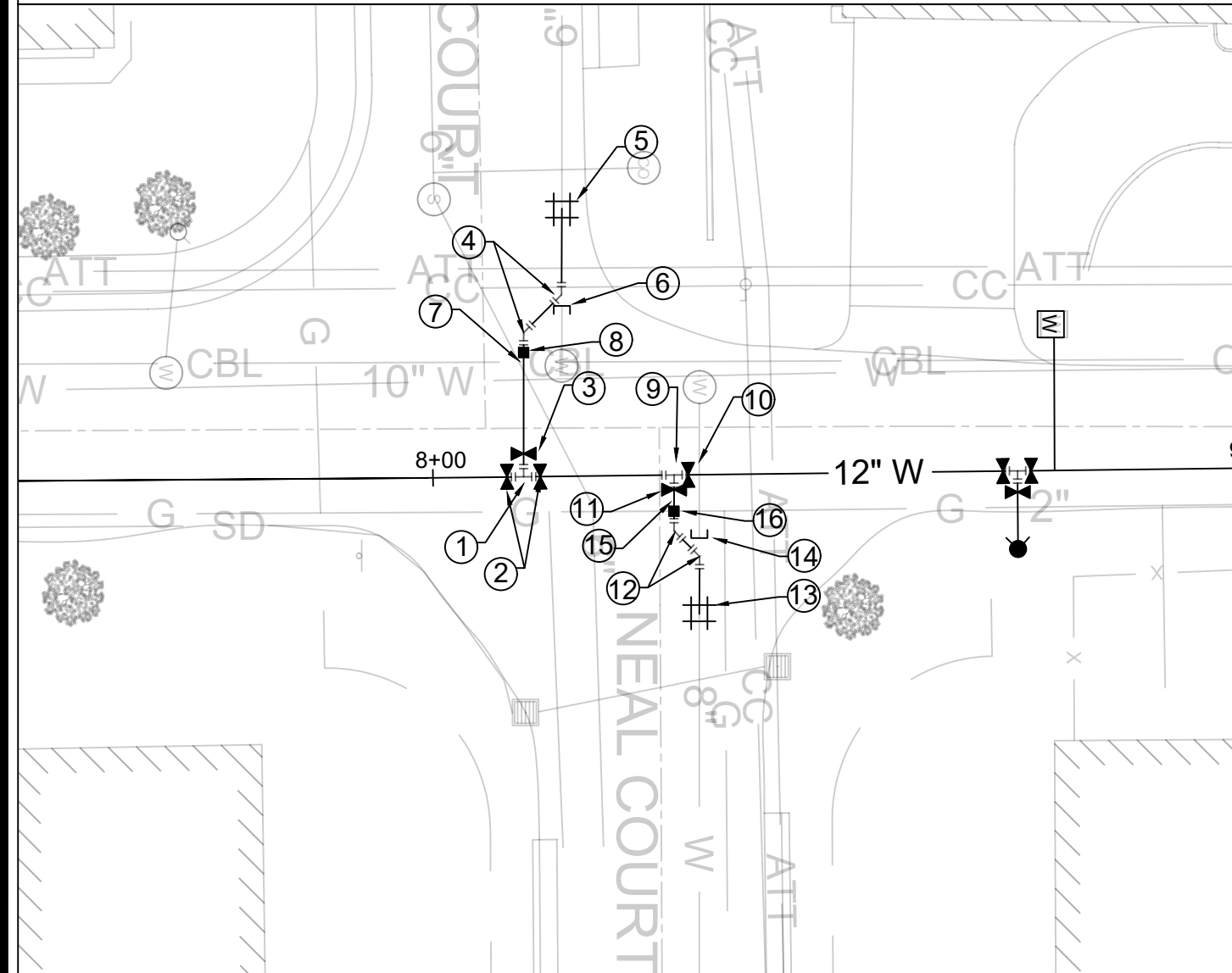
- CONNECTION NOTES STA 4+33.54:**
- 1 - 12" CROSS (FE)
 - 2 - 12" GATE VALVE (FE x MJ)
 - 2 - 12" GATE VALVE (FE)
 - 2 - 12" x 10" REDUCER (FE x MJ)
 - 2 - 10" x 45" EL (MJ)
 - 2 - 10" TRANSITION COUPLING (DIP x AC)
 - 3 - 10" CAP
 - 26 ± LF - 10" DIP, CLASS 350
 - 2 - 2" TEMPORARY CONSTRUCTION BOV PER FOWD STD-3-3

- POC NOTES:**
- DUE TO POSSIBLE CONFLICT WITH EXISTING (EX.) UTILITIES, (P) WATER FACILITIES MAY NEED TO BE INSTALLED DEEPER OR INVERT MAY NEED TO BE INSTALLED PER FOWD STD-11.
 - CONTRACTOR TO PROVIDE TEMPORARY CONSTRUCTION BLOW OFF VALVES (BOV) ON (P) MAIN AS SHOWN AND REMOVE IT PRIOR TO TIE-IN WITH EX. MAINS PER FOWD STD 3-3.
 - CONTRACTOR TO REMOVE AND DISPOSE (AT CONTRACTOR EXPENSE) A PORTION OF EX. WATER MAIN AS SHOWN AND REPLACE IT (IN PLACE) WITH 12" DIP.
 - CONTRACTOR TO ABANDON EX. WATER FACILITIES AS PER THE FOWD STD. SPEC.
 - ADDITIONAL FITTINGS MAY BE NEEDED FOR TIE-IN TO EX. MAINS AND AT (P) MAIN CROSSING WITH EX. UTILITIES.

STA. 4+33.54 TIE-IN DETAIL D-3
NTS 3

- NOTES:**
- DUCTILE IRON PIPE GASKETS SHALL BE FIELD LOK 350, OR APPROVED EQUAL, PER AWWA C111
 - CONTRACTOR IS RESPONSIBLE FOR PRESERVING THE EXISTING WATER MAIN AND APPURTENANCES DURING POINT OF CONNECTION TIE-INS. THE CONTRACTOR WILL ASSUME FULL LIABILITY FOR ANY DAMAGE CAUSED TO FOWD'S DISTRIBUTION SYSTEM FACILITIES AS A RESULT OF CONSTRUCTION ACTIVITY.

CONNECTION DETAIL OF (P) 12" DIP ON N.Y.A TO EX. MAIN ON NEAL COURT & KANIHAN COURT

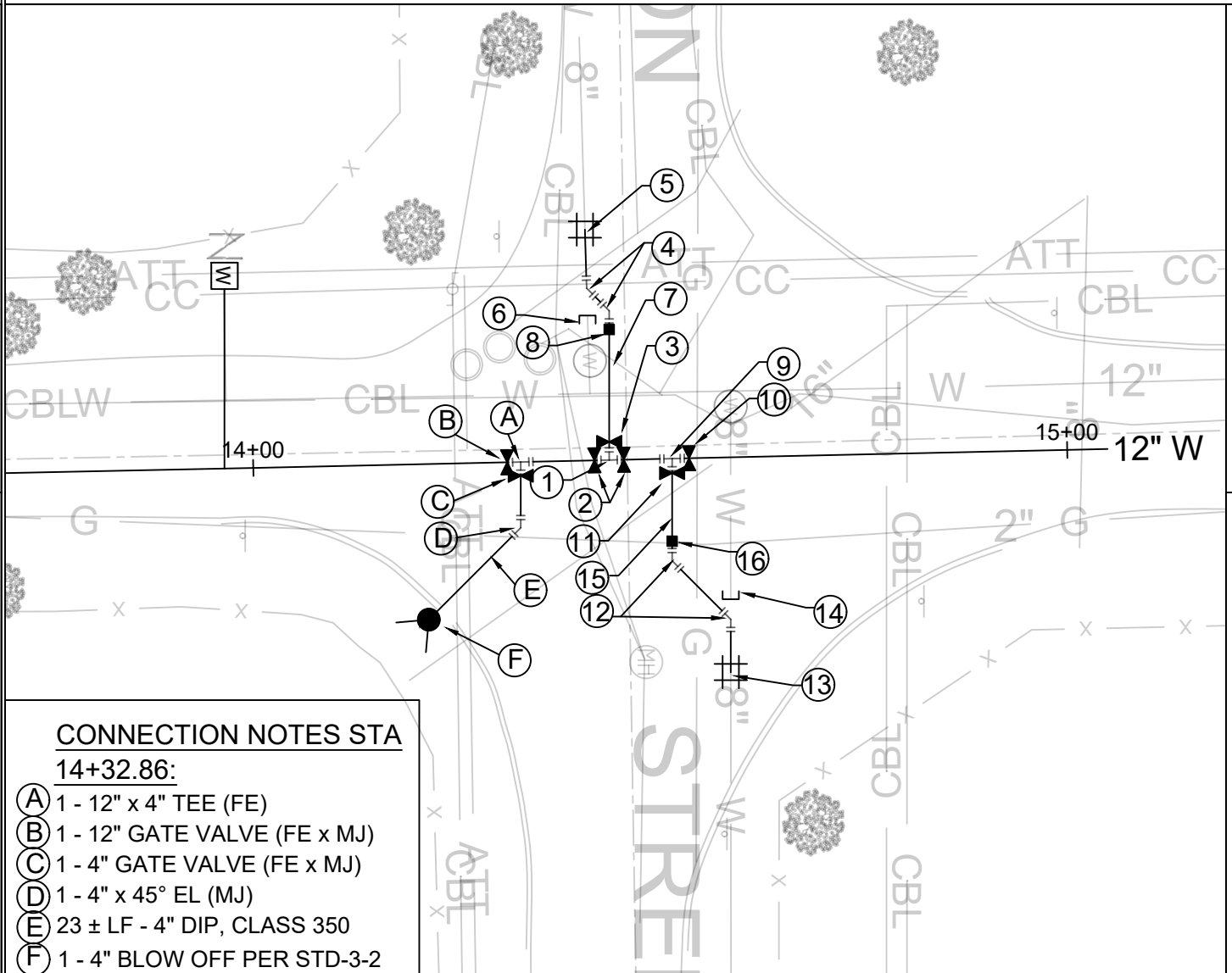


- CONNECTION NOTES STA 8+11.15:**
- 1 - 12" x 6" TEE (FE)
 - 2 - 12" GATE VALVE (FE x MJ)
 - 1 - 6" GATE VALVE (FE x MJ)
 - 2 - 6" x 45" EL (MJ)
 - 1 - 6" TRANSITION COUPLING (DIP x AC)
 - 1 - 6" CAP
 - 34 ± LF - 6" DIP, CLASS 350
 - 1 - 2" TEMPORARY CONSTRUCTION BOV PER FOWD STD-3-3

- CONNECTION NOTE STA 8+29.63:**
- 1 - 12" x 8" TEE (FE)
 - 1 - 12" GATE VALVE (FE x MJ)
 - 1 - 8" GATE VALVE (FE x MJ)
 - 2 - 8" x 45" EL (MJ)
 - 1 - 8" TRANSITION COUPLING (DIP x C900)
 - 1 - 8" CAP
 - 20 ± LF - 8" DIP, CLASS 350
 - 1 - 2" TEMPORARY CONSTRUCTION BOV PER FOWD STD-3-3

STA. 8+11.15 & 8+29.63 TIE-IN DETAIL D-4
NTS 3

CONNECTION DETAIL OF (P) 12" DIP ON N.Y.A TO EX. MAIN ON LEMON STREET



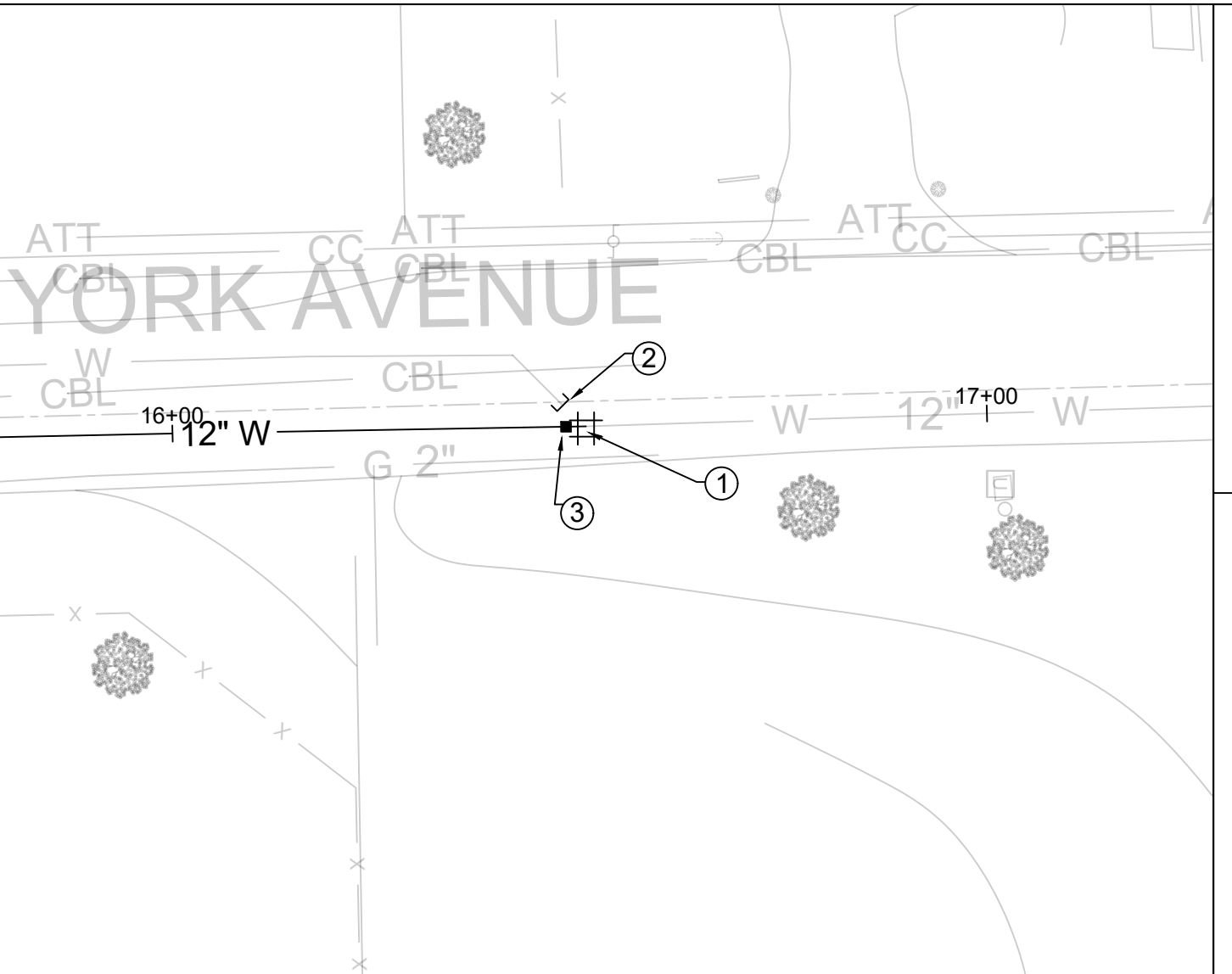
- CONNECTION NOTES STA 14+43.73:**
- 1 - 12" x 8" TEE (FE)
 - 2 - 12" GATE VALVE (FE x MJ)
 - 1 - 8" GATE VALVE (FE x MJ)
 - 2 - 8" x 45" EL (MJ)
 - 1 - 8" TRANSITION COUPLING (DIP x AC)
 - 1 - 8" CAP
 - 30 ± LF - 8" DIP, CLASS 350
 - 1 - 2" TEMPORARY CONSTRUCTION BOV PER FOWD STD-3-3

- CONNECTION NOTES STA 14+51.46:**
- 1 - 12" x 8" TEE (FE)
 - 1 - 12" GATE VALVE (FE x MJ)
 - 1 - 8" GATE VALVE (FE x MJ)
 - 2 - 8" x 45" EL (MJ)
 - 1 - 8" TRANSITION COUPLING (DIP x AC)
 - 1 - 8" CAP
 - 30 ± LF - 8" DIP, CLASS 350
 - 1 - 2" TEMPORARY CONSTRUCTION BOV PER FOWD STD-3-3

- CONNECTION NOTES STA 14+32.86:**
- 1 - 12" x 4" TEE (FE)
 - 1 - 12" GATE VALVE (FE x MJ)
 - 1 - 4" GATE VALVE (FE x MJ)
 - 1 - 4" x 45" EL (MJ)
 - 23 ± LF - 4" DIP, CLASS 350
 - 1 - 4" BLOW OFF PER STD-3-2

STA. 14+32.86 & 14+43.73 & 14+51.46 TIE-IN DETAIL D-5
NTS 4

CONNECTION DETAIL OF (P) 12" DIP ON N.Y.A TO EX. MAIN



- CONNECTION NOTES STA 16+50.76:**
- 1 - 12" TRANSITION SLEEVE (MJ)
 - 1 - 12" CAP
 - 1 - 2" TEMPORARY CONSTRUCTION BOV PER FOWD STD-3-3

- POC NOTES:**
- DUE TO POSSIBLE CONFLICT WITH EXISTING (EX.) UTILITIES, (P) WATER FACILITIES MAY NEED TO BE INSTALLED DEEPER OR INVERT MAY NEED TO BE INSTALLED PER FOWD STD-11.
 - CONTRACTOR TO PROVIDE TEMPORARY CONSTRUCTION BLOW OFF VALVES (BOV) ON (P) MAIN AS SHOWN AND REMOVE IT PRIOR TO TIE-IN WITH EX. MAINS PER FOWD STD 3-3.
 - CONTRACTOR TO REMOVE AND DISPOSE (AT CONTRACTOR EXPENSE) A PORTION OF EX. WATER MAIN AS SHOWN AND REPLACE IT (IN PLACE) WITH 12" DIP.
 - CONTRACTOR TO ABANDON EX. WATER FACILITIES AS PER THE FOWD STD. SPEC.
 - ADDITIONAL FITTINGS MAY BE NEEDED FOR TIE-IN TO EX. MAINS AND AT (P) MAIN CROSSING WITH EX. UTILITIES.

STA. 16+50.76 TIE-IN DETAIL D-6
NTS 4

ISSUED FOR BID



FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD.,
FAIR OAKS, CA 95628
(916) 967-5723

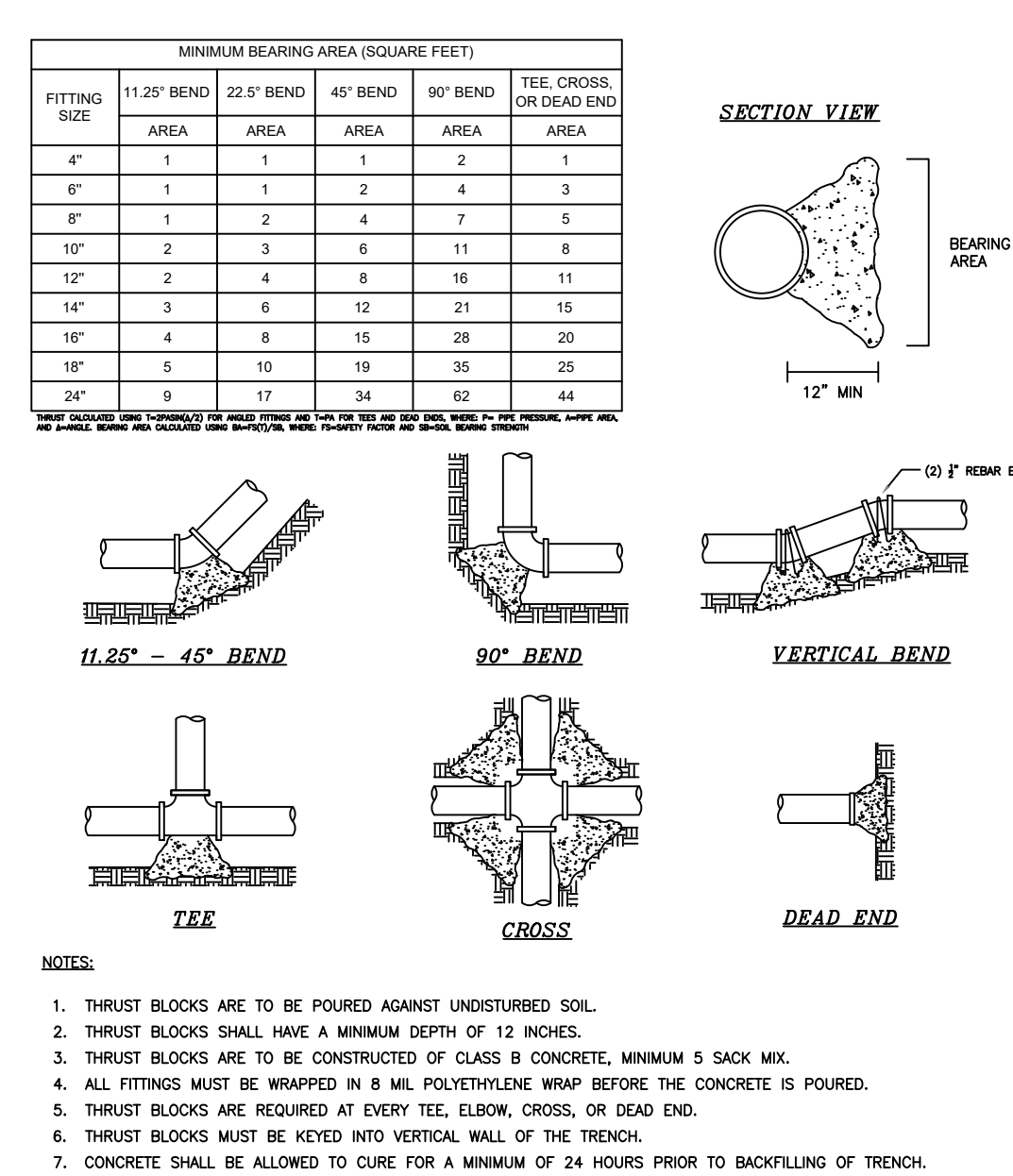
DESIGNED BY: DL			
DRAFTED BY: DL			
CHECKED BY: BC			
DATE: 04/16/2026	REV.	DATE	DESCRIPTION

NEW YORK AVENUE PHASE II - 12" WATER MAIN REPLACEMENT PROJECT

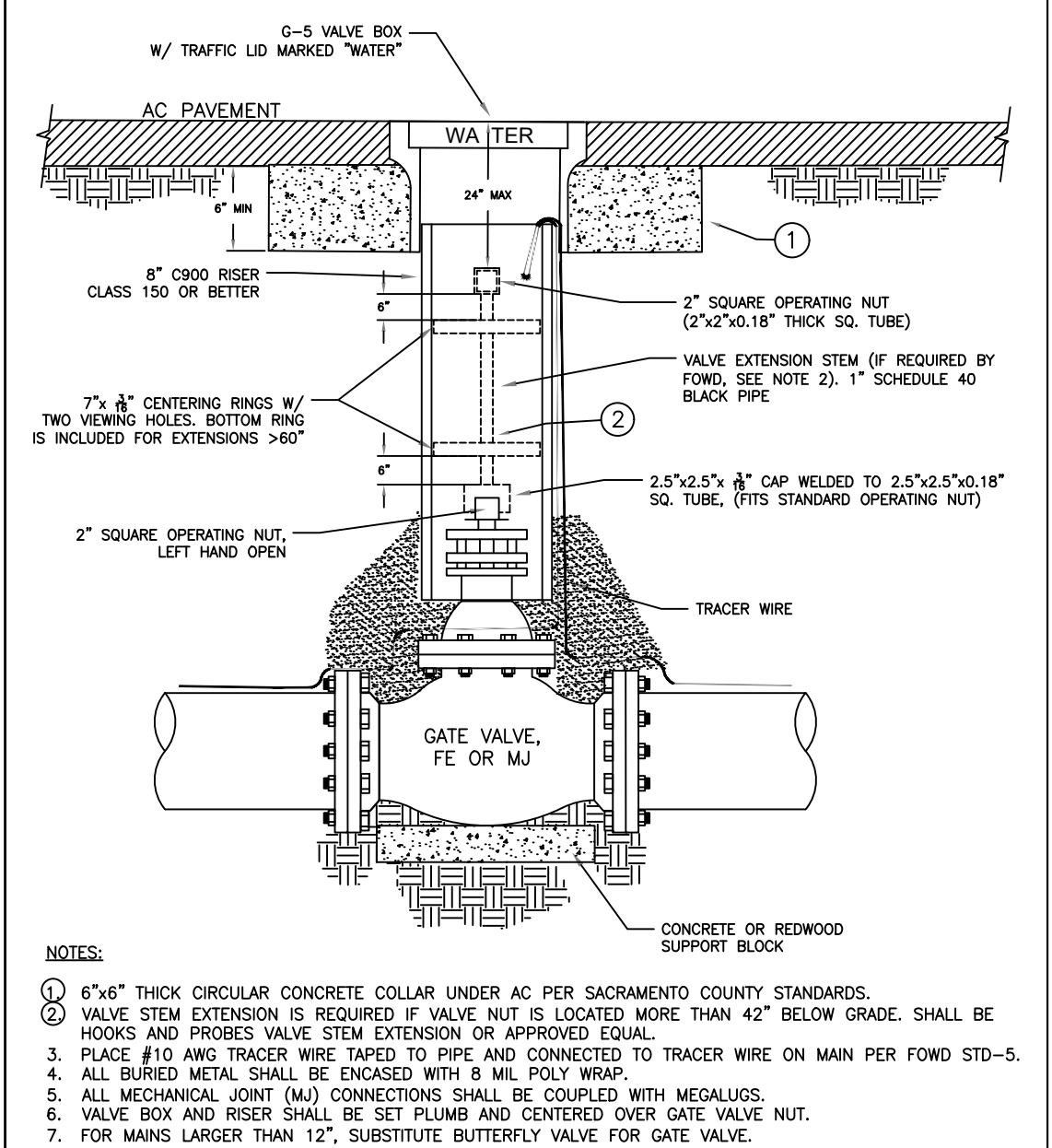
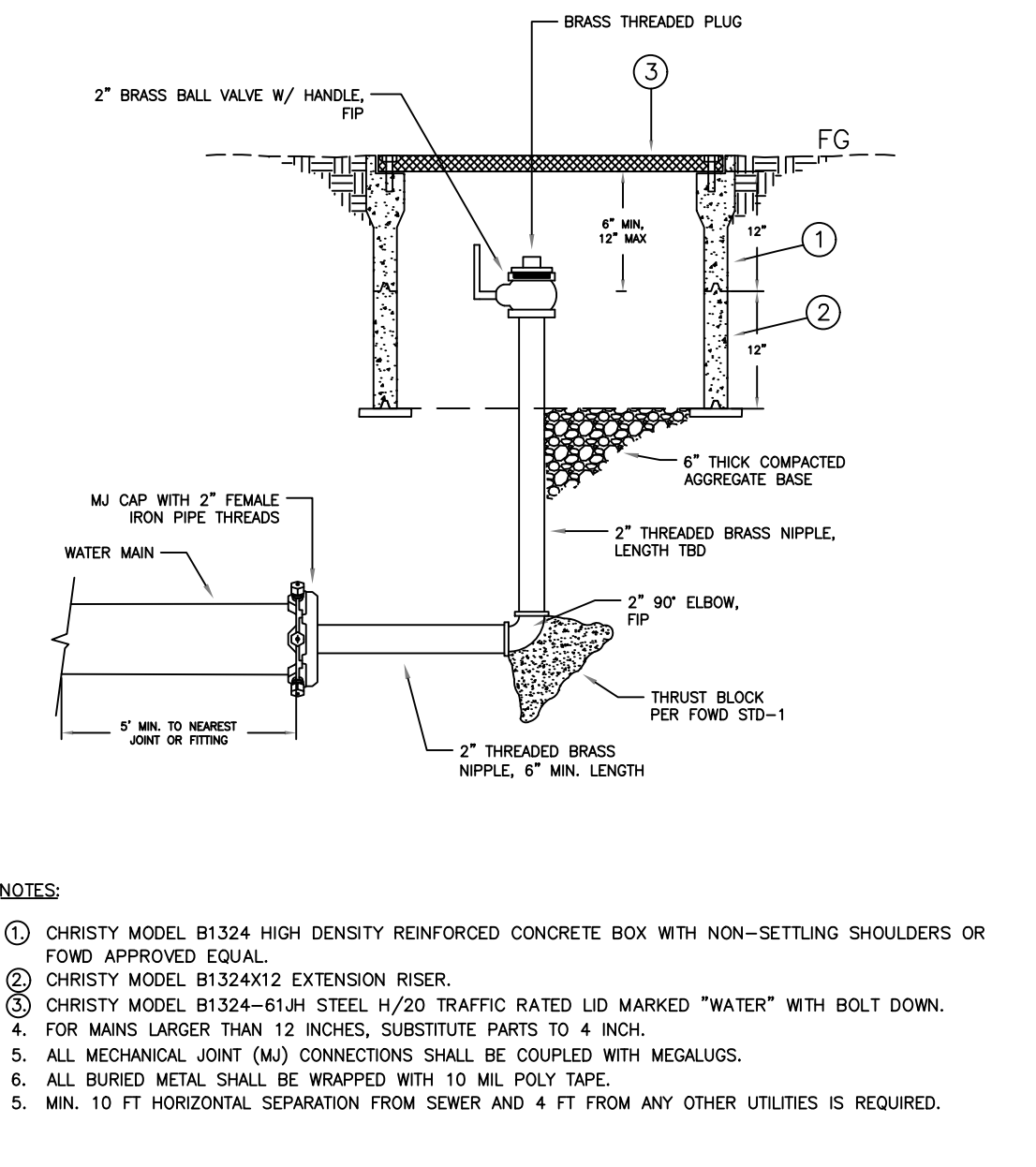
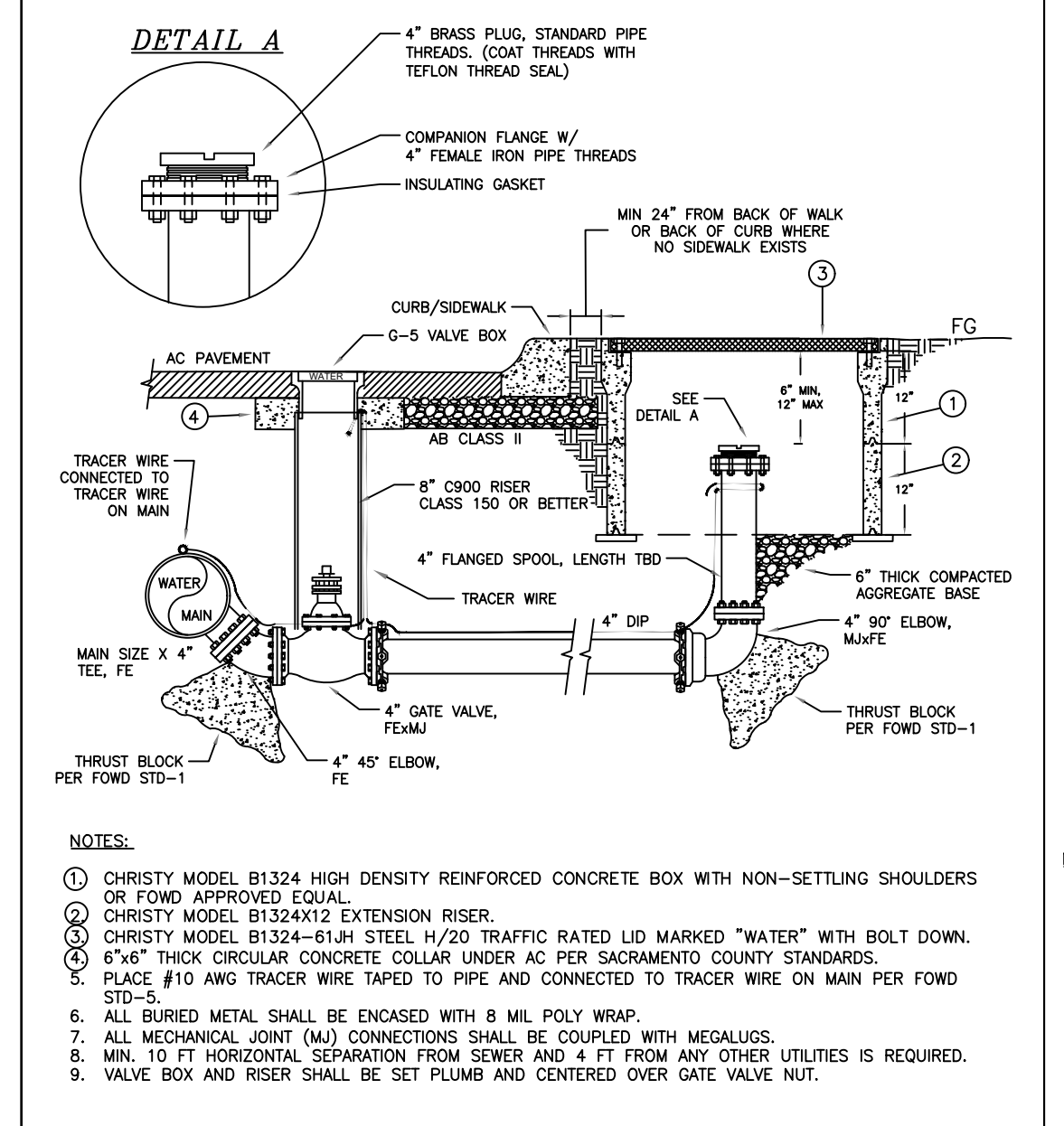
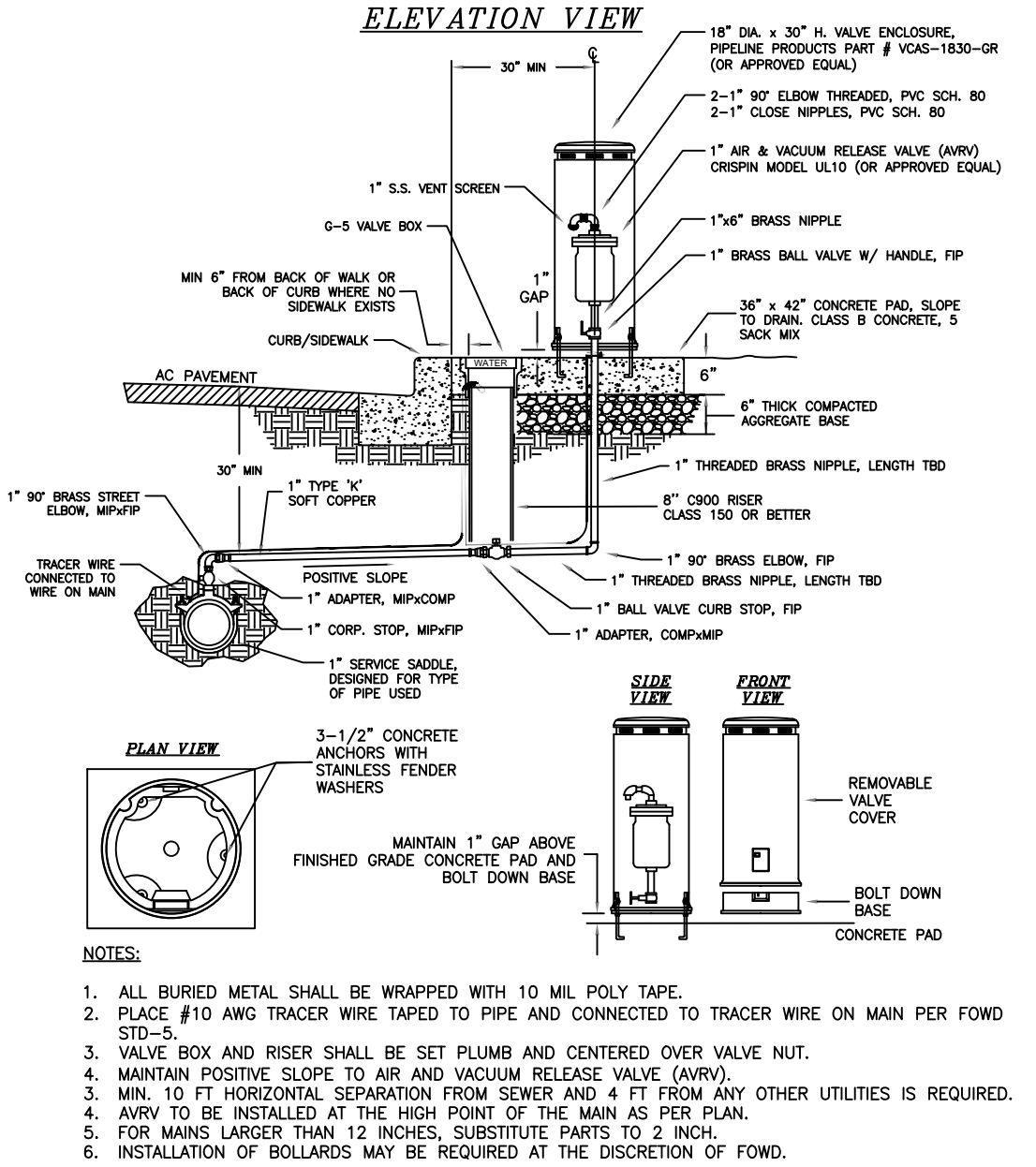
POINT OF CONNECTION DETAILS

SCALE	HOR: NONE	VERT: NONE
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SHEET NUMBER	5
OF 7 SHEETS	
PROJECT NUMBER	C26TDNYASW2



MINIMUM BEARING AREA (SQUARE FEET)				
FITTING SIZE	11.25\"/>			
4"	1	1	2	1
6"	1	1	2	3
8"	1	2	4	5
10"	2	3	6	8
12"	2	4	8	11
14"	3	6	12	15
16"	4	8	15	20
18"	5	10	18	25
24"	9	17	34	44



FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD., FAIR OAKS, CA 94628
OFFICE: (916) 967-5723
WEBSITE: WWW.FAOROAKS.COM

THRUST BLOCK DETAILS

STANDARD SPECIFICATIONS
FAIR OAKS WATER DISTRICT
STANDARD DRAWING 1

FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD., FAIR OAKS, CA 94628
OFFICE: (916) 967-5723
WEBSITE: WWW.FAOROAKS.COM

PIPE RESTRAINED LENGTH

STANDARD SPECIFICATIONS
FAIR OAKS WATER DISTRICT
STANDARD DRAWING 1-1

FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD., FAIR OAKS, CA 94628
OFFICE: (916) 967-5723
WEBSITE: WWW.FAOROAKS.COM

1\"/>

STANDARD SPECIFICATIONS
FAIR OAKS WATER DISTRICT
STANDARD DRAWING 2

FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD., FAIR OAKS, CA 94628
OFFICE: (916) 967-5723
WEBSITE: WWW.FAOROAKS.COM

4\"/>

STANDARD SPECIFICATIONS
FAIR OAKS WATER DISTRICT
STANDARD DRAWING 3-2

FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD., FAIR OAKS, CA 94628
OFFICE: (916) 967-5723
WEBSITE: WWW.FAOROAKS.COM

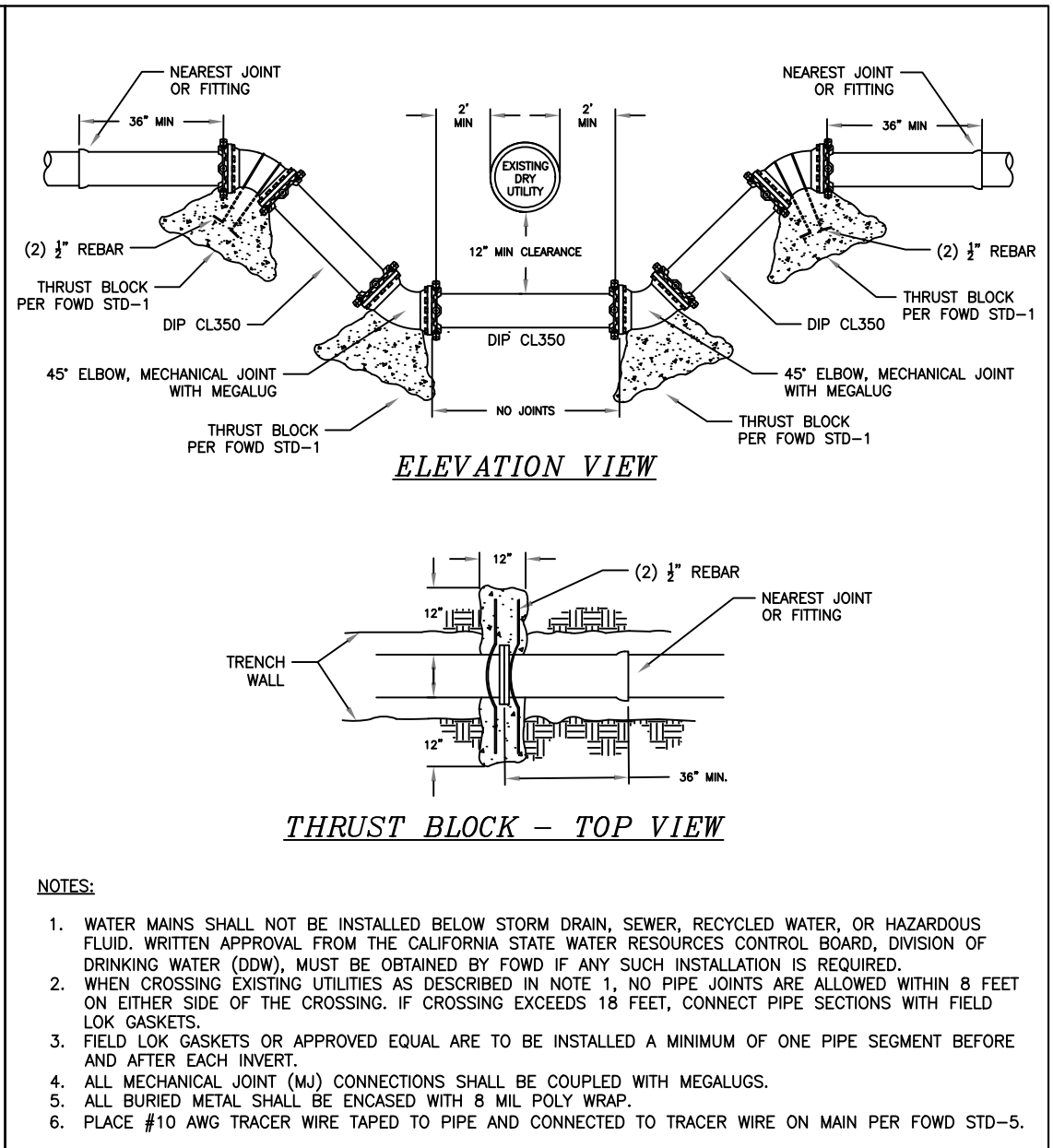
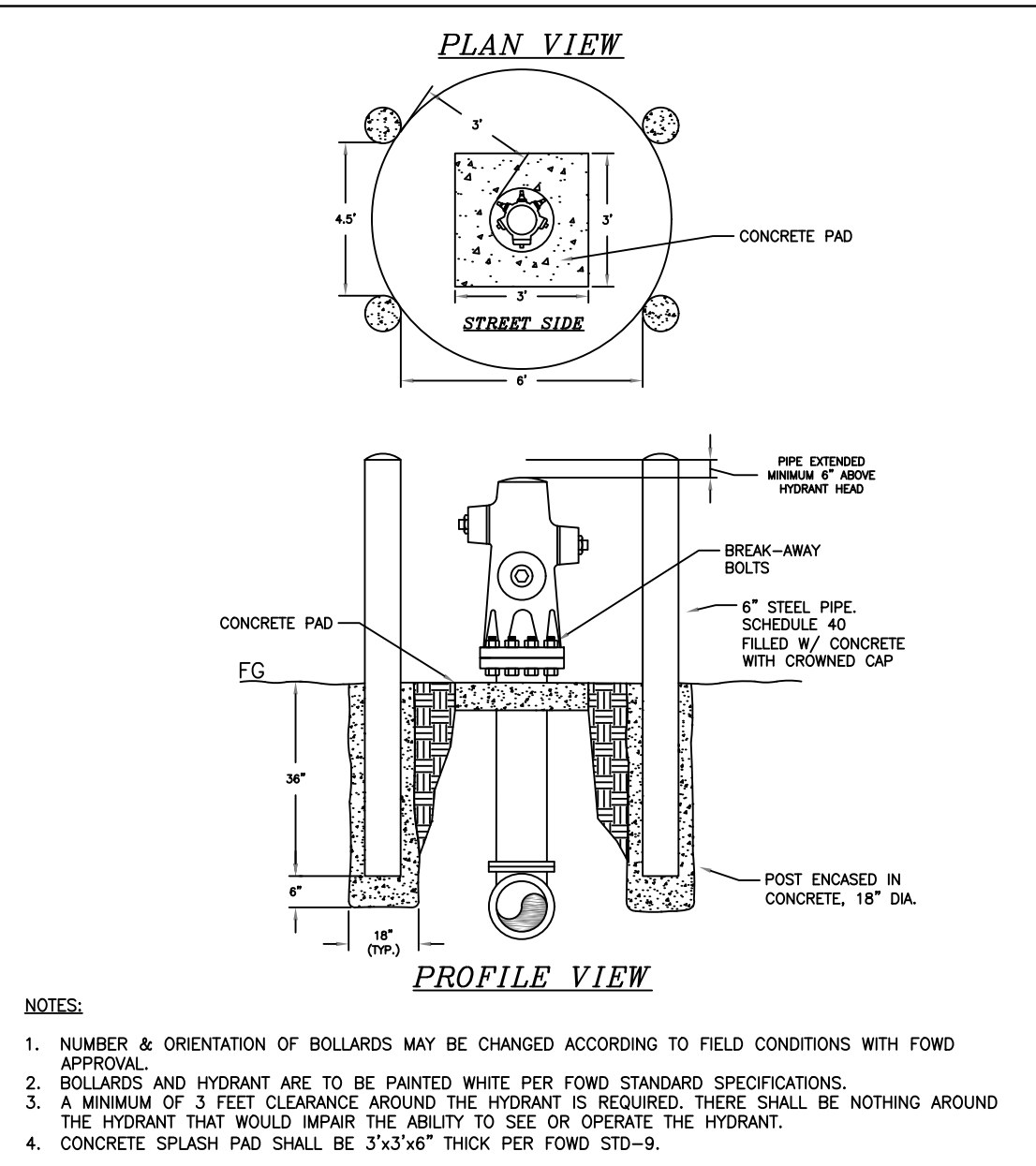
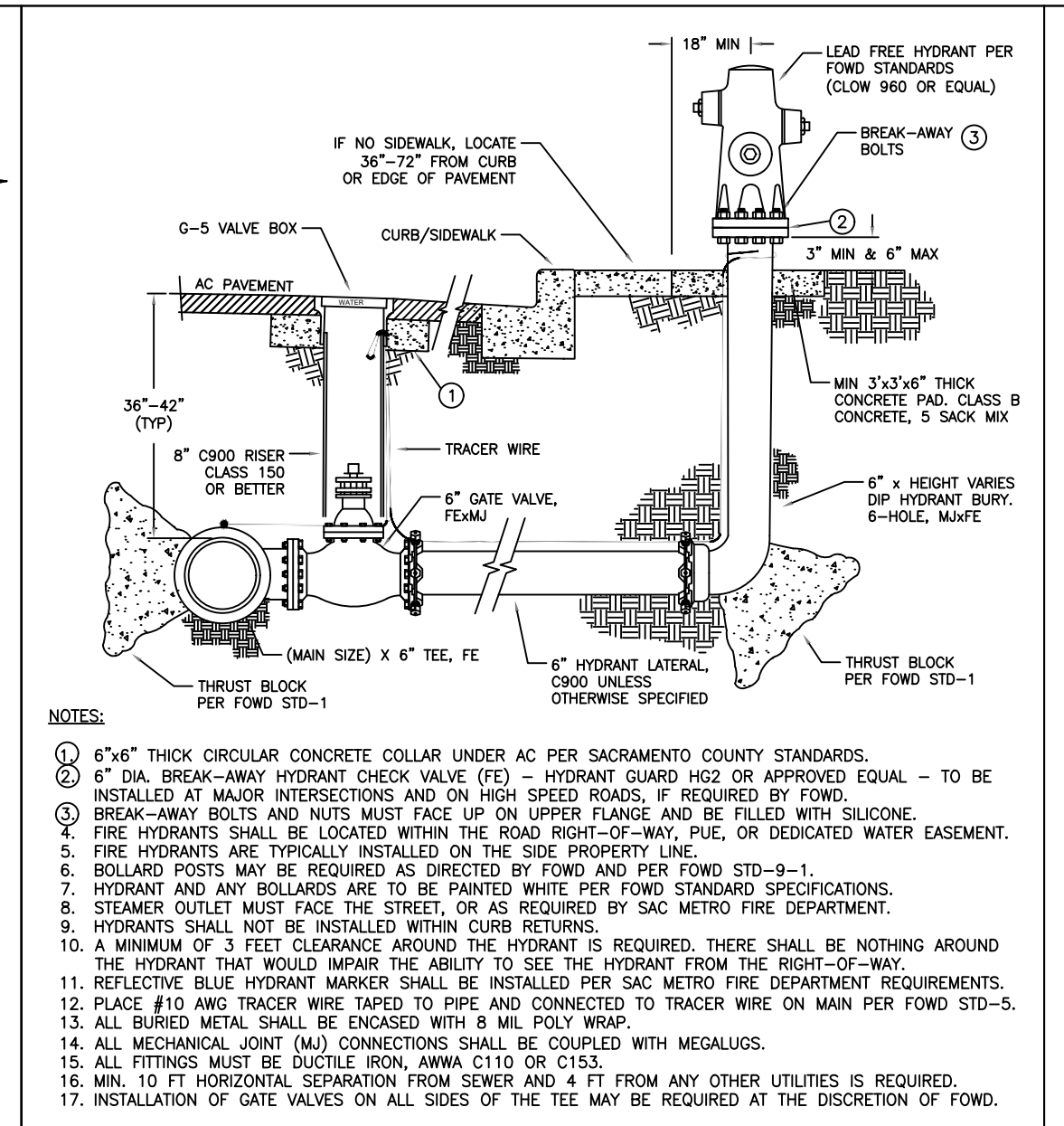
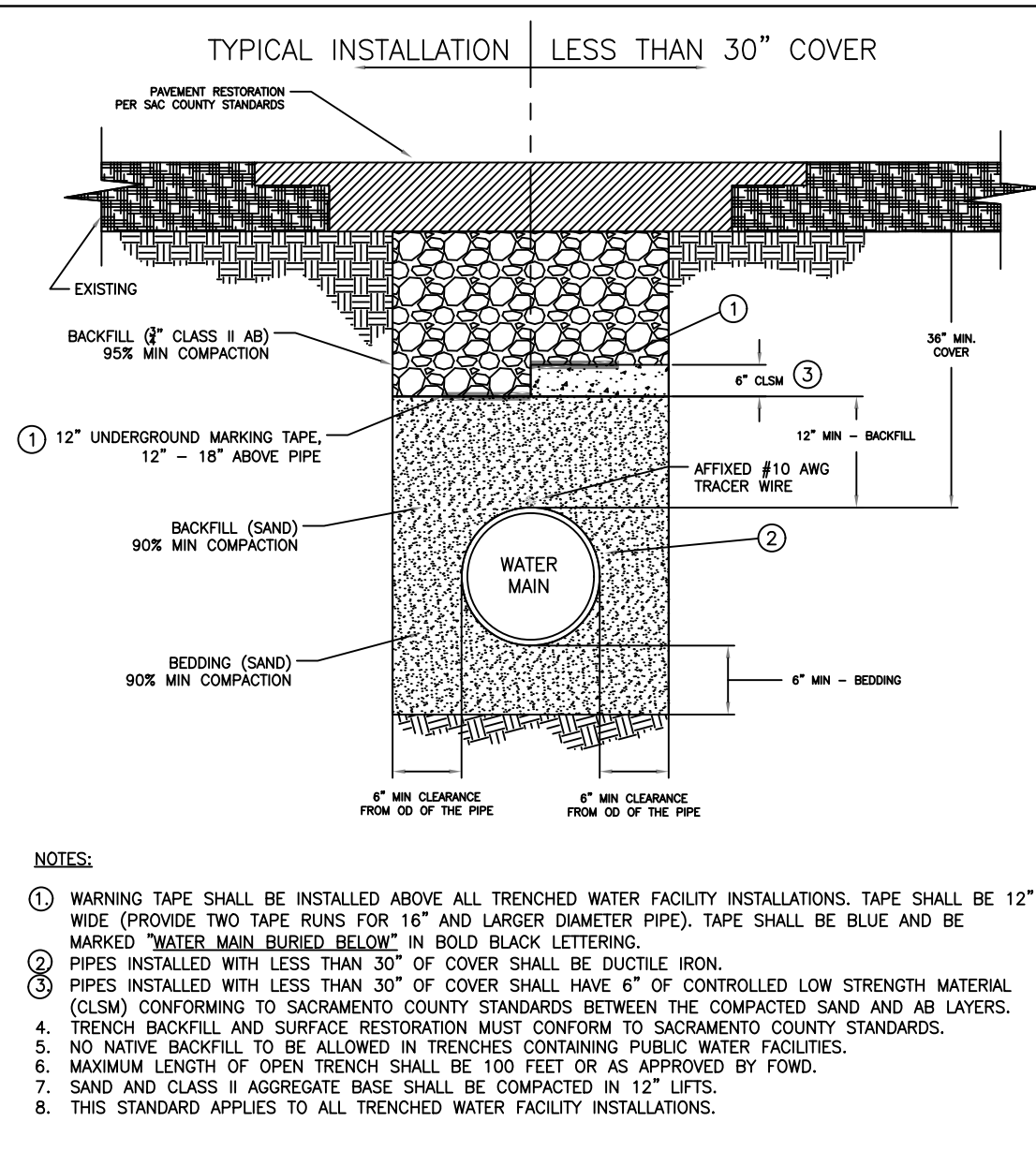
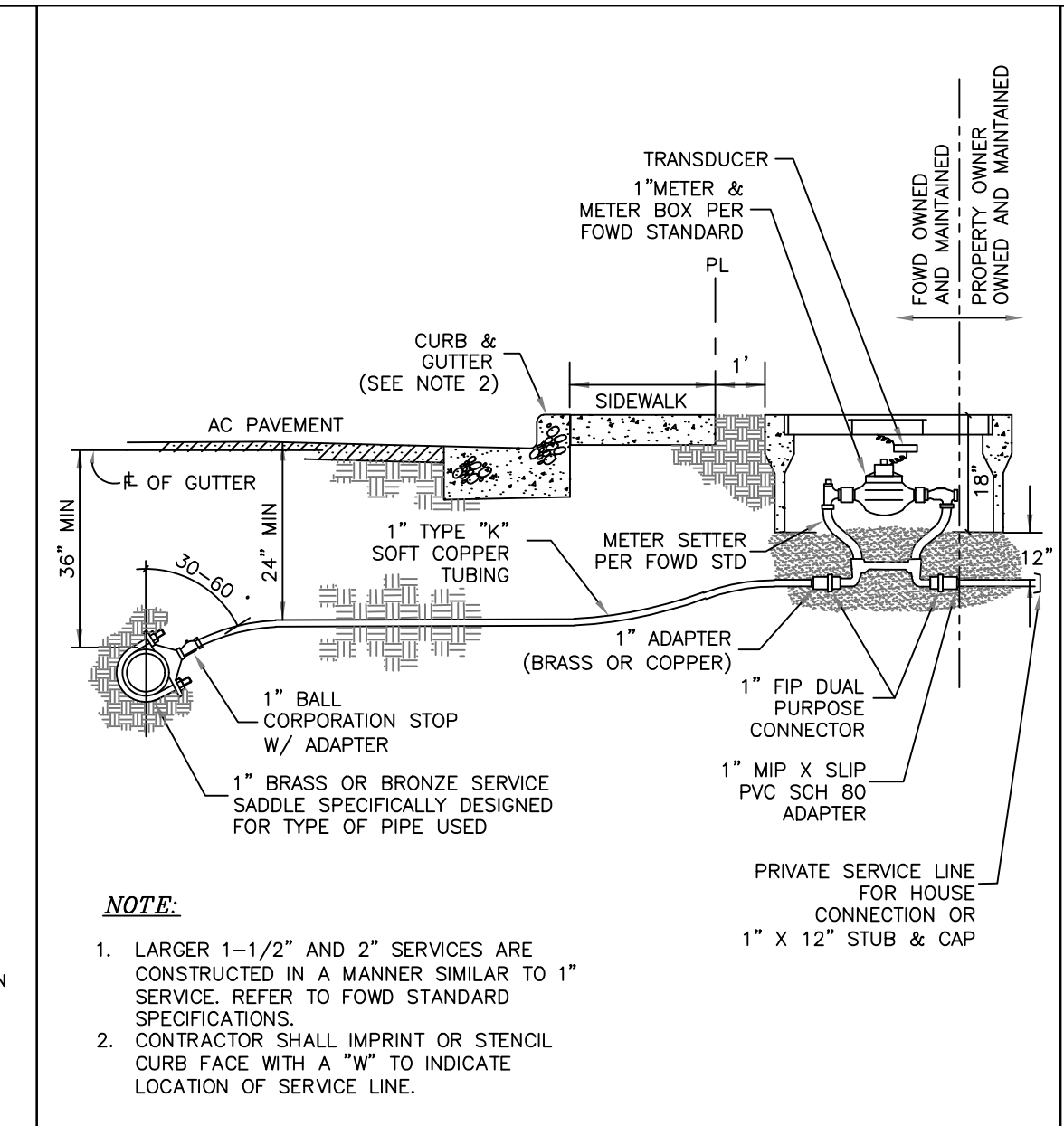
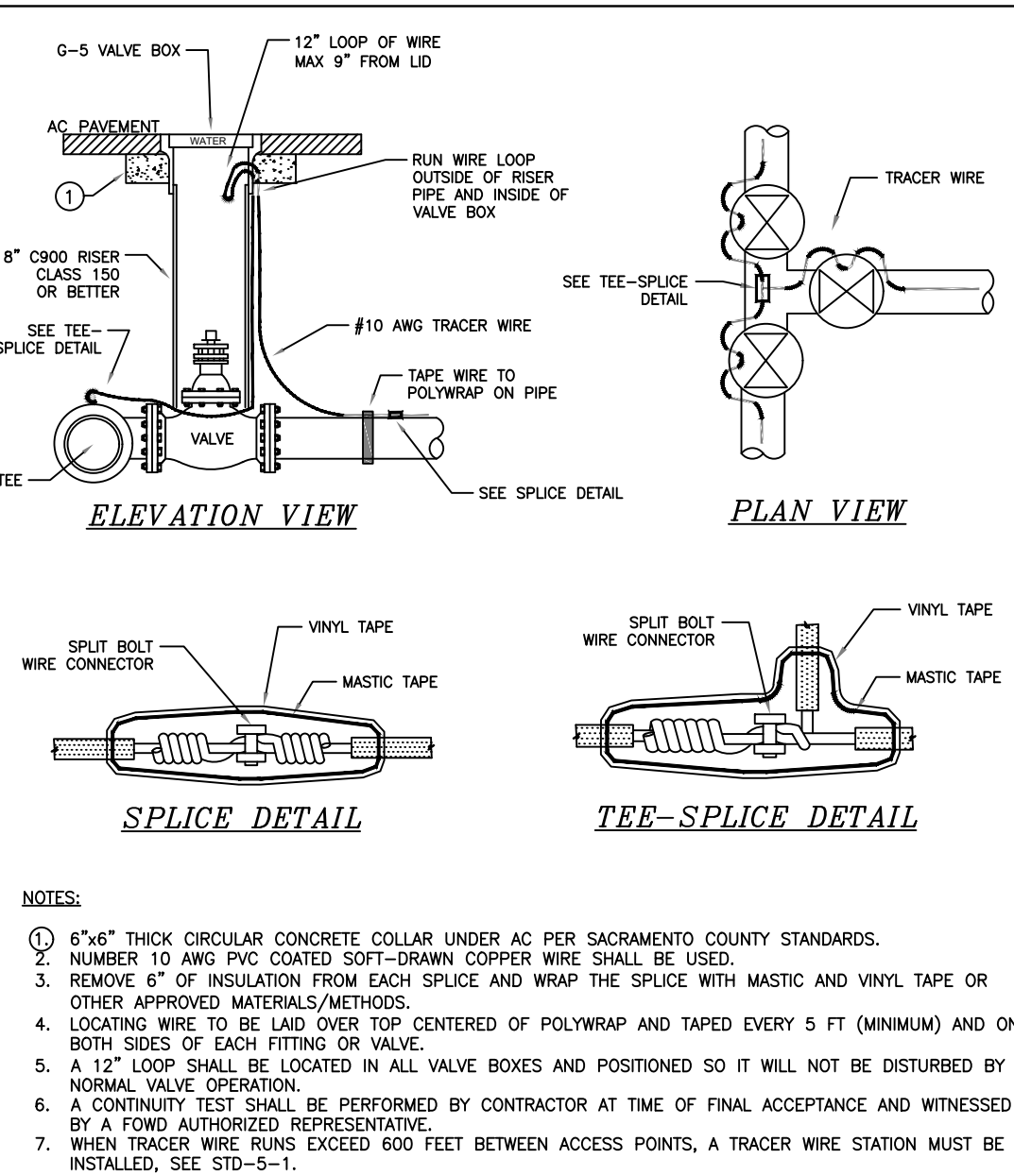
TEMPORARY BLOW OFF FOR CONSTRUCTION

STANDARD SPECIFICATIONS
FAIR OAKS WATER DISTRICT
STANDARD DRAWING 3-3

FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD., FAIR OAKS, CA 94628
OFFICE: (916) 967-5723
WEBSITE: WWW.FAOROAKS.COM

IN-LINE GATE VALVE

STANDARD SPECIFICATIONS
FAIR OAKS WATER DISTRICT
STANDARD DRAWING 4



FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD., FAIR OAKS, CA 94628
OFFICE: (916) 967-5723
WEBSITE: WWW.FAOROAKS.COM

TRACER WIRE INSTALLATION

STANDARD SPECIFICATIONS
FAIR OAKS WATER DISTRICT
STANDARD DRAWING 5

FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD., FAIR OAKS, CA 94628
OFFICE: (916) 967-5723
WEBSITE: WWW.FAOROAKS.COM

1\"/>

STANDARD SPECIFICATIONS
FAIR OAKS WATER DISTRICT
STANDARD DRAWING 7

FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD., FAIR OAKS, CA 94628
OFFICE: (916) 967-5723
WEBSITE: WWW.FAOROAKS.COM

TRENCH DETAIL

STANDARD SPECIFICATIONS
FAIR OAKS WATER DISTRICT
STANDARD DRAWING 8

FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD., FAIR OAKS, CA 94628
OFFICE: (916) 967-5723
WEBSITE: WWW.FAOROAKS.COM

6\"/>

STANDARD SPECIFICATIONS
FAIR OAKS WATER DISTRICT
STANDARD DRAWING 9

FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD., FAIR OAKS, CA 94628
OFFICE: (916) 967-5723
WEBSITE: WWW.FAOROAKS.COM

FIRE HYDRANT BOLLARDS

STANDARD SPECIFICATIONS
FAIR OAKS WATER DISTRICT
STANDARD DRAWING 9-1

FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD., FAIR OAKS, CA 94628
OFFICE: (916) 967-5723
WEBSITE: WWW.FAOROAKS.COM

UTILITY CROSSING INVERT DETAIL

STANDARD SPECIFICATIONS
FAIR OAKS WATER DISTRICT
STANDARD DRAWING 11

ISSUED FOR BID

FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD.,
FAIR OAKS, CA 95628
(916) 967-5723

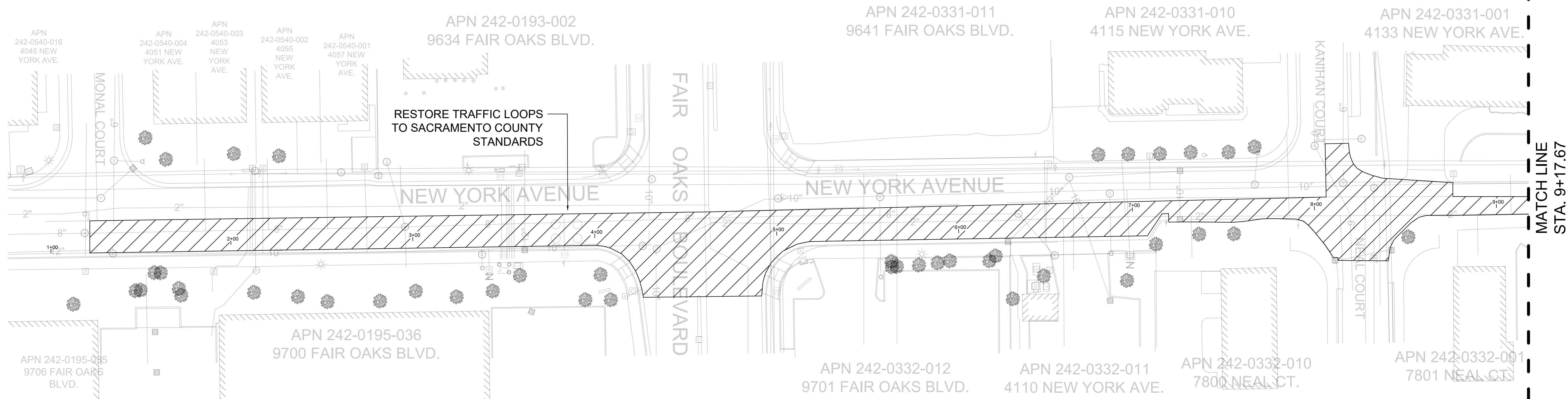
DESIGNED BY: DL				
DRAFTED BY: DL				
CHECKED BY: BC				
DATE: 04/16/2026	REV.	DATE	DESCRIPTION	

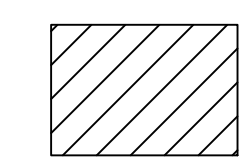
NEW YORK AVENUE PHASE II - 12\"/>

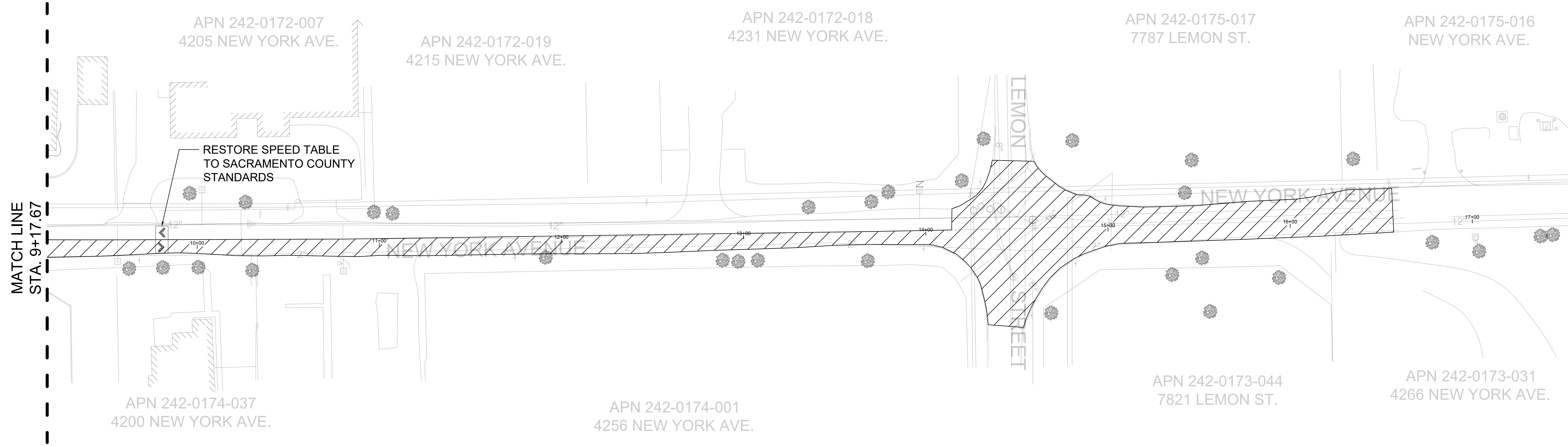
STANDARD DRAWINGS

SCALE: NONE
HOR: NONE
VERT: NONE

SHEET NUMBER: 6
OF 7 SHEETS
PROJECT NUMBER: C26TDNYASW2




 PAVEMENT RESTORATION EXTENTS
(TOTAL 29,457 SF)



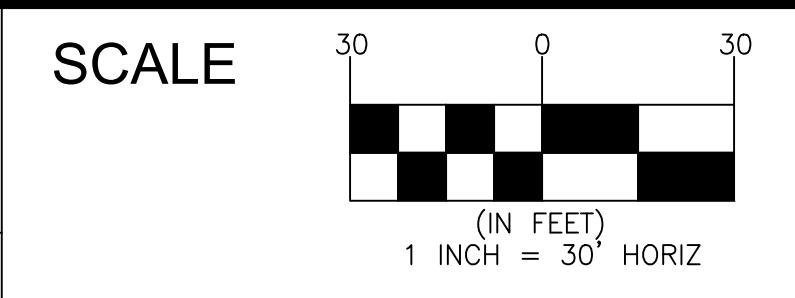
- NOTES:
1. PAVEMENT RESTORATION WILL BE TYPE II SLURRY FROM CENTERLINE TO LIP OF GUTTER PER SACRAMENTO COUNTY SPECIFICATIONS.
 2. TRENCH BACKFILL AND SURFACE RESTORATION WILL BE PER SACRAMENTO COUNTY SPECIFICATIONS.
 3. THE CONTRACTOR SHALL RESTORE ALL POTHOLES THAT OCCURRED DURING THE DESIGN PHASE IN ACCORDANCE WITH SACRAMENTO COUNTY SPECIFICATIONS, INCLUDING THOSE LOCATED OUTSIDE THE DEFINED PAVING LIMITS.

ISSUED FOR BID

 FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD.,
FAIR OAKS, CA 95628
(916) 967-5723

DESIGNED BY: DL			
DRAFTED BY: DL			
CHECKED BY: BC			
DATE: 04/16/2026	REV.	DATE	DESCRIPTION

NEW YORK AVENUE PHASE II - 12" WATER MAIN REPLACEMENT PROJECT
PAVING PLAN STA. 1+25.63 TO 16+50.76



SHEET NUMBER **7**
OF 7 SHEETS
PROJECT NUMBER C26TDNYASW2

FAIR OAKS WATER DISTRICT EXAMPLE PROJECT CONSTRUCTION SERVICES AGREEMENT

This PROJECT CONSTRUCTION SERVICES AGREEMENT (Agreement) is made at Fair Oaks, California, between the FAIR OAKS WATER DISTRICT (District) and (Contractor), who agree as follows:

GENERAL TERMS & CONDITIONS – The General Terms & Conditions set forth in EXHIBIT A are part of this Agreement. In the event of any inconsistency between said General Terms & Conditions and any other terms or conditions of this Agreement, the General Terms & Conditions shall prevail.

SCOPE OF WORK – Subject to the terms and conditions set forth in this Agreement, Contractor shall provide construction services to the District in accordance with the General Terms & Conditions (EXHIBIT A) and Bid Package and Contract Documents (EXHIBIT B) at rates provided in submitted bids, for a combined total cost of \$XXXXXXX.

Contractor shall complete all work as specified or indicated in the Agreement. The work includes but it is not limited to:

- EXHIBIT B: Bid Package and Contract Documents.

ENTIRE AGREEMENT – This Agreement, all EXHIBITS (EXHIBITS A & B) attached hereto, all other terms or provisions incorporated herein by reference, constitute the entire agreement and understanding between the District and the Contractor as to the subject matter contained herein.

AGREEMENT COMMITMENT – This Agreement shall be in effect starting the date of signing until complete per satisfaction of FOWD. Maintenance bond and guarantee letter shall be provided prior to final acceptance of project at completion.

AGREEMENT TIME AND LIQUIDATED DAMAGES – The work will be completed and ready for final payment within 90 calendar days from the commencement stated in the Notice to Proceed.

The District and the Contractor agree that as liquidated damages for delay (but not as a penalty), the Contractor shall pay the District \$1,000 for each day that expires after the time specified above.

REPRESENTATIONS – Contractor makes the following representations:

- a. Contractor has familiarized itself with the nature and extent of the contract documents, contract times, work, site, locality, and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or finishing of the work.
- b. Contractor familiarized itself with available lands, subsurface and physical conditions and associated responsibilities as described in the General Terms

& Conditions.

- c. Contractor has given District written notice of all conflicts, errors or discrepancies that they have discovered in the Agreement documents and the written resolution thereof by District is acceptable to Contractor.

District and Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements, and obligations contained in the Agreement Documents.

INSTRUCTIONS

Sign and return one original with a copy of requested insurance certificates, payment and performance bonds. Upon acceptance by District, contracted work can be scheduled.

DISTRICT:

FAIR OAKS WATER DISTRICT
10326 Fair Oaks Blvd.
Fair Oaks, CA 95628
Attn: Tom R. Gray
Title: General Manager
(916) 967-5723

CONTRACTOR:

XXXXXX CONSTRUCTION COMPANY
XXXXXX
XXXXXX
Attn:
Title:

(Signature)

(Signature)

Tom R. Gray
General Manager

Print Name: _____
Print Title: _____

Date: _____

Date: _____

Other authorized representative(s):

Other authorized representative(s):

Shawn Huckaby, Operations Manager

License No.: _____

EXHIBIT A
GENERAL TERMS & CONDITIONS
Project Construction Services

AGREEMENT FORMATION

Contractor's quotation or proposal is deemed a firm offer and the final signing of this Agreement by all parties constitutes invocation of all items within the Agreement and is legally binding.

Section 1 – RESPONSIBLE PARTIES/DEFINITIONS

District: Whenever the word "District" is used in these General Terms & Conditions, it shall be understood to mean the Fair Oaks Water District and acting by and through its Authorized District Representative.

Contractor shall not accept direction or orders from any person other than the General Manager or the person(s) whose name(s) is (are) inserted on the Agreement as "other authorized representative(s)."

Contractor: Whenever the word "Contractor" is used in these General Terms & Conditions, it shall be understood to mean the company contracting with the District, who has a current California State Contractor's License of appropriate class to do the work for which it is contracted to do as defined in the *California Contractor's License Law and Reference Book*; has, when applicable, a current business licenses to perform the work from the local jurisdiction where the work is to be performed; has been approved by the District; and is employed through the District's General Agreement documents to complete the scope of work contained therein in accordance with the District's "STANDARD SPECIFICATIONS & STANDARD DRAWINGS" and "EQUIVALENT MATERIALS LIST" for construction work, the Contractor shall have a Class A or C34 California Contractor's License.

County: Whenever the word "County" is used in these General Terms & Conditions, it shall be understood to mean the County of Sacramento.

Section 2 – AGREEMENT DOCUMENTS

Agreement Defined: Wherever used herein, the term "Agreement" shall mean the Fair Oaks Water District "General Agreement", these General Terms & Conditions, the appropriate form of bid document, and any other documents incorporated into the Agreement by reference. All of the forgoing documents shall together form the Agreement between Contractor and the District, and a reference to any of them shall be deemed to include the entire Agreement which shall be read as a whole.

The Agreement, which may be supplemented from time to time with additional accepted bids and/or revised Agreement documents, represents the entire and integrated Agreement of the parties and supersedes all prior negotiations, agreements and understandings.

Work called for in any one Agreement document and not mentioned in another is to be performed and executed as if mentioned in all Agreement documents. The titles and headings contained herein and in said documents are solely to facilitate reference to various provisions of the Agreement documents and in no way affect or limit the interpretations of the provisions to which they refer.

Conflicts: In the event of a conflict between the terms and conditions as set forth in this Agreement and the terms and conditions set forth in other Agreement documents, the terms and conditions set forth in this Agreement shall prevail.

Plans and General Terms & Conditions: Where conflicts exist between the District Agreement and the plans, then the information in the Agreement shall take precedence.

Change Orders: Any supplements or changes to the Agreement or construction issued plans, individual work scope agreements, Term agreements or general category work agreements and these General Terms & Conditions shall be in writing and presented in the form of a Change Order. Any work performed without an executed written Change Order will not be eligible for payment by District.

Addendum: Any supplements or changes to individual Task Orders or Agreement shall be in writing and presented in the form of an addendum. Any work performed without an executed written Addendum will not be eligible for payment by District.

Consummation of Change Orders and Addenda: Such Change Orders and Addenda executed as described above shall be effective when thereafter signed by the Contractor's Authorized Representative and authorized representative of District.

Section 3 – SEVERABILITY

The Contractor and the District agree that any provision of this Agreement that is found to be illegal or unenforceable, such term or provision shall be deemed stricken and the remainder of the Agreement shall remain in full force and effect. Either party having knowledge of such term or provision shall promptly inform the other of the presumed non-applicability of such provision.

Section 4 – RESPONSIBILITY FOR WORK

Until the completion and final acceptance by the District, of all the work under and implied by this Agreement, the work shall be under the Contractor's responsible care and charge. The Contractor shall rebuild, repair, restore and make good all injuries, damages, re-erectments, and repairs occasioned or rendered necessary by causes of any nature whatsoever.

Section 5 – EXTRA WORK

The Contractor shall do no extra work except on the written authorization of the District. If the District does authorize extra work, the costs thereof will be added to the monthly invoice upon the completion of the extra work.

Section 6 – AGREEMENT AMOUNT

The District agrees to pay, and the Contractor agrees to accept, in full payment for the above work, the sum computed in accordance with the actual amount of each item of work performed or material furnished and incorporated in the work, at the unit price which the Contractor bid for each such item in the Contractor's bid, said unit price to be determined as provided in the proposal.

Section 7 – PROGRESS AND FINAL PAYMENTS

1. On a monthly basis, or as presented in project request for proposal, the Contractor shall present to the District a statement showing the amount of labor and materials incorporated

in the work during the preceding month, along with certified payroll documentation. The District personnel shall verify the statement. If accuracy of invoice is satisfactory, a payment will be made in an amount equal to ninety-five percent (95%) of the value to date, based on the Agreement price, less any previous payments for all work performed and materials actually used by the Contractor during said period. The remaining five percent (5%) of the value of the work completed under this Agreement, if unencumbered, shall be paid after final completion and acceptance of work by the District. Acceptance by the Contractor of said final payment shall constitute a waiver of all claims against the District arising under the Agreement document. The Contractor shall not be paid for any defective, unfinished, disputed, or improper work.

2. Undisputed invoices processing:
 - a) For invoices less than \$25,000, the District will pay the contractor 30 days from the date of invoice.
 - b) For invoices \$25,000 and greater depending on when the invoices are submitted and the timing of the District's Board meeting, the check processing for expenses \$25,000 and greater can take up to 60 days or as required to gain District Board approval.
3. Pursuant to Part 5, Section 22300 of the Public Contract Code, the Contractor will be permitted to substitute securities for any money withheld by the District to ensure performance under this Agreement. At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the District, or with a State or Federally chartered bank in California as the escrow agent, who shall pay such monies to the Contractor upon satisfactory completion of the Agreement. At the direction of the District, the securities shall be returned to the Contractor.
4. Alternately, the Contractor may request that the owner shall make payment of retentions earned directly to the escrow agent at the expense of the Contractor. At the expense of the Contractor, Contractor may direct the investment of the payments into the investments upon the same terms provided for in this section for securities deposited by the Contractor. Upon satisfactory completion of the Agreement, Contractor shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the owner, pursuant to the terms of this section. The Contractor shall pay to each sub-contractor, not later than twenty (20) days following receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each sub-contractor, on the amount of retention withheld to insure the performance of the Contractor.
5. Securities eligible for investment under this section shall include those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit.
6. The Contractor shall be the beneficial owner of any securities substituted for monies withheld and shall receive any interest thereon.
7. Any escrow agreement entered into pursuant to this provision shall be substantially in the form set forth in Section 22300 (e) of the California Public Contract Code.

Section 8 – RETENTION OF SUMS CHARGED AGAINST CONTRACTOR

When, under the provisions of this Agreement, the District shall charge any sum of money against the Contractor, the District shall deduct and retain the amount of such charge from the amount of the next succeeding progress estimate, or from any other monies due or that may become due the Contractor from the District. If, on completion or termination of the Agreement, sums due the Contractor are insufficient to pay the District's charges against the Contractor, the District shall have the right to recover the balance from the Contractor.

Right of the District to Withhold Payments: In accepting work with the District, the Contractor agrees the District may withhold or cancel the whole or any part of any partial payment or final payment to such an extent as may be reasonably necessary to protect the District from loss due to, but not limited to, any one of the following items or a combination of the items:

1. **Defective Work:** Defective work not remedied, regardless of when any such work may be found to be defective.
2. **Claims or Liens:** Claims or liens filed or reasonable evidence indicating probable filing of claims or liens.
3. **Failure of Contractor to Pay for Goods or Services:** Failure of the Contractor to make payments promptly for labor, material, equipment or other facilities, or to sub-contractors.
4. **Ability of Contractor to Complete for Unearned Balance:** A reasonable that work can be completed for the balance unearned.
5. **Damage to Other Work or Property:** Damage to other work or property which is caused either directly or indirectly by the Contractor.
6. **Pending Notice of Completion:** The District may have a "Notice of Completion" published and withhold final payment pending the outcome of the discovery period and subject to all other applicable provisions of these General Terms & Conditions.
7. **Settlement of Back Charges:** Settlement of back charges resulting from bonafide claims on totally unrelated work awarded to the Contractor using otherwise unencumbered funds available from current contracted work.
8. **Provision of Listing of Sub-Contractors and Suppliers:** Payment may be withheld until Contractor has provided a list of all sub-contractors, suppliers or others, who have provided goods and services for work performed, including reasonable time for District to verify Contractor's payment to same.

Whenever the District shall, in accordance herewith, withhold any monies otherwise due to the Contractor, written notice of the amount withheld and the reasons thereof shall be given the Contractor. Once the Contractor has removed the grounds for such withholding, the District will promptly pay to the Contractor any amounts owed to Contractor from the amount withheld.

Section 9 – NOTICES AND INVOICES

All notices, invoices, and payments shall be made in writing and may be given by personal delivery, via email in pdf format, or by mail. Notices, invoices, and payments sent by United States mail shall be addressed to the designated District and Contractor Authorized Representatives, as applicable, as indicated on the Construction Agreement. When so addressed, all such notices, invoices and payments shall be deemed given upon two days following deposit in the United States mail, all postage prepaid. In all other instances, notices, invoices, and payments shall be deemed given at the time of actual receipt. Any invoices emailed to District must include District project manager and ap@fowd.com.

Section 10 – NO WAIVER BY PAYMENT

Payment to the Contractor or occupation of the project by the District shall not relieve the Contractor of liability for defective materials or quality of the work used in the completion of the project or for failure to construct the project according to specifications. Acceptance by the Contractor of any payment provided for in this Agreement shall be a representation by the Contractor to the District that all work performed before the payment became due has been completed by Contractor in accordance with the terms of the Agreement and according to the specifications.

Section 11 – WAGE RATES

The Contractor acknowledges that the Contractor has examined the California State Prevailing Wage Determination made by the Director of the California Department of Industrial Relations (DIR) and agrees to pay workers not less than the stipulated wage rates. Contractor shall provide the District with current DIR registration number and copies of the prevailing wage payroll with each payment request.

Section 12 – EIGHT HOUR DAY LIMITATION

Contractor agrees that 8 hours labor shall constitute a day's work, and no worker, in the employ of the Contractor, or any sub-contractor, doing or contracting to do any part of the work under this Agreement, shall be required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week; provided that subject to California Labor Code section 1815, a worker may perform work in excess of 8 hours per day or 40 hours per week at not less than one and one-half times the basic rate of pay.

Section 13 – INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless and defend the District, its directors, officers, employees, consultants or authorized volunteers, and each of them from and against:

1. Any and all claims, demands, causes of action, damages, costs, expenses, losses or liabilities, in law or in equity, of every kind and nature whatsoever for, but not limited to, injury to or death of any person including the District and/or the Contractor, or any directors, officers, employees, or authorized volunteers of the District or the Contractor, and damages to or destruction of property of any person, including but not limited to, the District and/or the Contractor or their directors, officers, employees, or authorized volunteers, arising out of or in any manner directly or indirectly connected with the work to be performed under this Agreement, however caused, regardless of any negligence of the District or its directors, officers, employees, or authorized volunteers, except the sole negligence or willful misconduct or gross negligence of the District or its directors, officers, employees, or authorized volunteers;

2. Any and all actions, proceedings, damages, costs, expenses, penalties or liabilities, in law or equity, of every kind or nature whatsoever, arising out of, resulting from, or on account of the violation of any governmental law or regulation, compliance with which is the responsibility of Contractor;
3. Any and all losses, expenses, damages (including damages to the work itself), attorneys' fees, and other costs, including all costs of defense, which any of them may incur with respect to the failure, neglect, or refusal of Contractor to faithfully perform the work and all of the Contractor's obligations under the Agreement. Such costs, expenses, and damages shall include all costs, including attorneys' fees, incurred by the indemnified parties in any lawsuit to which they are a party.
4. The Contractor shall defend, at Contractor's own cost, expense and risk, any and all such aforesaid suits, actions or other legal proceedings of every kind that may be brought or instituted against the District or District's directors, officers, employees, or authorized volunteers arising out of or in any manner directly or indirectly connected with the work to be performed under this Agreement.
5. The Contractor shall pay and satisfy any judgment, award or decree that may be rendered against the District or its directors, officers, employees, or authorized volunteers, in any such suit, action or other legal proceeding.
6. The Contractor shall reimburse the District or its directors, officers, employees, or authorized volunteers, for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided.
7. The Contractor agrees to carry insurance for this purpose as set out in the specifications. Contractor's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by the District, or its directors, officers, employees or authorized volunteers.

Section 14 – SAFETY

The Contractor shall execute and maintain the Contractor's work to avoid injury or damage to any person or property. The Contractor shall comply with the requirements of the specifications relating to safety measures applicable in particular operations or kinds of work.

1. In the performance of this Agreement the Contractor shall comply with all applicable federal, state, and local statutory and regulatory requirements including, but not limited to California Department of Industrial Relations (Cal/OSHA) regulations; and the U.S. Department of Transportation Omnibus Transportation Employee Testing Act related to their scope of work and operations. In case of conflict in regulations, the most stringent shall apply. The Contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the Agreement. Safety precautions shall include but shall not be limited to: adequate life protection and lifesaving equipment; adequate illumination; instructions in accident prevention for all employees, such as the use of machinery guards, safe walkways, scaffolds, ladders, bridges, gang planks, confined space procedures, trenching and shoring, fall protection, and other safety devices; equipment and

wearing apparel as are necessary or lawfully required to prevent accidents, injuries, or illnesses; and adequate facilities for the proper inspection and maintenance of all safety measures.

2. Contractor must obtain all applicable Division of Occupational Safety and Health (CAL-OSHA) permit(s) and others required by California Labor Code and California Government Code, prior to the initiation of any practices, work, method, operation, or process related to the work covered in the Agreement. Permits required by governmental authorities will be obtained and maintained at Contractor's expense.
3. It is a condition of this Agreement, and shall be made a condition of each Sub-Agreement which the Contractor enters into pursuant to this Agreement, that the Contractor and any subs-contractor shall not permit any employee, in performance of the Agreement, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to the employees' health or safety, as determined under Cal/OSHA safety and health standards.
4. The Contractor shall be responsible for the safeguarding of all utilities. At least three working days before beginning work, the Contractor shall contact for an Underground Service Alert (USA) in order to determine the location of sub-structures. The Contractor shall immediately notify District and the utility owner if they disturb, disconnect, or damage any utility.
5. In accordance with Section 6705 of the California Labor Code, the Contractor shall submit to District specific plans to show details of provisions for worker protection from caving ground during excavations of trenches of five feet or more in depth. The excavation/trench safety plan shall be submitted to and accepted by District prior to starting excavation. The trench safety plan shall have details showing the design of shoring, bracing, sloping or other provisions to be made for worker protection from the hazard of caving ground. If such a plan varies from the shoring system standards established by the Construction Safety Orders of the California Department of Industrial Relations (Cal/OSHA), the plan shall be prepared by a California registered civil or structural engineer. As part of the plan, a note shall be included stating that the registered civil or structural engineer certifies that the plan complies with the Cal/OSHA Construction Safety Orders, or that the registered civil or structural engineer certifies that the plan is not less effective than the shoring, bracing, sloping or other provisions of the Safety Orders. In no event shall the Contractor use a shoring, sloping, or protective system less effective than that required by said Construction Safety Orders. Submission of this plan in no way relieves the Contractor of the requirement to maintain safety in all areas. If excavations or trench work requiring a Cal/OSHA permit are to be undertaken, the Contractor shall submit his/her permit with the excavation/trench work safety plan to District before work begins. Nothing in this section shall be construed to impose liability on the District or any of its directors, officers, employees, or authorized volunteers – independent of District approval, liability remains with the Contractor.
6. In the event of damage to any property or bodily injury to any person, the Contractor's Representative will provide immediate verbal notification (to be followed by a detailed written report) within forty-eight (48) hours to the District Inspector, or alternatively, to the Authorized District Representative named in the Agreement, or alternatively, Task Order.

7. **Asbestos Pipe Work, Removal, Transportation, and Disposal Compliance** -The Contractor shall comply with all applicable state, and federal regulations, including those set forth by the Occupational Safety and Health Administration (OSHA), regarding the handling, removal, transportation, and disposal of asbestos-containing materials (ACM). This includes, but is not limited to, adherence to the regulations governing asbestos management, removal, containment, air monitoring, and waste disposal practices. The Contractor shall implement Best Management Practices (BMP) to prevent asbestos contamination and ensure the safety of all workers, the public, the environment in accordance with the requirements of the State of California, OSHA standards including 29 CFR 1926.1101, and all other applicable laws. The Contractor shall ensure that all asbestos-related work is performed by trained and certified personnel and that proper permits, notifications, and reporting requirements are met. The Contractor shall be responsible for the safe transportation, disposal, and final disposition of asbestos-containing materials in accordance with applicable regulations and guidelines.

Section 15 – INSURANCE

Minimum Insurance Requirements – Contractor shall procure and maintain for the duration of the Agreement, *and for one year thereafter*, insurance against claims for injuries or death to persons or damages to property which may arise from or in connection with the performance of the work hereunder and the results of that work by the Contractor, their agents, representatives, employees, or sub-contractor.

Contractor will file with District, before beginning services, certificates of insurance (Acord Form 25 or equivalent) satisfactory to District evidencing:

- a) **Coverage** – Coverage for commercial general liability and automobile liability insurance shall be at least as broad as the following:
 - i) Insurance Services Office (ISO) Commercial General Liability Coverage (Occurrence Form CG 00 01)
 - ii) Insurance Services Office (ISO) Business Auto Coverage (Form CA 00 01), covering Symbol 1 (any auto)
- b) **Limit – The Contractor shall maintain limits no less than the following:**
 - i) General liability - coverage of not less than two million dollars (\$2,000,000) per occurrence or the full per occurrence limits of the policies available, whichever is greater for bodily injury, personal injury, and property damage. The general and products-completed operations aggregate limit shall be twice the required occurrence limit - four million dollars (\$4,000,000).
 - ii) Auto liability - One million dollars (\$1,000,000) for bodily injury and property damage each accident limit.
 - iii) As required by the State of California, Contractor shall provide workers' compensation (statutory limits) and employer's liability of no less than one million dollars (\$1,000,000) per accident for bodily injury or disease. Waiver of Subrogation (also

known as Transfer of Rights of Recovery Against Others to Us): The insurer(s) named above agree to waive all rights of subrogation against the District, its elected or appointed officers, officials, agents, authorized volunteers and employees for losses paid under the terms of this policy which arise from work performed by the Named Insured for the District; but this provision applies regardless of whether or not the District has received a waiver of subrogation from the insurer.

- iv) Builder's Risk – (Course of Construction) - insurance utilizing an "All Risk" (Special Perils) coverage form with limits equal to the completed value of the project and no coinsurance penalty provision.

c) **Required Provisions**

- i) **Additional Insured Status:** The commercial general liability coverage shall give Fair Oaks Water District, its directors, officers, employees (collectively the District), and authorized volunteers insured status (via ISO endorsement at least as broad as CG 20 10 11 85 or **both** CG 20 10 10 01 and CG 20 37 10 01) specifically naming the Fair Oaks Water District, its directors, officers, employees, or authorized volunteers; or using the language that states "as required by written Agreement" with respect to liability arising out of activities performed by or on behalf of the Contractor including materials, parts, or equipment furnished in connection with such work or operations; premises owned, occupied or used by the Contractor, or automobiles owned, leased, hired or borrowed by the Contractor.
- ii) **Primary Coverage:** For any claims related to this project, the Contractor's insurance coverage shall be primary. The general liability coverage is to state or be endorsed (with as broad as ISO endorsement CG 20 01 04 13) to state "such insurance shall be primary and any insurance, self-insurance or other coverage maintained by District, its directors, officers, employees, or authorized volunteers shall not contribute to it."
- iii) Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the District, its directors, officers, employees, or authorized volunteers.
- iv) Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
- v) Each insurance policy required by this clause shall state or be endorsed to state that coverage shall not be canceled by either party, except after thirty (30) days (10 days for non-payment of premium) prior written notice by U.S. mail has been given to the District.
- vi) Such liability insurance shall indemnify the Contractor and the sub-contractors against loss from liability imposed by law upon, or assumed under Agreement by, the Contractor or sub-contractors for damages on account of such bodily injury (including death), property damage, personal injury and completed operations and products liability.

- vii) The general liability policy shall cover bodily injury and property damage liability, owned and non-owned equipment, blanket contractual liability, completed operations liability, explosion, collapse, underground excavation and removal of lateral support.
- viii) The automobile liability policy shall cover all owned, non-owned, and hired automobiles.
- ix) Deductibles and Self-Insured Retentions: Insurance deductibles or self-insured retentions must be declared by the Contractor, and approved by the District. At the election of District the Contractor shall either cause the insurer to reduce or eliminate such self-insured retentions as respects the District, its directors, officers, employees, and authorized volunteers or the Contractor shall provide a financial guarantee satisfactory to the District guaranteeing payment of losses and related investigations, claim administration, and defense expenses. The policy language shall provide, or be endorsed to provide, that the self-insured retention may be satisfied by either the named insured or the District.
- x) Coverage is to be placed with a carrier with an A.M. Best rating of no less than A :VII, or equivalent, or as otherwise approved by District.
- xi) The coverage shall contain no special limitations on the scope of protection afforded to District, its directors, officers, employees, or authorized volunteers.
- xii) In the event that the Contractor employs other Contractors (sub-contractors) as part of the work covered by this Agreement, it shall be the Contractor's responsibility to require and confirm that each sub-contractor meets the minimum insurance requirements specified above (via as broad as ISO CG 20 38 04 13). The Contractor shall, upon demand of District, deliver to District copies of such policy or policies of insurance and the receipts for payment of premiums thereon.
- d) If the Contractor maintains broader coverage and/or higher limits than the minimums shown above, the District requires and shall be entitled to the broader coverage and/or higher limits maintained by the Contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the District.
- e) If any of the required coverages expire during the term of this Agreement, the Contractor shall deliver the renewal certificate(s) including the general liability additional insured endorsement to District at least ten (10) days prior to the expiration date.
- f) The Contractor shall provide and maintain builder's risk (course of construction) or an installation floater (for materials and equipment) covering all risks of direct physical loss, damage or destruction to the work in the amount specified in the General Terms & Conditions, to insure against such losses until final acceptance of the work by the District. Such insurance shall insure at least against the perils of fire and extended coverage, theft, vandalism and malicious mischief, and collapse. The Policy shall be endorsed with District, its directors, officers, employees, and authorized volunteers named as loss payee, as their interest may appear. The making of progress payments to the Contractor shall not be

construed as creating an insurable interest by or for District or be construed as relieving the Contractor or his/her sub-contractors of responsibility for loss from any direct physical loss, damage or destruction occurring prior to final acceptance of the work by the District.

Verification of Coverage – Evidence of Insurance

Contractor shall furnish the District with copies of certificates and amendatory endorsements effecting coverage required by this Agreement. All certificates and endorsements are to be received and approved by the District before work commences. However, failure to obtain the required documents prior to the work beginning shall not waive the Contractor's obligation to provide them. The District reserves the right to require complete, certified copies of all required insurance policies, including policy Declaration pages and Endorsement pages, required by these specifications, at any time. Failure to continually satisfy the Insurance requirements is a material breach of Agreement.

Continuation of Coverage

The Contractor shall, upon demand of District, deliver evidence of coverage showing continuation of coverage for at least one year after completion of the project. Contractor further waives all rights of subrogation under this Agreement when any of the required coverages expire during the term of this Agreement, the Contractor shall deliver the renewal certificate(s) including the general liability additional insured endorsement and evidence of waiver of rights of subrogation against District (if builder's risk insurance is applicable) to District at least ten (10) days prior to the expiration date.

Section 16 – BONDS

Performance Bond: The Contractor shall obtain at its sole cost and expense and provide to District a performance bond in the amount equal to 100% of this Agreement for the faithful performance of the work to be done under the terms of this Agreement, with sureties as may be agreeable to the District.

Payment Bond: The Contractor shall obtain at its sole cost and expense and provide to District a payment bond in the amount equal to 100% of this Agreement for the faithful performance of the work to be done under the terms of this Agreement, as provided for in Section 3247 of the California Civil Code with sureties as may be agreeable to the District.

Maintenance Bond: Prior to the District Preliminary Acceptance Letter issuance for the new water facilities constructed by the Contractor per project documents, the Contractor shall furnish an overall maintenance bond or corporate surety bond, payable to the District. This bond, which shall be executed by a duly licensed surety company authorized to do business in the State of California, shall protect the District against the results of any failure attributable to any cause, including, but not limited to, faulty material, poor workmanship, and defective equipment or damage of the work occurring within the Guarantee period under the provisions of the Guarantee.

The bond shall guarantee the Contractor's responsibility as outlined above for a period of one (1) year or shall remain in effect for as long as the Guarantee remains in effect. The bond shall be provided on forms to be approved by the District and shall be in the sum of not less than one hundred percent (100%) of the awarded amount including any change orders issued during the project construction.

The bonds must comply with California Civil Code sections 3247 and 3248 and applicable

provisions of the California Bond and Undertaking Law (Cal. Code of Civil Procedure § 995.010 et seq.).

Section 17 – SUB-CONTRACTORS

None of this work may be delegated or sub-contracted without written consent of the District prior to work started. The successful bidder shall not assign its work or any of its rights hereunder to another Contractor. The District may require written documentation of qualifications and references for any sub-contractor being considered for District approval to perform any part of any work under this Contract.

The General Agreement shall bind Contractor's sub-contractors, successors and assigns, and that Agreement shall cause its employee, agents, and sub-contractors to comply with all requirements of the General Agreement and these General Terms & Conditions.

If, at any time during the performance of this Agreement, Contractor fails to maintain any item of the required insurance in full force and effect, Contractor shall immediately discontinue all work under the Agreement and District will withhold all Agreement payments due or that become due until notice is received by District that such insurance has been restored in full force and effect and that the premiums therefore have been paid for a period satisfactory to the District.

Section 18 – GUARANTEE

Excepting only items of routine maintenance, ordinary wear and tear and unusual abuse or neglect, Contractor guarantees all work executed by the Contractor and all supplies, materials and devices of whatsoever nature incorporated in, or attached to the work, or otherwise delivered to the District as a part of the work pursuant to the Agreement, to be absolutely free of all defects in the quality of work and materials for a period of **one (1) year** after final acceptance by the District of work performed. The Contractor shall repair or replace any or all such work or material, together with all or any other work or material which may be displaced or damaged in so doing, that may prove defective in the quality of work or material within said one year guarantee period without expense or charge of any nature whatsoever to the District.

In the event that the Contractor shall fail to comply with the conditions of the foregoing guarantee within ten (10) days after being notified of the defect in writing, the District shall have the right, but shall not be obligated to repair or obtain the repair of the defect, and the Contractor shall pay to the District on demand all costs and expense of such repair. Notwithstanding anything herein to the contrary, in the event that any defect in the quality of work or material covered by the foregoing guarantee results in a condition which constitutes an immediate hazard to the health or safety, or any property interest, or any person, District shall have the right to immediately repair, or cause to be repaired, such defect, and the Contractor shall pay to District on demand all costs and expense of such repair, or District may elect to subtract cost from withheld retention. The foregoing statement relating to hazards to health, safety or property shall be deemed to include either temporary or permanent repairs, which may be required as determined in the sole discretion and judgment of District.

Section 19 – LAWS, REGULATIONS AND PERMITS

The Contractor shall give all notices required by law and comply with all laws, ordinances, rules and regulations pertaining to the conduct of the work. The Contractor shall be liable for all violations of the law in connection with work furnished by the Contractor. If the Contractor observes that the

drawings or specifications are at variance with any law or ordinance, rule or regulation, the Contractor shall promptly notify the District in writing and any necessary changes shall be made by written instruction or change order. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules or regulations and without giving notice to the District appointed engineer, the Contractor shall bear all costs arising there from.

All necessary permits or similar authorizations required for this construction as per the "Construction Issued" Plans for such work will be obtained by the District unless otherwise stated. Copies of all permits will be furnished to the Contractor. Bonds that may be required to obtain the permits shall be furnished by the Contractor. Contractor shall maintain a copy of such permits with the Crew installing the work.

Section 20 – AUTHORIZED PERSONNEL

Contractor shall not accept direction or orders from any person other than the District General Manager or the person(s) whose name(s) is listed as "other authorized representative(s)."

Section 21 – DRUG- FREE WORKPLACE CERTIFICATION OF COMPLIANCE

By signing this Agreement, Contractor or its sub-contractors hereby certify, under penalty of perjury under the laws of the State of California, compliance with the requirements of the Drug-Free Workplace Act of 1990 (Government Code 8350 *et seq.*), that they have received and read a copy of the District's Drug-Free Awareness Program, as required by Government Code Section 8355(b) and have or will provide a drug-free workplace by notifying employees and sub-contractors that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees or sub-contractors for violations, as required by Government Code Section 8355(a).

Section 22 – UNLAWFUL HARASSMENT

The District is committed to providing a work environment free of unlawful harassment. The Contractor and sub-contractors shall adhere to the District's policy prohibiting sexual harassment, and harassment based on pregnancy, childbirth, or related medical conditions, race, religious creed, color, national origin or ancestry, physical or mental disability, medical condition, marital status, age, sexual orientation or any other basis protected by federal, state or local law or ordinance or regulations. All such harassment is unlawful. District's anti-harassment policy applies to all persons, including but not limited to Contractors and sub-contractors involved in the operation of the District and prohibits unlawful harassment by any employee of the District, including supervisors, co-workers, Contractors and sub-contractors.

Section 23 – SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment, tools, facilities and transportation necessary to perform the work submitted in the bid proposal. Work must be performed and completed in accordance with District Standard and/or Project Specifications to the satisfaction of the District, and in the manner designated in, and in strict conformity with the Contract Documents.

Any change in the scope of the professional services to be done, method of performance, nature of materials or price thereof, or to any other matter materially affecting the performance or nature of the professional services will not be paid for or accepted unless such change, addition or deletion be approved in advance, in writing by a supplemental agreement by the District. Contractor's

"authorized representative(s)" has (have) the authority to execute such written change for Contractor.

Section 24 – DISTRICT’S RIGHT TO TERMINATE / RIGHT TO PROCEED

If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with such diligence as will insure its completion within the time specified in Agreement, or any extension thereof, or fails to complete said work within such time, the District General Manager may, by written notice to the Contractor, terminate their right to proceed with the work or such part of the work as to which there has been delay. In such event, the District may take over the work and prosecute the same to completion, by Agreement or otherwise, and the Contractor shall be liable to the District for any excess cost occasioned the District thereby, until such reasonable time as may be required for the final completion of the work.

Section 25 – ASSIGNMENT BY CONTRACTOR

This Agreement is for the services of the Contractor in construction of the Project and the Contractor may not assign this Agreement, or delegate Contractor's duties under this Agreement to any other person or entity without the prior written consent of District.

1. **Proof of Financial Responsibility:** All suppliers and/or carriers hired or used by Contractor or District (including, without limitation, suppliers and/or carriers of hazardous materials) shall provide District with proof of financial responsibility in accordance with all applicable law, including, without limitation, the Federal Motor Carrier Act of 1980 (driver’s insurance), as amended, the rules and regulations of the Federal Interstate Commerce Commission and applicable state law.
2. **Shutdowns and Shutdown Fees:** For all shutdowns, a forty-eight (48) hour minimum advance notice must be given by the Contractor to the District at the address indicated on the bid sheet. All shutdowns must be made by District personnel. The District will charge the Contractor a shutdown fee when the Contractor works overtime or on weekends for its own convenience. The District shutdown fee will be charged in accordance with District fee schedule. The Contractor must have prior approval for such shutdowns from the District’s designee so named in writing.
3. **Traffic Control and Safety Regulations:** Contractor assumes the responsibility to observe all applicable federal, state and local laws, regulations and guidelines in the performance of its work, including without limitation the regulations established by O.S.H.A. and the Work Area Traffic Control Handbook, current edition (Los Angeles: Building News, Inc.) and to perform all work in a safe and prudent manner. Without in any way limiting that responsibility or assuming responsibility for safety, the District is particularly concerned that the following rules are strictly observed:

A supervisor shall be present at all times to ensure that all personnel at the job site perform in accordance with all applicable safety requirements; and

A Traffic Control Plan has been submitted and approved by the Sacramento County DOT; and

All personnel at the job site shall be properly equipped and attired, including an approved hard hat, protective eye wear, high visibility safety vest, appropriate breathing apparatus as may be

required for protection from paint fumes and other Personal Protective Equipment (PPE) as necessary; and

Safety/Warning Signs shall be placed around the perimeter of the work area. Work performed in streets shall have safety devices in place in accordance with the Work Area Traffic Control Handbook and other applicable governmental rules and regulations.

4. **Damage to Property:** The Contractor shall assume the risk of all loss of or damage to property or materials during the progress of said work. The Contractor shall not disturb the facilities of other utilities or other underground structures, and it shall be liable for damages caused by its operations. Where such information is available, some effort has been made to designate the approximate location and kind of known substructures as shown on the plans, but this shall not relieve the Contractor of its responsibility to protect any and all utility lines, shown or not shown on the plan, during the performance of its work under this Agreement. The Contractor shall provide a minimum of forty-eight (48) hours' notice of intent to start work to those agencies having substructures in or jurisdiction over the construction area including but not necessarily limited to Underground Service Alert.
5. **Coordination of Work:** The Contractor shall be responsible to plan and coordinate its work with other Contractors working in the same project area. Loss or damage resulting from a failure to plan or coordinate shall be the Contractor's sole responsibility.
6. **Pre-Inspection of Site:** It shall be the Contractor's responsibility to ascertain the existence of any conditions affecting the work which would have been disclosed by reasonable examination of the site. The Contractor shall, upon discovering any conditions not indicated on the plans, immediately bring them to the attention of the District's assigned representative.
7. **Location of Connections:** The Contractor shall, unless instructed to the contrary by the District, excavate and expose existing District facilities at all locations where a connection (tie-in) is to be made, as shown on the plans, and shall verify that such conditions are as indicated on the plan **prior** to requesting a shutdown of existing mains.

The Contractor shall field locate points of connection or tie-in when not designated on the plan. Forty-eight (48) hours advance notification is required. Conditions differing from those indicate on the plan and requiring additional material, or material with different dimensions, shall be brought to the attention of the District's assigned representative immediately.

Any additional expenses incurred by the Contractor as a result of failure to verify existing conditions or utilities shall be considered its sole expense and will not be reimbursed by the District.

8. **Performance of Work:** Where conflicts or omissions arise involving performance of work by the Contractor under the District's Specifications, then the following priority shall be observed:
 - a. District Construction documents.
 - b. Standards of the American Water Works Association.
 - c. Sacramento County Specifications.

- d. Standard Specifications for Public Works Construction.
 - e. Requirements of federal, state, county and local law.
9. **Storm Drainage Discharge Best Management Practices Compliance** -The Contractor shall comply with all applicable local, county, and state laws, regulations, ordinances, and standards pertaining to storm drainage discharge and Best Management Practices (BMP) during the execution of the work. The Contractor is responsible for implementing and maintaining all necessary BMPs to minimize the impact of stormwater runoff and ensure compliance with applicable environmental laws and regulations. The Contractor shall promptly address and correct any violations or non-compliance issues as identified by the governing authorities.

Section 26 – NOTICE TO START WORK

1. **Pre-Construction Meeting:** When the cost of the jobs exceeds \$10,000, or otherwise when directed in writing by the District, the Contractor shall arrange for a pre-construction meeting to be held at the job site or other suitable location. It shall be the Contractor's responsibility to notify all utilities and agencies maintaining facilities or having jurisdiction within the area of work as well as the District's Inspector when assigned, or alternative, the assigned Authorized District Representative.
2. **Scheduling of Work:** Prior to the start of any work, the Contractor shall upon request submit its proposed construction schedule in the form of a tabulation, chart, graph or as otherwise reasonably requested in sufficient detail to show the chronological relationship of all activities of the project, including the estimated number of working days for each phase when more than one phase is involved.
3. **Scheduled Start Date:** The Contractor, in accepting individual Agreements, agrees to start the work within ten (10) working days after receipt of Agreement and written request from the Authorized District Representative to start the work, or alternatively, on the date as indicated by the District as a condition of award in its original bid request and further included in its General Agreement. Failure of Contractor to start the work in accordance with the provisions of this Article shall be grounds for termination.
4. **Change to Previously Scheduled Start Dates:** The District reserves the right to determine the sequence by which jobs are to be performed when the Contractor has been awarded more than one job with the District. In the event of scheduling conflicts where more than one District entity is involved, the District's Project Manager Support shall determine the priority. The District further reserves the right to adjust the order of priority for its convenience at no additional cost to the District where the Contractor has not yet commenced mobilization of a previously scheduled job.
5. **Supervision of Work:** The Contractor shall provide the Authorized District Representative named in the District's Agreement with the name and contact information of the supervisor responsible for the work. Such notification shall be provided a minimum of two (2) working days in advance of the scheduled start date. The Contractor shall assure that all work performed for the District is at all times supervised and staffed by qualified personnel

thoroughly equipped and trained in the skills required to fulfill the work, and that such employees and agents will, at all times, comply with all applicable laws, ordinances and regulations (including, without limitation, all safety regulations, applicable to persons at a project site) that may in any manner apply to the performance of its work. The Contractor assumes all liability for loss, damage or injury to the person or property of itself and its owners, officers, agents, and employees.

6. **Protection of Work and Clean-up:** Until the final completion of the work and acceptance thereof by the District, the Contractor shall care for and maintain all areas affected by its construction. The Contractor shall properly remove all debris, rubbish, and spoils from the site of the work after its completion and prior to acceptance thereof by the District.

The Contractor shall immediately remove any item posing a safety hazard and at the end of each working day remove or otherwise move from view all items presenting an untidy appearance.

All landscaping must be restored to its original condition and to the satisfaction of the District. Potentially sensitive situations should be videotaped by Contractor prior to commencement of the work.

Dust control shall be maintained as specified in Section 7-8 of the *"Standard Specifications for Public Works Construction"*, current edition.

7. **Inspection Fees:** The District will charge the Contractor an inspection fee only when the Contractor, for its own convenience, elects to work outside of the defined workday.

Inspection request for weekends and holidays must be received in writing by Authorized District Representative named in the Agreement, or alternatively Task Order.

8. The foregoing in no way limits the obligation of the Contractor to assume full responsibility for the observance of all applicable safety and occupational health rules and regulations.

Section 27 – TERMINATION OF AGREEMENTS

Termination Resulting from Delays by Contractor: If the District determines that the Contractor is not diligently pursuing the work, the District will notify the Contractor in writing, specifying what steps need to be taken to correct the situation. The additional cost to the Contractor in rectifying the situation, if any, shall be its sole cost and responsibility. Failure by the Contractor to take the necessary steps to commence the work within fifteen (15) calendar days of notice to proceed or to diligently complete the work may result in cancellation of the remaining work. Any additional cost to the District due to such cancellation of work shall be the Contractor's responsibility, and no further payment if any will be made by the District until all cost are determined. Contractor will be given written notice of termination.

Termination Resulting From Default by Contractor: When, in the opinion of the District, the Contractor is not performing its obligations in accordance with the Agreement, or has become insolvent, or has sub-contracted work without the written approval of the District, the Agreement may be canceled. In the event of cancellation, the Contractor shall be paid for the actual amount of work completed less any damages or expense incurred by the District as a result of such cancellation. If the

District's damages or expenses so incurred exceed amounts due to Contractor, Contractor shall pay the District the difference upon demand. Payment for actual work completed will be based on bid prices or fractions thereof and field evaluation of work completed. The District will not be held liable for damages to the Contractor resulting from cancellation for the reasons set forth above. The Contractor shall be notified in writing specifying the reasons for cancellation, and notice shall be served upon the Surety when appropriate. Contractor will be given written notice of termination.

Section 28 – ENTIRE AGREEMENT

Entire Understanding: These General Terms & Conditions and the provisions and specifications contained in the General Agreement form; District Construction Requisition; Individual Work Scope Agreements; Term Agreements, and General Category Work Agreements, including awarded Task Orders thereto, and including attachments incorporated in such agreements by reference; represent the entire understanding for such Agreements between the District and Contractor and any negotiations, proposals or oral agreements are intended to be integrated in such agreements and to be superseded by such Agreements. By executing the General Agreement form, Contractor waives all provisions of any printed form of agreement supplied or prepared by it that might otherwise be incorporated into a Agreement, to the extent any such document is inconsistent with these General Terms & Conditions, excepting as noted below.

Section 29 – ATTORNEYS' FEES

Should any litigation be commenced between the parties to this Agreement concerning the project, any provisions of this Agreement, or the rights and obligations of either in relation thereto, the party prevailing in the litigation shall be entitled to a reasonable sum as and for the party's attorneys' fees in the litigation.

Section 30 – ARBITRATION

Basis for Settling Disputes and Disagreements: Any dispute or disagreement arising between Contractor and District in connection with a breach or alleged breach of the Agreements, including Task Orders and/or these General Terms & Conditions governing such Agreements, that is not resolved to the mutual satisfaction of the parties within thirty (30) days (or such longer period as may be mutually agreed upon) from the date that either party informs the other in writing that such dispute or disagreement exists, shall be solely and finally settled by a single arbitrator in accordance with the Commercial Arbitration Rules (the "Arbitration Rules") of the American Arbitration Association (the "AAA"), in effect on the date that such notice is given, with the following exception: The party that demands arbitration of the unresolved dispute or disagreement shall in writing specify the matter to be submitted to arbitration and at the same time choose and nominate a competent person to act as the arbitrator. Within fourteen (14) days after receipt of such written notice, the other party shall indicate in writing its concurrence or non-concurrence in the arbitrator nominated by the other party. If the parties concur in the proposed arbitrator, that arbitrator shall promptly resolve the question in dispute or disagreement in accordance with the Arbitration Rules. If the parties fail to concur in the proposed arbitrator, then upon application by either party, the dispute or disagreement shall be referred for resolution by a single arbitrator appointed in accordance with the Arbitration Rules by the AAA.

- 1. Performance of Work During Arbitration:** Notwithstanding this Section 25, during the pendency of any arbitration proceedings, unless otherwise requested by District, Contractor shall proceed diligently with performance of the Agreements and Contractor and District shall continue to be bound thereby.

2. **Location for Arbitration Proceedings:** Any arbitration proceedings hereunder shall be conducted in Sacramento County, California.
3. **Arbitration Award:** The arbitration award shall be made final and binding upon the Contractor and District and judgment may be entered thereon, upon the application of either party, by any court having jurisdiction.
4. **Cost of Arbitration:** Each party shall bear the cost of preparing and presenting its case; but the cost of arbitration, including the fees and expenses of the arbitrator(s), will be paid solely by the losing party.
5. **Survival of Arbitration Rights Beyond Termination of Agreements:** This Section 25 shall survive termination of any Agreement, including any applicable Task Order and these General Terms & Conditions governing such agreements with respect to all claims pending at the time of termination.

By signing below, the parties have read and agreed to the General Terms & Conditions (EXHIBIT A).

DISTRICT:

CONTRACTOR:

(Signature)

(Signature)

Tom R. Gray

Print: _____

General Manager

Title: _____